

Fitting time series data to pool models

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Dataset Bracho2016SBB

Variable control_7.5_15_mean;

Field control, midDepth of 7.5, incubation temperature of 15 Celsius

```
Bracho_V2=modelFitTS_Markdown(db = db[[4]], ts.col = 2, ic.col = 1, unitConverter = 1e3,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.01, 0.001, 0.01, 0.1),
                                             feedback=c(0.01, 0.001, 0.01, 0.01, 0.1)))

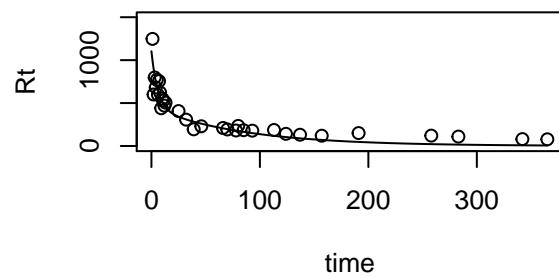
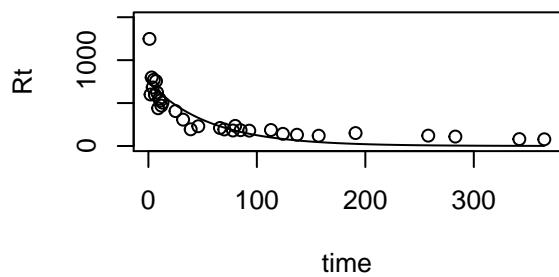
## [1] "Bracho2016SBB; variable: control_7.5_15_mean"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0178355900699554"

## [1] "AIC = 21.4095319954639"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.172345029665615"
## [2] "k2= 0.0117543861088043"
## [3] "proportion of C0 in pool 1= 0.091275262183296"

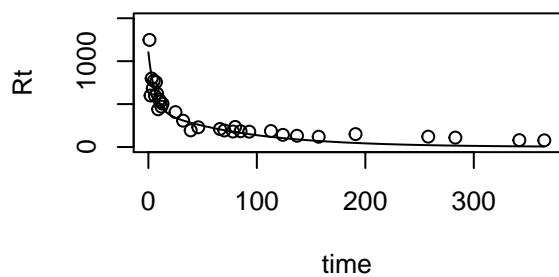
## [1] "AIC = 24.1356322856545"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.17235227425884"
## [2] "k2= 0.0117545749594015"
## [3] "a21= 3.25526348277094e-06"
## [4] "Proportion of C0 in pool 1= 0.0912715809051408"

## [1] "AIC = 26.1356322827205"
## [1] "Two pool model-feedback structure"
## [1] "k1= 3.83194365205801"
## [2] "k2= 0.0180212300244854"
## [3] "a21= 2.80329864127404e-06"
## [4] "a12= 6.00947778311989e-06"
## [5] "Proportion of C0 in pool 1= 0.0892755823227965"
```

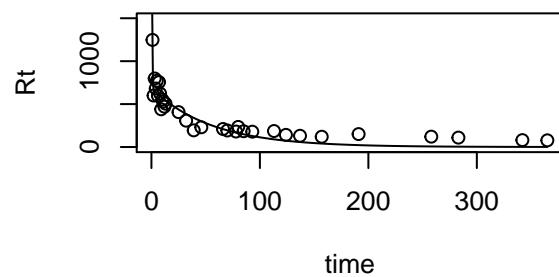
two pool_parallel structure



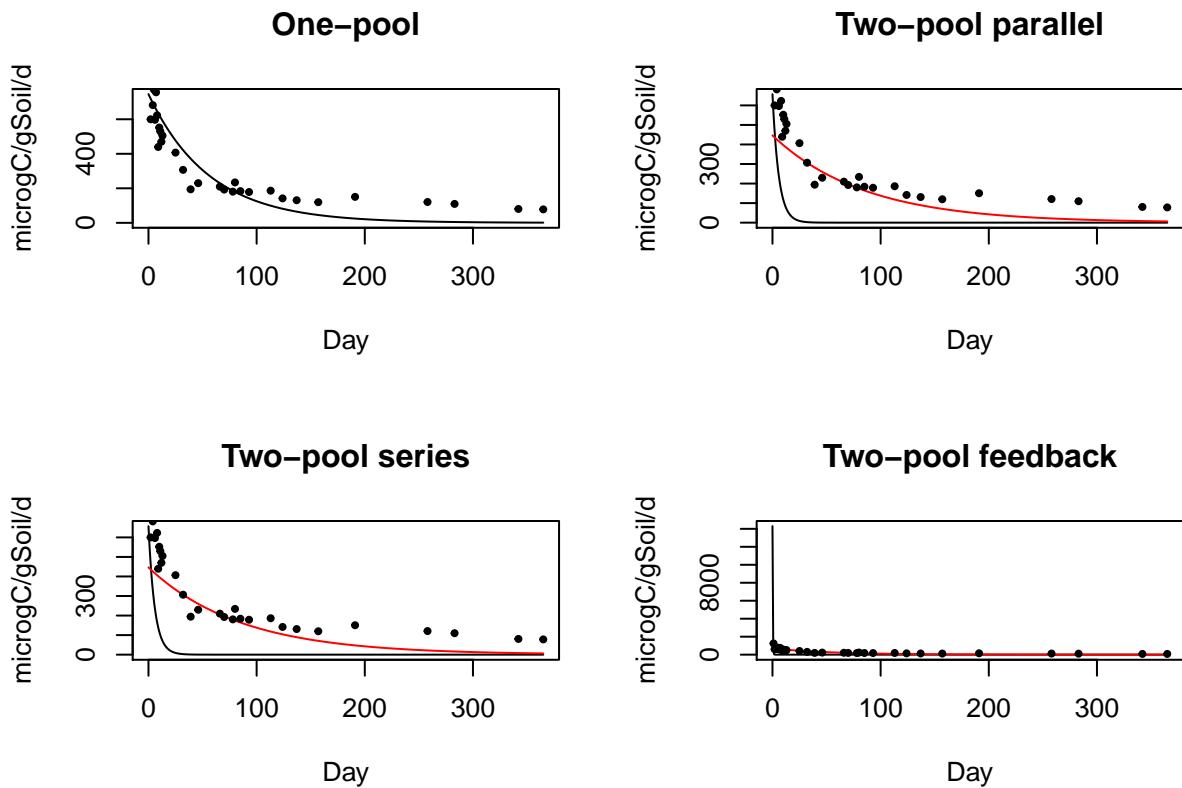
two pool_Series structure



two pool_feedback structure



```
## [1] "AIC = 27.7268352861791"  
## Warning: `fun` was deprecated in dplyr 0.8.0.  
## Please use a list of either functions or lambdas:  
##  
## # Simple named list:  
## list(mean = mean, median = median)  
##  
## # Auto named with `tibble::lst()`:  
## tibble::lst(mean, median)  
##  
## # Using lambdas  
## list(~ mean(., trim = .2), ~ median(., na.rm = TRUE))  
## This warning is displayed once every 8 hours.  
## Call `lifecycle::last_lifecycle_warnings()` to see where this warning was generated.
```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool |0.0178 |NA |NA |NA |NA |  
## |Two-pool parallel |0.172 |0.0118 |0.0913 |NA |NA |  
## |Two-pool series |0.172 |0.0118 |0.0913 |3.26e-06 |NA |  
## |Two-pool feedback |3.83 |0.018 |0.0893 |2.8e-06 |0.0913 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:-----|:---|:---|:---|  
## |One-pool |21.4 |22.9 |313 |21.5 |0.816 |41800 |NA |525000 |16400 |  
## |Two-pool parallel |24.1 |28.5 |296 |25 |0.145 |37.9 |8.63 |277000 |8670 |  
## |Two-pool series |26.1 |32 |298 |27.6 |0.0391 |5.8 |4.02 |277000 |8670 |  
## |Two-pool feedback |27.7 |35.1 |294 |30 |0.0117 |0.261 |0.181 |226000 |7070 |
```

Variable control_20_15_mean;

Field control, midDepth of 20, incubation temperature of 15 Celsius

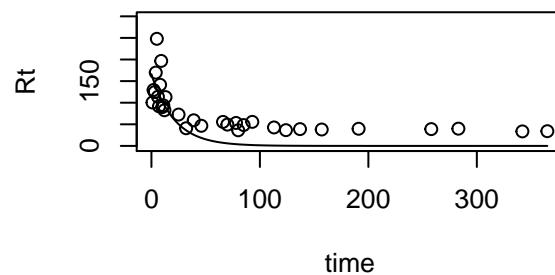
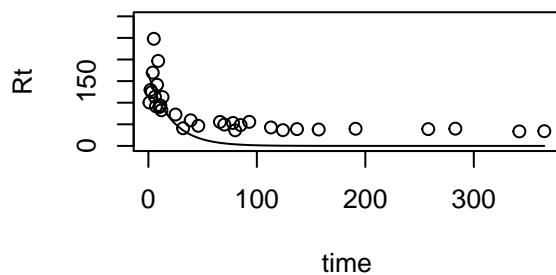
```
Bracho_V4=modelFitTS_Markdown(db = db[[4]], ts.col = 4, ic.col = 2, unitConverter = 100,  
                                inipars=list(oneP=0.5,  
                                             parallel=c(0.01, 0.001, 0.1),  
                                             series=c(0.01, 0.001, 0.01, 0.1),  
                                             feedback=c(0.01, 0.001, 0.01, 0.01, 0.1)))  
  
## [1] "Bracho2016SBB; variable: control_20_15_mean"  
## [1] "One pool model"  
## [1] "Best fit parameter: -0.0476775666473532"
```

```

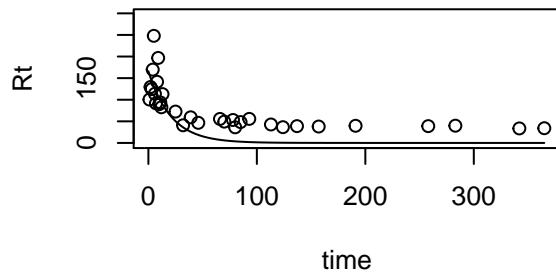
## [1] "AIC = 16.9822760093142"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0476765169432423"
## [2] "k2= 0.0476826863179865"
## [3] "proportion of C0 in pool 1= 0.866355751509897"
## [1] "AIC = 20.9822760098609"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0476803500966002"
## [2] "k2= 0.0476883871373185"
## [3] "a21= 0.000106959848000576"
## [4] "Proportion of C0 in pool 1= 0.756025522376041"
## [1] "AIC = 22.9822760093226"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0476806350722067"
## [2] "k2= 0.0476868134659329"
## [3] "a21= 9.01454061014162e-05"
## [4] "a12= 8.3788384701966e-05"
## [5] "Proportion of C0 in pool 1= 0.807247767955625"

```

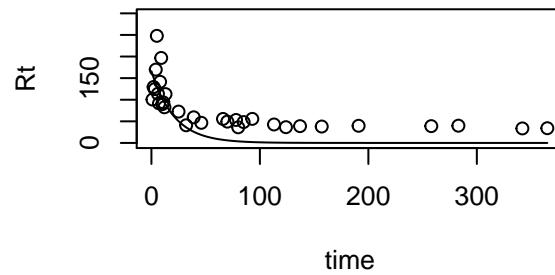
two pool_parallel structure



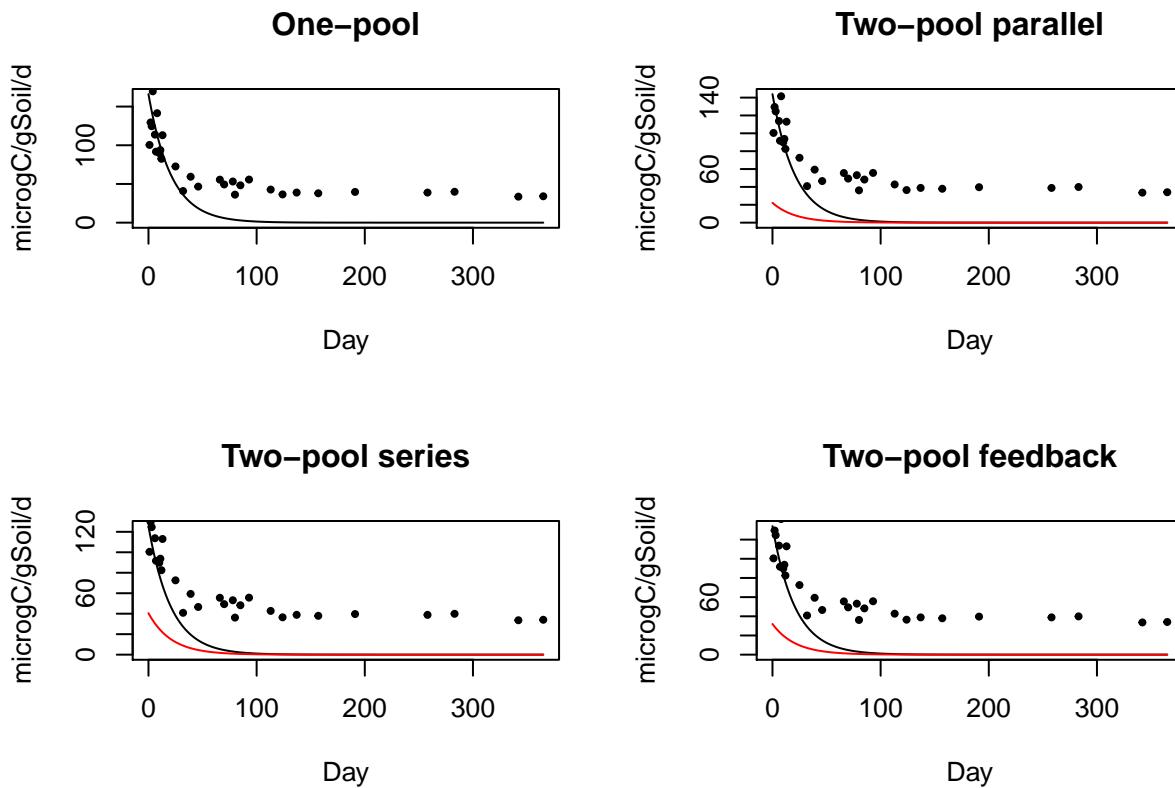
two pool_Series structure



two pool_feedback structure



```
## [1] "AIC = 24.9822760084819"
```



```
##
##
## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.0477|NA|NA|NA|NA|
## |Two-pool parallel|0.0477|0.0477|0.866|NA|NA|
## |Two-pool series|0.0477|0.0477|0.756|0.000107|NA|
## |Two-pool feedback|0.0477|0.0477|0.807|9.01e-05|0.756|
##
##
## |model|AIC|BIC|AICn|AICC|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:-----|:---|:---|:---|
## |One-pool|17|18.4|242|17.1|0.893|3480|NA|57300|1790|
## |Two-pool parallel|21|25.4|246|21.8|0.0842|21|14.5|57300|1790|
## |Two-pool series|23|28.8|248|24.5|0.0227|21|14.5|57300|1790|
## |Two-pool feedback|25|32.3|250|27.3|0.00552|21|14.5|57300|1790|
```

Variable control_50_15_mean;

Field control, midDepth of 50, incubation temperature of 15 Celsius

```
Bracho_V6=modelFitTS_Markdown(db = db[[4]], ts.col = 6, ic.col = 3, unitConverter = 100,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.01, 0.001, 0.01, 0.1),
                                             feedback=c(0.01, 0.001, 0.01, 0.01, 0.1))))
```

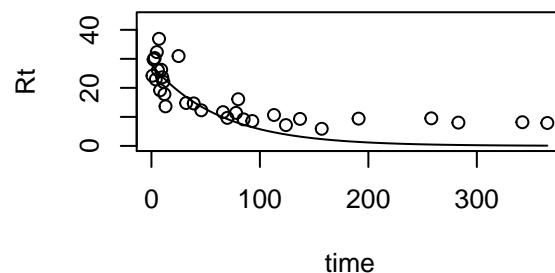
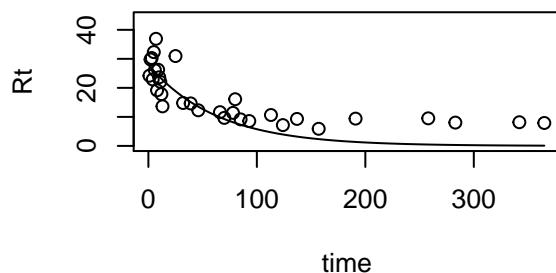
```
## [1] "Bracho2016SBB; variable: control_50_15_mean"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0158148433969103"
```

```

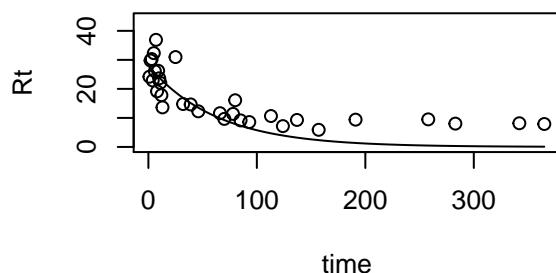
## [1] "AIC = 8.96635709630517"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0158160070222554"
## [2] "k2= 0.0158146224733395"
## [3] "proportion of C0 in pool 1= 0.201871066597856"
## [1] "AIC = 12.9663570965531"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0158139208409547"
## [2] "k2= 0.0158160939402628"
## [3] "a21= 0.000265699130433228"
## [4] "Proportion of C0 in pool 1= 0.195551148729359"
## [1] "AIC = 14.9663570965503"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0170761503383106"
## [2] "k2= 0.0170701702468189"
## [3] "a21= 0.000217399872620927"
## [4] "a12= 0.0871115353616084"
## [5] "Proportion of C0 in pool 1= 0.145907683538405"

```

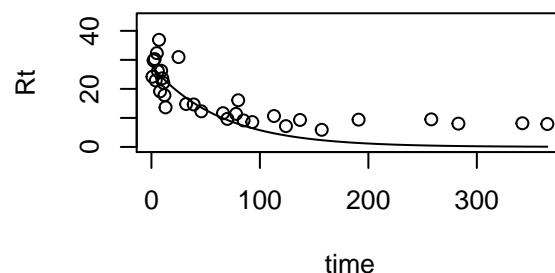
two pool_parallel structure



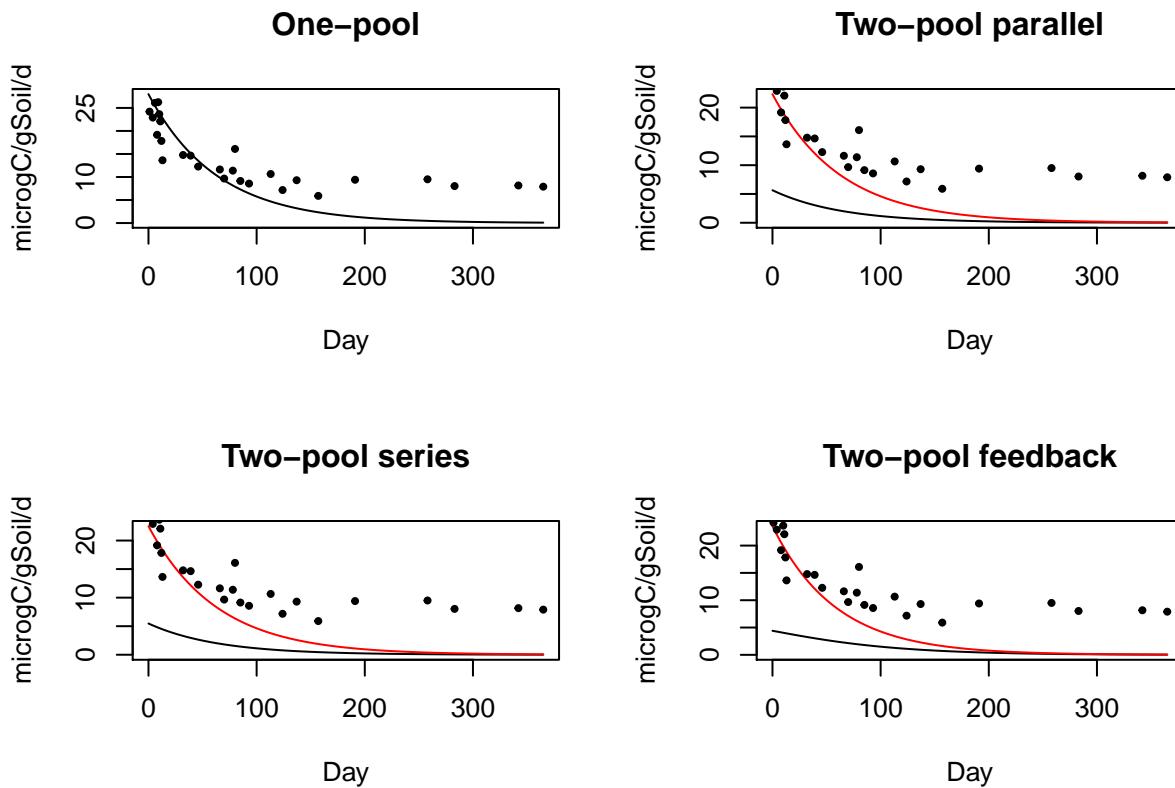
two pool_Series structure



two pool_feedback structure



```
## [1] "AIC = 16.9662484717976"
```



```
##
##
## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.0158|NA|NA|NA|NA|
## |Two-pool parallel|0.0158|0.0158|0.202|NA|NA|
## |Two-pool series|0.0158|0.0158|0.196|0.000266|NA|
## |Two-pool feedback|0.0171|0.0171|0.146|0.000217|0.196|
## |
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|8.97|10.4|113|9.1|0.893|1770|NA|1040|32.6|
## |Two-pool parallel|13|17.4|117|13.8|0.0842|63.2|43.8|1040|32.6|
## |Two-pool series|15|20.8|119|16.4|0.0227|63.3|43.8|1040|32.6|
## |Two-pool feedback|17|24.3|121|19.3|0.00552|58.6|40.6|1040|32.6|
```

Variable warming_7.5_15_mean;

Field warming, midDepth of 7.5, incubation temperature of 15 Celsius

```
Bracho_V8=modelFitTS_Markdown(db = db[[4]], ts.col = 8, ic.col = 4, unitConverter = 1000,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.01, 0.001, 0.01, 0.1),
                                             feedback=c(0.01, 0.001, 0.01, 0.01, 0.1))))
```

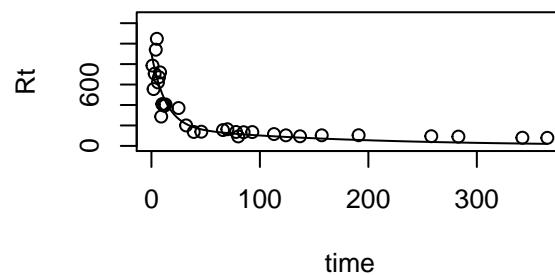
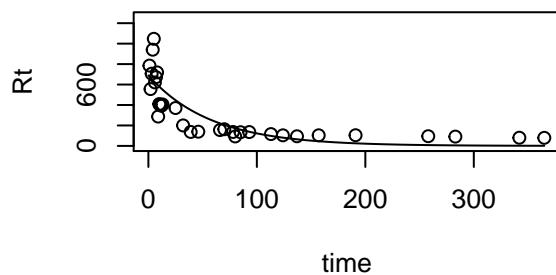
```
## [1] "Bracho2016SBB; variable: warming_7.5_15_mean"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0172885108797871"
```

```

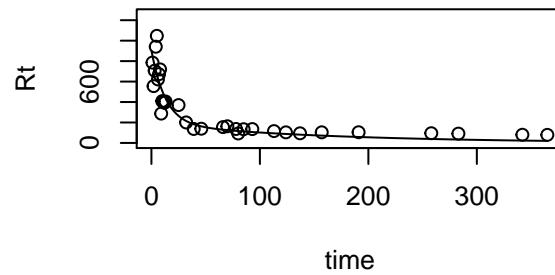
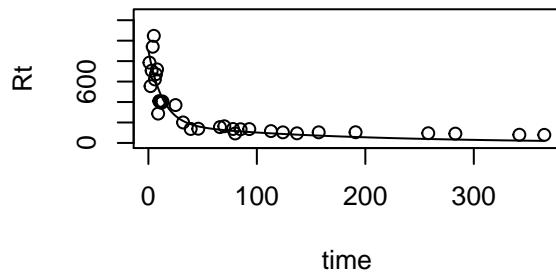
## [1] "AIC = 21.9215326913061"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0771223270422912"
## [2] "k2= 0.00612954671655782"
## [3] "proportion of C0 in pool 1= 0.232987120928352"
## [1] "AIC = 24.9188195289635"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0771179420636067"
## [2] "k2= 0.0061291265446464"
## [3] "a21= 7.17712204963417e-05"
## [4] "Proportion of C0 in pool 1= 0.233019621540335"
## [1] "AIC = 26.9188195286978"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0771189193954648"
## [2] "k2= 0.00612922111469349"
## [3] "a21= 3.30983666544382e-05"
## [4] "a12= 7.0479166598969e-06"
## [5] "Proportion of C0 in pool 1= 0.233008314243972"

```

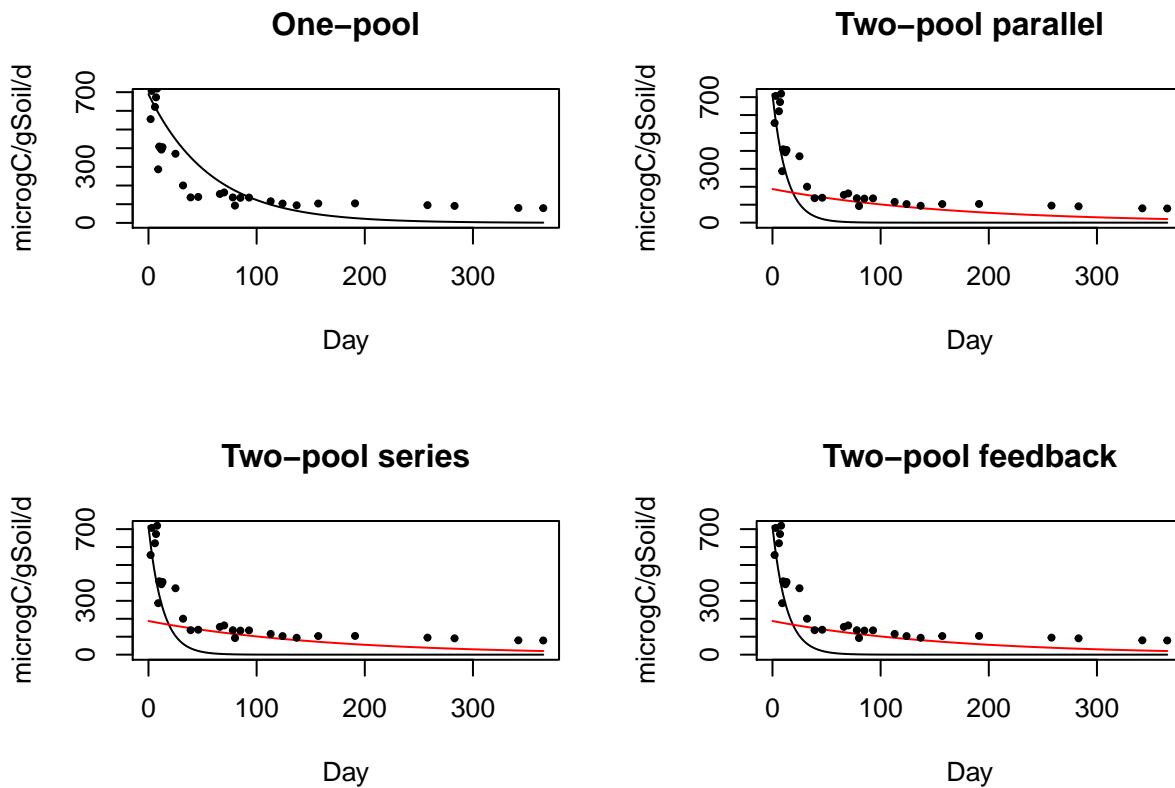
two pool_parallel structure



two pool_Series structure



```
## [1] "AIC = 28.9188195279035"
```



```
##
##
## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.0173|NA|NA|NA|NA|
## |Two-pool parallel|0.0771|0.00613|0.233|NA|NA|
## |Two-pool series|0.0771|0.00613|0.233|7.18e-05|NA|
## |Two-pool feedback|0.0771|0.00613|0.233|3.31e-05|0.233|
## |
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|21.9|23.4|321|22.1|0.835|39900|NA|678000|21200|
## |Two-pool parallel|24.9|29.3|309|25.8|0.13|44.1|12.3|411000|12800|
## |Two-pool series|26.9|32.8|311|28.4|0.035|13|8.99|411000|12800|
## |Two-pool feedback|28.9|36.2|313|31.2|0.00851|13|8.99|411000|12800|
```

Variable warming_20_15_mean;

Field warming, midDepth of 20, incubation temperature of 15 Celsius

```
Bracho_V10=modelFitTS_Markdown(db = db[[4]], ts.col = 10, ic.col = 5, unitConverter = 1000,
inipars=list(oneP=0.5,
parallel=c(0.01, 0.001, 0.1),
series=c(0.01, 0.001, 0.01, 0.1),
feedback=c(0.01, 0.001, 0.01, 0.01, 0.1)))

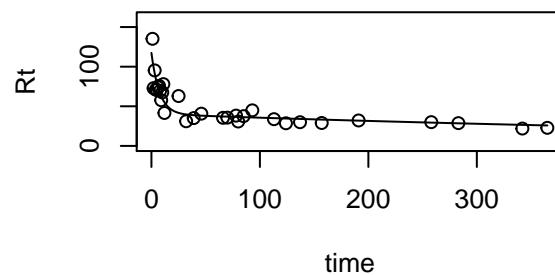
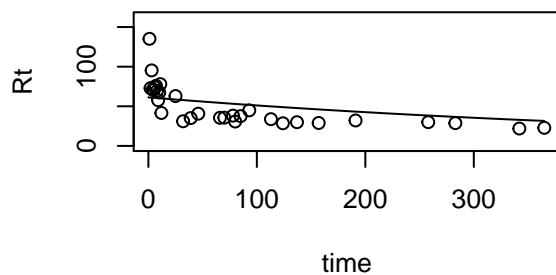
## [1] "Bracho2016SBB; variable: warming_20_15_mean"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00181991401633397"
```

```

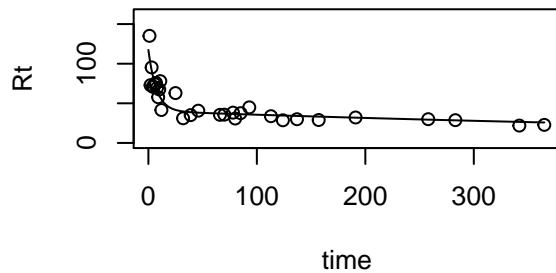
## [1] "AIC = 14.0921934224956"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.134317450407222"
## [2] "k2= 0.00121509208166692"
## [3] "proportion of C0 in pool 1= 0.0170623446023135"
## [1] "AIC = 15.30085095027"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.134322433632662"
## [2] "k2= 0.00121509912305678"
## [3] "a21= 0.678766915154136"
## [4] "Proportion of C0 in pool 1= 0.0541591579073797"
## [1] "AIC = 17.300850948304"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.134285435889407"
## [2] "k2= 0.00124782492610622"
## [3] "a21= 0.689452805099384"
## [4] "a12= 0.0377059489171391"
## [5] "Proportion of C0 in pool 1= 0.0564269276027045"

```

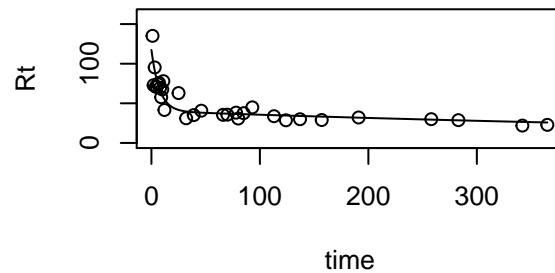
two pool_parallel structure



two pool_Series structure



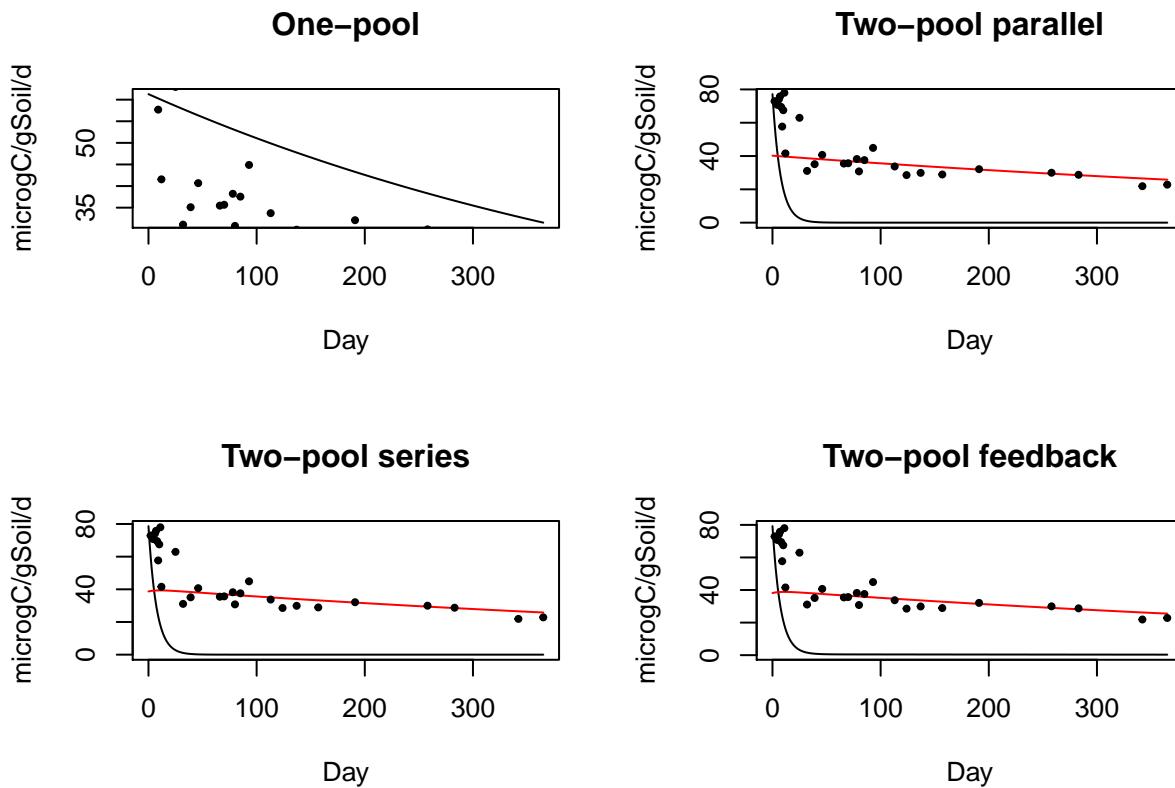
two pool_feedback structure



```

## [1] "AIC = 19.3008509527556"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool | -0.00182 |NA |NA |NA |NA |  
## |Two-pool parallel | 0.134 | 0.00122 | 0.0171 |NA |NA |  
## |Two-pool series | 0.134 | 0.00122 | 0.0542 | 0.679 |NA |  
## |Two-pool feedback | 0.134 | 0.00125 | 0.0564 | 0.689 | 0.0542 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:-----|:---|:---|:---|  
## |One-pool | 14.1 | 15.6 | 195 | 14.2 | 0.674 | 33700 | NA | 13100 | 422 |  
## |Two-pool parallel | 15.3 | 19.7 | 155 | 16.2 | 0.257 | 287 | 10.4 | 3240 | 105 |  
## |Two-pool series | 17.3 | 23.2 | 157 | 18.8 | 0.0691 | 566 | 259 | 3240 | 105 |  
## |Two-pool feedback | 19.3 | 26.6 | 159 | 21.6 | 0.0168 | 575 | 272 | 3240 | 105 |
```

Variable warming_50_15_mean;

Field warming, midDepth of 50, incubation temperature of 15 Celsius

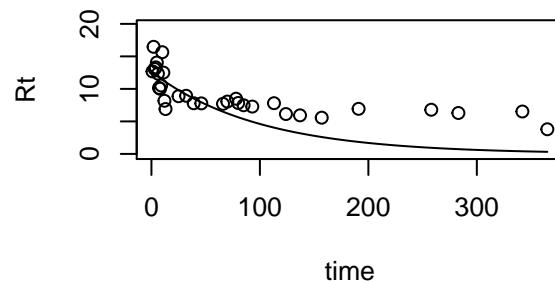
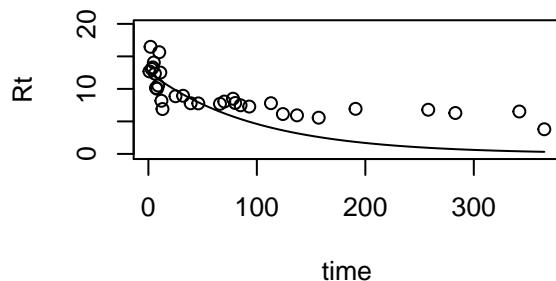
```
Bracho_V12=modelFitTS_Markdown(db = db[[4]], ts.col = 12, ic.col = 6, unitConverter = 100,  
inipars=list(oneP=0.5,  
parallel=c(0.01, 0.001, 0.1),  
series=c(0.01, 0.001, 0.01, 0.1),  
feedback=c(0.01, 0.001, 0.01, 0.01, 0.1)))  
  
## [1] "Bracho2016SBB; variable: warming_50_15_mean"  
## [1] "One pool model"  
## [1] "Best fit parameter: -0.0100717340761154"
```

```

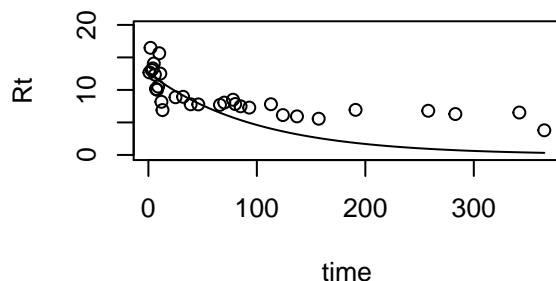
## [1] "AIC = 6.34731439087186"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0100733926543946"
## [2] "k2= 0.0100711134920522"
## [3] "proportion of C0 in pool 1= 0.234258755383929"
## [1] "AIC = 10.3473143951509"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0100724106294541"
## [2] "k2= 0.0100721299702803"
## [3] "a21= 0.000133255886806405"
## [4] "Proportion of C0 in pool 1= 0.308653109320337"
## [1] "AIC = 12.3473143906699"
## [1] "Two pool model-feedback structure"
## [1] "k1= 267.894136665368"
## [2] "k2= 96.8567292318489"
## [3] "a21= 0.999998648506405"
## [4] "a12= 0.999859779231427"
## [5] "Proportion of C0 in pool 1= 0.998621777143609"

```

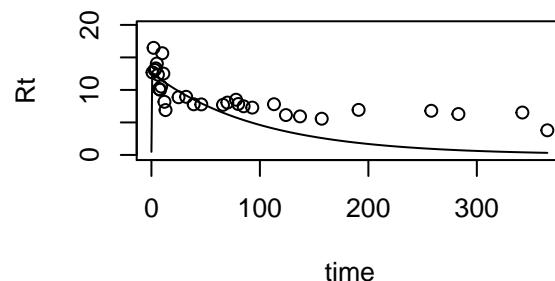
two pool_parallel structure



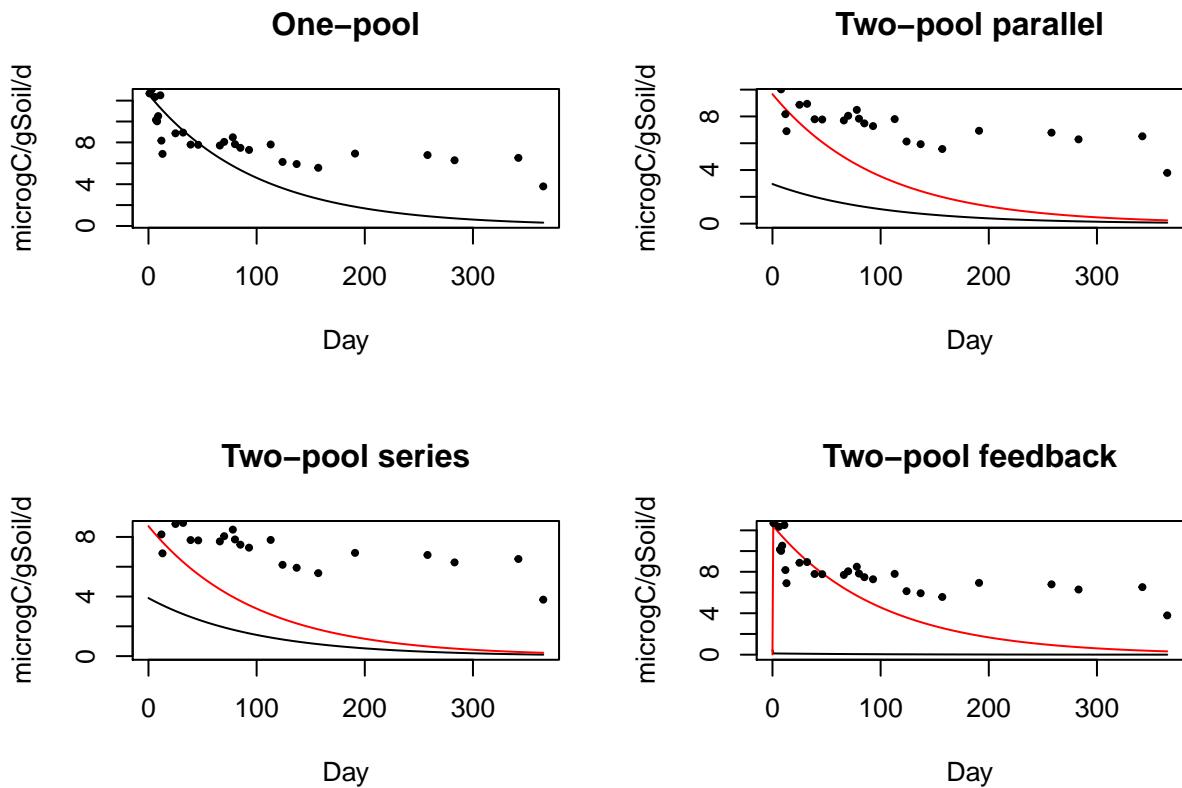
two pool_Series structure



two pool_feedback structure



```
## [1] "AIC = 14.3472545610756"
```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool | -0.0101 | NA | NA | NA | NA |  
## |Two-pool parallel | 0.0101 | 0.0101 | 0.234 | NA | NA |  
## |Two-pool series | 0.0101 | 0.0101 | 0.309 | 0.000133 | NA |  
## |Two-pool feedback | 268 | 96.9 | 0.999 | 1 | 0.309 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|  
## |One-pool | 6.35 | 7.81 | 71.6 | 6.48 | 0.893 | 1250 | NA | 281 | 8.79 |  
## |Two-pool parallel | 10.3 | 14.7 | 75.6 | 11.2 | 0.0842 | 99.3 | 68.8 | 281 | 8.79 |  
## |Two-pool series | 12.3 | 18.2 | 77.6 | 13.8 | 0.0227 | 99.3 | 68.8 | 281 | 8.79 |  
## |Two-pool feedback | 14.3 | 21.7 | 79.6 | 16.7 | 0.00552 | 99.3 | 68.8 | 281 | 8.79 |
```

Dataset Crow2019a

Variable Site01;

CO2 production rate

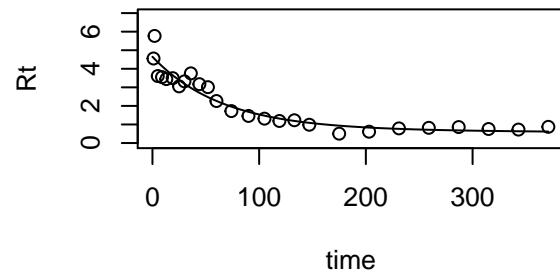
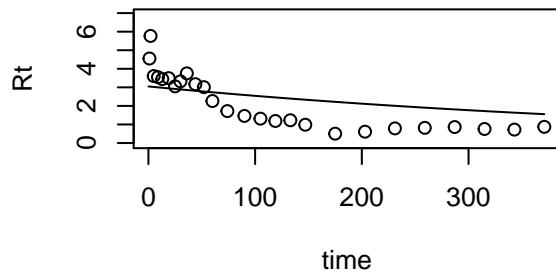
```
Crow_V2=modelFitTS_Markdown(db = db[[9]], ts.col = 2, ic.col = 1, unitConverter = 1e3)  
  
## [1] "Crow2019a; variable: Site01"  
## [1] "One pool model"  
## [1] "Best fit parameter: -0.00181433474857151"  
## [1] "AIC = 2.39913582290172"
```

```

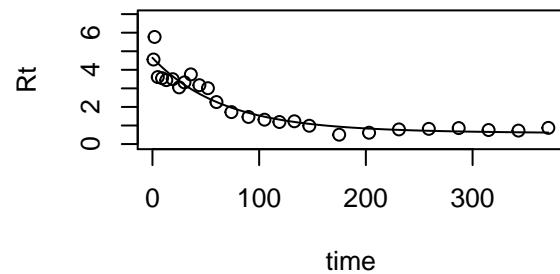
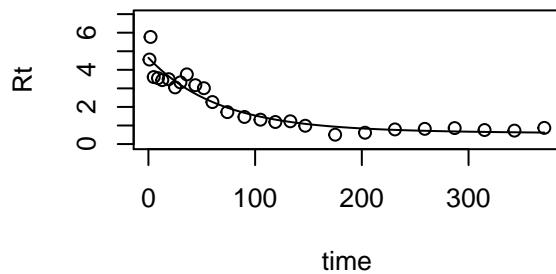
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0153724331697695"
## [2] "k2= 0.000513742669664509"
## [3] "proportion of C0 in pool 1= 0.151653220803611"
## [1] "AIC = 2.48286551282388"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0153722554556742"
## [2] "k2= 0.000513735267482581"
## [3] "a21= 0.133722411861794"
## [4] "Proportion of C0 in pool 1= 0.176003693910743"
## [1] "AIC = 4.48286551530233"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0153725507779158"
## [2] "k2= 0.000513747632367684"
## [3] "a21= 0.0066279675011085"
## [4] "a12= 1.13904553483146e-05"
## [5] "Proportion of C0 in pool 1= 0.152698721039364"

```

two pool_parallel structure



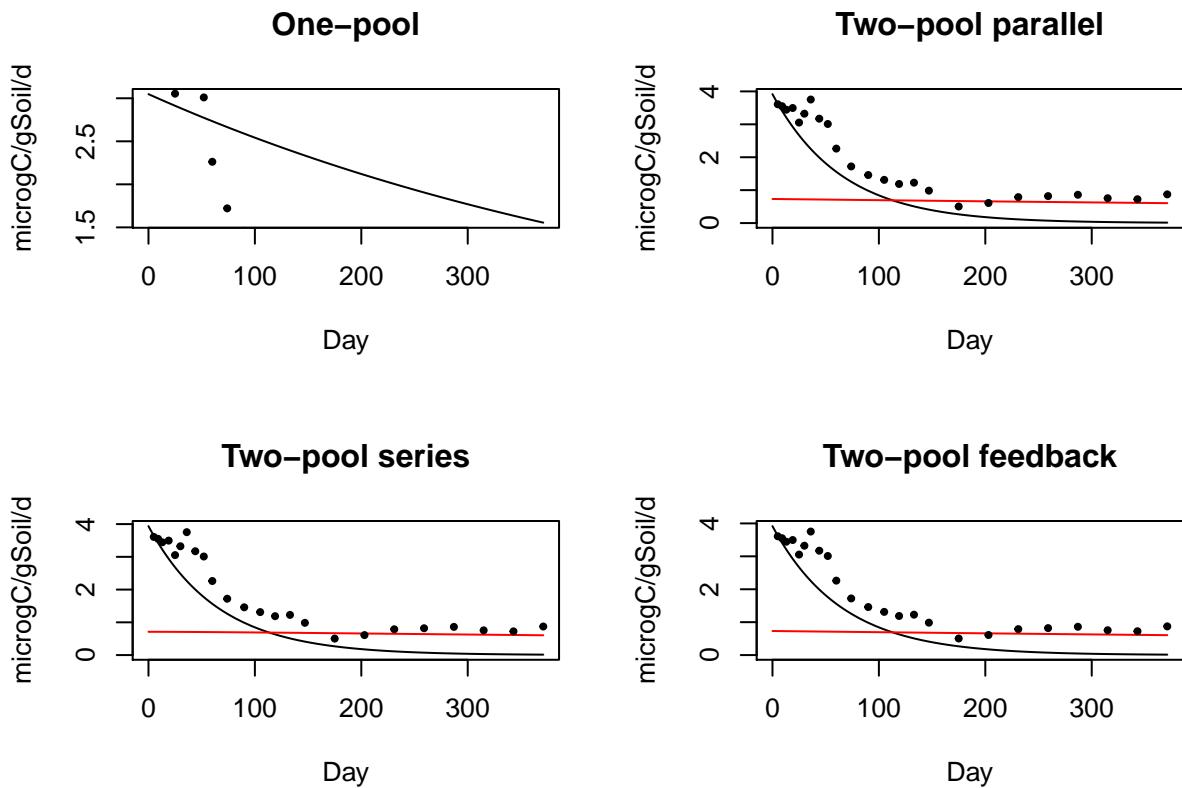
two pool_Series structure



```

## [1] "AIC = 6.48286551317491"

```



```
##
##
## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool| -0.00181|NA|NA|NA|NA|
## |Two-pool parallel| 0.0154| 0.000514| 0.152|NA|NA|
## |Two-pool series| 0.0154| 0.000514| 0.176| 0.134|NA|
## |Two-pool feedback| 0.0154| 0.000514| 0.153| 0.00663| 0.176|
## |
## |model|AIC|BIC|AICn|AICC|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool| 2.4| 6.32| 76| 2.41| 0.441| 1680| NA| 31.7| 1.22|
## |Two-pool parallel| 2.48| 14.2| -646| 2.55| 0.411| 361| 57.7| 4.48| 0.172|
## |Two-pool series| 4.48| 20.1| -644| 4.59| 0.148| 325| 55.8| 4.48| 0.172|
## |Two-pool feedback| 6.48| 26.1| -642| 6.65| 0.053| 78| 45.5| 4.48| 0.172|
```

Variable Site02;

CO₂ production rate

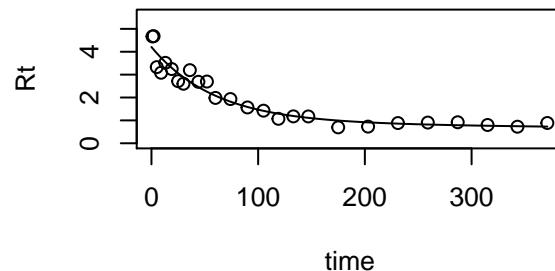
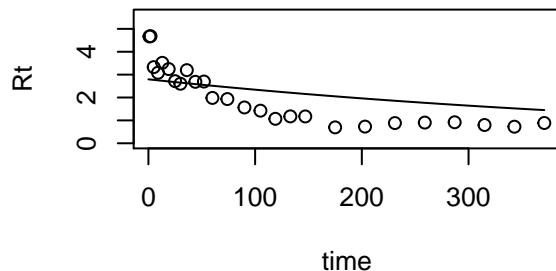
```
Crow_V3=modelFitTS_Markdown(db = db[[9]], ts.col = 3, ic.col = 2, unitConverter = 1e3) #
## [1] "Crow2019a; variable: Site02"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00176870119973138"
## [1] "AIC = 1.62130147908555"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0169171918810776"
```

```

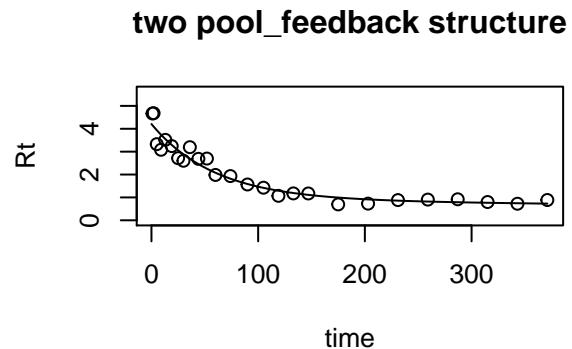
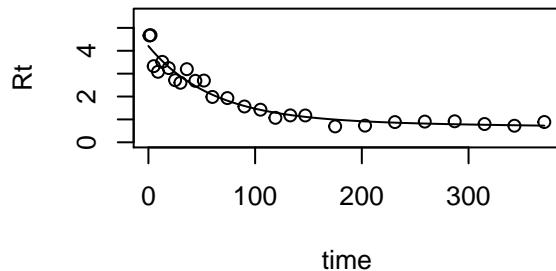
## [2] "k2= 0.00066697101943013"
## [3] "proportion of C0 in pool 1= 0.122832597845683"
## [1] "AIC = 1.20836660832542"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0169173002590872"
## [2] "k2= 0.000666974698459602"
## [3] "a21= 0.127568299309428"
## [4] "Proportion of C0 in pool 1= 0.141641779969732"
## [1] "AIC = 3.20836660954217"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.000666991331254473"
## [2] "k2= 0.0169177283174458"
## [3] "a21= 0.945057887008565"
## [4] "a12= 2.17089008835991e-06"
## [5] "Proportion of C0 in pool 1= 0.844417153965827"

```

two pool_parallel structure



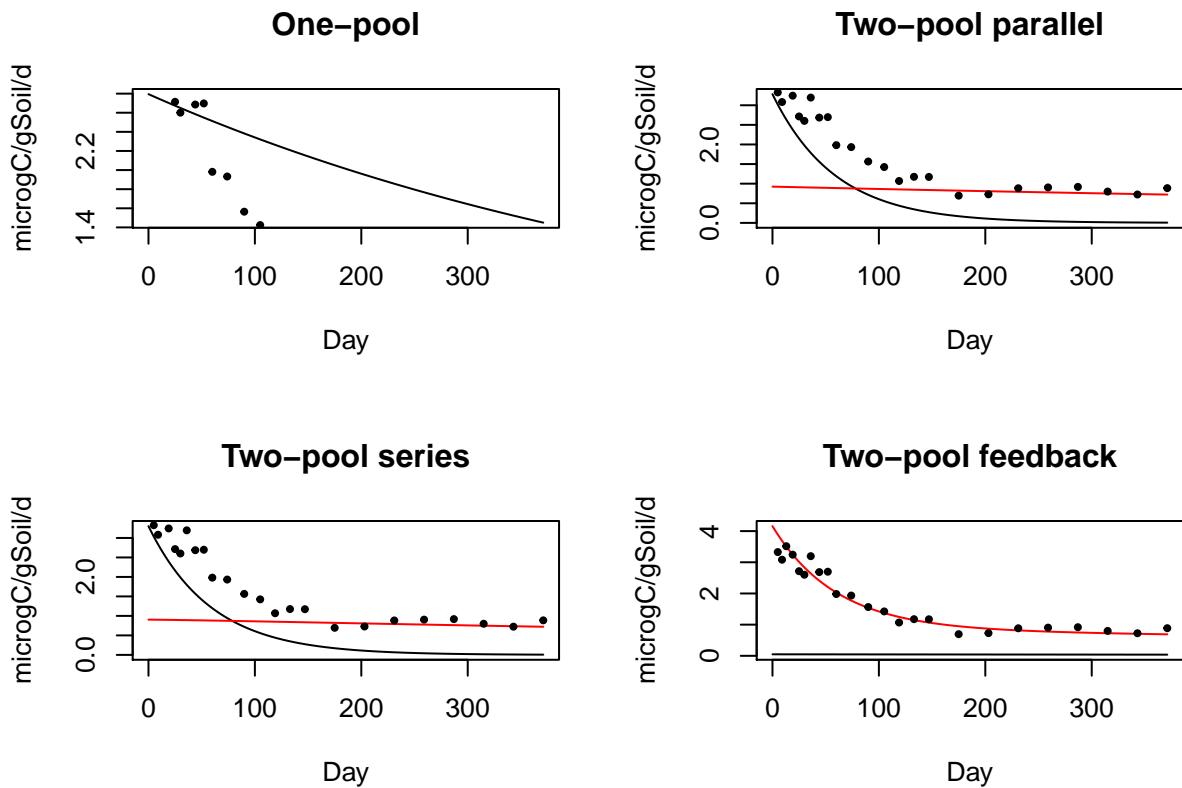
two pool_Series structure



```

## [1] "AIC = 5.20836661239705"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:-----|:-----|:----|:----|:  
## |One-pool | -0.00177 |NA |NA |NA |NA |  
## |Two-pool parallel | 0.0169 | 0.000667 | 0.123 |NA |NA |  
## |Two-pool series | 0.0169 | 0.000667 | 0.142 | 0.128 |NA |  
## |Two-pool feedback | 0.000667 | 0.0169 | 0.844 | 0.945 | 0.142 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:-----|:---|:---|:---|:  
## |One-pool | 1.62 | 5.54 | -68.2 | 1.63 | 0.381 | 1580 | NA | 21.5 | 0.827 |  
## |Two-pool parallel | 1.21 | 13 | -883 | 1.27 | 0.455 | 376 | 58.8 | 2.37 | 0.0911 |  
## |Two-pool series | 3.21 | 18.9 | -881 | 3.32 | 0.164 | 250 | 50.1 | 2.37 | 0.0911 |  
## |Two-pool feedback | 5.21 | 24.8 | -879 | 5.37 | 0.0587 | 1560 | 1100 | 2.37 | 0.0911 |
```

Variable Site03;

CO2 production rate

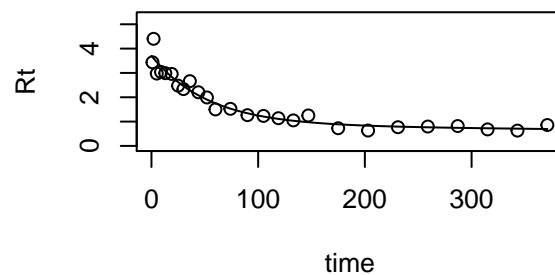
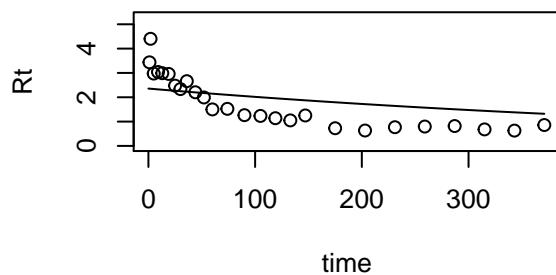
```
Crow_V4=modelFitTS_Markdown(db = db[[9]], ts.col = 4, ic.col = 3, unitConverter = 1e3,  
    inipars=list(oneP=0.5,  
                parallel=c(0.01, 0.001, 0.1),  
                series=c(0.05, 0.0001, 0.01, 0.1),  
                feedback=c(0.05, 0.0001, 0.1, 0.01, 0.1)))  
  
## [1] "Crow2019a; variable: Site03"  
## [1] "One pool model"  
## [1] "Best fit parameter: -0.00156088504933827"
```

```

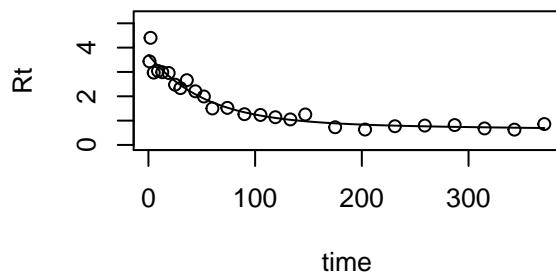
## [1] "AIC = 1.12306420773767"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0189674273339294"
## [2] "k2= 0.000646330109031004"
## [3] "proportion of C0 in pool 1= 0.0985918120889208"
## [1] "AIC = 0.217524329907982"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0189674273983276"
## [2] "k2= 0.000646330110742148"
## [3] "a21= 0.151401290512062"
## [4] "Proportion of C0 in pool 1= 0.116917688224088"
## [1] "AIC = 2.21752432995185"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0188464140531664"
## [2] "k2= 0.000767345762822293"
## [3] "a21= 0.15229974276901"
## [4] "a12= 0.999998173761209"
## [5] "Proportion of C0 in pool 1= 0.153518957752388"

```

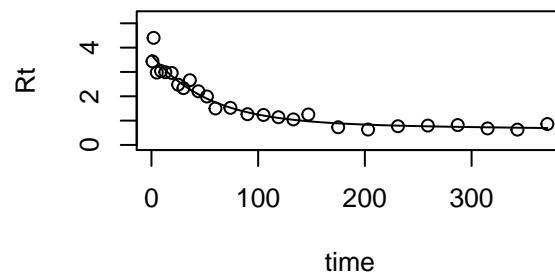
two pool_parallel structure



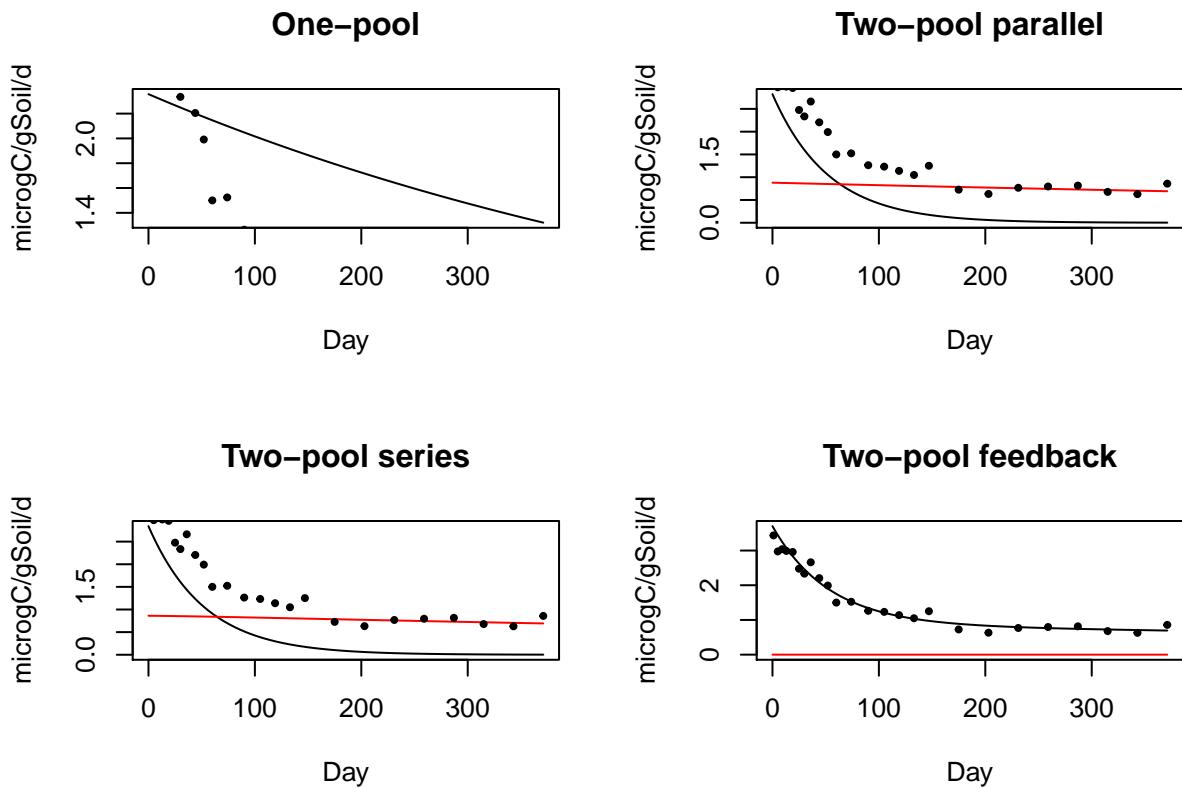
two pool_Series structure



two pool_feedback structure



```
## [1] "AIC = 4.2175243301875"
```



```
##
##
## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool| -0.00156|NA|NA|NA|NA|
## |Two-pool parallel| 0.019| 0.000646| 0.0986|NA|NA|
## |Two-pool series| 0.019| 0.000646| 0.117| 0.151|NA|
## |Two-pool feedback| 0.0188| 0.000767| 0.154| 0.152| 0.117|
##
##
## |model|AIC|BIC|AICn|AICC|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool| 1.12| 5.04|-161| 1.13| 0.325| 1510|NA| 16.8| 0.645|
## |Two-pool parallel| 0.218| 12|-1070| 0.283| 0.497| 408| 54.6| 1.44| 0.0555|
## |Two-pool series| 2.22| 17.9|-1060| 2.33| 0.179| 287| 46.7| 1.44| 0.0555|
## |Two-pool feedback| 4.22| 23.8|-1060| 4.38| 0.064| 297| 47.2| 1.44| 0.0555|
```

Variable Site04;

CO₂ production rate

```
Crow_V5=modelFitTS_Markdown(db = db[[9]], ts.col = 5, ic.col = 4, unitConverter = 1e3)
```

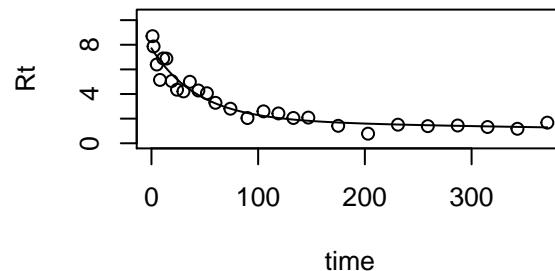
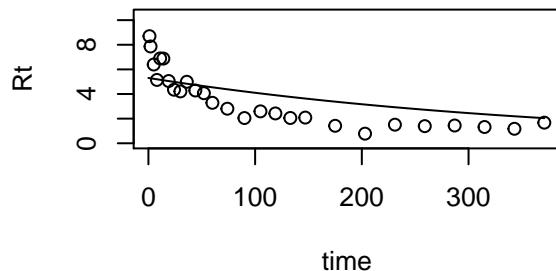
```
## [1] "Crow2019a; variable: Site04"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00257483626298871"
## [1] "AIC = 3.67023000932624"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.023143224446111"
```

```

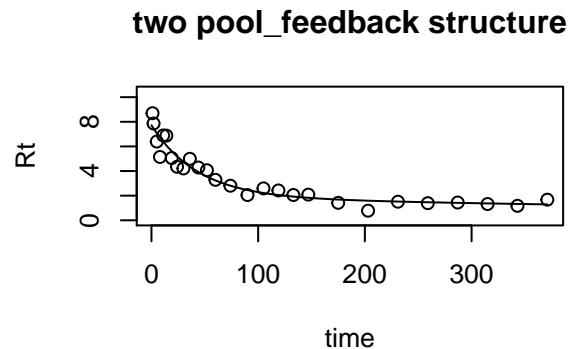
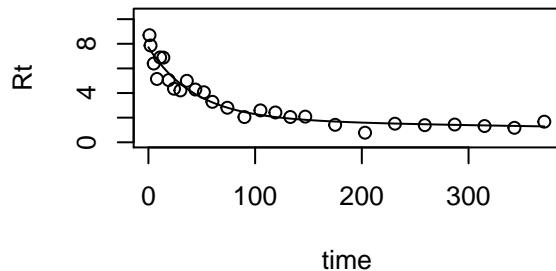
## [2] "k2= 0.00105365102574314"
## [3] "proportion of C0 in pool 1= 0.121912511957848"
## [1] "AIC = 3.75690300082543"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0231427266861298"
## [2] "k2= 0.00105363466227209"
## [3] "a21= 0.0160560770188149"
## [4] "Proportion of C0 in pool 1= 0.124001224646758"
## [1] "AIC = 5.75690300200839"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00105365859570677"
## [2] "k2= 0.0231431910253195"
## [3] "a21= 0.000589516094946674"
## [4] "a12= 2.51407658174996e-06"
## [5] "Proportion of C0 in pool 1= 0.878062828203264"

```

two pool_parallel structure



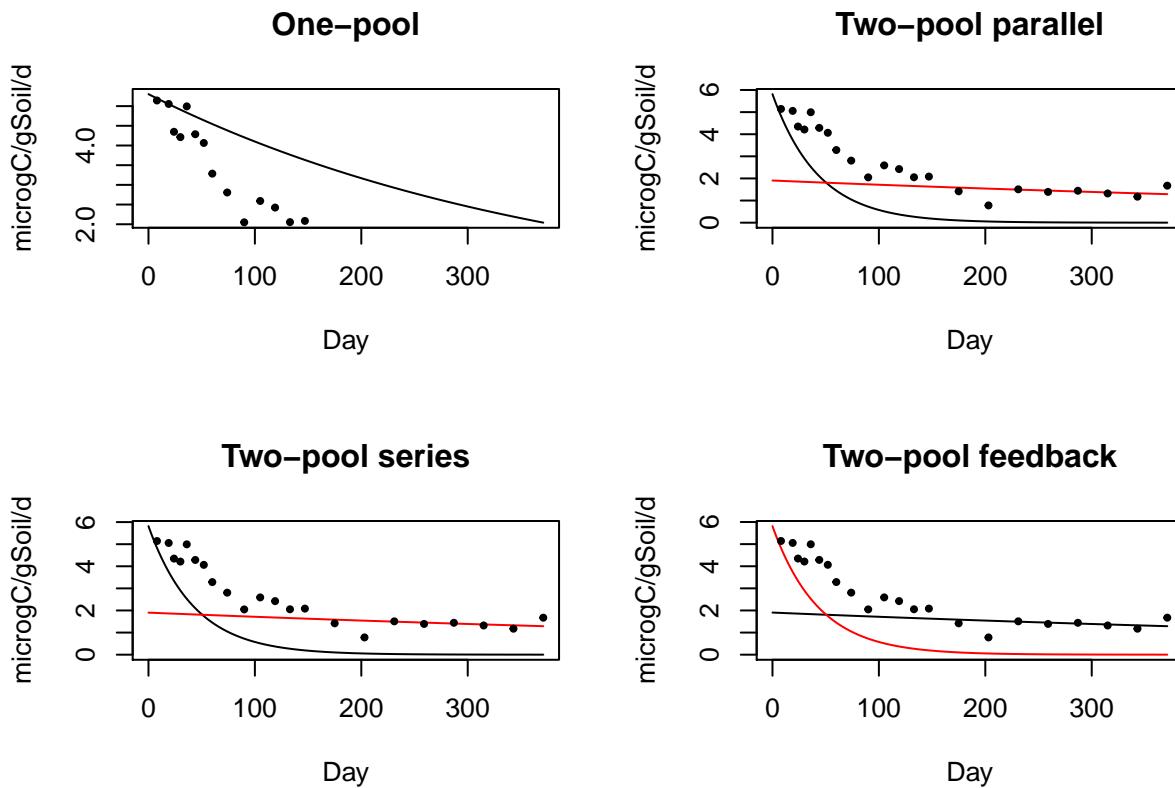
two pool_Series structure



```

## [1] "AIC = 7.75690299983839"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool | -0.00257 |NA |NA |NA |NA |  
## |Two-pool parallel | 0.0231 | 0.00105 | 0.122 |NA |NA |  
## |Two-pool series | 0.0231 | 0.00105 | 0.124 | 0.0161 |NA |  
## |Two-pool feedback | 0.00105 | 0.0231 | 0.878 | 0.00059 | 0.124 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|  
## |One-pool | 3.67 | 7.59 | 312 | 3.68 | 0.441 | 2060 | NA | 62.2 | 2.31 |  
## |Two-pool parallel | 3.76 | 15.5 | -410 | 3.82 | 0.411 | 267 | 45.2 | 8.8 | 0.326 |  
## |Two-pool series | 5.76 | 21.4 | -408 | 5.87 | 0.148 | 58.4 | 30.6 | 8.8 | 0.326 |  
## |Two-pool feedback | 7.76 | 27.3 | -406 | 7.92 | 0.0529 | 949 | 1658 | 8.8 | 0.326 |
```

Variable Site05;

CO₂ production rate

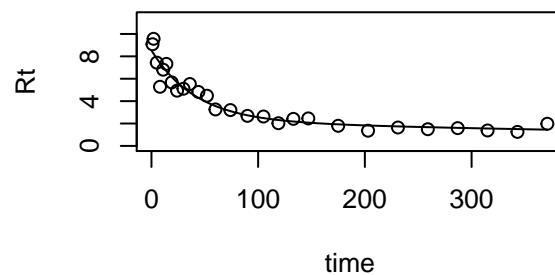
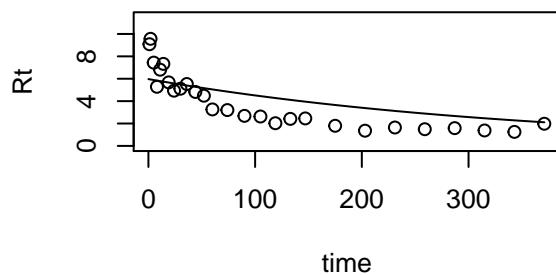
```
Crow_V6=modelFitTS_Markdown(db = db[[9]], ts.col = 6, ic.col = 5, unitConverter = 1e3,  
    inipars=list(oneP=0.5,  
                parallel=c(0.01, 0.001, 0.1),  
                series=c(0.05, 0.0001, 0.01, 0.1),  
                feedback=c(0.05, 0.0001, 0.1, 0.01, 0.1)))  
  
## [1] "Crow2019a; variable: Site05"  
## [1] "One pool model"  
## [1] "Best fit parameter: -0.00280246427369057"
```

```

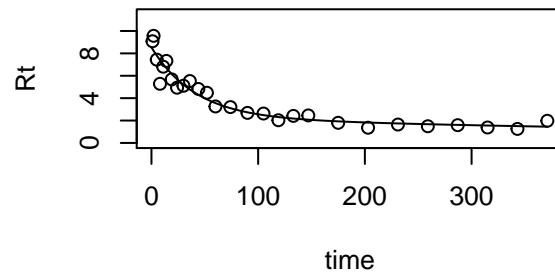
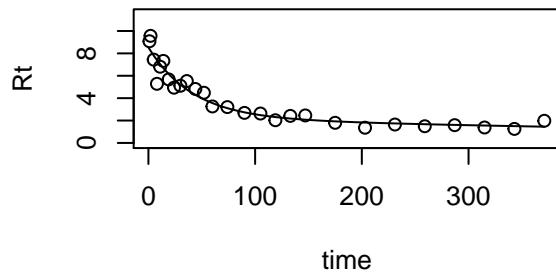
## [1] "AIC = 3.87275102990533"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0244428611526866"
## [2] "k2= 0.00121489364506501"
## [3] "proportion of C0 in pool 1= 0.120285843516455"
## [1] "AIC = 4.09806434912774"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0244416970602002"
## [2] "k2= 0.00121485631271023"
## [3] "a21= 0.0161954157507398"
## [4] "Proportion of C0 in pool 1= 0.122377784391282"
## [1] "AIC = 6.09806434510847"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0244409707678101"
## [2] "k2= 0.00121482231775397"
## [3] "a21= 0.058684656180491"
## [4] "a12= 4.652485112e-06"
## [5] "Proportion of C0 in pool 1= 0.128214846190897"

```

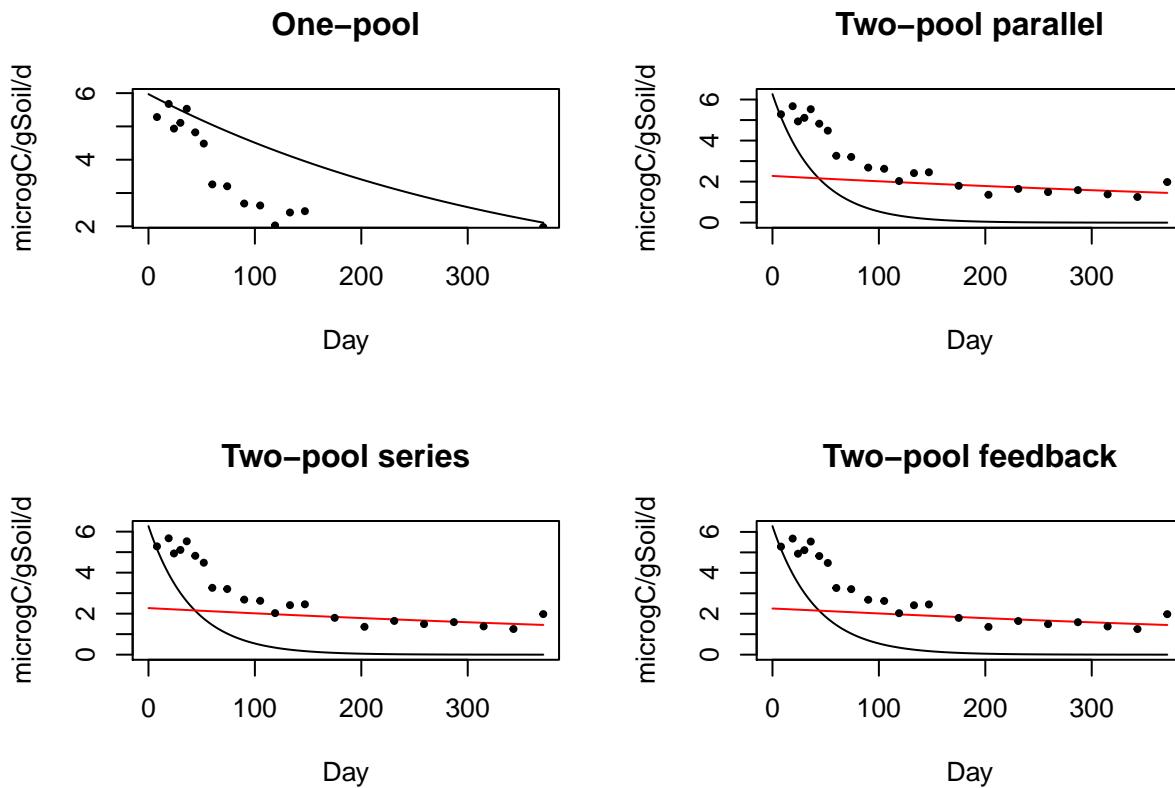
two pool_parallel structure



two pool_Series structure



```
## [1] "AIC = 8.09806434857939"
```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool | -0.0028 |NA |NA |NA |NA |  
## |Two-pool parallel | 0.0244 | 0.00121 | 0.12 |NA |NA |  
## |Two-pool series | 0.0244 | 0.00121 | 0.122 | 0.0162 |NA |  
## |Two-pool feedback | 0.0244 | 0.00121 | 0.128 | 0.0587 | 0.122 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|  
## |One-pool | 3.87 | 7.79 | 349 | 3.88 | 0.458 | 2130 |NA | 68.9 | 2.55 |  
## |Two-pool parallel | 4.1 | 15.8 | -347 | 4.16 | 0.398 | 249 | 44.5 | 10.4 | 0.386 |  
## |Two-pool series | 6.1 | 21.8 | -345 | 6.21 | 0.143 | 54.2 | 29 | 10.4 | 0.386 |  
## |Two-pool feedback | 8.1 | 27.7 | -343 | 8.26 | 0.0513 | 89.2 | 30.9 | 10.4 | 0.386 |
```

Variable Site06;

CO₂ production rate

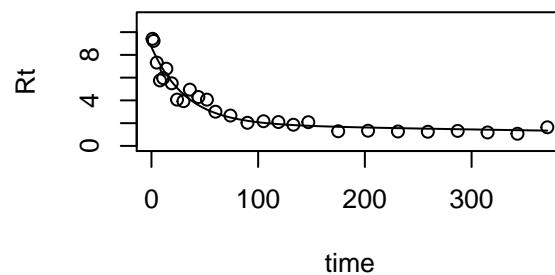
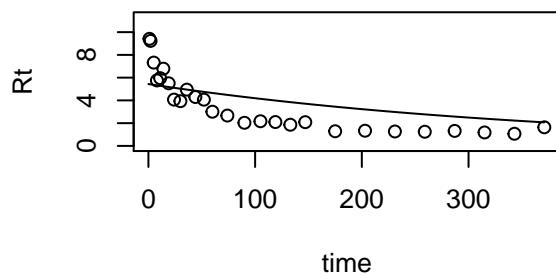
```
Crow_V7=modelFitTS_Markdown(db = db[[9]], ts.col = 7, ic.col = 6, unitConverter = 1e3,  
    inipars=list(oneP=0.5,  
                parallel=c(0.01, 0.001, 0.1),  
                series=c(0.05, 0.0001, 0.01, 0.1),  
                feedback=c(0.05, 0.0001, 0.1, 0.01, 0.1)))  
  
## [1] "Crow2019a; variable: Site06"  
## [1] "One pool model"  
## [1] "Best fit parameter: -0.00260157343011613"
```

```

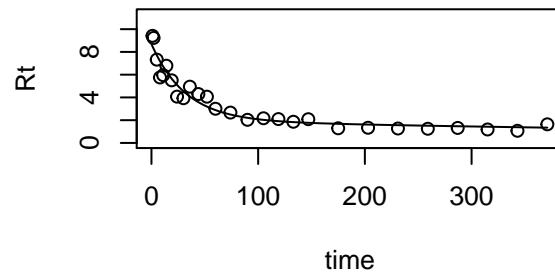
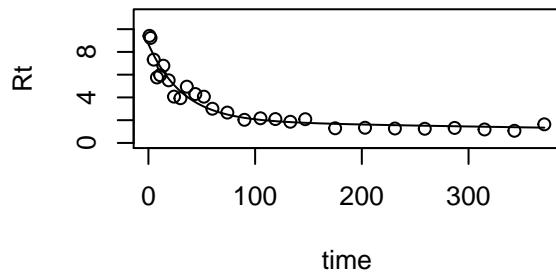
## [1] "AIC = 4.26498544605259"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0313679619214142"
## [2] "k2= 0.0010599188697537"
## [3] "proportion of C0 in pool 1= 0.10228031610273"
## [1] "AIC = 3.83792175982291"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0313675873274746"
## [2] "k2= 0.00105991130899477"
## [3] "a21= 0.086985246206364"
## [4] "Proportion of C0 in pool 1= 0.112400548677191"
## [1] "AIC = 5.83792175955546"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0313678861628721"
## [2] "k2= 0.00105991699918593"
## [3] "a21= 0.0577924237722272"
## [4] "a12= 7.6481913716675e-06"
## [5] "Proportion of C0 in pool 1= 0.108787615089775"

```

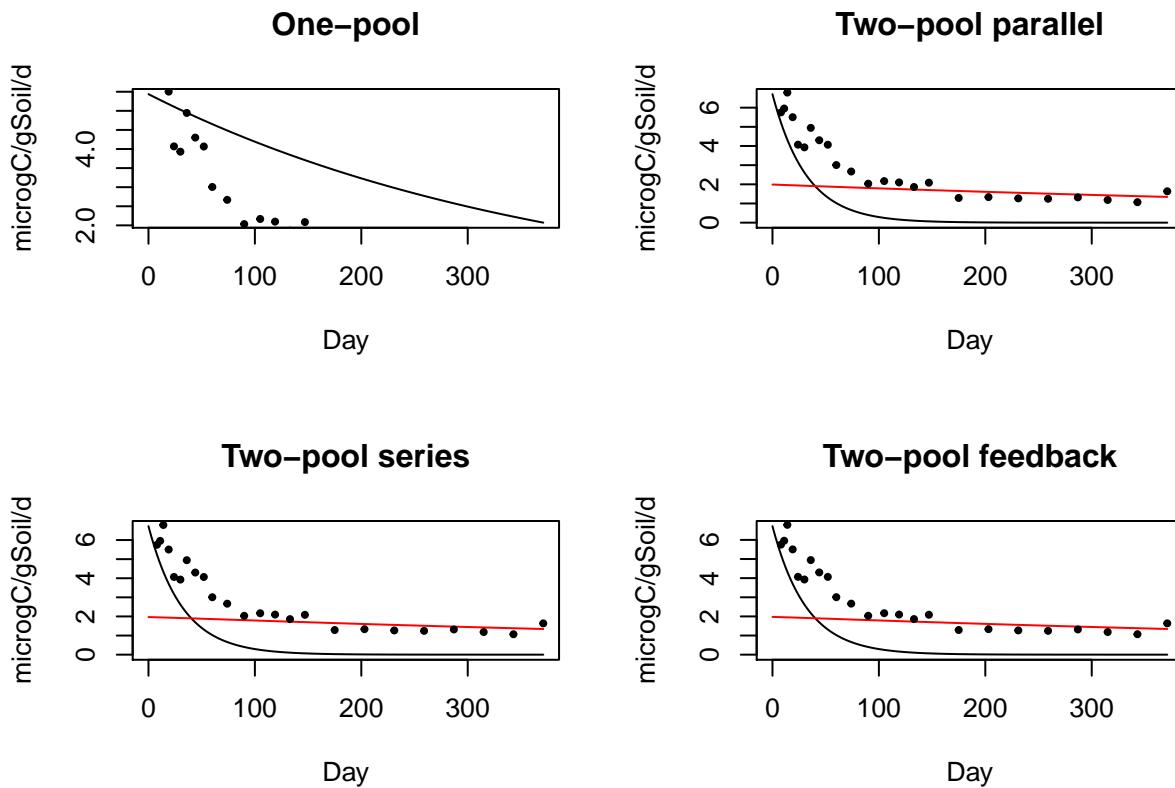
two pool_parallel structure



two pool_Series structure



```
## [1] "AIC = 7.83792176013011"
```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool | -0.0026 |NA |NA |NA |NA |  
## |Two-pool parallel | 0.0314 | 0.00106 | 0.102 |NA |NA |  
## |Two-pool series | 0.0314 | 0.00106 | 0.112 | 0.087 |NA |  
## |Two-pool feedback | 0.0314 | 0.00106 | 0.109 | 0.0578 | 0.112 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|  
## |One-pool | 4.26 | 8.18 | 422 | 4.28 | 0.379 | 2090 | NA | 83.8 | 3.1 |  
## |Two-pool parallel | 3.84 | 15.6 | -395 | 3.9 | 0.457 | 240 | 32.4 | 9.16 | 0.339 |  
## |Two-pool series | 5.84 | 21.5 | -393 | 5.95 | 0.164 | 114 | 25.2 | 9.16 | 0.339 |  
## |Two-pool feedback | 7.84 | 27.4 | -391 | 8 | 0.0588 | 86.4 | 24.1 | 9.16 | 0.339 |
```

Variable Site07;

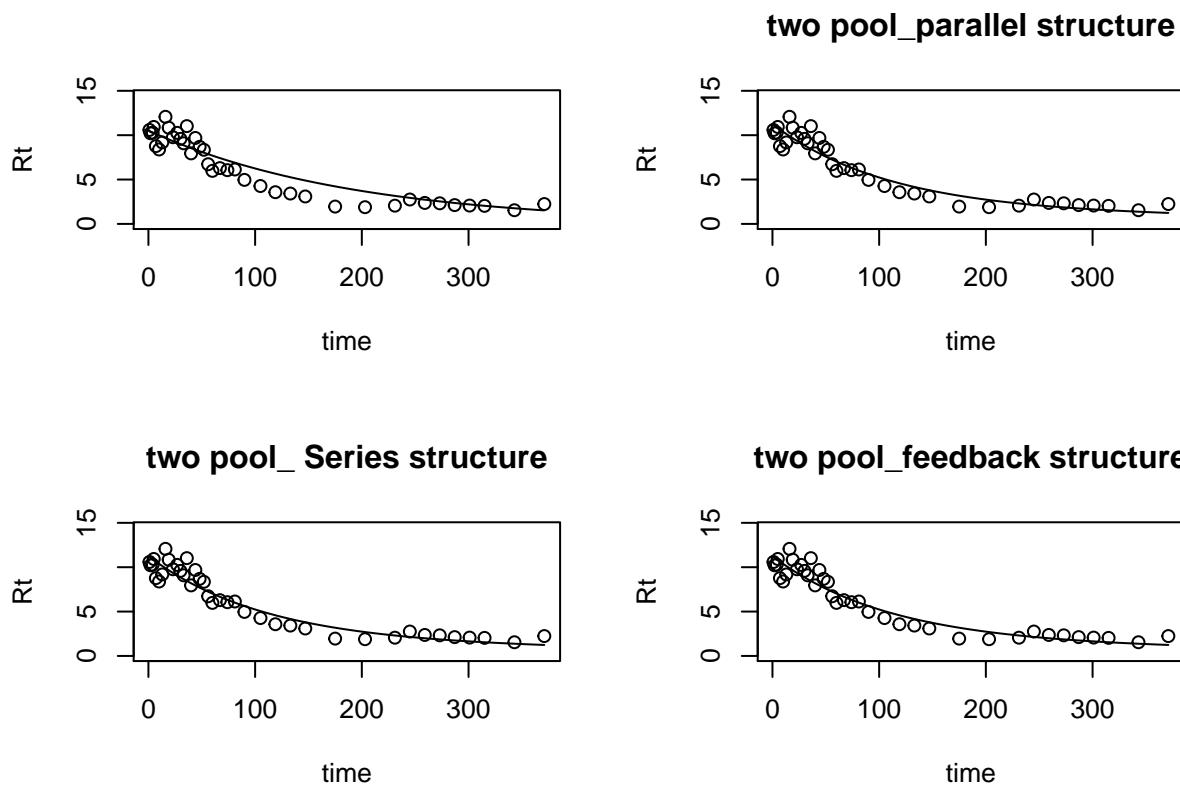
CO₂ production rate

```
Crow_V8=modelFitTS_Markdown(db = db[[9]], ts.col = 8, ic.col = 7, unitConverter = 1e3,  
    inipars=list(oneP=0.5,  
                parallel=c(0.01, 0.001, 0.1),  
                series=c(0.01, 0.0001, 0.01, 0.1),  
                feedback=c(0.01, 0.0001, 0.1, 0.01, 0.1)))  
  
## [1] "Crow2019a; variable: Site07"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.0052072532116334"
```

```

## [1] "AIC = 2.76047974153698"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00937419330520892"
## [2] "k2= 0.00184307058201746"
## [3] "proportion of C0 in pool 1= 0.495136376501103"
## [1] "AIC = 6.00121752917688"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00937464494042726"
## [2] "k2= 0.00184329446951804"
## [3] "a21= 0.000122001442330544"
## [4] "Proportion of C0 in pool 1= 0.495169005834716"
## [1] "AIC = 8.00121752420468"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00937544557223806"
## [2] "k2= 0.00184366004811991"
## [3] "a21= 0.101437797366004"
## [4] "a12= 2.49929872309096e-06"
## [5] "Proportion of C0 in pool 1= 0.566559504002903"

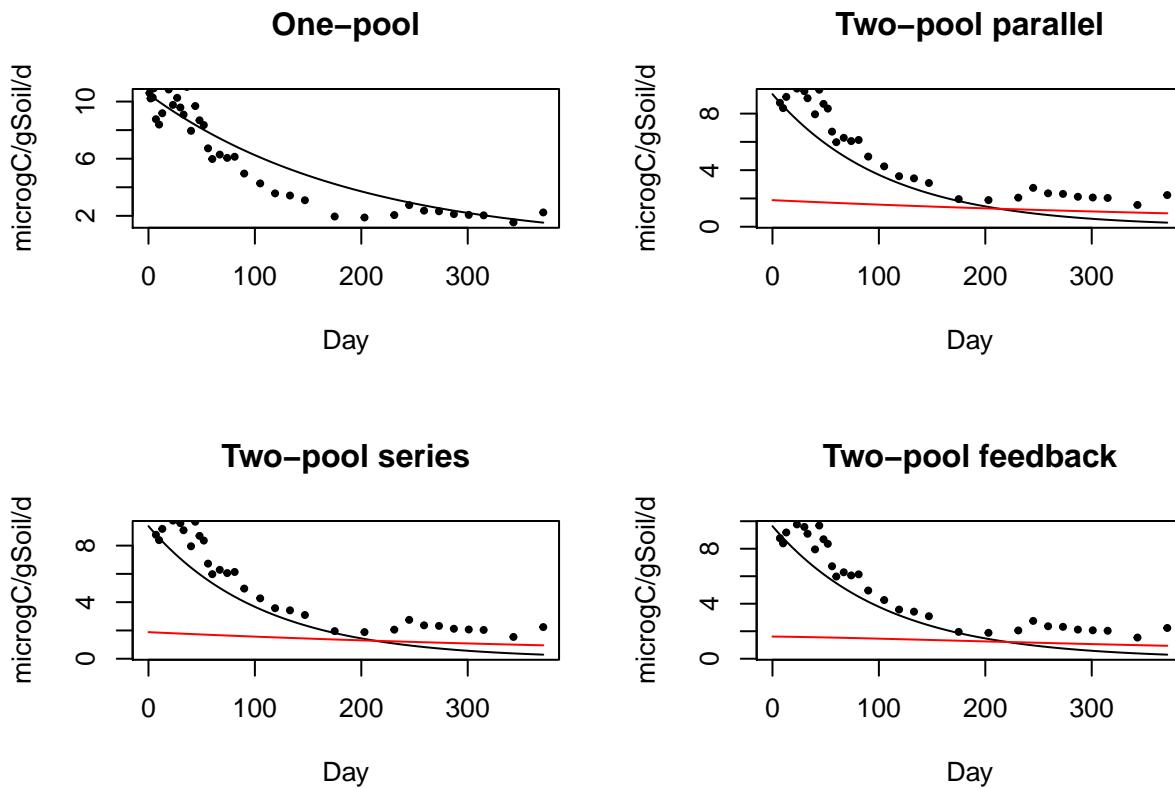
```



```

## [1] "AIC = 10.0012175289905"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:-----|:-----|:-----|:-----|  
## |One-pool |0.00521 |NA |NA |NA |NA |  
## |Two-pool parallel |0.00937 |0.00184 |0.495 |NA |NA |  
## |Two-pool series |0.00937 |0.00184 |0.495 |0.000122 |NA |  
## |Two-pool feedback |0.00938 |0.00184 |0.567 |0.101 |0.495 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:-----|:---|:---|  
## |One-pool |2.76 |6.68 |143 |2.77 |0.793 |2020 |NA |57 |11.46 |  
## |Two-pool parallel |6 |17.7 |6.23 |6.07 |0.153 |179 |89.9 |39 |1 |  
## |Two-pool series |8 |23.7 |8.23 |8.11 |0.0549 |107 |74 |39 |1 |  
## |Two-pool feedback |10 |29.6 |10.2 |10.2 |0.0197 |162 |85.5 |39 |1 |
```

Variable Site08;

CO₂ production rate

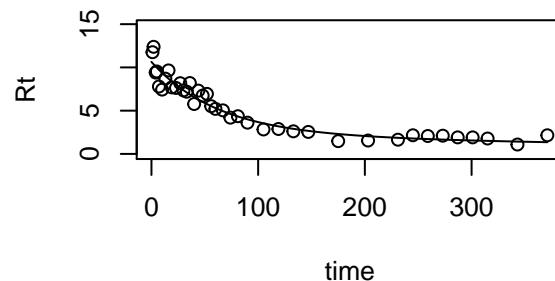
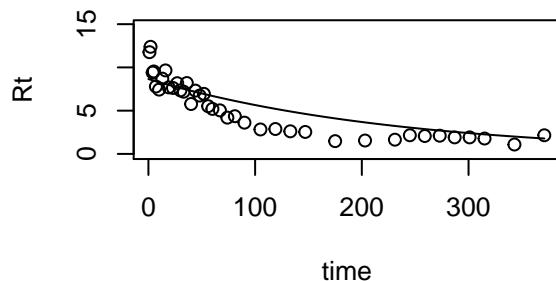
```
Crow_V9=modelFitTS_Markdown(db = db[[9]], ts.col = 9, ic.col = 8, unitConverter = 1e3,  
    inipars=list(oneP=0.5,  
                parallel=c(0.01, 0.001, 0.1),  
                series=c(0.01, 0.0001, 0.01, 0.1),  
                feedback=c(0.05, 0.0001, 0.1, 0.01, 0.01)))  
  
## [1] "Crow2019a; variable: Site08"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.0042624975999388"
```

```

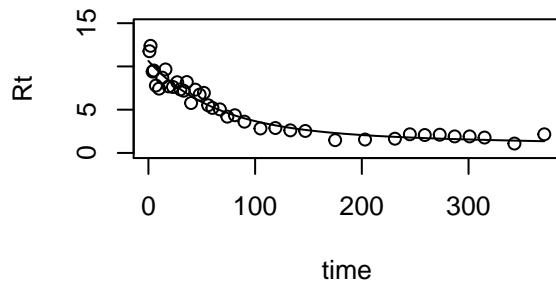
## [1] "AIC = 3.72545596885523"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0161673896121356"
## [2] "k2= 0.0015725476692938"
## [3] "proportion of C0 in pool 1= 0.251338476074876"
## [1] "AIC = 5.08856715635619"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0161674486730964"
## [2] "k2= 0.00157255455054574"
## [3] "a21= 0.000339612778835596"
## [4] "Proportion of C0 in pool 1= 0.251431743231871"
## [1] "AIC = 7.08856715624658"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0161674715887246"
## [2] "k2= 0.00157255776146037"
## [3] "a21= 0.00688698908360191"
## [4] "a12= 4.2302885643497e-05"
## [5] "Proportion of C0 in pool 1= 0.253272193822175"

```

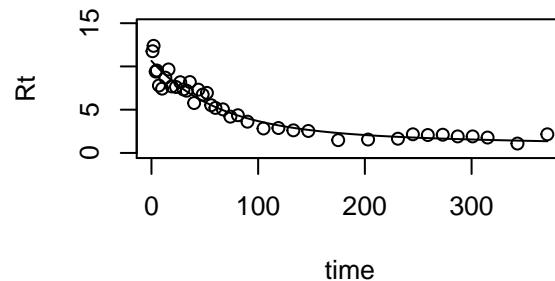
two pool_parallel structure



two pool_Series structure



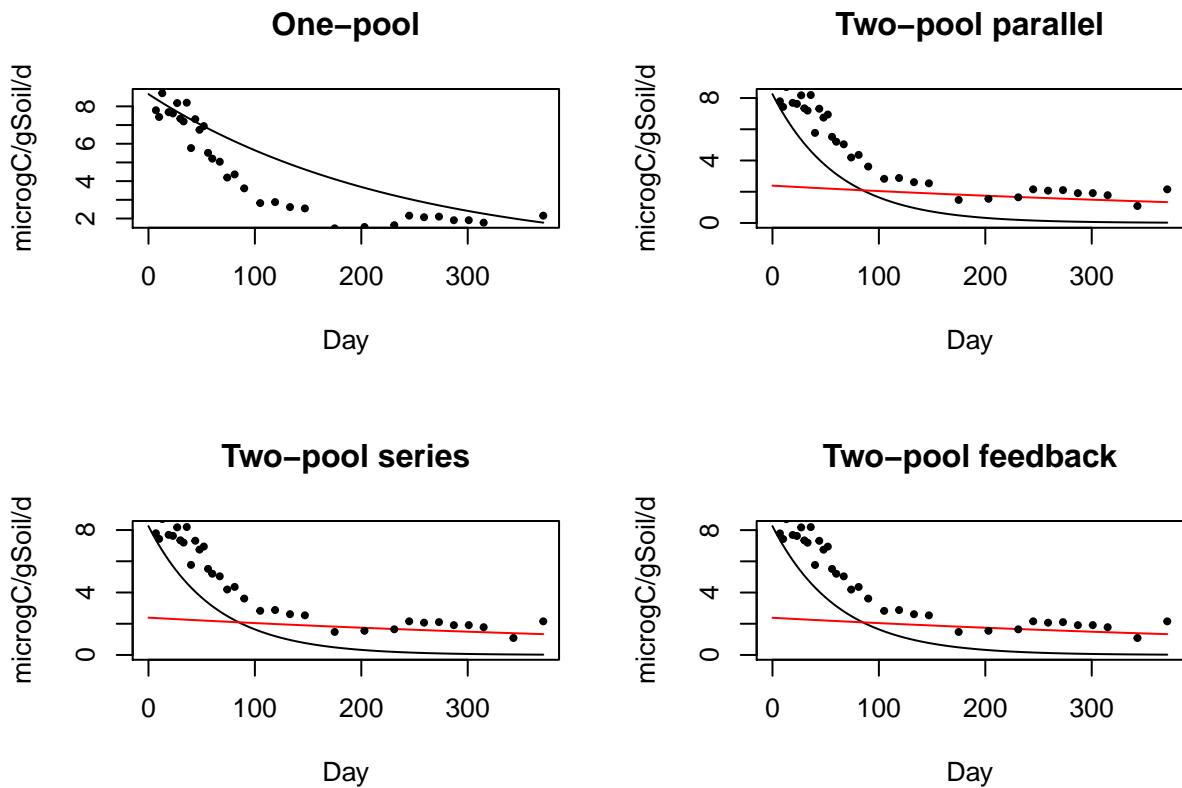
two pool_feedback structure



```

## [1] "AIC = 9.08856715623622"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool |0.00426 |NA |NA |NA |NA |  
## |Two-pool parallel |0.0162 |0.00157 |0.251 |NA |NA |  
## |Two-pool series |0.0162 |0.00157 |0.251 |0.00034 |NA |  
## |Two-pool feedback |0.0162 |0.00157 |0.253 |0.00689 |0.251 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:-----|:---|:---|:---|  
## |One-pool |3.73 |7.64 |322 |3.74 |0.599 |2030 |NA |92.4 |2.37 |  
## |Two-pool parallel |5.09 |16.8 |-163 |5.15 |0.295 |191 |59.7 |24.7 |0.634 |  
## |Two-pool series |7.09 |22.8 |-161 |7.2 |0.106 |62.1 |42.9 |24.7 |0.634 |  
## |Two-pool feedback |9.09 |28.7 |-159 |9.25 |0.038 |66.2 |43.3 |24.7 |0.634 |
```

Variable Site09;

CO₂ production rate

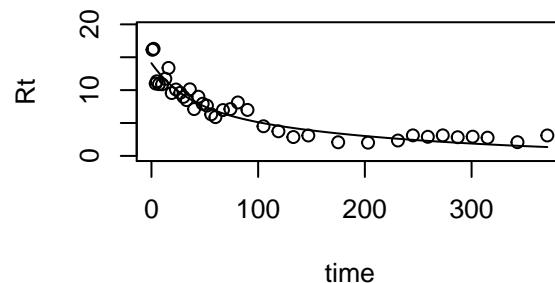
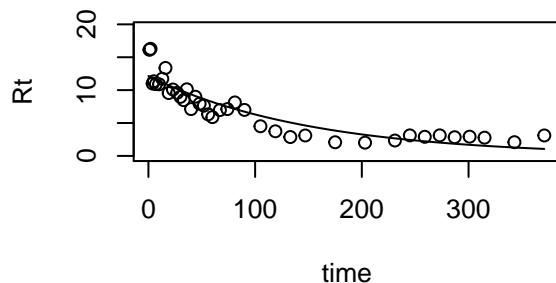
```
Crow_V10=modelFitTS_Markdown(db = db[[9]], ts.col = 10, ic.col = 9, unitConverter = 1e3,  
    inipars=list(oneP=0.5,  
                 parallel=c(0.01, 0.001, 0.1),  
                 series=c(0.05, 0.0001, 0.01, 0.1),  
                 feedback=c(0.01, 0.001, 0.1, 0.01, 0.01)))  
  
## [1] "Crow2019a; variable: Site09"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.00656624119461036"
```

```

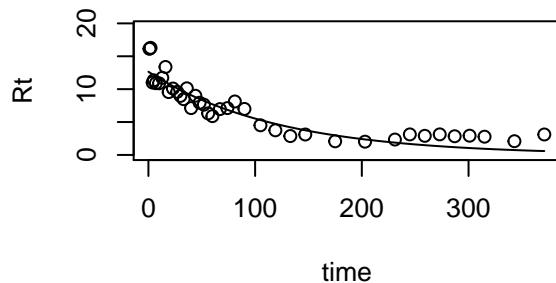
## [1] "AIC = 3.77435771552583"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0302963385075891"
## [2] "k2= 0.00470156150003336"
## [3] "proportion of C0 in pool 1= 0.113990406551844"
## [1] "AIC = 6.87818921701486"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00827491389380052"
## [2] "k2= 1.14180244392803e-19"
## [3] "a21= 0.000195479938784937"
## [4] "Proportion of C0 in pool 1= 0.826402769308212"
## [1] "AIC = 9.5814738614555"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0303120090134481"
## [2] "k2= 0.00470231638385086"
## [3] "a21= 0.00281921916754413"
## [4] "a12= 0.000307555541876114"
## [5] "Proportion of C0 in pool 1= 0.114333078694072"

```

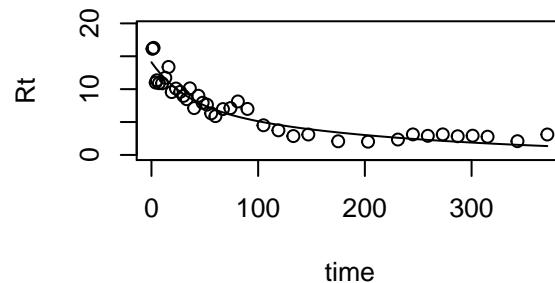
two pool_parallel structure



two pool_Series structure

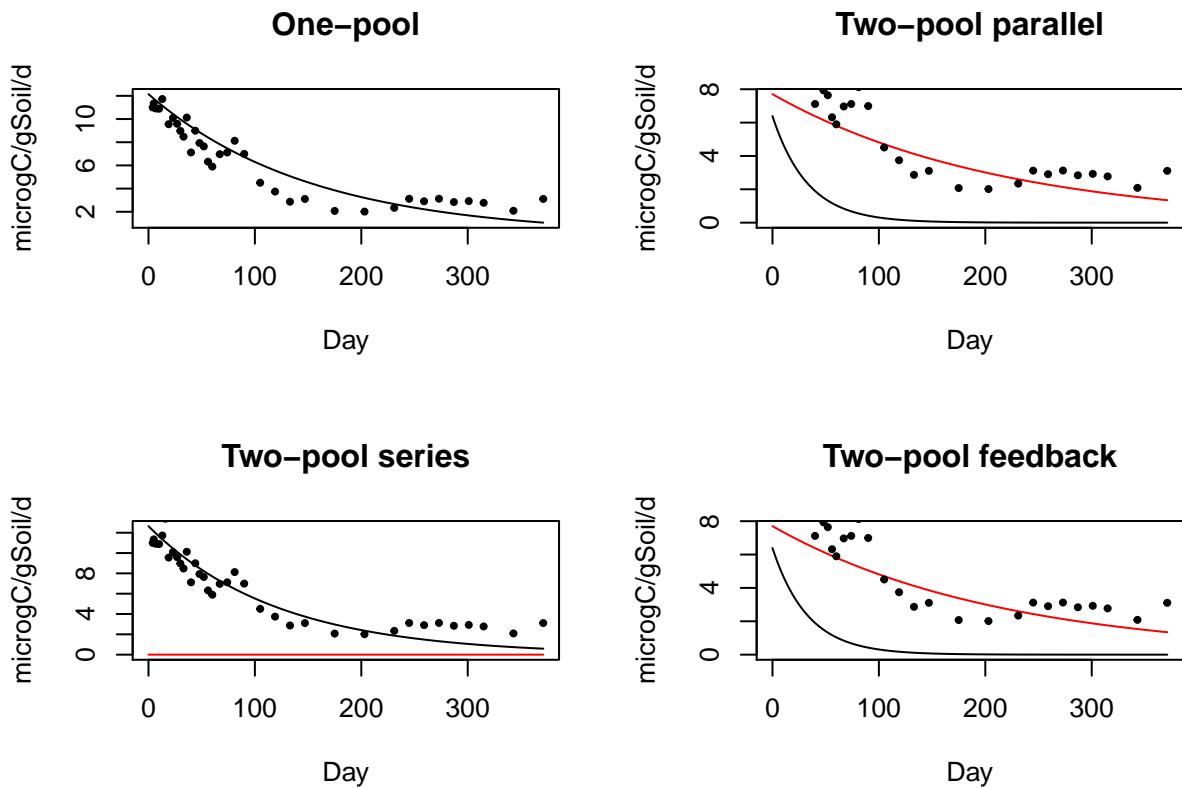


two pool_feedback structure



```
## [1] "AIC = 10.8781892111825"
```

```
## Error in solve.default(A): system is computationally singular: reciprocal condition number = 1.37957
```



Variable Site10;

CO₂ production rate

```
# The models get fitted but the following error prevents the data to be saved
# Error in solve.default(A) :
#   system is computationally singular: reciprocal condition number = 1.37957e-17

Crow_V11=modelFitTS_Markdown(db = db[[9]], ts.col = 11, ic.col = 10, unitConverter = 1e3,
                               inipars=list(oneP=0.5,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.01, 0.0001, 0.01, 0.1),
                                             feedback=c(0.05, 0.0001, 0.1, 0.01, 0.01)))

## [1] "Crow2019a; variable: Site10"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0107157549868226"

## [1] "AIC = 8.04509719561267"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0107157557606457"
## [2] "k2= 0.0107157647669732"
## [3] "proportion of C0 in pool 1= 0.290668545620501"

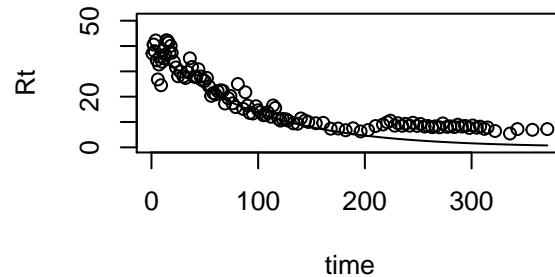
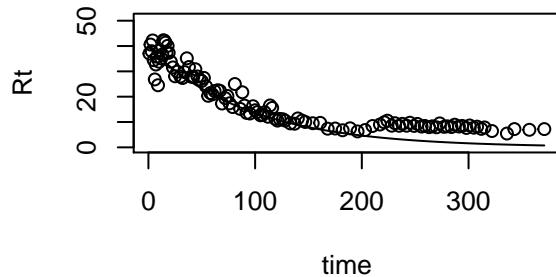
## [1] "AIC = 12.045097195638"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0107182542608361"
## [2] "k2= 0.0107167280269373"
## [3] "a21= 0.000451098357366841"
## [4] "Proportion of C0 in pool 1= 0.307371381926603"
```

```

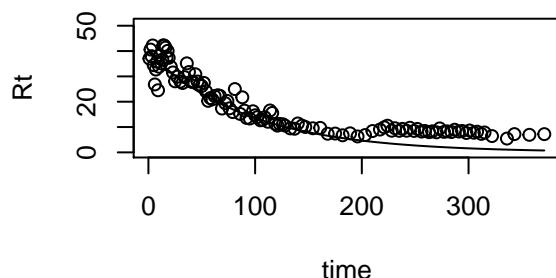
## [1] "AIC = 14.0450971862893"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0112880146205454"
## [2] "k2= 0.112902504154333"
## [3] "a21= 0.157107463423432"
## [4] "a12= 2.22446644593255e-06"
## [5] "Proportion of C0 in pool 1= 0.999902011441339"

```

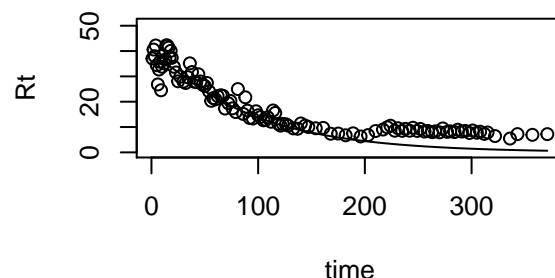
two pool_parallel structure



two pool_Series structure



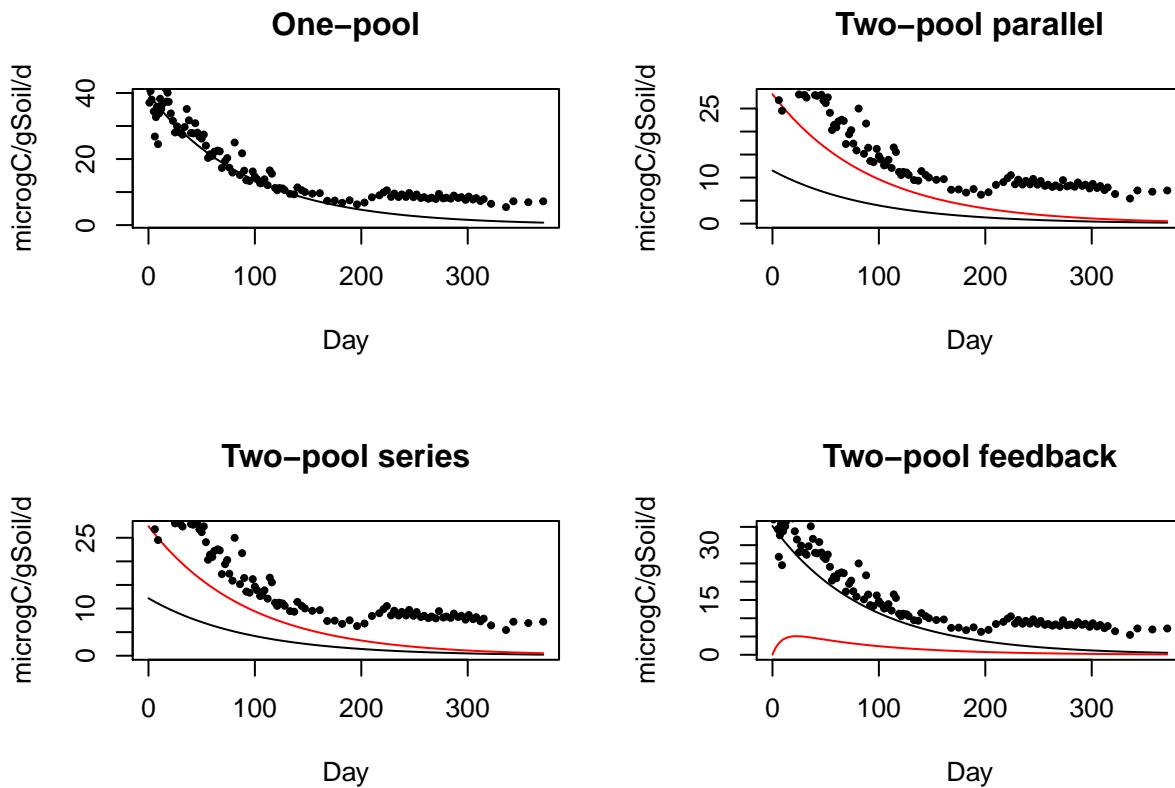
two pool_feedback structure



```

## [1] "AIC = 15.9837530295843"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool |0.0107 |NA |NA |NA |NA |  
## |Two-pool parallel |0.0107 |0.0107 |0.291 |NA |NA |  
## |Two-pool series |0.0107 |0.0107 |0.307 |0.000451 |NA |  
## |Two-pool feedback |0.0113 |0.113 |1 |0.157 |0.307 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|  
## |One-pool |8.05 |12 |1120 |8.06 |0.848 |3700 |NA |2360 |20.5 |  
## |Two-pool parallel |12 |23.8 |1130 |12.1 |0.112 |93.3 |64.7 |2360 |20.5 |  
## |Two-pool series |14 |29.7 |1130 |14.2 |0.0402 |93.3 |64.7 |2360 |20.5 |  
## |Two-pool feedback |16 |35.6 |1120 |16.1 |0.0148 |90 |62.9 |2290 |19.9 |
```

Variable Site11;

CO2 production rate

```
Crow_V12=modelFitTS_Markdown(db = db[[9]], ts.col = 12, ic.col = 11, unitConverter = 1e3)
```

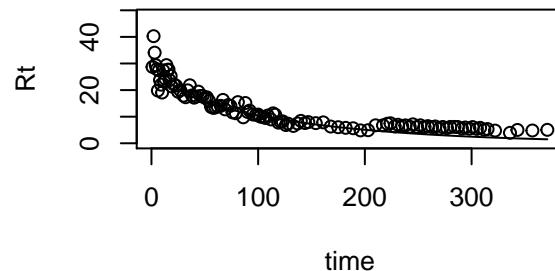
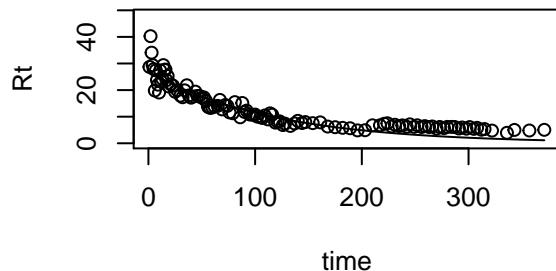
```
## [1] "Crow2019a; variable: Site11"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.00854289070173486"  
## [1] "AIC = 6.25273616977495"  
## [1] "Two pool model-parallel structure"  
## [1] "k1= 0.0548884151748828"
```

```

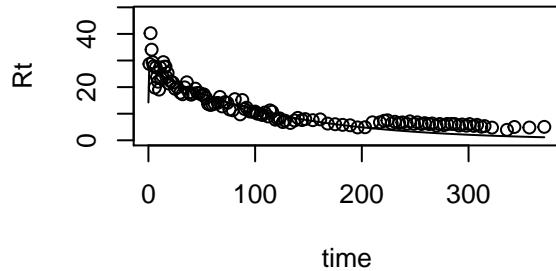
## [2] "k2= 0.00717249409839575"
## [3] "proportion of C0 in pool 1= 0.0599831504614473"
## [1] "AIC = 9.78976271286518"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00853816841412715"
## [2] "k2= 7.79097213826444"
## [3] "a21= 0.999999388486949"
## [4] "Proportion of C0 in pool 1= 0.999422867333266"
## [1] "AIC = 12.2522513145884"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0549116375624049"
## [2] "k2= 0.00717281256692238"
## [3] "a21= 0.0662002086303181"
## [4] "a12= 4.54486004108912e-06"
## [5] "Proportion of C0 in pool 1= 0.064897897969479"

```

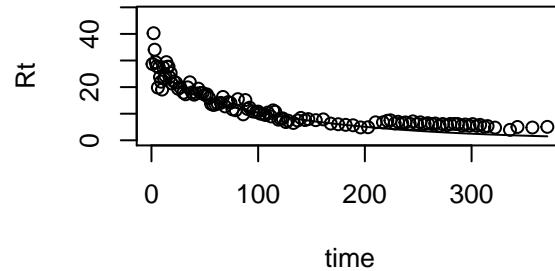
two pool_parallel structure



two pool_Series structure



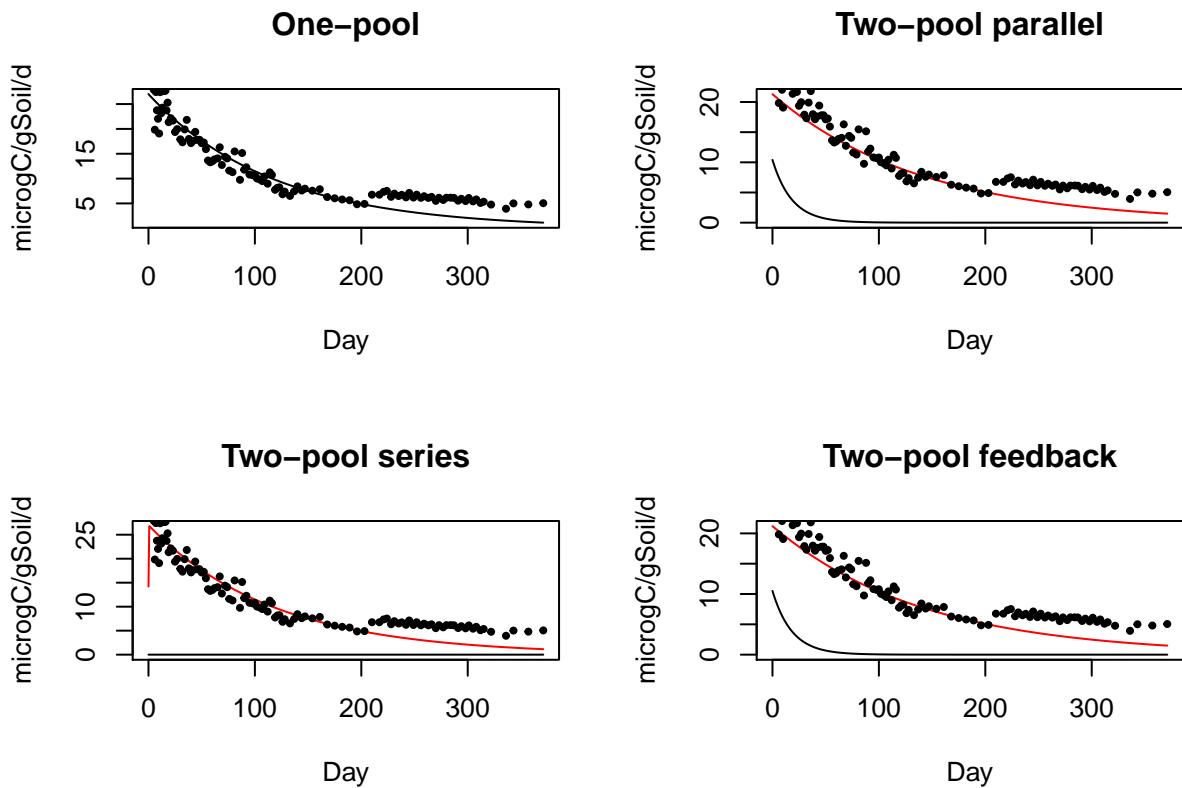
two pool_feedback structure



```

## [1] "AIC = 13.7897627038554"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool |0.00854 |NA |NA |NA |NA |  
## |Two-pool parallel |0.0549 |0.00717 |0.06 |NA |NA |  
## |Two-pool series |0.00854 |7.79 |0.999 |1 |NA |  
## |Two-pool feedback |0.0549 |0.00717 |0.0649 |0.0662 |0.999 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:-----|:---|:---|:---|  
## |One-pool |6.25 |10.2 |791 |6.26 |0.824 |3160 |NA |964 |8.38 |  
## |Two-pool parallel |9.79 |21.5 |709 |9.86 |0.137 |99.7 |47.9 |765 |16.65 |  
## |Two-pool series |12.3 |27.9 |797 |12.4 |0.0391 |117 |81.3 |964 |8.38 |  
## |Two-pool feedback |13.8 |33.4 |713 |14 |0.0176 |27.4 |13.9 |765 |16.65 |
```

Variable Site12;

CO2 production rate

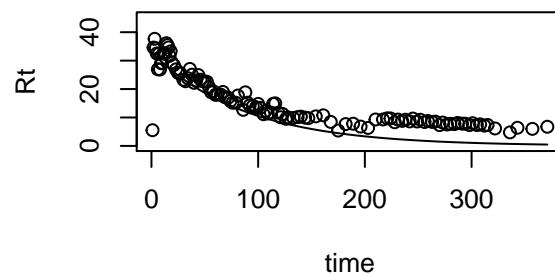
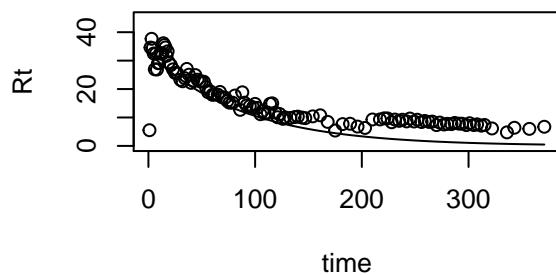
```
Crow_V13=modelFitTS_Markdown(db = db[[9]], ts.col = 13, ic.col = 12, unitConverter = 1e3,  
    inipars=list(oneP=0.5,  
                 parallel=c(0.01, 0.001, 0.1),  
                 series=c(0.05, 0.0005, 0.01, 0.1),  
                 feedback=c(0.05, 0.0001, 0.1, 0.01, 0.01)))  
  
## [1] "Crow2019a; variable: Site12"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.011416882826639"
```

```

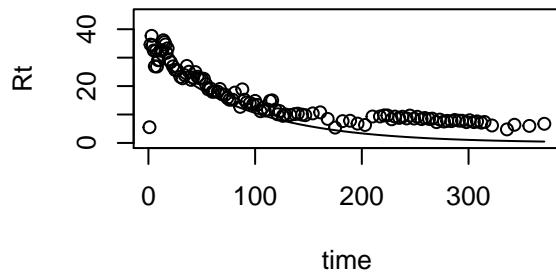
## [1] "AIC = 8.65344910472484"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0114168639651415"
## [2] "k2= 0.0114168470289279"
## [3] "proportion of C0 in pool 1= 0.333358757221232"
## [1] "AIC = 12.6534491046856"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0114187649572254"
## [2] "k2= 0.0114173530174847"
## [3] "a21= 0.000460180917528252"
## [4] "Proportion of C0 in pool 1= 0.130654531109314"
## [1] "AIC = 14.6534491002426"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.012007480123861"
## [2] "k2= 0.686734222262463"
## [3] "a21= 0.973486741177099"
## [4] "a12= 1.0032913940472e-05"
## [5] "Proportion of C0 in pool 1= 0.999940520341775"

```

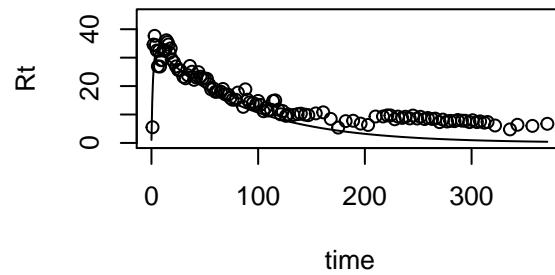
two pool_parallel structure



two pool_Series structure



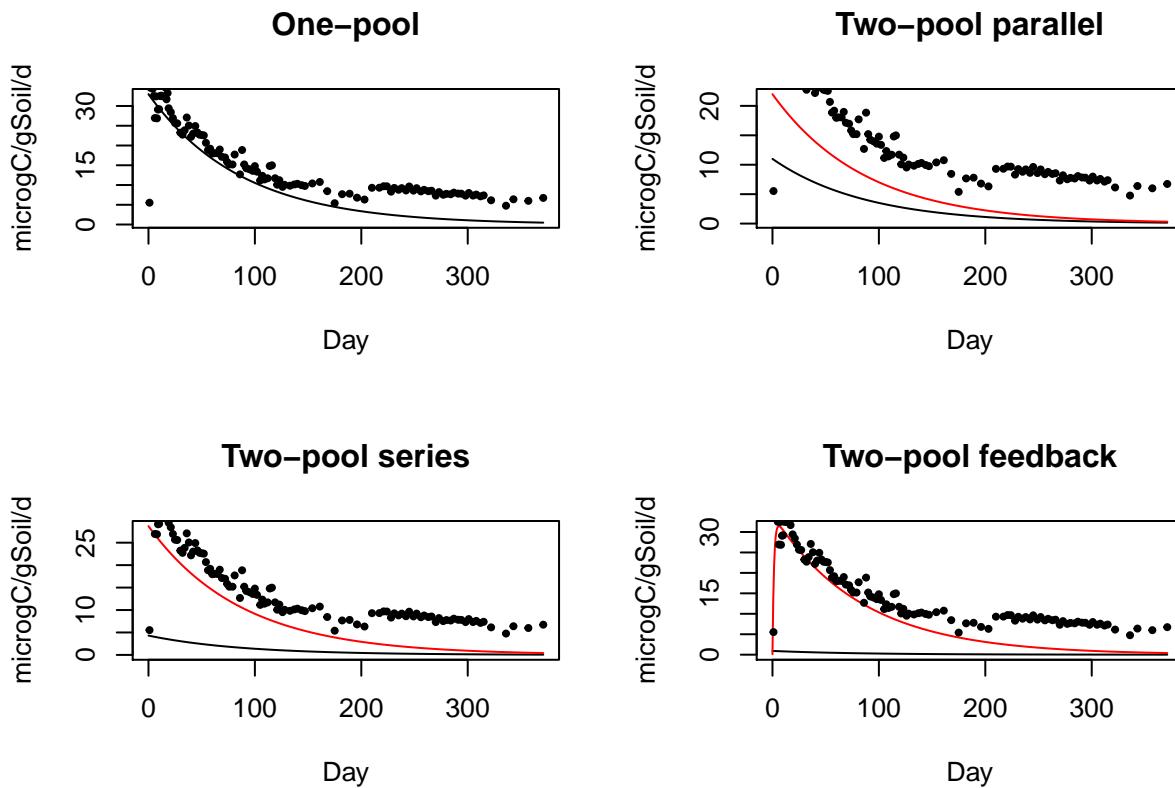
two pool_feedback structure



```

## [1] "AIC = 16.2316845974497"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:  
## |One-pool |0.0114 |NA |NA |NA |NA |  
## |Two-pool parallel |0.0114 |0.0114 |0.333 |NA |NA |  
## |Two-pool series |0.0114 |0.0114 |0.131 |0.00046 |NA |  
## |Two-pool feedback |0.012 |0.687 |1 |0.973 |0.131 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:  
## |One-pool |8.65 |12.6 |1240 |8.66 |0.848 |2890 |NA |3200 |27.8 |  
## |Two-pool parallel |12.7 |24.4 |1240 |12.7 |0.112 |87.6 |60.7 |3200 |27.8 |  
## |Two-pool series |14.7 |30.3 |1240 |14.8 |0.0402 |87.6 |60.7 |3200 |27.8 |  
## |Two-pool feedback |16.2 |35.8 |1170 |16.4 |0.0178 |84.7 |59.2 |2590 |22.6 |
```

Variable Site13;

CO2 production rate

```
Crow_V14=modelFitTS_Markdown(db = db[[9]], ts.col = 14, ic.col = 13, unitConverter = 1e3 )
```

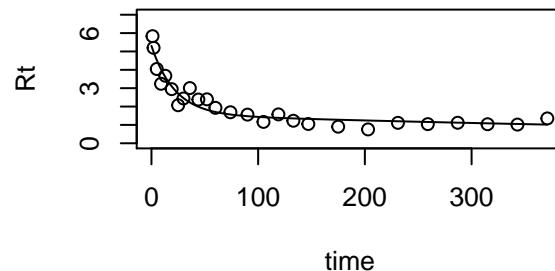
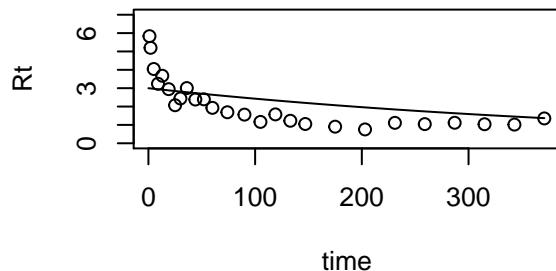
```
## [1] "Crow2019a; variable: Site13"  
## [1] "One pool model"  
## [1] "Best fit parameter: -0.00211168123926875"  
## [1] "AIC = 2.0719575565404"  
## [1] "Two pool model-parallel structure"  
## [1] "k1= 0.0458504197803192"
```

```

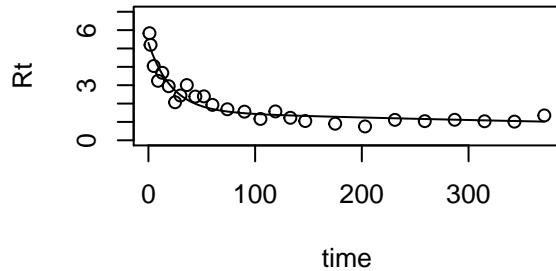
## [2] "k2= 0.00117419498674367"
## [3] "proportion of C0 in pool 1= 0.0573371414882743"
## [1] "AIC = 2.10553062251289"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0458494955211818"
## [2] "k2= 0.00117418601014614"
## [3] "a21= 0.289470622668628"
## [4] "Proportion of C0 in pool 1= 0.0815704804917208"
## [1] "AIC = 4.10553063794084"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0458529914979764"
## [2] "k2= 0.00117421365897312"
## [3] "a21= 0.00062007263506153"
## [4] "a12= 1.04304697162716e-06"
## [5] "Proportion of C0 in pool 1= 0.0573708594484849"

```

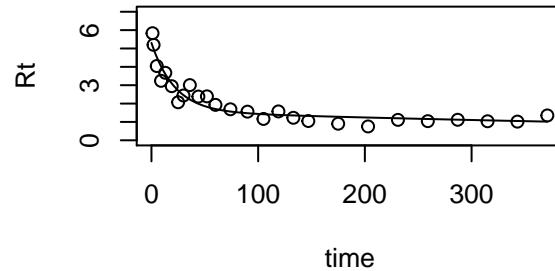
two pool_parallel structure



two pool_Series structure



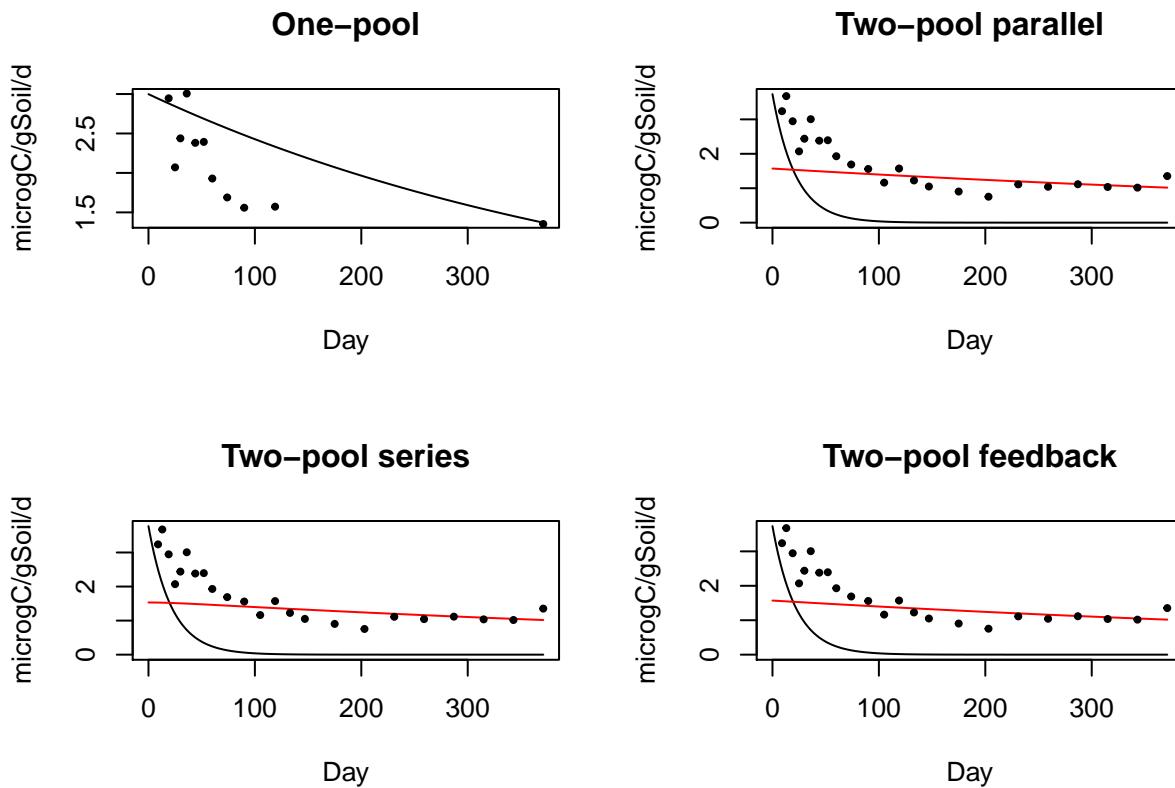
two pool_feedback structure



```

## [1] "AIC = 6.10553062144455"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool | -0.00211 |NA |NA |NA |NA |  
## |Two-pool parallel | 0.0459 | 0.00117 | 0.0573 |NA |NA |  
## |Two-pool series | 0.0458 | 0.00117 | 0.0816 | 0.289 |NA |  
## |Two-pool feedback | 0.0459 | 0.00117 | 0.0574 | 0.00062 | 0.0816 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|  
## |One-pool | 2.07 | 5.99 | 15.3 | 2.08 | 0.435 | 1420 |NA | 27 | 1.04 |  
## |Two-pool parallel | 2.11 | 13.9 | -716 | 2.17 | 0.416 | 268 | 26.1 | 3.71 | 0.143 |  
## |Two-pool series | 4.11 | 19.8 | -714 | 4.21 | 0.15 | 268 | 26.2 | 3.71 | 0.143 |  
## |Two-pool feedback | 6.11 | 25.7 | -712 | 6.27 | 0.0536 | 22.3 | 15.1 | 3.71 | 0.143 |
```

Variable Site14;

CO2 production rate

```
Crow_V15=modelFitTS_Markdown(db = db[[9]], ts.col = 15, ic.col = 14, unitConverter = 1e3 )
```

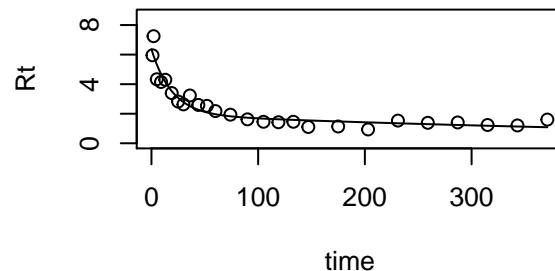
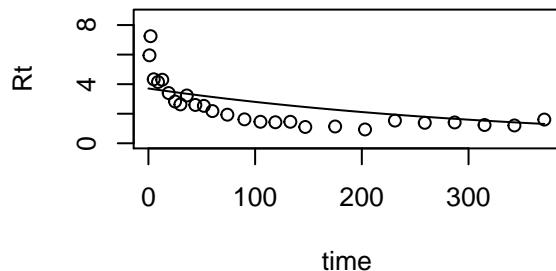
```
## [1] "Crow2019a; variable: Site14"  
## [1] "One pool model"  
## [1] "Best fit parameter: -0.00280881229577545"  
## [1] "AIC = 2.5441921230558"  
## [1] "Two pool model-parallel structure"  
## [1] "k1= 0.0520663154566501"
```

```

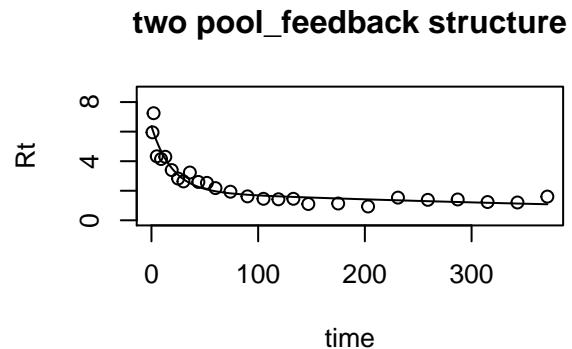
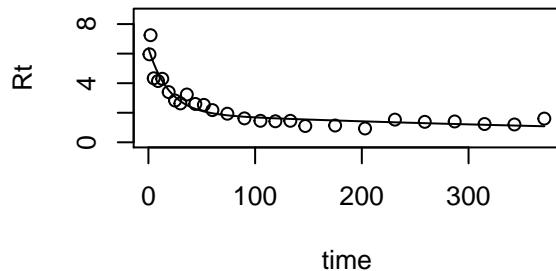
## [2] "k2= 0.00157524568786505"
## [3] "proportion of C0 in pool 1= 0.0643540554870202"
## [1] "AIC = 2.74100757450186"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.052068201566388"
## [2] "k2= 0.00157526264422755"
## [3] "a21= 0.249788674142591"
## [4] "Proportion of C0 in pool 1= 0.0866783237157396"
## [1] "AIC = 4.74100756736138"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0520709850558828"
## [2] "k2= 0.00157529051463499"
## [3] "a21= 0.00176820734877364"
## [4] "a12= 1.16313178682992e-06"
## [5] "Proportion of C0 in pool 1= 0.0644661741346905"

```

two pool_parallel structure



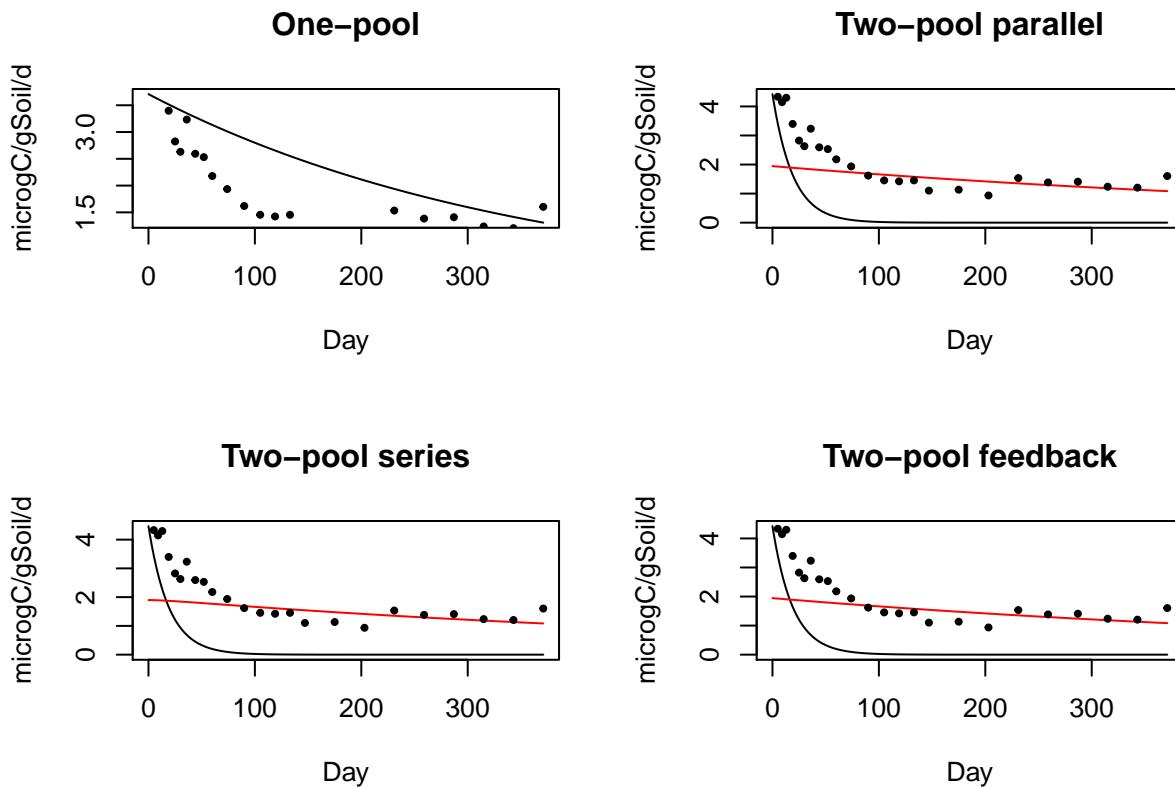
two pool_Series structure



```

## [1] "AIC = 6.74100757283995"

```



```
##
##
## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool| -0.00281|NA|NA|NA|NA|
## |Two-pool parallel| 0.0521| 0.00158| 0.0644|NA|NA|
## |Two-pool series| 0.0521| 0.00158| 0.0867| 0.25|NA|
## |Two-pool feedback| 0.0521| 0.00158| 0.0645| 0.00177| 0.0867|
## |
## |model|AIC|BIC|AICn|AICC|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool| 2.54| 6.46| 103| 2.56| 0.455| 1320|NA|34.1| 1.31|
## |Two-pool parallel| 2.74| 14.5| -599| 2.81| 0.401| 207| 23.4| 5.1| 0.196|
## |Two-pool series| 4.74| 20.4| -597| 4.85| 0.144| 178| 20.8| 5.1| 0.196|
## |Two-pool feedback| 6.74| 26.3| -595| 6.91| 0.0516| 20.3| 13.3| 5.1| 0.196|
```

Variable Site15;

CO₂ production rate

```
Crow_V16=modelFitTS_Markdown(db = db[[9]], ts.col = 16, ic.col = 15, unitConverter = 1e3 )
```

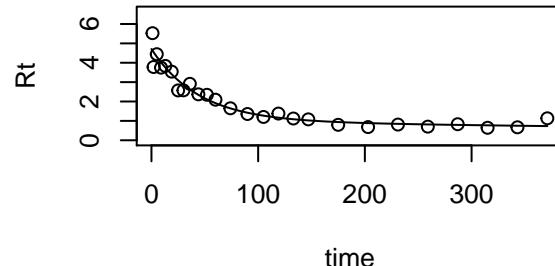
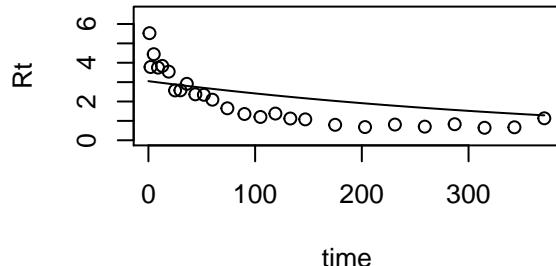
```
## [1] "Crow2019a; variable: Site15"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00232857492559013"
## [1] "AIC = 1.89521977508919"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0225675563191509"
```

```

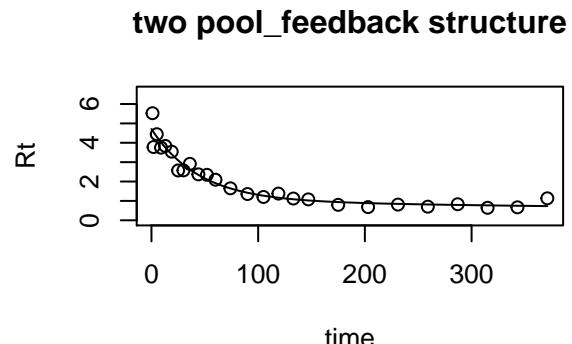
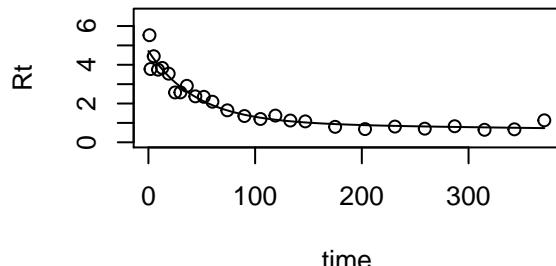
## [2] "k2= 0.000884811692029611"
## [3] "proportion of C0 in pool 1= 0.124994126072246"
## [1] "AIC = 1.20278200592872"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0225682649030453"
## [2] "k2= 0.000884838647933699"
## [3] "a21= 0.0422347318204941"
## [4] "Proportion of C0 in pool 1= 0.130736091639678"
## [1] "AIC = 3.20278200774187"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00088482793717792"
## [2] "k2= 0.0225678775961678"
## [3] "a21= 0.000904180049180581"
## [4] "a12= 2.39344682789744e-06"
## [5] "Proportion of C0 in pool 1= 0.874975393455531"

```

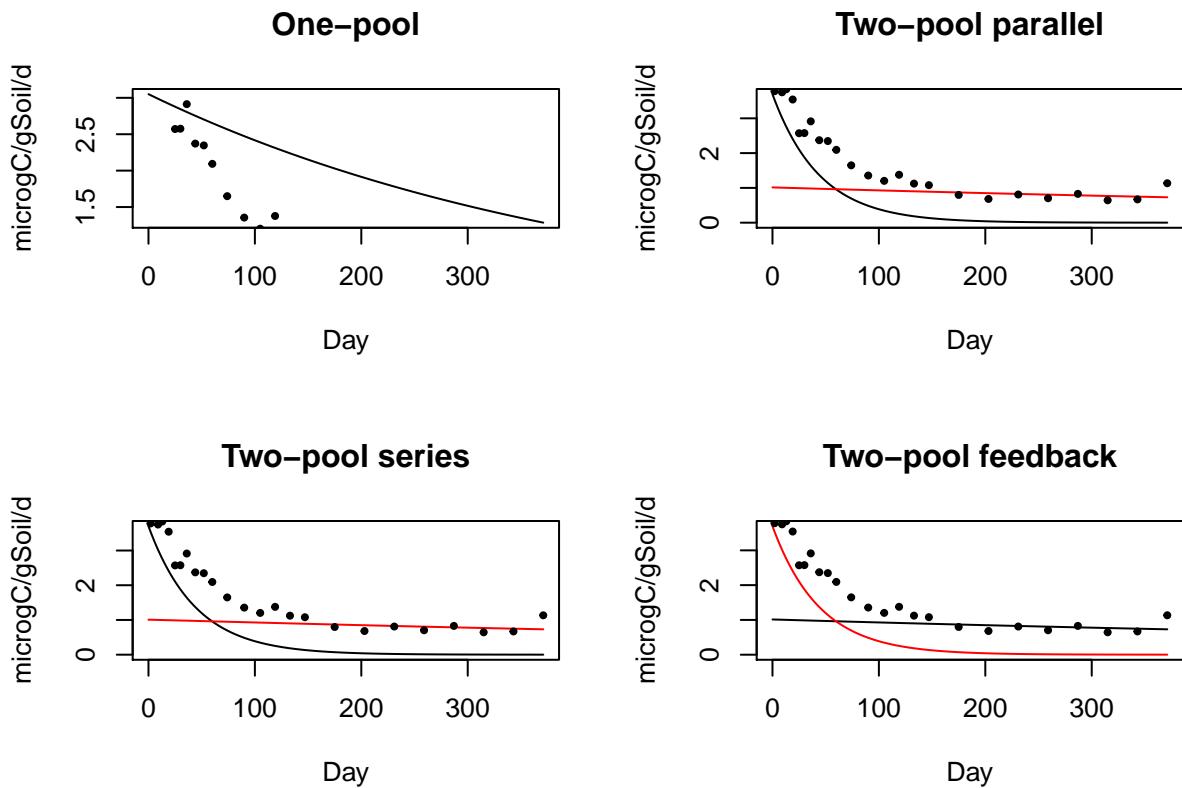
two pool_parallel structure



two pool_Series structure



```
## [1] "AIC = 5.20278200445426"
```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool | -0.00233 |NA |NA |NA |NA |  
## |Two-pool parallel | 0.0226 | 0.000885 | 0.125 |NA |NA |  
## |Two-pool series | 0.0226 | 0.000885 | 0.131 | 0.0422 |NA |  
## |Two-pool feedback | 0.000885 | 0.0226 | 0.875 | 0.000904 | 0.131 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|  
## |One-pool | 1.9 | 5.81 | -17.4 | 1.91 | 0.348 | 1310 |NA | 24.7 | 0.949 |  
## |Two-pool parallel | 1.2 | 13 | -884 | 1.27 | 0.479 | 278 | 43.7 | 2.36 | 0.0908 |  
## |Two-pool series | 3.2 | 18.9 | -882 | 3.31 | 0.172 | 92 | 32.7 | 2.36 | 0.0908 |  
## |Two-pool feedback | 5.2 | 24.8 | -880 | 5.37 | 0.0617 | 1130 | 783 | 2.36 | 0.0908 |
```

Variable Site16;

CO2 production rate

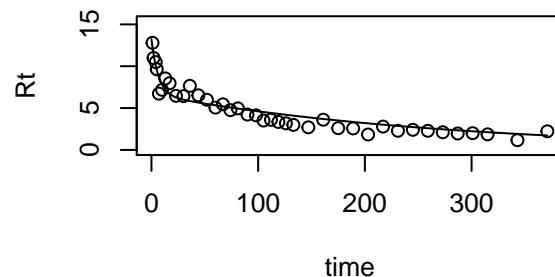
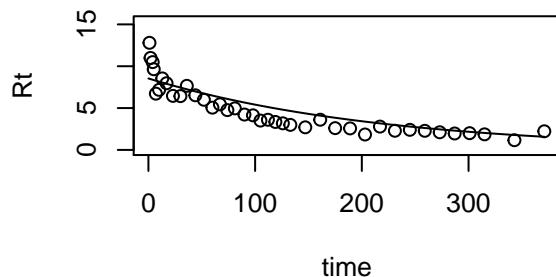
```
Crow_V17=modelFitTS_Markdown(db = db[[9]], ts.col = 17, ic.col = 16, unitConverter = 1e3,  
    inipars=list(oneP=0.5,  
                 parallel=c(0.01, 0.001, 0.1),  
                 series=c(0.01, 0.0001, 0.05, 0.1),  
                 feedback=c(0.05, 0.0005, 0.1, 0.01, 0.01)))  
  
## [1] "Crow2019a; variable: Site16"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.00456710932619764"
```

```

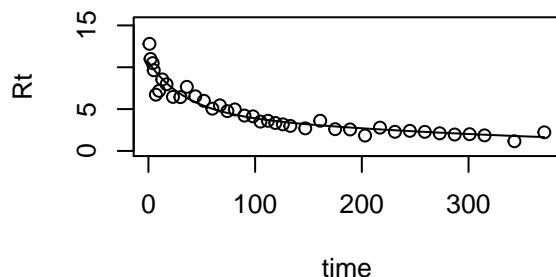
## [1] "AIC = 3.19397117542569"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.156480139724336"
## [2] "k2= 0.00362582899822005"
## [3] "proportion of C0 in pool 1= 0.0225938577569471"
## [1] "AIC = 5.10561725112356"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0290211865158371"
## [2] "k2= 0.00285112221664917"
## [3] "a21= 0.010185892618897"
## [4] "Proportion of C0 in pool 1= 0.109135060857401"
## [1] "AIC = 7.0742623425539"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.156481007082816"
## [2] "k2= 0.00362583188827106"
## [3] "a21= 0.0211377138077176"
## [4] "a12= 1.35368292774052e-05"
## [5] "Proportion of C0 in pool 1= 0.0230928634926796"

```

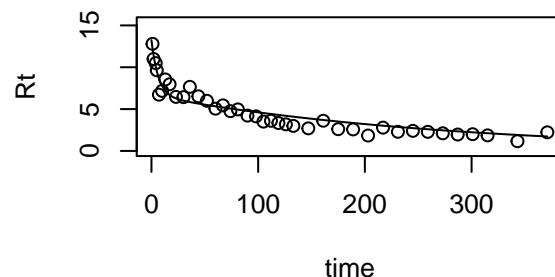
two pool_parallel structure



two pool_Series structure



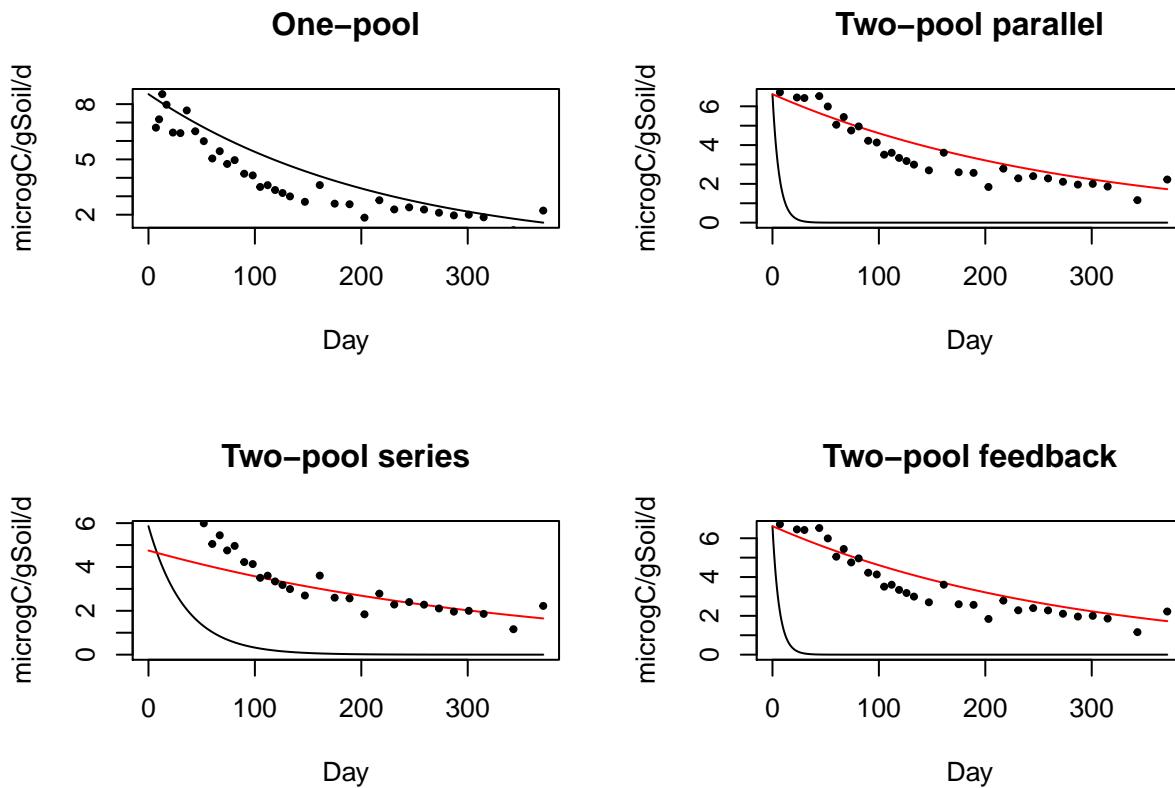
two pool_feedback structure



```

## [1] "AIC = 9.10561726199578"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:-----|:-----|:-----|:-----|  
## |One-pool |0.00457 |NA |NA |NA |NA |  
## |Two-pool parallel |0.156 |0.00363 |0.0226 |NA |NA |  
## |Two-pool series |0.029 |0.00285 |0.109 |0.0102 |NA |  
## |Two-pool feedback |0.156 |0.00363 |0.0231 |0.0211 |0.109 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|  
## |One-pool |3.19 |7.11 |223 |3.2 |0.662 |1870 |NA |70.8 |1.82 |  
## |Two-pool parallel |5.11 |16.9 |-160 |5.17 |0.248 |141 |17.8 |24.9 |0.639 |  
## |Two-pool series |7.07 |22.7 |-164 |7.18 |0.0905 |38 |24.2 |24.5 |0.629 |  
## |Two-pool feedback |9.11 |28.7 |-156 |9.27 |0.0319 |12.2 |4.57 |24.9 |0.639 |
```

Variable Site17;

CO2 production rate

```
Crow_V18=modelFitTS_Markdown(db = db[[9]], ts.col = 18, ic.col = 17, unitConverter = 1e3 )
```

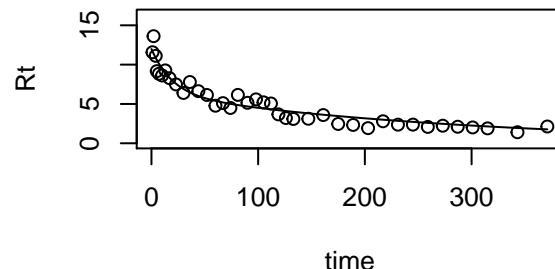
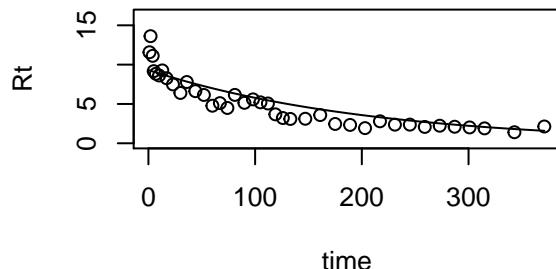
```
## [1] "Crow2019a; variable: Site17"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.00477595365029515"  
## [1] "AIC = 3.15379815773936"  
## [1] "Two pool model-parallel structure"  
## [1] "k1= 0.0511439690100633"
```

```

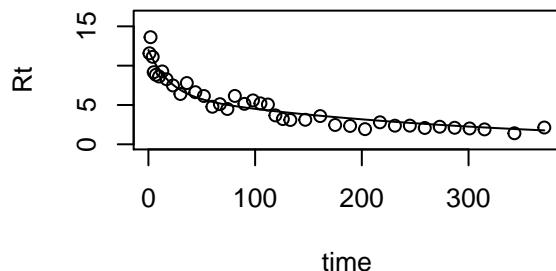
## [2] "k2= 0.00342582065958342"
## [3] "proportion of C0 in pool 1= 0.0570774686265928"
## [1] "AIC = 5.04236425683937"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0511486406886805"
## [2] "k2= 0.00342586961142708"
## [3] "a21= 0.00159047993891459"
## [4] "Proportion of C0 in pool 1= 0.0571686015561863"
## [1] "AIC = 7.04236424877227"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0511787319323724"
## [2] "k2= 0.00342616283333933"
## [3] "a21= 0.00839712236046891"
## [4] "a12= 1.32398428498437e-06"
## [5] "Proportion of C0 in pool 1= 0.057555179359695"

```

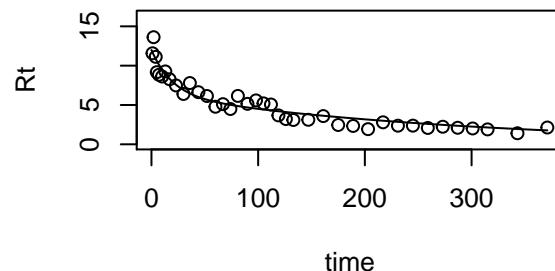
two pool_parallel structure



two pool_Series structure



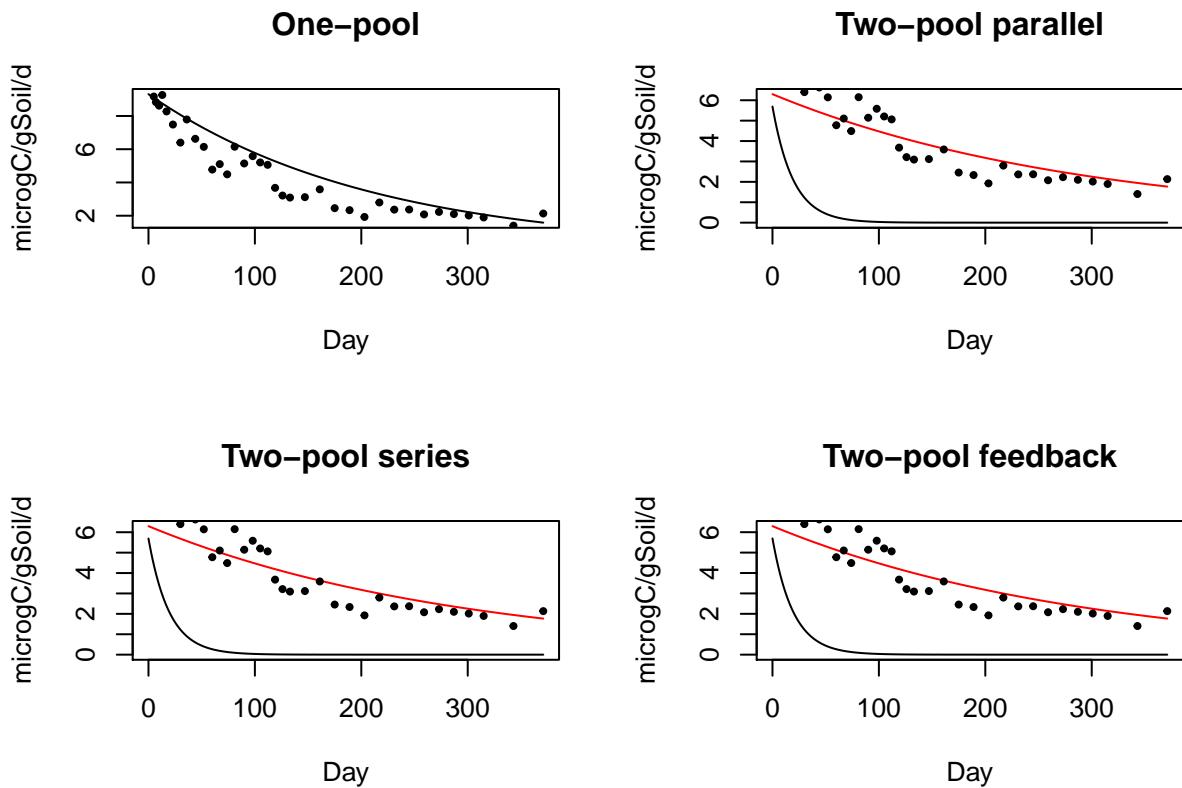
two pool_feedback structure



```

## [1] "AIC = 9.04236425233055"

```



```
##  
##  
## |model|k1|k2|COInp1|a21|a12||  
## |:-----|:-----|:-----|:-----|:-----|:  
## |One-pool|0.00478|NA|NA|NA|NA||  
## |Two-pool parallel|0.0511|0.00343|0.0571|NA|NA||  
## |Two-pool series|0.0511|0.00343|0.0572|0.00159|NA||  
## |Two-pool feedback|0.0512|0.00343|0.0576|0.0084|0.0572||  
##  
##  
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR||  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|:  
## |One-pool|3.15|7.07|216|3.16|0.66|1950|NA|69.4|1.78||  
## |Two-pool parallel|5.04|16.8|-172|5.11|0.25|163|44.4|24.2|0.62||  
## |Two-pool series|7.04|22.7|-170|7.15|0.0899|20|13.6|24.2|0.62||  
## |Two-pool feedback|9.04|28.6|-168|9.21|0.0322|22|13.7|24.2|0.62||
```

Variable Site18;

CO2 production rate

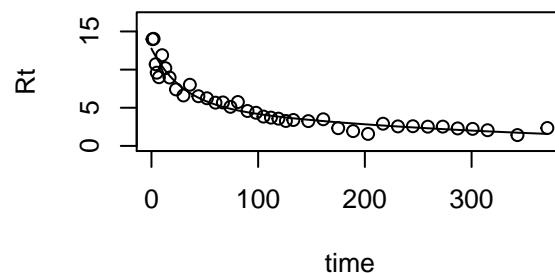
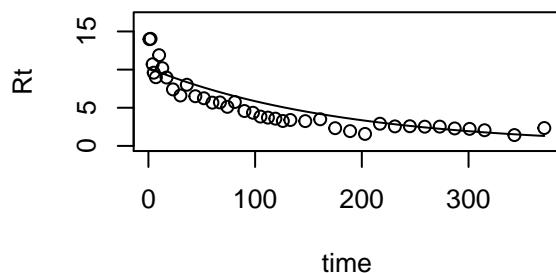
```
Crow_V19=modelFitTS_Markdown(db = db[[9]], ts.col = 19, ic.col = 18, unitConverter = 1e3,  
    inipars=list(oneP=0.5,  
                parallel=c(0.01, 0.001, 0.1),  
                series=c(0.01, 0.0001, 0.05, 0.1),  
                feedback=c(0.05, 0.0001, 0.1, 0.01, 0.1)))  
  
## [1] "Crow2019a; variable: Site18"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.00555111338472969"
```

```

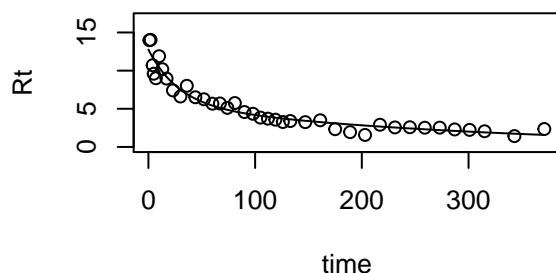
## [1] "AIC = 3.61917743488867"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0355157990408913"
## [2] "k2= 0.00341848970856351"
## [3] "proportion of C0 in pool 1= 0.109461586210882"
## [1] "AIC = 5.19921885428916"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0355167362625162"
## [2] "k2= 0.00341851313319829"
## [3] "a21= 0.249473315615727"
## [4] "Proportion of C0 in pool 1= 0.151194218830348"
## [1] "AIC = 7.19921885328219"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0355212948071661"
## [2] "k2= 0.00341863756789335"
## [3] "a21= 0.0393034380830021"
## [4] "a12= 2.8819932916313e-05"
## [5] "Proportion of C0 in pool 1= 0.114421130714161"

```

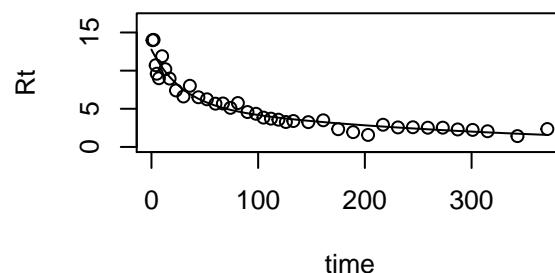
two pool_parallel structure



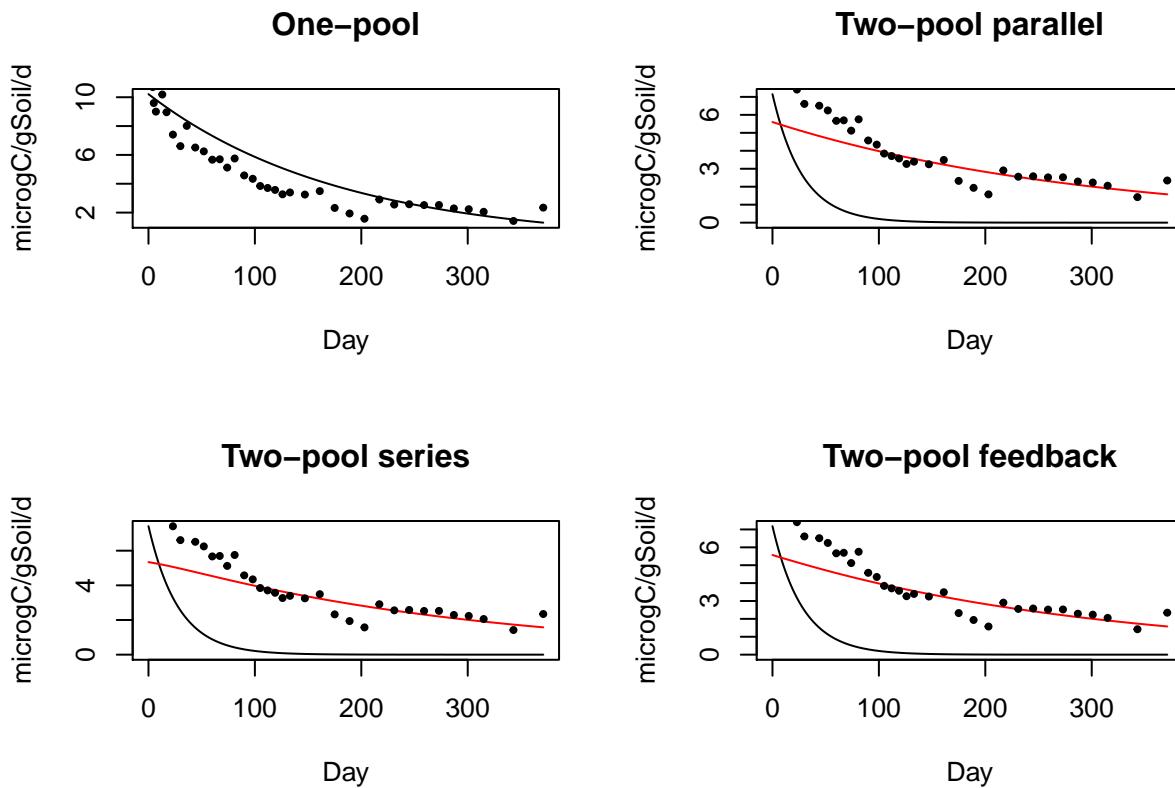
two pool_Series structure



two pool_feedback structure



```
## [1] "AIC = 9.19921885751648"
```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool |0.00555 |NA |NA |NA |NA |  
## |Two-pool parallel |0.0355 |0.00342 |0.109 |NA |NA |  
## |Two-pool series |0.0355 |0.00342 |0.151 |0.249 |NA |  
## |Two-pool feedback |0.0355 |0.00342 |0.114 |0.0393 |0.151 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|  
## |One-pool |3.62 |7.54 |302 |3.63 |0.625 |1840 |NA |87.6 |2.25 |  
## |Two-pool parallel |5.2 |16.9 |-143 |5.26 |0.276 |144 |43.2 |26.1 |0.67 |  
## |Two-pool series |7.2 |22.9 |-141 |7.31 |0.0993 |101 |29.9 |26.1 |0.67 |  
## |Two-pool feedback |9.2 |28.8 |-139 |9.36 |0.0355 |39.6 |20.6 |26.1 |0.67 |
```

Variable Site19;

CO₂ production rate

```
Crow_V20=modelFitTS_Markdown(db = db[[9]], ts.col = 20, ic.col = 19, unitConverter = 1e3 )
```

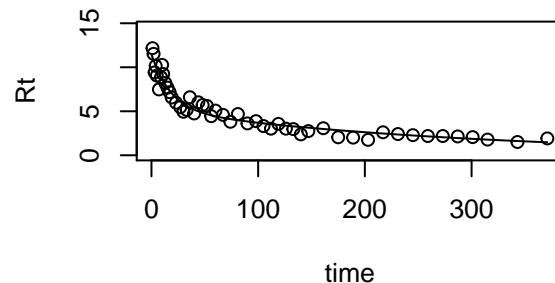
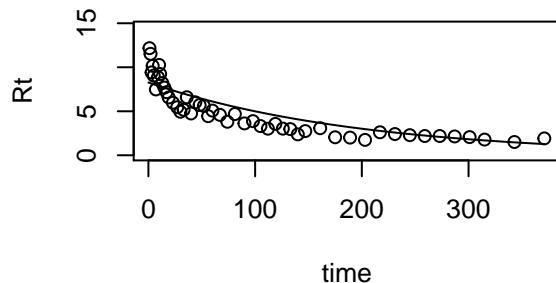
```
## [1] "Crow2019a; variable: Site19"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.00504176902718534"  
## [1] "AIC = 3.31335388305591"  
## [1] "Two pool model-parallel structure"  
## [1] "k1= 0.0551649922085945"
```

```

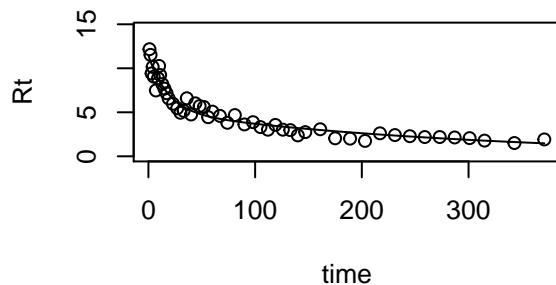
## [2] "k2= 0.00336756722826823"
## [3] "proportion of C0 in pool 1= 0.0701504376843637"
## [1] "AIC = 4.30271781500133"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0551643509604241"
## [2] "k2= 0.00336755760657498"
## [3] "a21= 0.0353317399879906"
## [4] "Proportion of C0 in pool 1= 0.0728921767024192"
## [1] "AIC = 6.30271783069185"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0551695151306521"
## [2] "k2= 0.00336763354531901"
## [3] "a21= 0.003401346205058"
## [4] "a12= 2.88909699613926e-06"
## [5] "Proportion of C0 in pool 1= 0.0703996804712523"

```

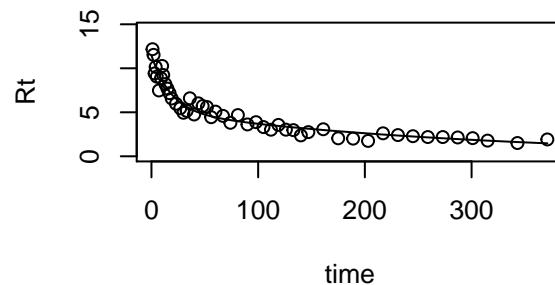
two pool_parallel structure



two pool_Series structure



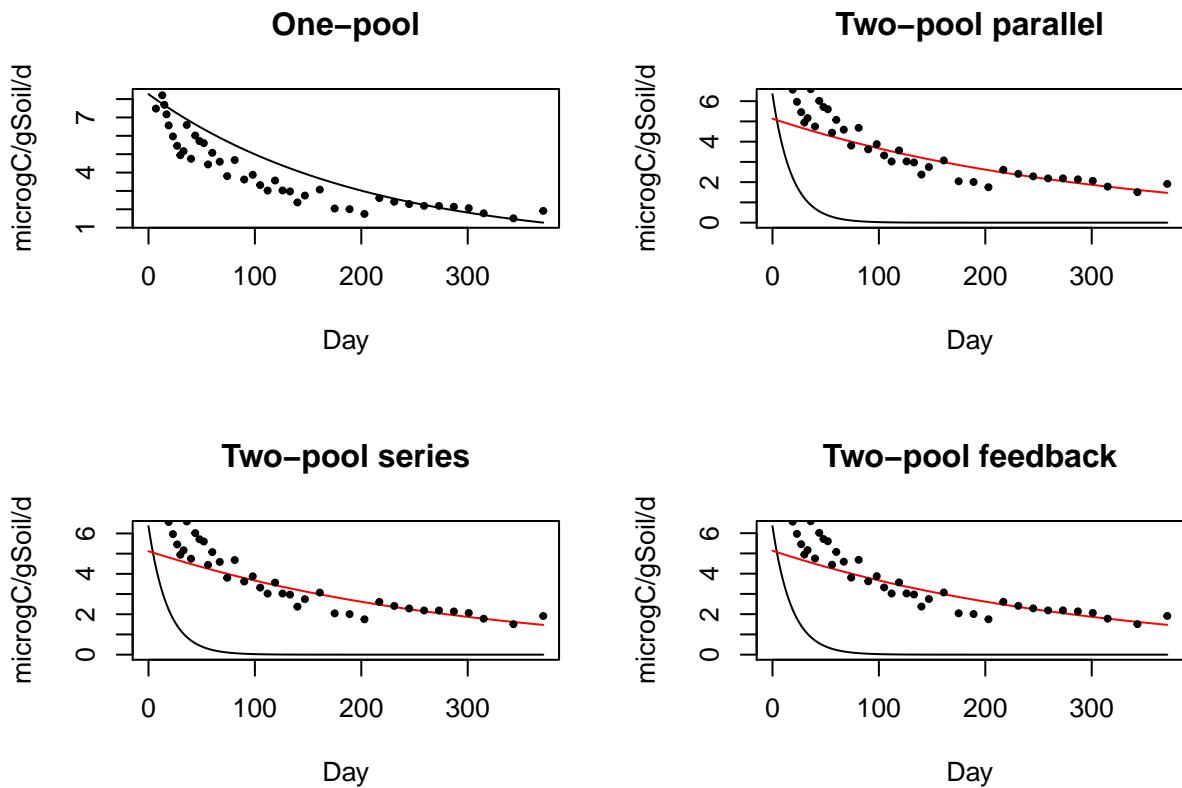
two pool_feedback structure



```

## [1] "AIC = 8.30271781346773"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool |0.00504 |NA |NA |NA |NA |  
## |Two-pool parallel |0.0552 |0.00337 |0.0702 |NA |NA |  
## |Two-pool series |0.0552 |0.00337 |0.0729 |0.0353 |NA |  
## |Two-pool feedback |0.0552 |0.00337 |0.0704 |0.0034 |0.0729 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|  
## |One-pool |3.31 |7.23 |246 |3.32 |0.553 |1640 |NA |96.4 |1.93 |  
## |Two-pool parallel |4.3 |16.1 |-309 |4.37 |0.328 |143 |31.4 |21.4 |0.428 |  
## |Two-pool series |6.3 |22 |-307 |6.41 |0.118 |28.6 |13.2 |21.4 |0.428 |  
## |Two-pool feedback |8.3 |27.9 |-305 |8.47 |0.0423 |19.1 |12.6 |21.4 |0.428 |
```

Variable Site20;

CO2 production rate

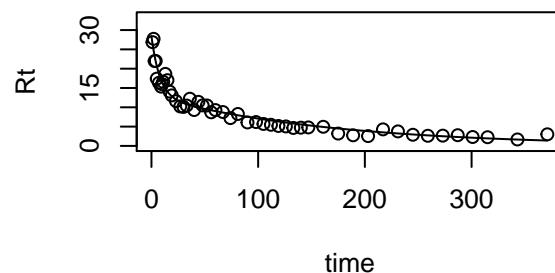
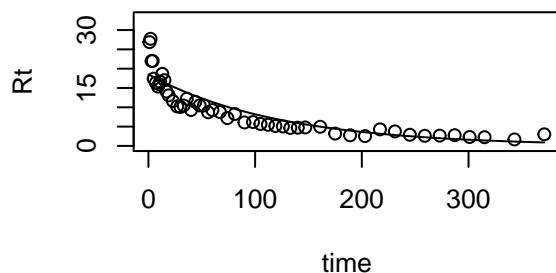
```
Crow_V21=modelFitTS_Markdown(db = db[[9]], ts.col = 21, ic.col = 20, unitConverter = 1e3,  
    inipars=list(oneP=0.5,  
                parallel=c(0.01, 0.001, 0.1),  
                series=c(0.01, 0.0001, 0.01, 0.1),  
                feedback=c(0.01, 0.0001, 0.1, 0.01, 0.01)))  
  
## [1] "Crow2019a; variable: Site20"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.00816246504779272"
```

```

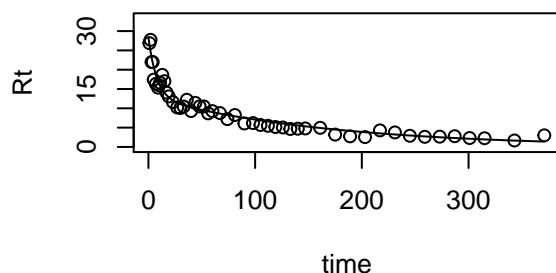
## [1] "AIC = 6.09197786371572"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.128779054827537"
## [2] "k2= 0.00600516191813811"
## [3] "proportion of C0 in pool 1= 0.0530827559538779"
## [1] "AIC = 7.08040829532846"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.128776392740147"
## [2] "k2= 0.00600513911562606"
## [3] "a21= 0.687963533561964"
## [4] "Proportion of C0 in pool 1= 0.19068667564358"
## [1] "AIC = 9.08040830419414"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.128780557867527"
## [2] "k2= 0.00600517495981819"
## [3] "a21= 0.000909507704375923"
## [4] "a12= 3.23701648765606e-05"
## [5] "Proportion of C0 in pool 1= 0.0531340211359463"

```

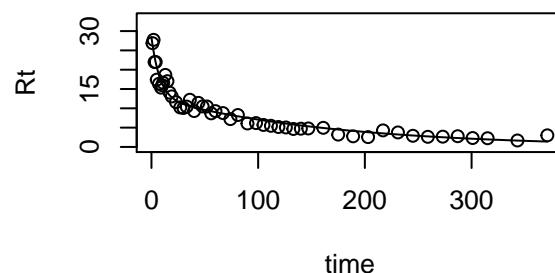
two pool_parallel structure



two pool_Series structure



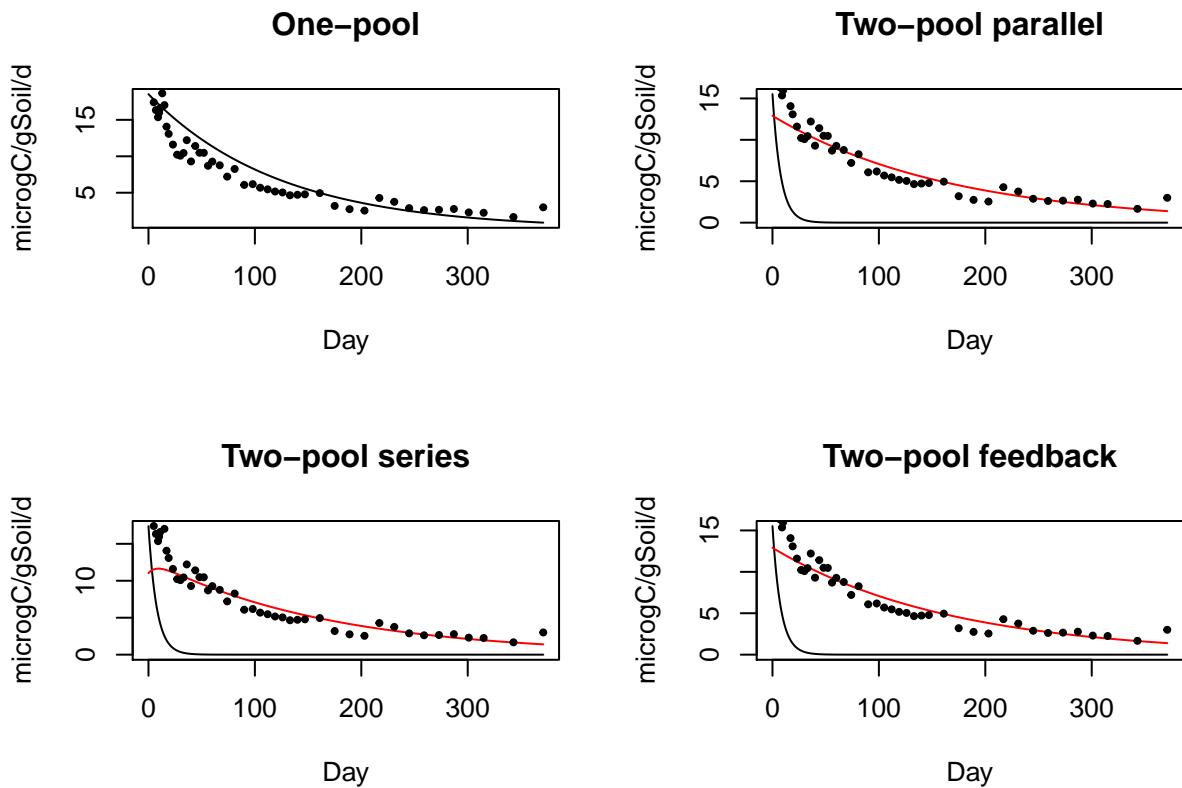
two pool_feedback structure



```

## [1] "AIC = 11.0804082952599"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool |0.00816 |NA |NA |NA |NA |  
## |Two-pool parallel |0.129 |0.00601 |0.0531 |NA |NA |  
## |Two-pool series |0.129 |0.00601 |0.191 |0.688 |NA |  
## |Two-pool feedback |0.129 |0.00601 |0.0531 |0.00091 |0.191 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|  
## |One-pool |6.09 |10 |761 |6.1 |0.553 |2270 |NA |387 |7.74 |  
## |Two-pool parallel |7.08 |18.8 |206 |7.15 |0.328 |79.9 |14.5 |85.8 |1.72 |  
## |Two-pool series |9.08 |24.7 |208 |9.19 |0.118 |122 |61.1 |85.8 |1.72 |  
## |Two-pool feedback |11.1 |30.7 |210 |11.2 |0.0423 |7.92 |5.39 |85.8 |1.72 |
```

Variable Site21;

CO2 production rate

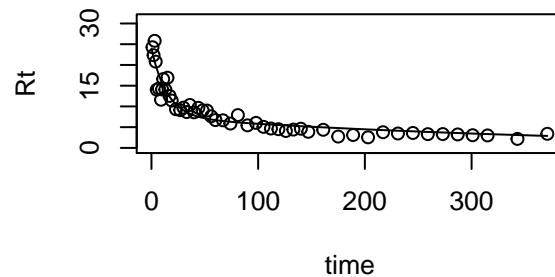
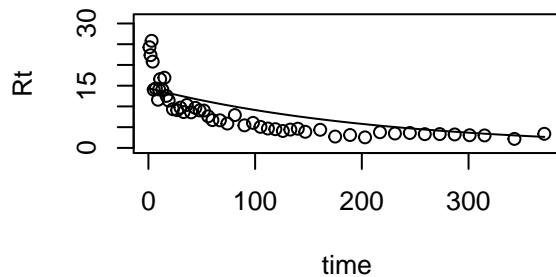
```
Crow_V22=modelFitTS_Markdown(db = db[[9]], ts.col = 22, ic.col = 11, unitConverter = 1e3,  
    inipars=list(oneP=0.5,  
                parallel=c(0.01, 0.001, 0.1),  
                series=c(0.05, 0.0001, 0.01, 0.1),  
                feedback=c(0.01, 0.0001, 0.1, 0.01, 0.01)))  
  
## [1] "Crow2019a; variable: Site21"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.00456229262842101"
```

```

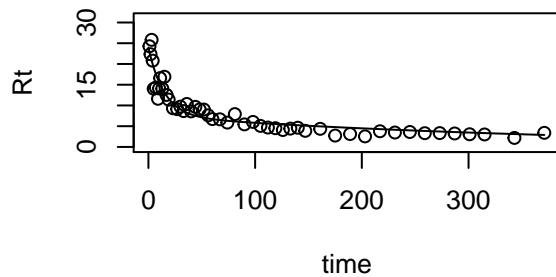
## [1] "AIC = 7.26119137150638"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.068149069177916"
## [2] "k2= 0.00256769767185383"
## [3] "proportion of C0 in pool 1= 0.0764535062508055"
## [1] "AIC = 8.16716639313313"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0681385788238766"
## [2] "k2= 0.00256756625855304"
## [3] "a21= 0.000227985084033266"
## [4] "Proportion of C0 in pool 1= 0.0764819836308582"
## [1] "AIC = 10.1671663925402"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0681397338707614"
## [2] "k2= 0.00256758081632058"
## [3] "a21= 0.000565979508753922"
## [4] "a12= 4.11549625450869e-06"
## [5] "Proportion of C0 in pool 1= 0.0765079301773642"

```

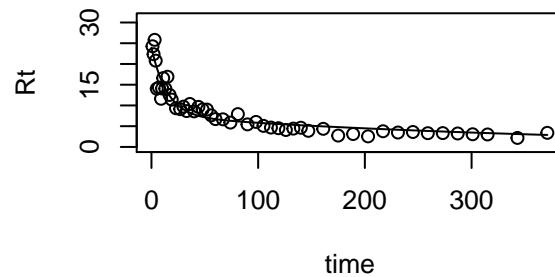
two pool_parallel structure



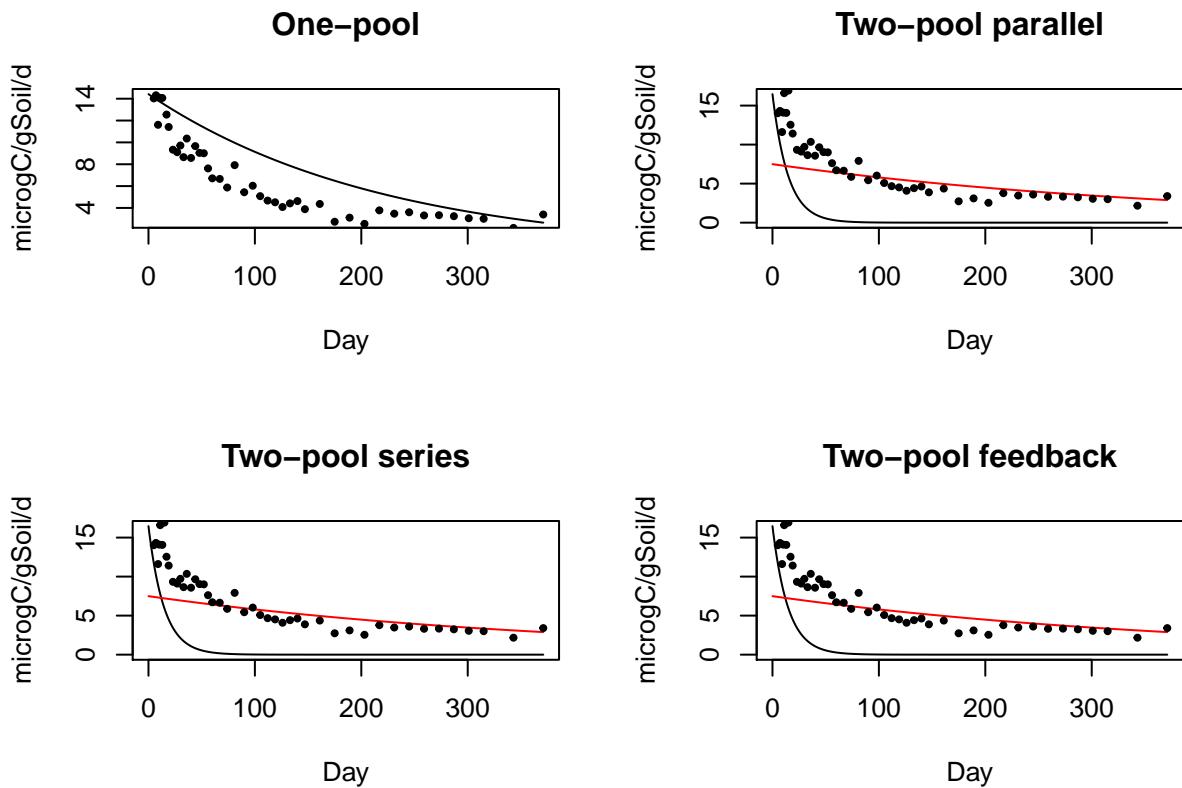
two pool_Series structure



two pool_feedback structure



```
## [1] "AIC = 12.1671663909439"
```



```
##
##
## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|0.00456|NA|NA|NA|NA|
## |Two-pool parallel|0.0681|0.00257|0.0765|NA|NA|
## |Two-pool series|0.0681|0.00257|0.0765|0.000228|NA|
## |Two-pool feedback|0.0681|0.00257|0.0765|0.000566|0.0765|
##
##
## |model|AIC|BIC|AICn|AICC|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|7.26|11.2|978|7.27|0.543|3160|NA|694|13.9|
## |Two-pool parallel|8.17|19.9|408|8.23|0.336|132|18|148|12.96|
## |Two-pool series|10.2|25.8|410|10.3|0.121|14.8|10.2|148|12.96|
## |Two-pool feedback|12.2|31.7|412|12.3|0.0433|14.9|10.2|148|12.96|
```

Variable Site22;

CO₂ production rate

```
Crow_V23=modelFitTS_Markdown(db = db[[9]], ts.col = 23, ic.col = 22, unitConverter = 1e3 )
```

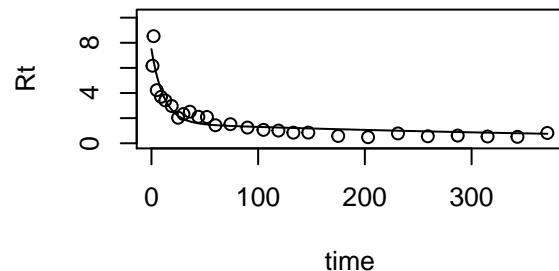
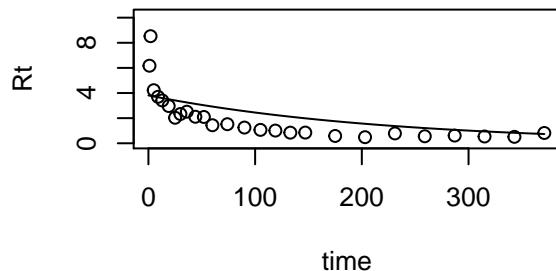
```
## [1] "Crow2019a; variable: Site22"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00443129338802173"
## [1] "AIC = 3.29006194578875"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0867645078259964"
```

```

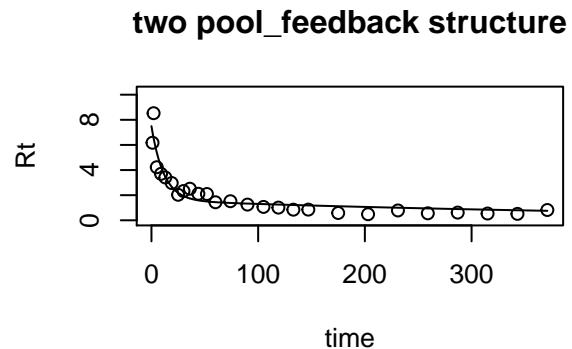
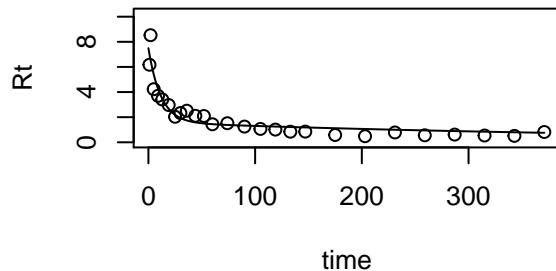
## [2] "k2= 0.00200875743671488"
## [3] "proportion of C0 in pool 1= 0.079119117396054"
## [1] "AIC = 3.93669284258133"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0867500175623432"
## [2] "k2= 0.00200860315723003"
## [3] "a21= 7.46653905354111e-05"
## [4] "Proportion of C0 in pool 1= 0.0791364551848839"
## [1] "AIC = 5.93669283872693"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0867608361290447"
## [2] "k2= 0.0020087180161932"
## [3] "a21= 0.00396993775846138"
## [4] "a12= 1.24503664872266e-06"
## [5] "Proportion of C0 in pool 1= 0.0794432389549916"

```

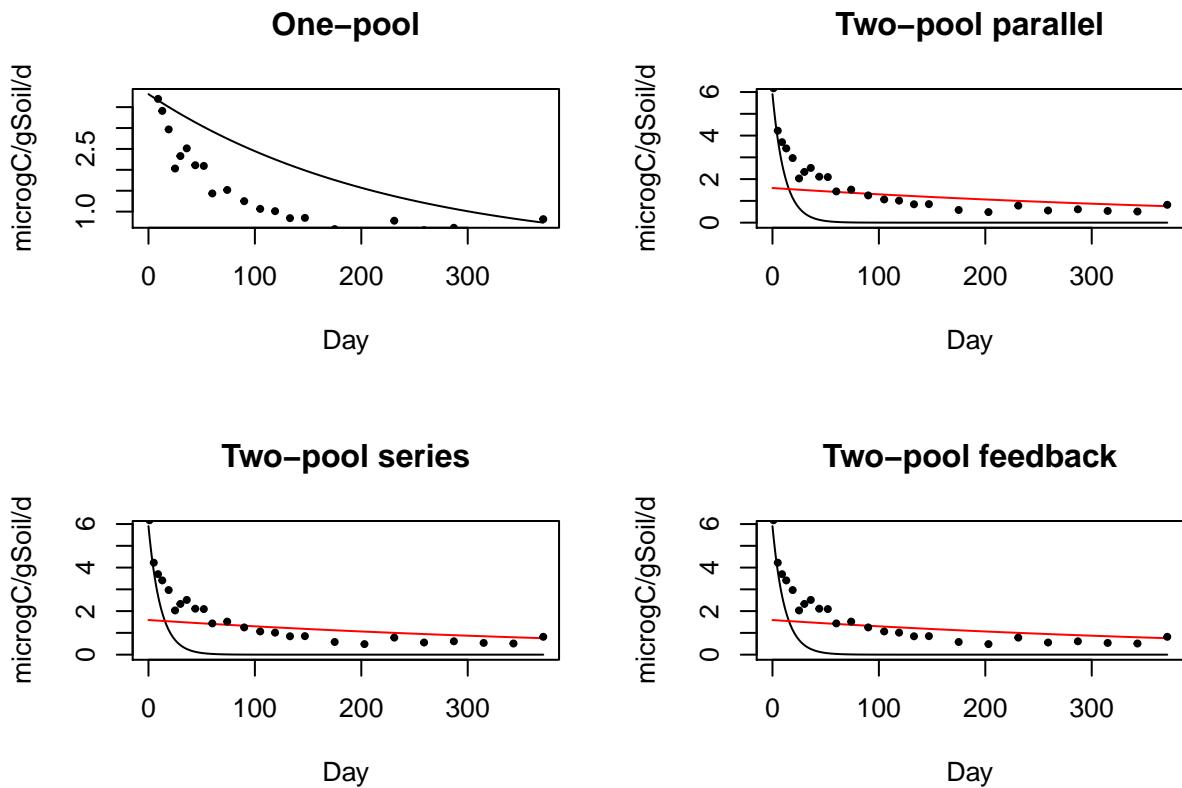
two pool_parallel structure



two pool_Series structure



```
## [1] "AIC = 7.93669284561821"
```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool | -0.00443 |NA |NA |NA |NA |  
## |Two-pool parallel | 0.0868 | 0.00201 | 0.0791 |NA |NA |  
## |Two-pool series | 0.0868 | 0.00201 | 0.0791 | 7.47e-05 |NA |  
## |Two-pool feedback | 0.0868 | 0.00201 | 0.0794 | 0.00397 | 0.0791 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|  
## |One-pool | 3.29 | 7.21 | 241 | 3.3 | 0.511 | 860 |NA | 49.6 | 1.91 |  
## |Two-pool parallel | 3.94 | 15.7 | -377 | 4 | 0.36 | 115 | 11.4 | 9.27 | 0.356 |  
## |Two-pool series | 5.94 | 21.6 | -375 | 6.05 | 0.129 | 11.6 | 7.99 | 9.27 | 0.356 |  
## |Two-pool feedback | 7.94 | 27.5 | -373 | 8.1 | 0.0463 | 13.5 | 8.03 | 9.27 | 0.356 |
```

Variable Site23;

CO₂ production rate

```
Crow_V24=modelFitTS_Markdown(db = db[[9]], ts.col = 24, ic.col = 23, unitConverter = 1e3 )
```

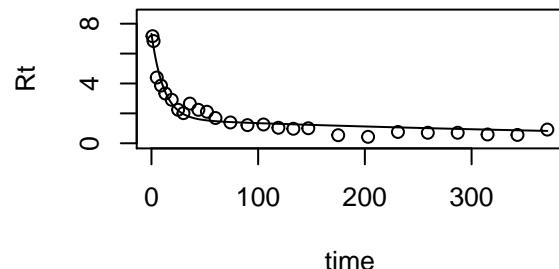
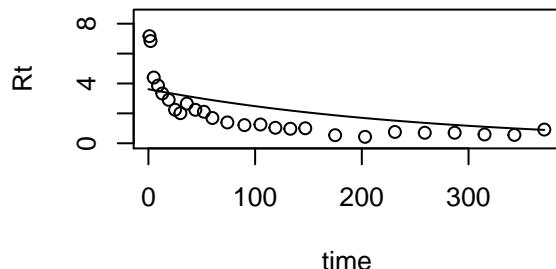
```
## [1] "Crow2019a; variable: Site23"  
## [1] "One pool model"  
## [1] "Best fit parameter: -0.00376783066147901"  
## [1] "AIC = 3.07093521220887"  
## [1] "Two pool model-parallel structure"  
## [1] "k1= 0.086688735268614"
```

```

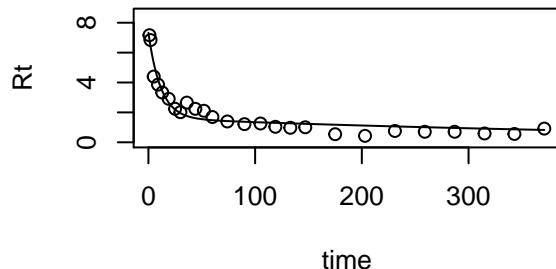
## [2] "k2= 0.00180284323917104"
## [3] "proportion of C0 in pool 1= 0.068686958479798"
## [1] "AIC = 2.46912191729624"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0866734009988844"
## [2] "k2= 0.00180271444890217"
## [3] "a21= 0.17319115247672"
## [4] "Proportion of C0 in pool 1= 0.0834582426828976"
## [1] "AIC = 4.4691219046712"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0866838365818844"
## [2] "k2= 0.00180280207509933"
## [3] "a21= 0.00113890725928956"
## [4] "a12= 5.23320354661738e-07"
## [5] "Proportion of C0 in pool 1= 0.0687703018355946"

```

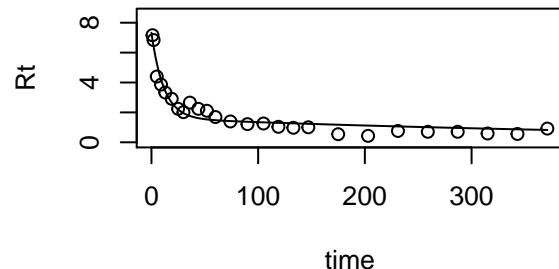
two pool_parallel structure



two pool_Series structure



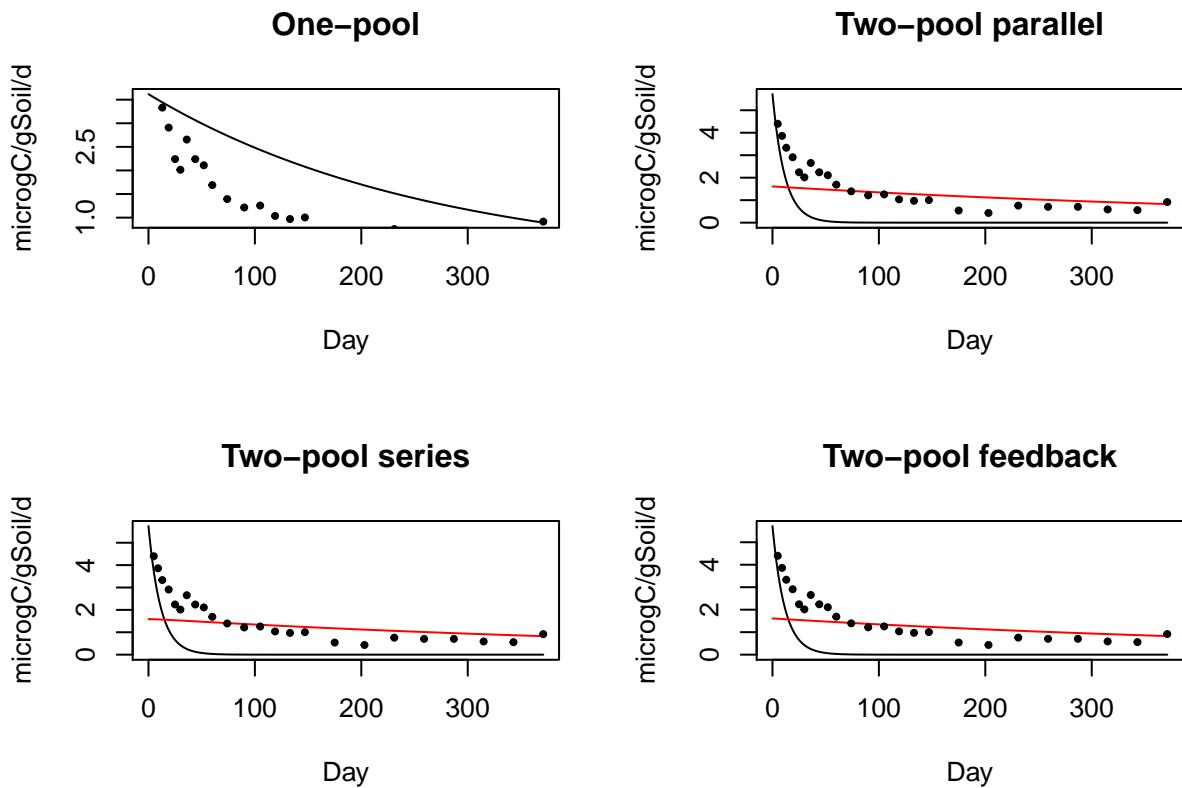
two pool_feedback structure



```

## [1] "AIC = 6.46912190623539"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool | -0.00377 |NA |NA |NA |NA |  
## |Two-pool parallel | 0.0867 | 0.0018 | 0.0687 |NA |NA |  
## |Two-pool series | 0.0867 | 0.0018 | 0.0835 | 0.173 |NA |  
## |Two-pool feedback | 0.0867 | 0.0018 | 0.0688 | 0.00114 | 0.0835 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|  
## |One-pool | 3.07 | 6.99 | 201 | 3.08 | 0.359 | 960 | NA | 44.4 | 1.71 |  
## |Two-pool parallel | 2.47 | 14.2 | -649 | 2.53 | 0.472 | 131 | 11.6 | 4.45 | 0.171 |  
## |Two-pool series | 4.47 | 20.1 | -647 | 4.58 | 0.17 | 108 | 10.7 | 4.45 | 0.171 |  
## |Two-pool feedback | 6.47 | 26.1 | -645 | 6.63 | 0.0607 | 12.2 | 18.01 | 4.45 | 0.171 |
```

Variable Site24;

CO2 production rate

```
Crow_V25=modelFitTS_Markdown(db = db[[9]], ts.col = 25, ic.col = 24, unitConverter = 1e3 )
```

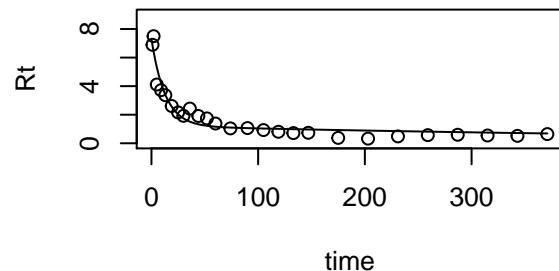
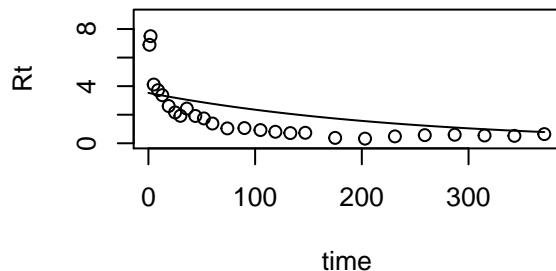
```
## [1] "Crow2019a; variable: Site24"  
## [1] "One pool model"  
## [1] "Best fit parameter: -0.0040527688137999"  
## [1] "AIC = 3.39278873564719"  
## [1] "Two pool model-parallel structure"  
## [1] "k1= 0.0779926331238771"
```

```

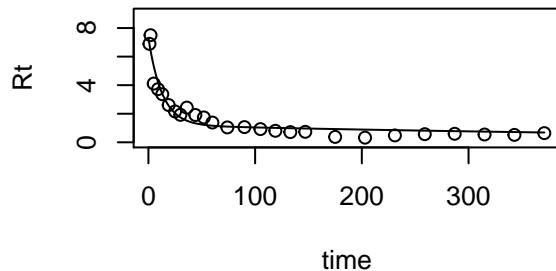
## [2] "k2= 0.00152820370014227"
## [3] "proportion of C0 in pool 1= 0.0899637679322258"
## [1] "AIC = 2.91237123000156"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0779782457048384"
## [2] "k2= 0.00152803927723981"
## [3] "a21= 1.65916600575744e-05"
## [3] "a21= 1.65916600575744e-05"
## [4] "Proportion of C0 in pool 1= 0.0899794234767097"
## [1] "AIC = 4.91237123530977"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0779888752944091"
## [2] "k2= 0.0015281607294328"
## [3] "a21= 0.00366290917712631"
## [4] "a12= 4.95666578231857e-06"
## [5] "Proportion of C0 in pool 1= 0.0903034034107997"

```

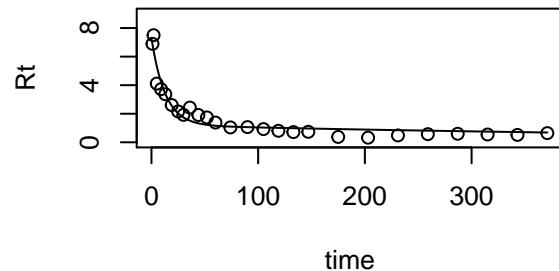
two pool_parallel structure



two pool_Series structure



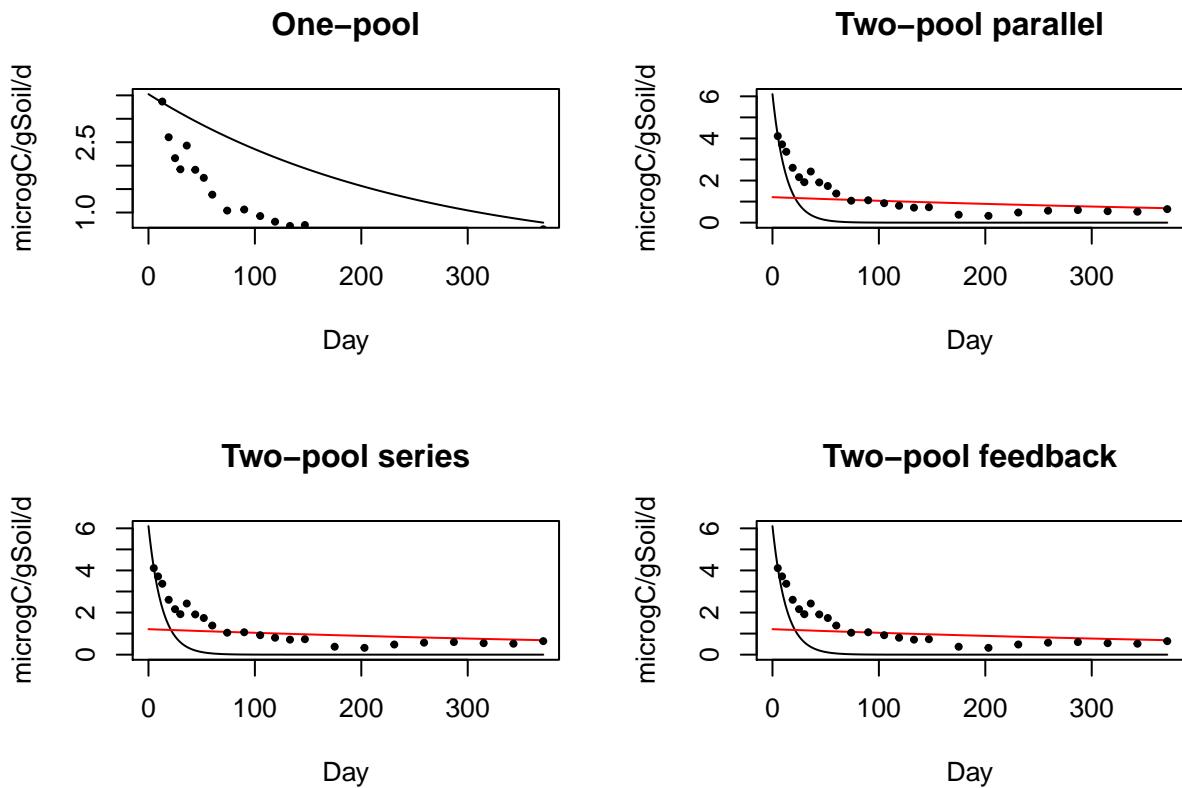
two pool_feedback structure



```

## [1] "AIC = 6.91237123182129"

```



```

## 
## 
## |model           |k1        |k2        |COInp1   |a21       |a12      |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool        |-0.00405 |NA        |NA        |NA        |NA       |
## |Two-pool parallel|0.078     |0.00153  |0.09      |NA        |NA       |
## |Two-pool series |0.078     |0.00153  |0.09      |1.66e-05  |NA       |
## |Two-pool feedback|0.078     |0.00153  |0.0903   |0.00366  |0.09    |
## 
## 
## |model           |AIC      |BIC      |AICn     |AICC     |wi       |MeanTrT |q05      |SSR      |MSR      |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool        |3.39    |7.31    |260     |3.4      |0.373   |870     |NA       |52.2    |2.01    |
## |Two-pool parallel|2.91    |14.7    |-567    |2.98    |0.461   |119     |11.6    |5.55    |0.214   |
## |Two-pool series |4.91    |20.6    |-565    |5.02    |0.166   |12.8    |8.89    |5.55    |0.214   |
## |Two-pool feedback|6.91    |26.5    |-563    |7.08    |0.0594  |15.2    |8.93    |5.55    |0.214

```

Variable Site25;

CO2 production rate

```
Crow_V26=modelFitTS_Markdown(db = db[[9]], ts.col = 26, ic.col = 25, unitConverter = 1e3 )
```

```

## [1] "Crow2019a; variable: Site25"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00554365730321749"
## [1] "AIC = 4.68435005903809"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0316277190514386"

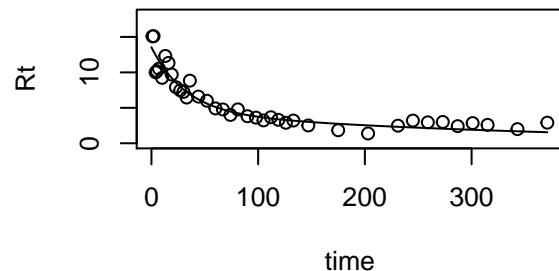
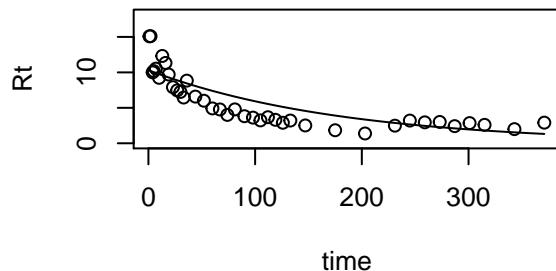
```

```

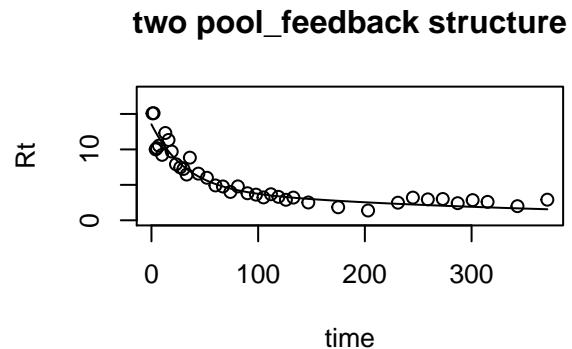
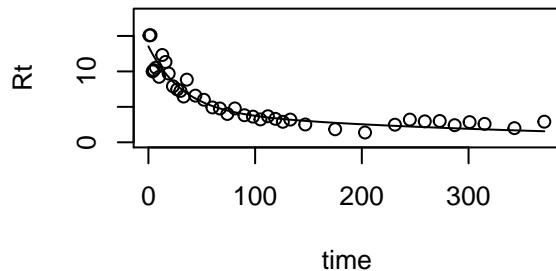
## [2] "k2= 0.00282714794498828"
## [3] "proportion of C0 in pool 1= 0.154630255981283"
## [1] "AIC = 6.22487625404265"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0316272651907586"
## [2] "k2= 0.00282712066665093"
## [3] "a21= 9.34913615480149e-06"
## [4] "Proportion of C0 in pool 1= 0.15463475264992"
## [1] "AIC = 8.22487625482566"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0316283469199871"
## [2] "k2= 0.00282719082401011"
## [3] "a21= 0.0068456257503331"
## [4] "a12= 3.86165723209597e-06"
## [5] "Proportion of C0 in pool 1= 0.155797777695413"

```

two pool_parallel structure



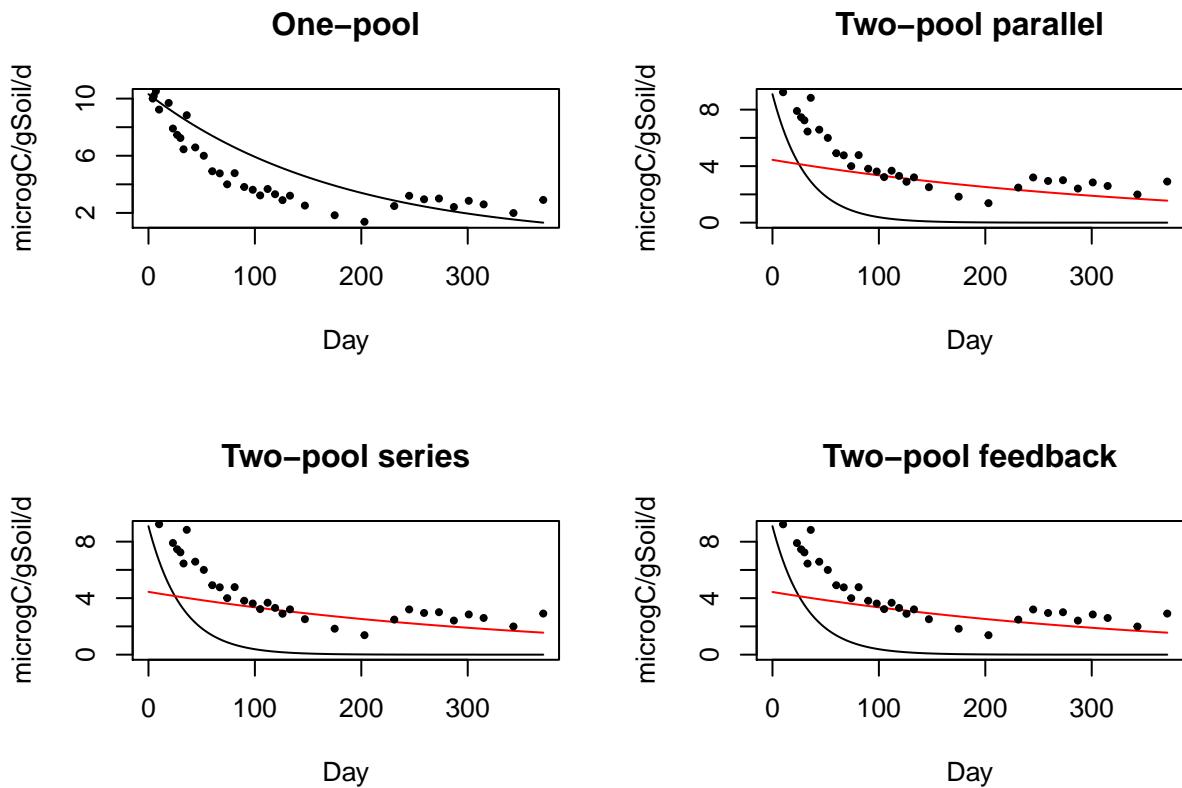
two pool_Series structure



```

## [1] "AIC = 10.2248762541298"

```



```

## 
## 
## |model           |k1      |k2      |COInp1 |a21      |a12      |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool        |0.00554 |NA      |NA      |NA      |NA      |
## |Two-pool parallel|0.0316  |0.00283 |0.155   |NA      |NA      |
## |Two-pool series |0.0316  |0.00283 |0.155   |9.35e-06 |NA      |
## |Two-pool feedback|0.0316  |0.00283 |0.156   |0.00685 |0.155   |
## 
## 
## |model           |AIC    |BIC    |AICn   |AICC   |wi     |MeanTrT |q05    |SSR    |MSR    |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool        |4.68   |8.6    |500    |4.7    |0.62   |1860    |NA     |149    |3.83   |
## |Two-pool parallel|6.22   |18     |47.7   |6.29   |0.279  |137     |37.6   |43.6   |11.12  |
## |Two-pool series |8.22   |23.9   |49.7   |8.33   |0.101  |31.6    |21.9   |43.6   |11.12  |
## |Two-pool feedback|10.2   |29.8   |51.7   |10.4   |0.036  |34      |22.1   |43.6   |11.12  |

```

Variable Site26;

CO₂ production rate

```
Crow_V27=modelFitTS_Markdown(db = db[[9]], ts.col = 27, ic.col = 26, unitConverter = 1e3 )
```

```

## [1] "Crow2019a; variable: Site26"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00420023991592622"
## [1] "AIC = 3.77213274500204"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0167731865649481"

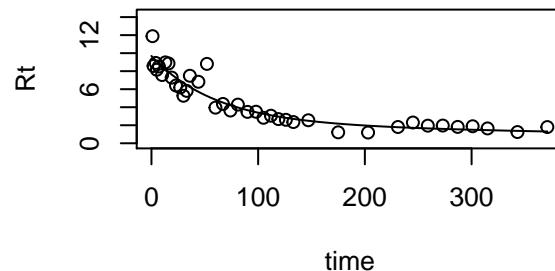
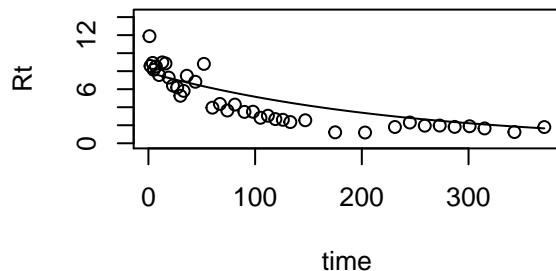
```

```

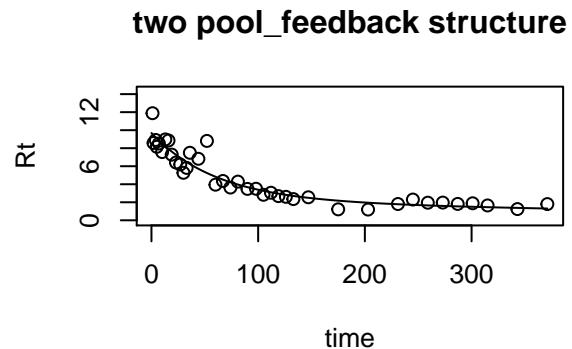
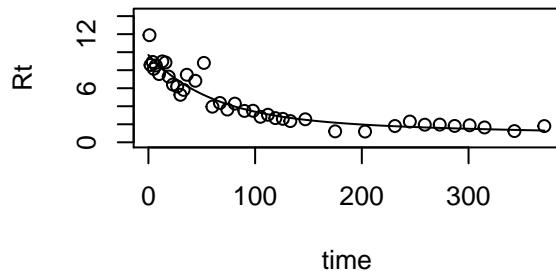
## [2] "k2= 0.00167105096776249"
## [3] "proportion of C0 in pool 1= 0.23240387734973"
## [1] "AIC = 5.67704007418397"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0167731133048804"
## [2] "k2= 0.00167104372073031"
## [3] "a21= 0.000108626601143857"
## [4] "Proportion of C0 in pool 1= 0.232431846349491"
## [1] "AIC = 7.67704007517416"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00167107134366585"
## [2] "k2= 0.0167733796919686"
## [3] "a21= 0.999893473399878"
## [4] "a12= 5.66535479640251e-07"
## [5] "Proportion of C0 in pool 1= 0.691133702525874"

```

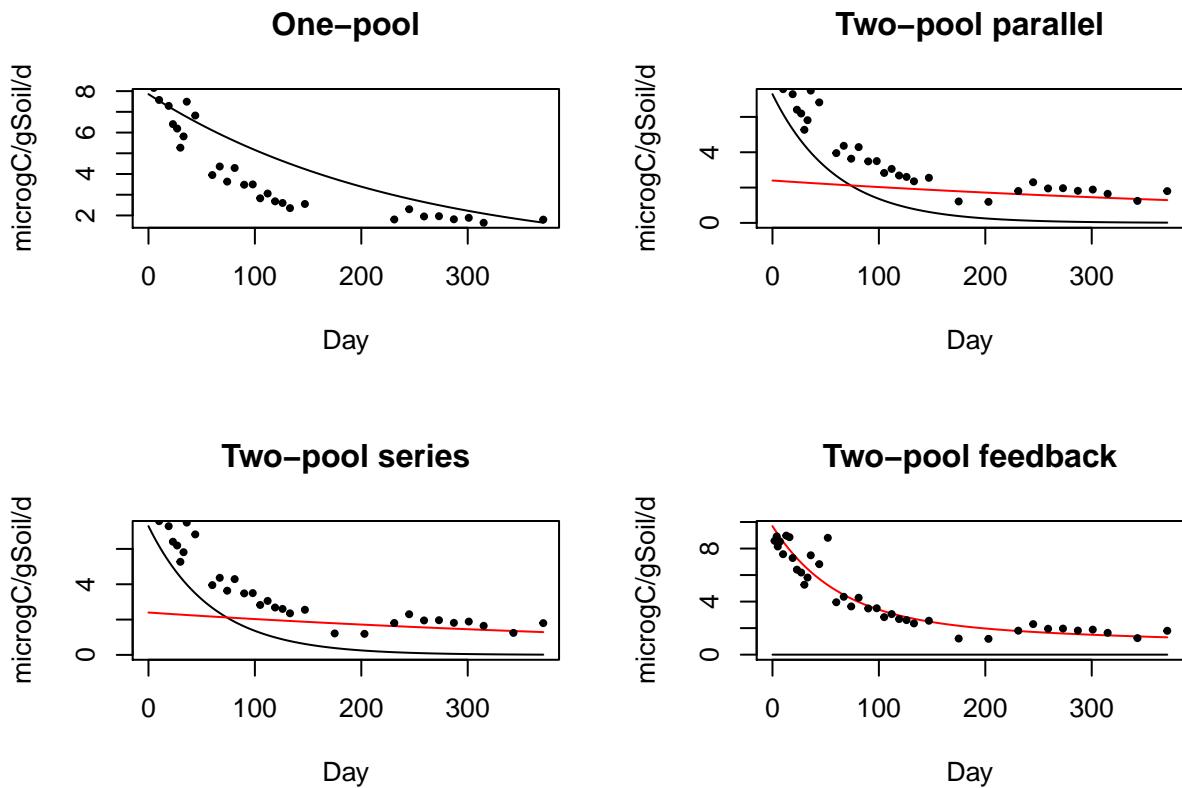
two pool_parallel structure



two pool_Series structure



```
## [1] "AIC = 9.67704007407828"
```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:-----|:-----|:-----|:-----|  
## |One-pool |0.0042 |NA |NA |NA |NA |  
## |Two-pool parallel |0.0168 |0.00167 |0.232 |NA |NA |  
## |Two-pool series |0.0168 |0.00167 |0.232 |0.000109 |NA |  
## |Two-pool feedback |0.00167 |0.0168 |0.691 |1 |0.232 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:-----|:---|:---|:---|  
## |One-pool |3.77 |7.69 |331 |3.78 |0.662 |1870 |NA |94.6 |2.43 |  
## |Two-pool parallel |5.68 |17.4 |-53.9 |5.74 |0.249 |193 |59.8 |33.2 |0.851 |  
## |Two-pool series |7.68 |23.3 |-51.9 |7.79 |0.0894 |59.7 |41.3 |33.2 |0.851 |  
## |Two-pool feedback |9.68 |29.3 |-49.9 |9.84 |0.032 |658 |478 |33.2 |0.851 |
```

Variable Site27;

CO2 production rate

```
Crow_V28=modelFitTS_Markdown(db = db[[9]], ts.col = 28, ic.col = 27, unitConverter = 1e3 )
```

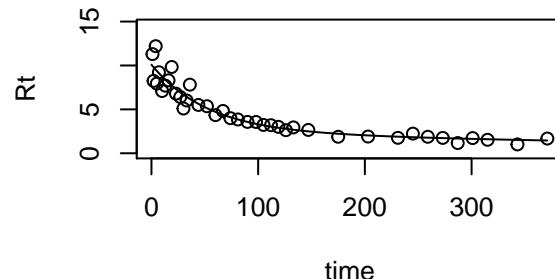
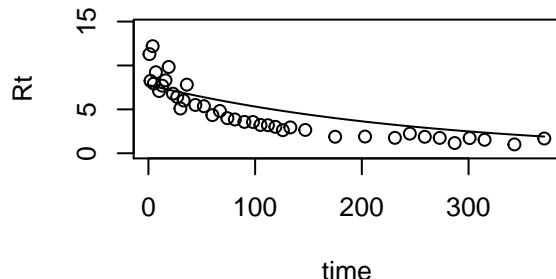
```
## [1] "Crow2019a; variable: Site27"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.00379254008286622"  
## [1] "AIC = 4.08277074209629"  
## [1] "Two pool model-parallel structure"  
## [1] "k1= 0.019248573767885"
```

```

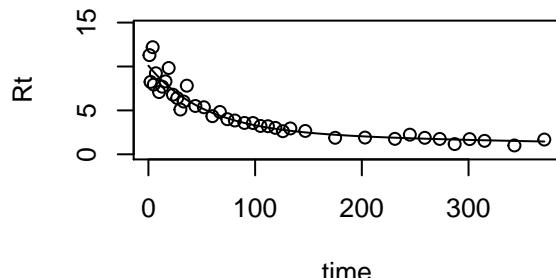
## [2] "k2= 0.0015533824074903"
## [3] "proportion of C0 in pool 1= 0.190392011102497"
## [1] "AIC = 5.38136487236722"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0192491406658688"
## [2] "k2= 0.00155341990441607"
## [3] "a21= 0.00109915764239304"
## [4] "Proportion of C0 in pool 1= 0.190611964786688"
## [1] "AIC = 7.38136487511014"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0192485750522382"
## [2] "k2= 0.00155338277782593"
## [3] "a21= 0.00695439498679895"
## [4] "a12= 2.22434919615044e-05"
## [5] "Proportion of C0 in pool 1= 0.191844614473325"

```

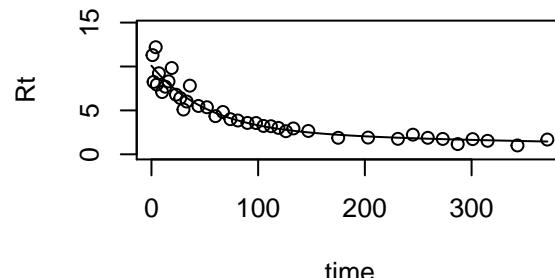
two pool_parallel structure



two pool_Series structure



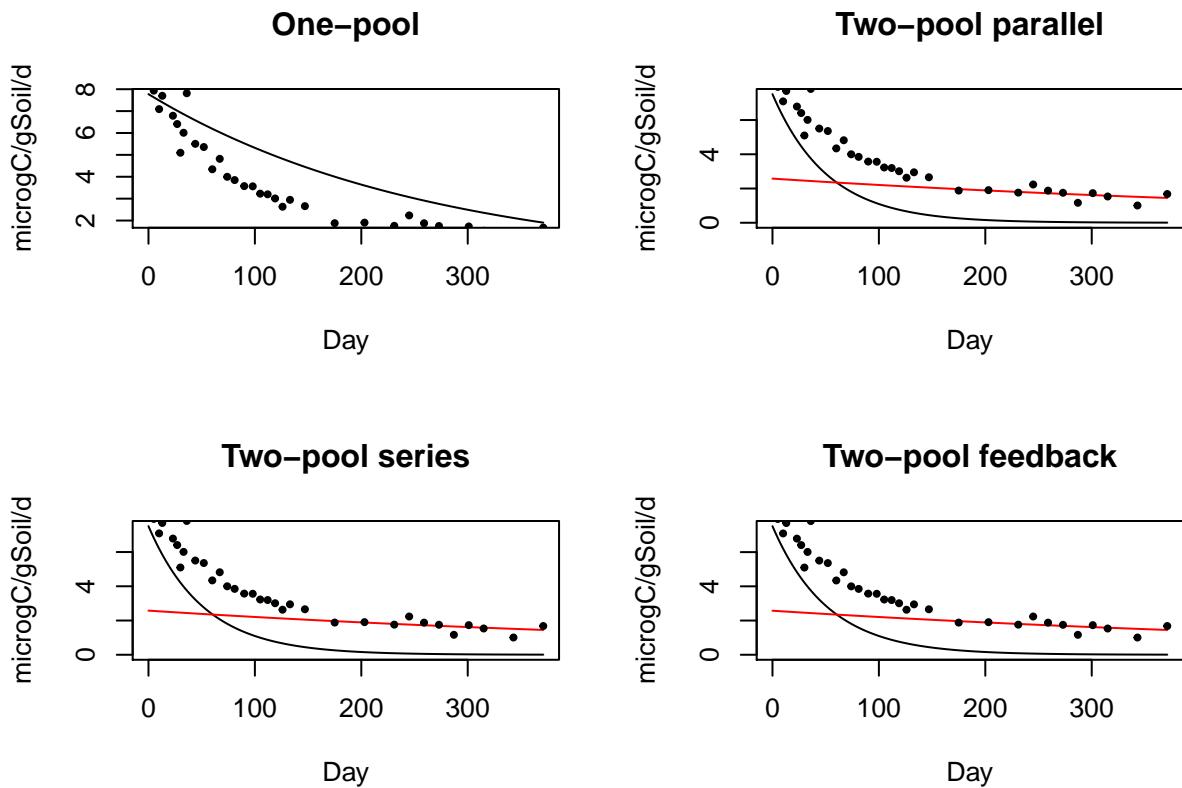
two pool_feedback structure



```

## [1] "AIC = 9.38136487240939"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool |0.00379 |NA |NA |NA |NA |  
## |Two-pool parallel |0.0192 |0.00155 |0.19 |NA |NA |  
## |Two-pool series |0.0192 |0.00155 |0.191 |0.0011 |NA |  
## |Two-pool feedback |0.0192 |0.00155 |0.192 |0.00695 |0.191 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:-----|:---|:---|:---|  
## |One-pool |4.08 |8 |388 |4.09 |0.591 |2050 |NA |110 |2.83 |  
## |Two-pool parallel |5.38 |17.1 |-109 |5.45 |0.301 |203 |53.7 |28.6 |0.734 |  
## |Two-pool series |7.38 |23 |-107 |7.49 |0.108 |52.7 |36.1 |28.6 |0.734 |  
## |Two-pool feedback |9.38 |29 |-105 |9.55 |0.0387 |56.4 |36.4 |28.6 |0.734 |
```

Variable Site28;

CO2 production rate

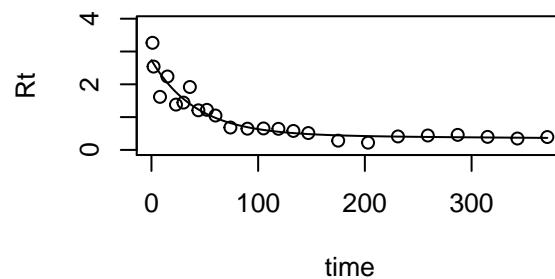
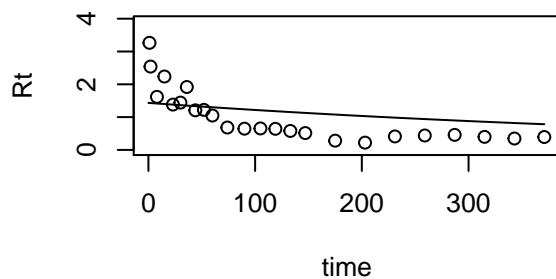
```
Crow_V29=modelFitTS_Markdown(db = db[[9]], ts.col = 29, ic.col = 28, unitConverter = 1e3,  
    inipars=list(oneP=0.5,  
                 parallel=c(0.01, 0.001, 0.1),  
                 series=c(0.05, 0.0001, 0.01, 0.1),  
                 feedback=c(0.01, 0.0001, 0.1, 0.01, 0.1)))  
  
## [1] "Crow2019a; variable: Site28"  
## [1] "One pool model"  
## [1] "Best fit parameter: -0.00162860669881582"
```

```

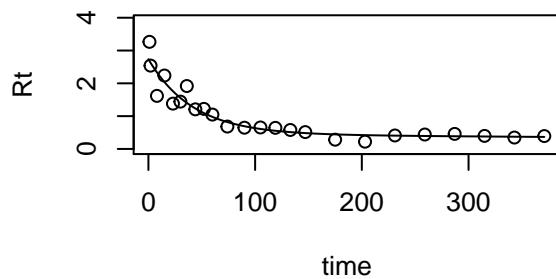
## [1] "AIC = 0.329402860778075"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0240706386027816"
## [2] "k2= 0.000577526445097158"
## [3] "proportion of C0 in pool 1= 0.107769990440503"
## [1] "AIC = 0.39238534706246"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0240706110759427"
## [2] "k2= 0.000577532717226547"
## [3] "a21= 0.178472133046223"
## [4] "Proportion of C0 in pool 1= 0.131885854390179"
## [1] "AIC = 2.39238535351847"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0240706225833688"
## [2] "k2= 0.000577531323594551"
## [3] "a21= 0.0208525514898324"
## [4] "a12= 7.04180203020544e-06"
## [5] "Proportion of C0 in pool 1= 0.110122446892387"

```

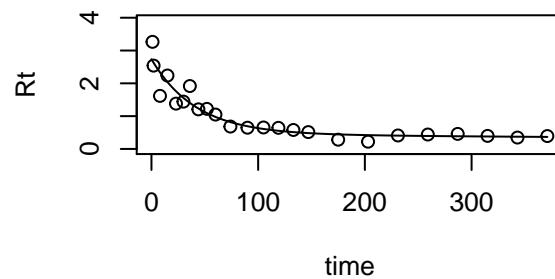
two pool_parallel structure



two pool_Series structure



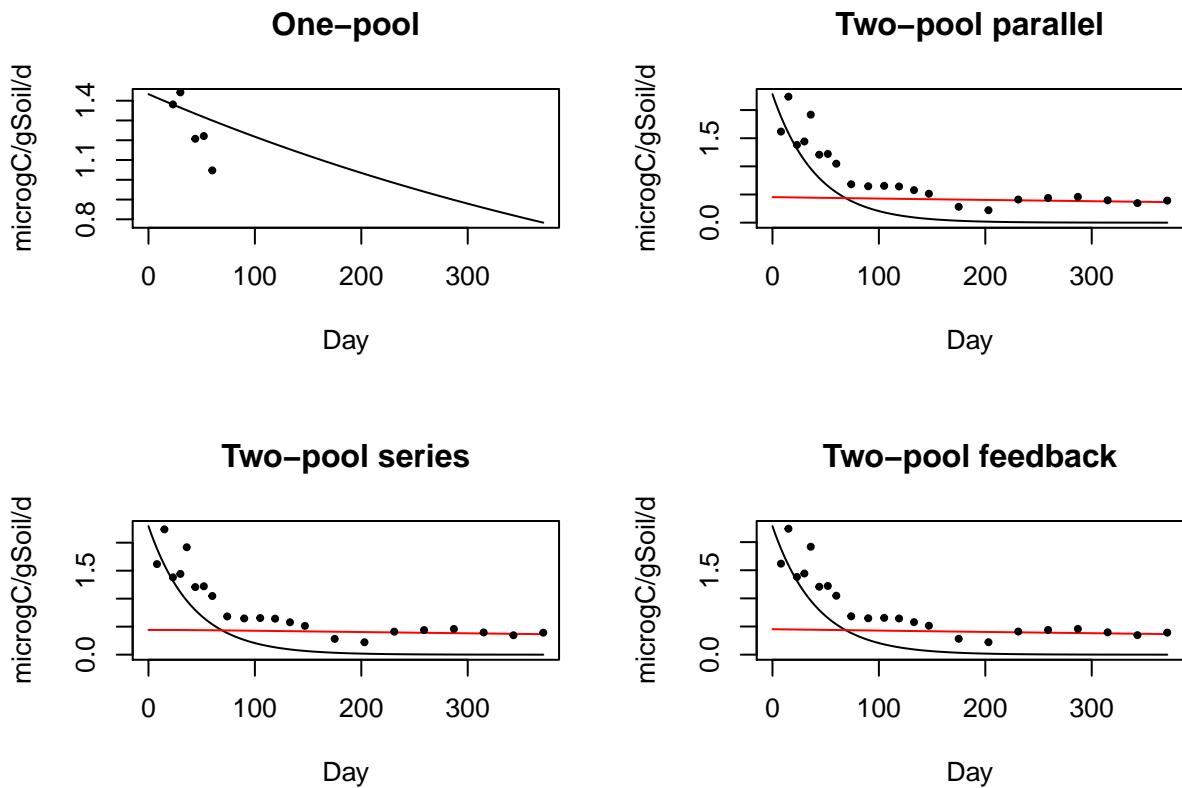
two pool_feedback structure



```

## [1] "AIC = 4.39238534713277"

```



```
##
##
## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool| -0.00163|NA|NA|NA|NA|
## |Two-pool parallel| 0.0241| 0.000578| 0.108|NA|NA|
## |Two-pool series| 0.0241| 0.000578| 0.132| 0.178|NA|
## |Two-pool feedback| 0.0241| 0.000578| 0.11| 0.0209| 0.132|
## |
## |model|AIC|BIC|AICn|AICC|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool| 0.329| 4.25| -308| 0.34| 0.438| 880|NA|10.4| 0.434|
## |Two-pool parallel| 0.392| 12.1| -1030| 0.458| 0.413| 322| 137.6| 1.45| 0.0606|
## |Two-pool series| 2.39| 18.1| -1030| 2.5| 0.149| 351| 138.8| 1.45| 0.0606|
## |Two-pool feedback| 4.39| 24| -1030| 4.56| 0.0532| 77.7| 29.7| 1.45| 0.0606|
```

Variable Site29;

CO₂ production rate

```
Crow_V30=modelFitTS_Markdown(db = db[[9]], ts.col = 30, ic.col = 29, unitConverter = 1e3 )
```

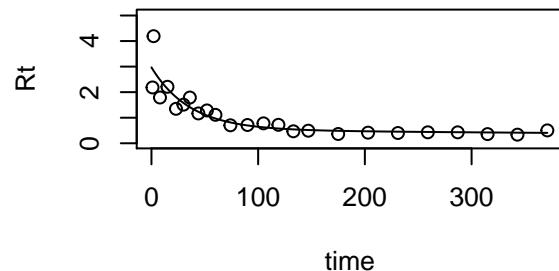
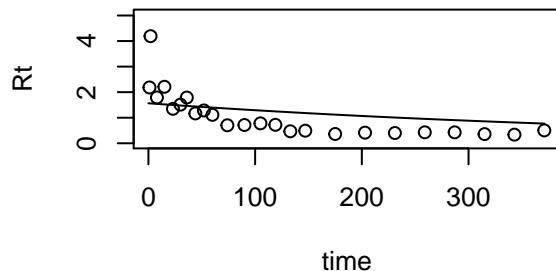
```
## [1] "Crow2019a; variable: Site29"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00190901595808413"
## [1] "AIC = 0.761602784650345"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0278369976567548"
```

```

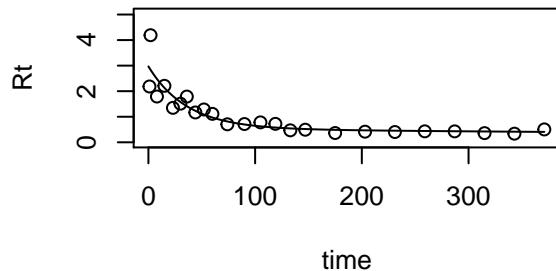
## [2] "k2= 0.000726535086098548"
## [3] "proportion of C0 in pool 1= 0.10679271336649"
## [1] "AIC = 2.06671777283616"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0278382662950202"
## [2] "k2= 0.000726548469680782"
## [3] "a21= 0.0202927884033987"
## [4] "Proportion of C0 in pool 1= 0.109061037685363"
## [1] "AIC = 4.06671777589053"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.027836891457419"
## [2] "k2= 0.000726532311524579"
## [3] "a21= 0.0170139145689257"
## [4] "a12= 2.8527195455319e-06"
## [5] "Proportion of C0 in pool 1= 0.108691794642482"

```

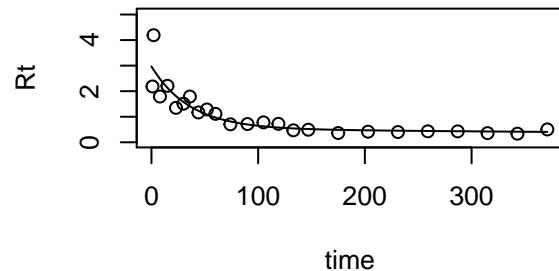
two pool_parallel structure



two pool_Series structure



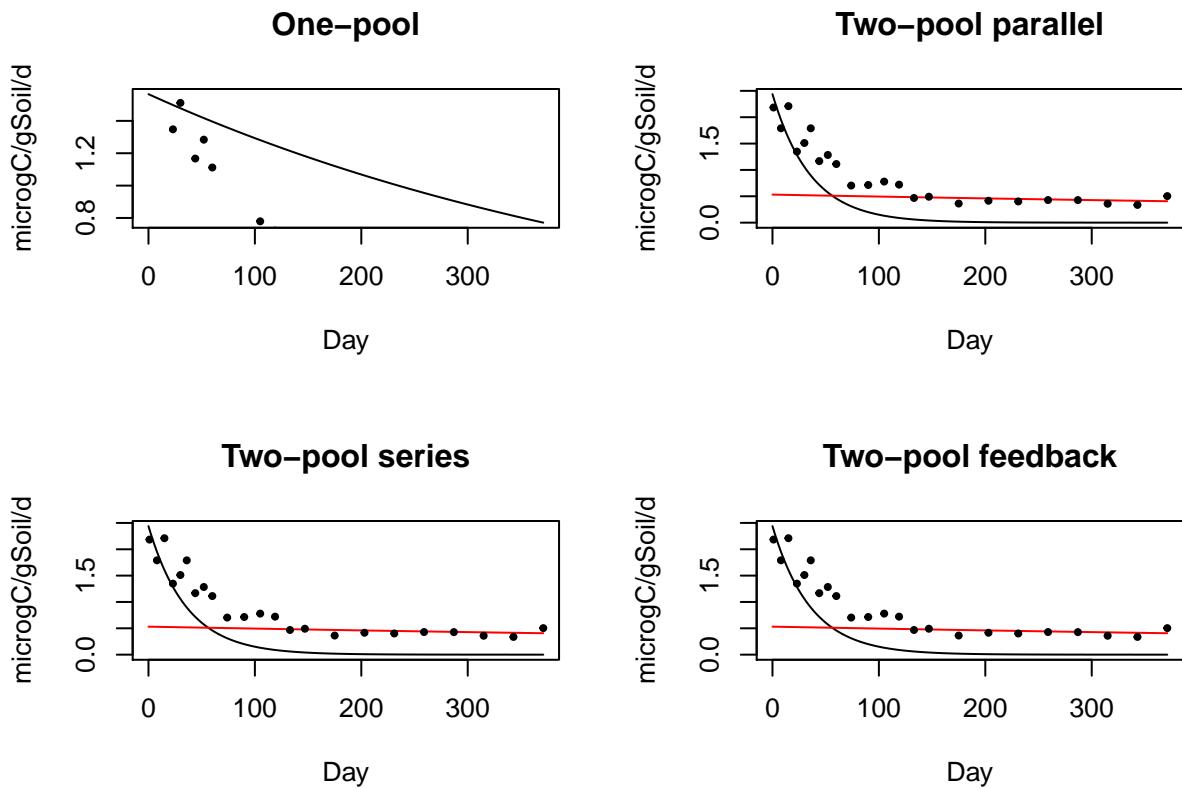
two pool_feedback structure



```

## [1] "AIC = 6.06671777259118"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:-----|:-----|:-----|:-----|  
## |One-pool | -0.00191 |NA |NA |NA |NA |  
## |Two-pool parallel | 0.0278 | 0.000727 | 0.107 |NA |NA |  
## |Two-pool series | 0.0278 | 0.000727 | 0.109 | 0.0203 |NA |  
## |Two-pool feedback | 0.0278 | 0.000727 | 0.109 | 0.017 | 0.109 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|  
## |One-pool | 0.762 | 4.68 | -228 | 0.772 | 0.592 | 820 | NA | 12.9 | 0.538 |  
## |Two-pool parallel | 2.07 | 13.8 | -724 | 2.13 | 0.3 | 276 | 33.3 | 3.36 | 0.14 |  
## |Two-pool series | 4.07 | 19.7 | -722 | 4.18 | 0.108 | 63.9 | 25.6 | 3.36 | 0.14 |  
## |Two-pool feedback | 6.07 | 25.6 | -720 | 6.23 | 0.0386 | 59.3 | 25.5 | 3.36 | 0.14 |
```

Variable Site30;

CO2 production rate

```
Crow_V31=modelFitTS_Markdown(db = db[[9]], ts.col = 31, ic.col = 30, unitConverter = 1e3 )
```

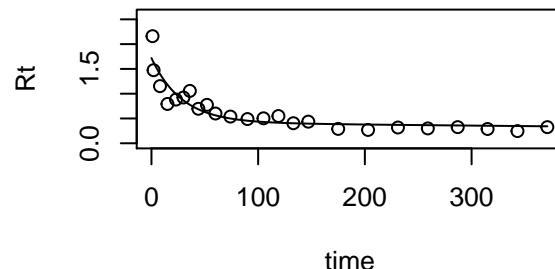
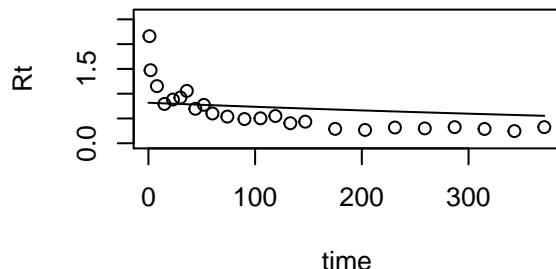
```
## [1] "Crow2019a; variable: Site30"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.0010478735401005"  
## [1] "AIC = -1.74597254619101"  
## [1] "Two pool model-parallel structure"  
## [1] "k1= 0.0354187761969758"
```

```

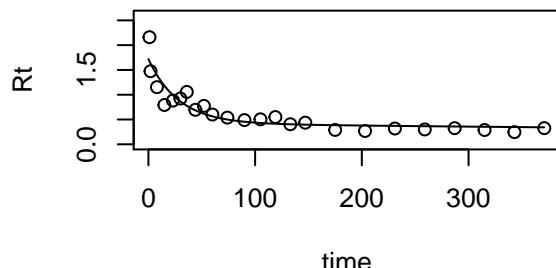
## [2] "k2= 0.000568675455971866"
## [3] "proportion of C0 in pool 1= 0.0469431945384809"
## [1] "AIC = -1.17257567496562"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0354166714898071"
## [2] "k2= 0.000568662359458117"
## [3] "a21= 0.565437084720865"
## [4] "Proportion of C0 in pool 1= 0.110373329581005"
## [1] "AIC = 0.827424338230797"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0354172847815863"
## [2] "k2= 0.000568666247885957"
## [3] "a21= 0.0116340978904637"
## [4] "a12= 1.97249316874482e-06"
## [5] "Proportion of C0 in pool 1= 0.047506440162275"

```

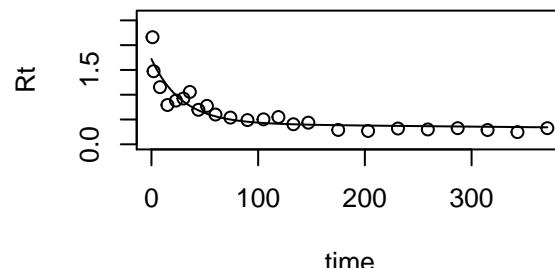
two pool_parallel structure



two pool_Series structure



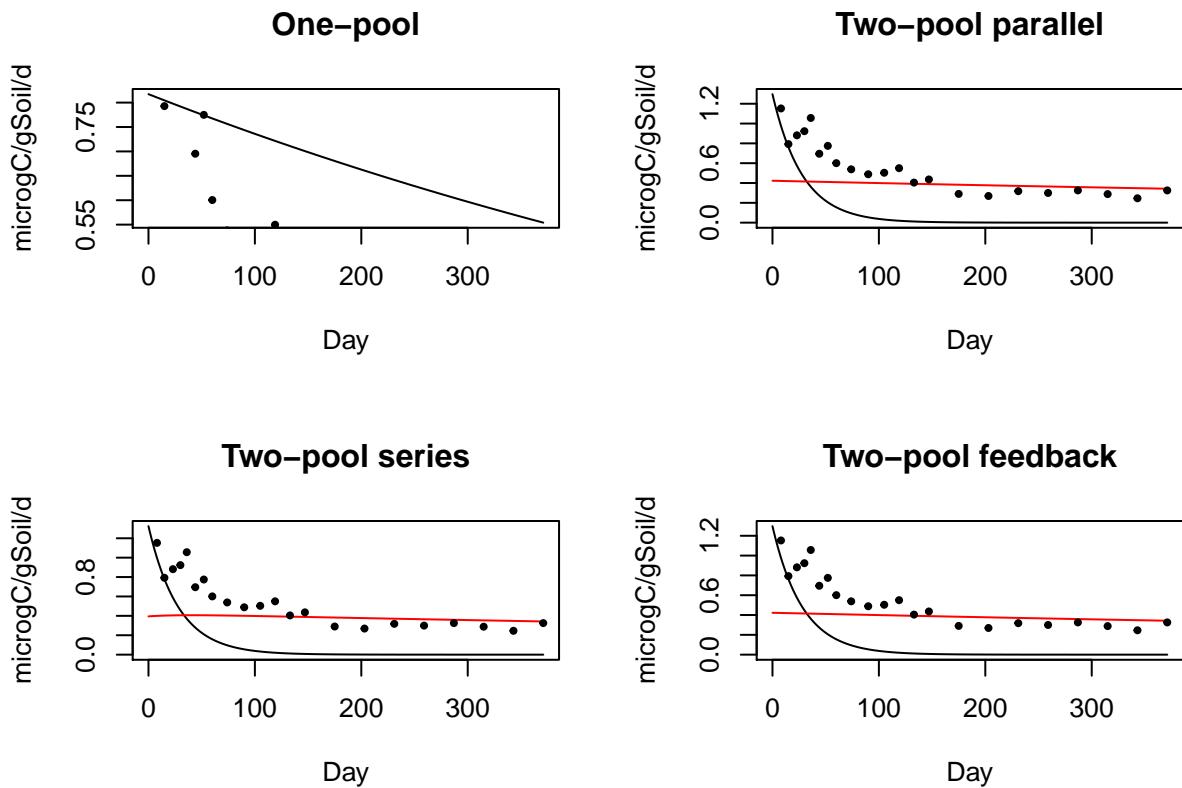
two pool_feedback structure



```

## [1] "AIC = 2.82742432183711"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:-----|:-----|:-----|:-----|  
## |One-pool |0.00105 |NA |NA |NA |NA |  
## |Two-pool parallel |0.0354 |0.000569 |0.0469 |NA |NA |  
## |Two-pool series |0.0354 |0.000569 |0.11 |0.565 |NA |  
## |Two-pool feedback |0.0354 |0.000569 |0.0475 |0.0116 |0.11 |  
##  
##  
## |model |AIC |BIC |AICn |AICC |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|  
## |One-pool |-1.75 |2.17 |-693 |-1.74 |0.502 |780 |NA |3.69 |0.154 |  
## |Two-pool parallel |-1.17 |10.6 |-1320 |-1.11 |0.366 |454 |130.2 |0.665 |0.0277 |  
## |Two-pool series |0.827 |16.5 |-1320 |0.937 |0.132 |1020 |1245 |0.665 |0.0277 |  
## |Two-pool feedback |2.83 |22.4 |-1320 |2.99 |0.0472 |48.7 |19.9 |0.665 |0.0277 |
```

Variable Site31;

CO2 production rate

```
Crow_V32=modelFitTS_Markdown(db = db[[9]], ts.col = 32, ic.col = 31, unitConverter = 1e3 )
```

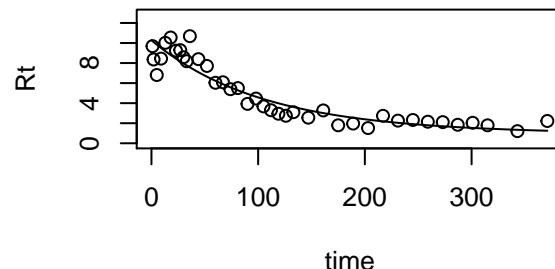
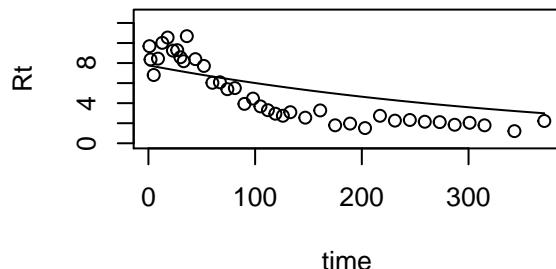
```
## [1] "Crow2019a; variable: Site31"  
## [1] "One pool model"  
## [1] "Best fit parameter: -0.00257331949078576"  
## [1] "AIC = 4.82450937542965"  
## [1] "Two pool model-parallel structure"  
## [1] "k1= 0.00978630986238602"
```

```

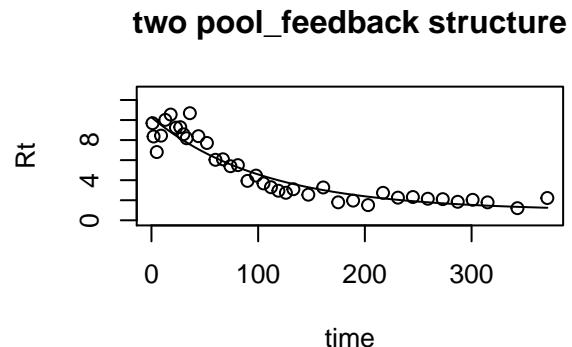
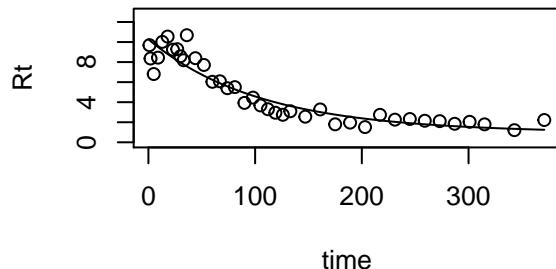
## [2] "k2= 0.000601724893898424"
## [3] "proportion of C0 in pool 1= 0.304932374699162"
## [1] "AIC = 6.15439433493837"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00978571710291936"
## [2] "k2= 0.00060163659450374"
## [3] "a21= 0.0174267526137949"
## [4] "Proportion of C0 in pool 1= 0.310725412642139"
## [1] "AIC = 8.15439433236098"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00978550978311692"
## [2] "k2= 0.000601605803681048"
## [3] "a21= 0.00233299013566085"
## [4] "a12= 6.47632189282321e-06"
## [5] "Proportion of C0 in pool 1= 0.305723173174051"

```

two pool_parallel structure



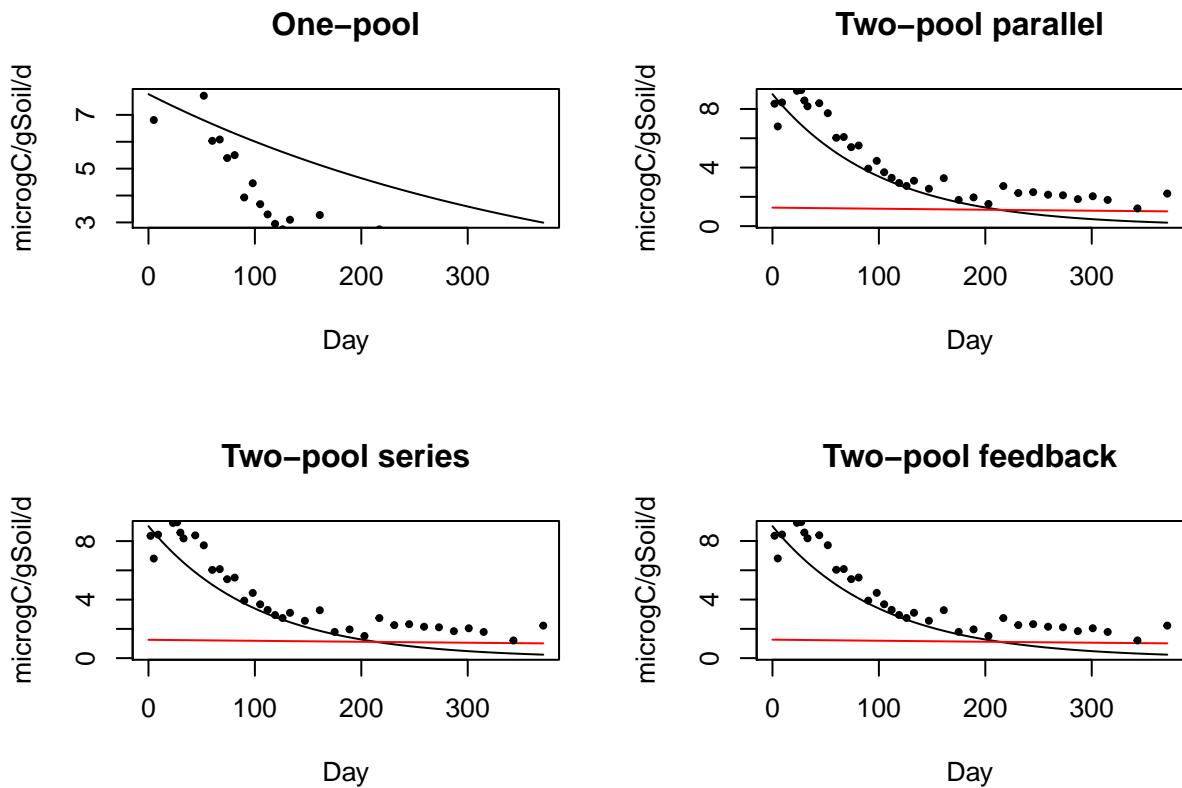
two pool_Series structure



```

## [1] "AIC = 10.1543943349145"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:-----|:-----|:-----|:-----|  
## |One-pool | -0.00257 |NA |NA |NA |NA |  
## |Two-pool parallel | 0.00979 | 0.000602 | 0.305 |NA |NA |  
## |Two-pool series | 0.00979 | 0.000602 | 0.311 | 0.0174 |NA |  
## |Two-pool feedback | 0.00979 | 0.000602 | 0.306 | 0.00233 | 0.311 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|  
## |One-pool | 4.82 | 8.74 | 526 | 4.84 | 0.595 | 3020 | NA | 160 | 4.11 |  
## |Two-pool parallel | 6.15 | 17.9 | 34.6 | 6.22 | 0.298 | 294 | 84.6 | 42.1 | 1.08 |  
## |Two-pool series | 8.15 | 23.8 | 36.6 | 8.26 | 0.107 | 131 | 72.6 | 42.1 | 1.08 |  
## |Two-pool feedback | 10.2 | 29.7 | 38.6 | 10.3 | 0.0384 | 106 | 71.1 | 42.1 | 1.08 |
```

Variable Site32;

CO₂ production rate

```
Crow_V33=modelFitTS_Markdown(db = db[[9]], ts.col = 33, ic.col = 32, unitConverter = 1e3 )
```

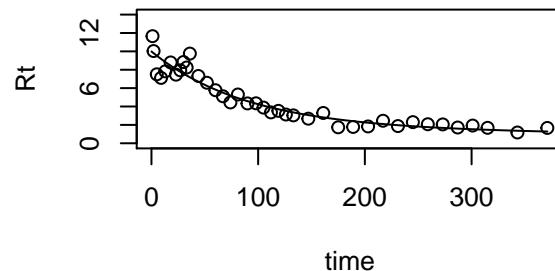
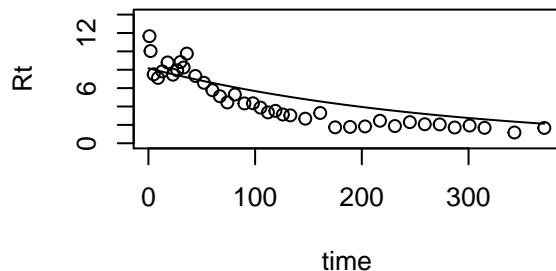
```
## [1] "Crow2019a; variable: Site32"  
## [1] "One pool model"  
## [1] "Best fit parameter: -0.00362900645769137"  
## [1] "AIC = 3.72621560886364"  
## [1] "Two pool model-parallel structure"  
## [1] "k1= 0.0112428471407725"
```

```

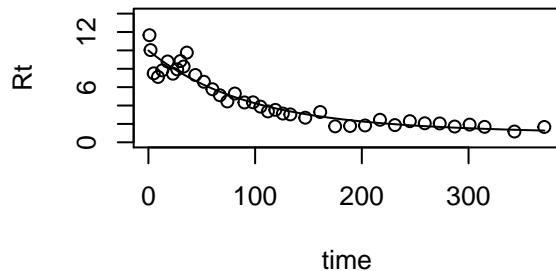
## [2] "k2= 0.00116682522649421"
## [3] "proportion of C0 in pool 1= 0.324757409967034"
## [1] "AIC = 5.25071262237635"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0112430390463932"
## [2] "k2= 0.00116685735875824"
## [3] "a21= 0.000418551196956662"
## [4] "Proportion of C0 in pool 1= 0.32490145432171"
## [1] "AIC = 7.2507126223836"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0112427270165045"
## [2] "k2= 0.00116680526333688"
## [3] "a21= 0.00080228485351852"
## [4] "a12= 1.47397420274809e-06"
## [5] "Proportion of C0 in pool 1= 0.3250503895316"

```

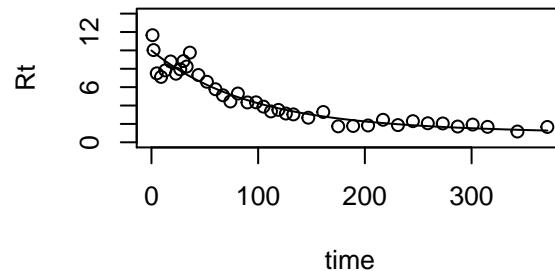
two pool_parallel structure



two pool_Series structure



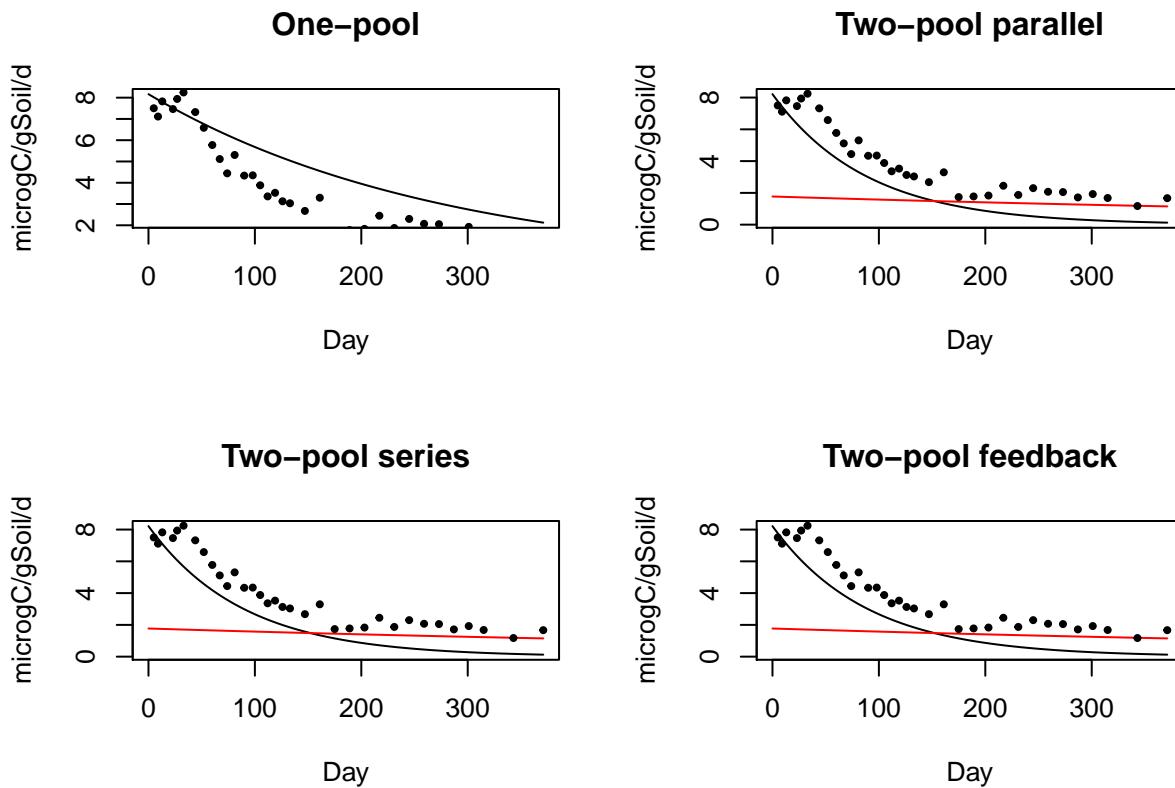
two pool_feedback structure



```

## [1] "AIC = 9.25071262555947"

```



```
##
##
## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool| -0.00363|NA|NA|NA|NA|
## |Two-pool parallel| 0.0112| 0.00117| 0.325|NA|NA|
## |Two-pool series| 0.0112| 0.00117| 0.325| 0.000419|NA|
## |Two-pool feedback| 0.0112| 0.00117| 0.325| 0.000802| 0.325|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool| 3.73| 7.64| 322| 3.74| 0.618| 2250|NA| 92.5| 2.37|
## |Two-pool parallel| 5.25| 17| -133| 5.32| 0.281| 225| 79.1| 26.8| 0.688|
## |Two-pool series| 7.25| 22.9| -131| 7.36| 0.101| 89.3| 61.7| 26.8| 0.688|
## |Two-pool feedback| 9.25| 28.8| -129| 9.42| 0.0362| 89.6| 61.7| 26.8| 0.688
```

Variable Site33;

CO₂ production rate

```
Crow_V34=modelFitTS_Markdown(db = db[[9]], ts.col = 34, ic.col = 33, unitConverter = 1e3 )
```

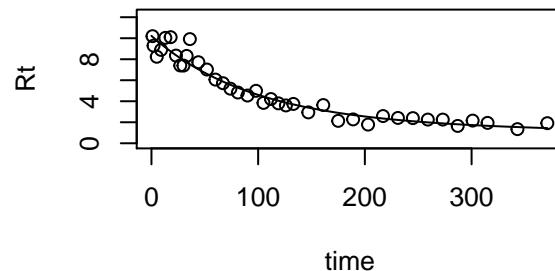
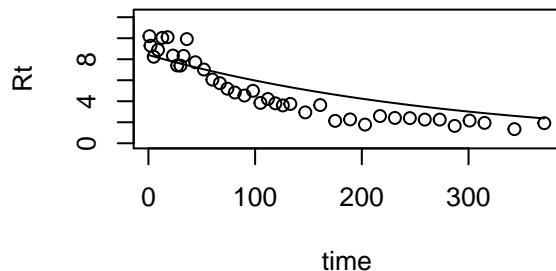
```
## [1] "Crow2019a; variable: Site33"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00341699376035542"
## [1] "AIC = 3.4994066868254"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0106551553660563"
```

```

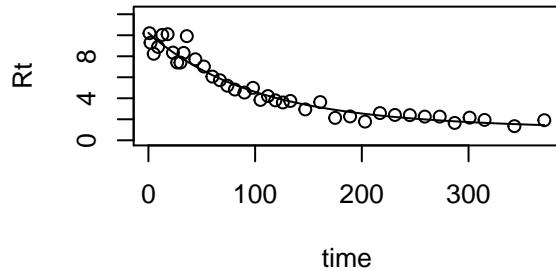
## [2] "k2= 0.00118053956318237"
## [3] "proportion of C0 in pool 1= 0.314067184783034"
## [1] "AIC = 4.37166896503547"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.010655250182711"
## [2] "k2= 0.00118055518672884"
## [3] "a21= 9.36155375663716e-06"
## [4] "Proportion of C0 in pool 1= 0.314066533984723"
## [1] "AIC = 6.37166896485545"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0106551006653995"
## [2] "k2= 0.00118053065601323"
## [3] "a21= 0.0059148090570299"
## [4] "a12= 1.21991822927825e-05"
## [5] "Proportion of C0 in pool 1= 0.316172074229321"

```

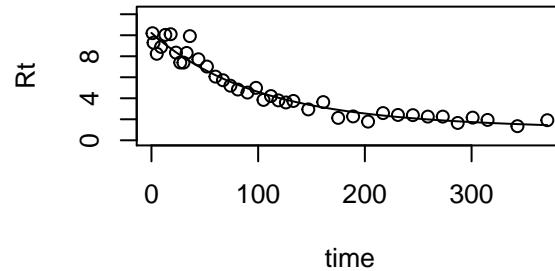
two pool_parallel structure



two pool_Series structure



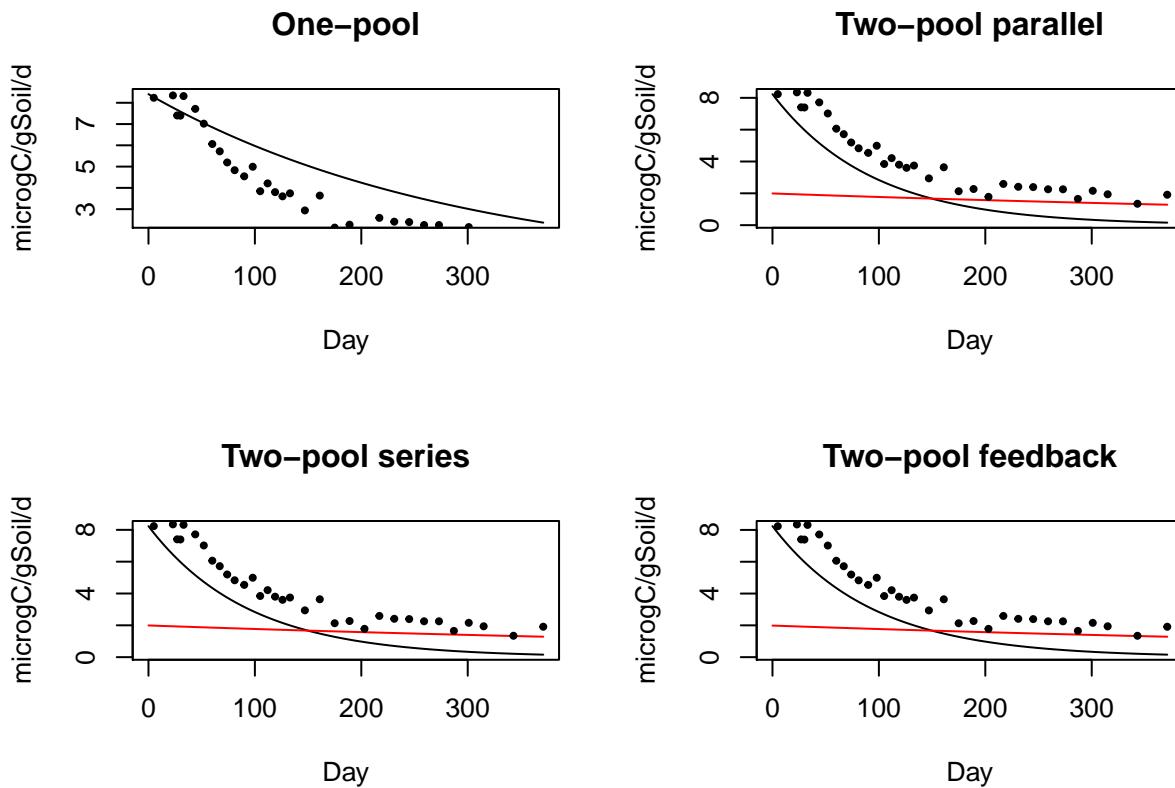
two pool_feedback structure



```

## [1] "AIC = 8.37166896659242"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool | -0.00342 |NA |NA |NA |NA |  
## |Two-pool parallel | 0.0107 | 0.00118 | 0.314 |NA |NA |  
## |Two-pool series | 0.0107 | 0.00118 | 0.314 | 9.36e-06 |NA |  
## |Two-pool feedback | 0.0107 | 0.00118 | 0.316 | 0.00591 | 0.314 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|  
## |One-pool | 3.5 | 7.42 | 280 | 3.51 | 0.539 | 2460 | NA | 82.5 | 2.12 |  
## |Two-pool parallel | 4.37 | 16.1 | -296 | 4.44 | 0.339 | 241 | 85.5 | 17.3 | 0.443 |  
## |Two-pool series | 6.37 | 22 | -294 | 6.48 | 0.122 | 93.9 | 65.1 | 17.3 | 0.443 |  
## |Two-pool feedback | 8.37 | 28 | -292 | 8.54 | 0.0437 | 98.9 | 65.6 | 17.3 | 0.443 |
```

Variable Site34;

CO2 production rate

```
Crow_V35=modelFitTS_Markdown(db = db[[9]], ts.col = 35, ic.col = 34, unitConverter = 1e3 )
```

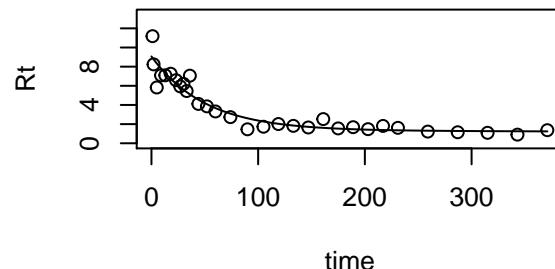
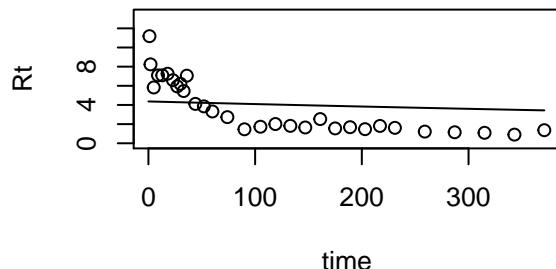
```
## [1] "Crow2019a; variable: Site34"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.000646921358903541"  
## [1] "AIC = 5.66905473274459"  
## [1] "Two pool model-parallel structure"  
## [1] "k1= 0.0198422405239192"
```

```

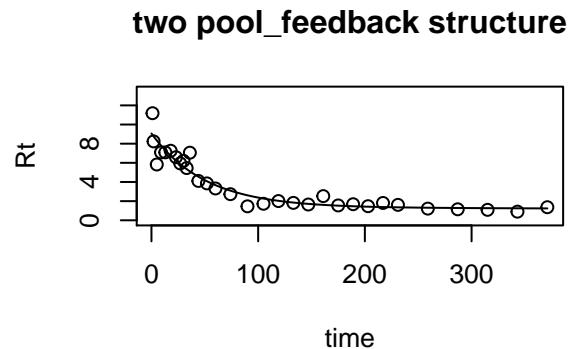
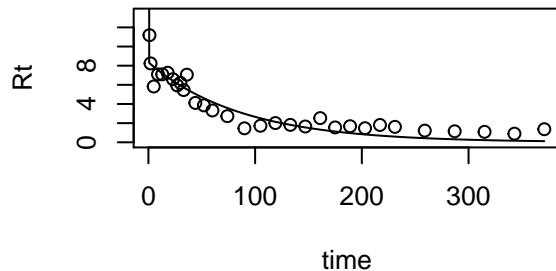
## [2] "k2= 0.000210194298677612"
## [3] "proportion of C0 in pool 1= 0.0577246926824738"
## [1] "AIC = 5.15488875518837"
## [1] "Two pool model-Series structure"
## [1] "k1= 92.1571128089596"
## [2] "k2= 0.0114560695062352"
## [3] "a21= 5.60765459844959e-07"
## [4] "Proportion of C0 in pool 1= 0.891929050777254"
## [1] "AIC = 7.98077990148148"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0198422435154704"
## [2] "k2= 0.000210194378476307"
## [3] "a21= 0.0137934804269001"
## [4] "a12= 1.69453790155871e-05"
## [5] "Proportion of C0 in pool 1= 0.0585409527890533"

```

two pool_parallel structure



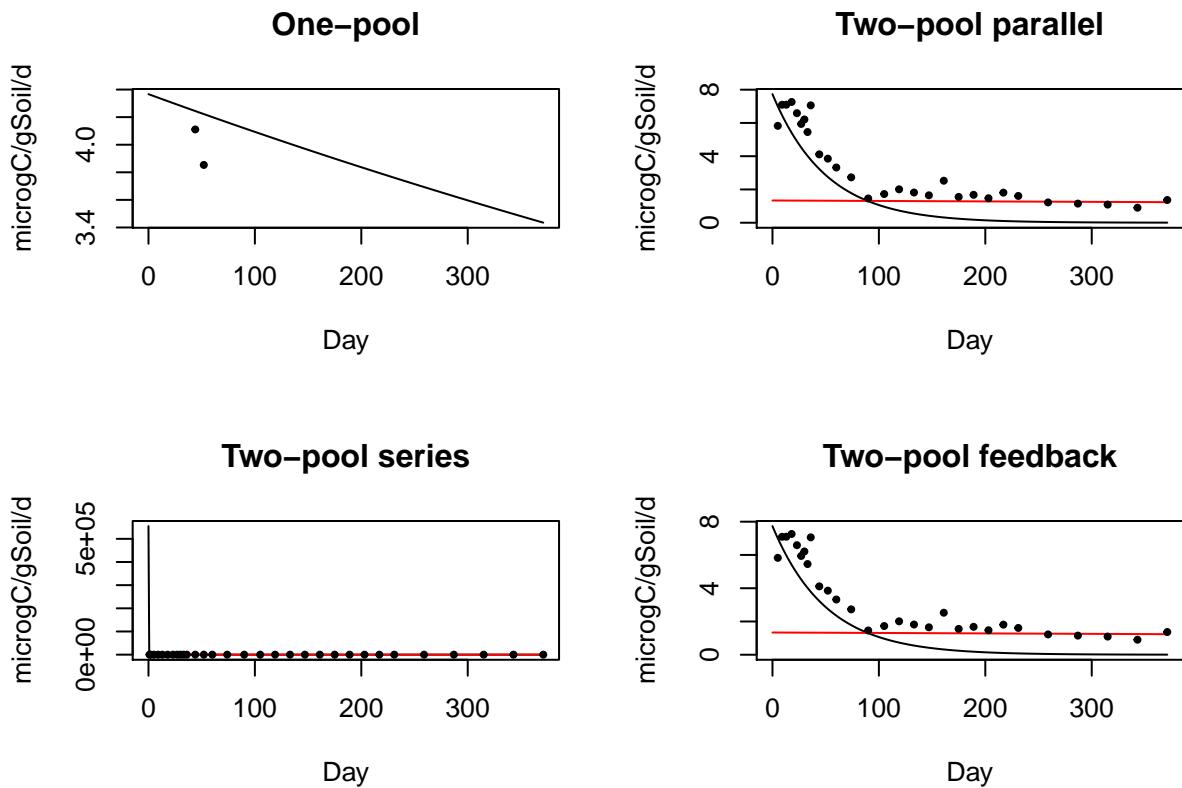
two pool_Series structure



```

## [1] "AIC = 9.15488875519813"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:----|  
## |One-pool |0.000647 |NA |NA |NA |NA |  
## |Two-pool parallel |0.0198 |0.00021 |0.0577 |NA |NA |  
## |Two-pool series |92.2 |0.0115 |0.892 |5.61e-07 |NA |  
## |Two-pool feedback |0.0198 |0.00021 |0.0585 |0.0138 |0.892 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|  
## |One-pool |5.67 |9.59 |683 |5.68 |0.391 |6750 |NA |194 |6.26 |  
## |Two-pool parallel |5.15 |16.9 |-151 |5.22 |0.492 |744 |44.3 |20.3 |0.655 |  
## |Two-pool series |7.98 |23.6 |4.43 |8.09 |0.117 |0.0109 |0.00752 |30.7 |0.99 |  
## |Two-pool feedback |9.15 |28.7 |-147 |9.32 |0.0634 |116 |35.6 |20.3 |0.655 |
```

Variable Site35;

CO2 production rate

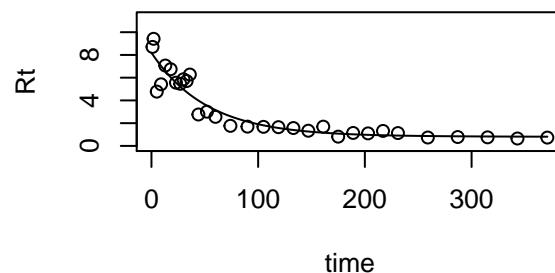
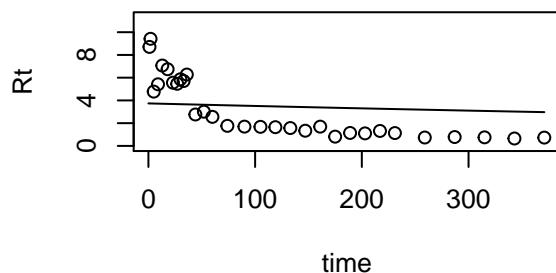
```
Crow_V36=modelFitTS_Markdown(db = db[[9]], ts.col = 36, ic.col = 35, unitConverter = 1e3,  
    inipars=list(oneP=0.5,  
                parallel=c(0.01, 0.001, 0.1),  
                series=c(0.01, 0.0001, 0.01, 0.1),  
                feedback=c(0.01, 0.0001, 0.1, 0.01, 0.1)))  
  
## [1] "Crow2019a; variable: Site35"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.000619787840317798"
```

```

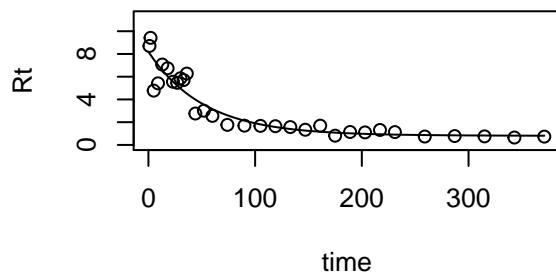
## [1] "AIC = 5.54214469458533"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0192837447338591"
## [2] "k2= 0.000150686289817516"
## [3] "proportion of C0 in pool 1= 0.0631804453638553"
## [1] "AIC = 5.33096837608006"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.01928372147141"
## [2] "k2= 0.000150686043860211"
## [3] "a21= 0.296826660443886"
## [4] "Proportion of C0 in pool 1= 0.0901501899806175"
## [1] "AIC = 7.33096837610443"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0192837340146538"
## [2] "k2= 0.000150688511570306"
## [3] "a21= 0.280752267389513"
## [4] "a12= 5.44382819196443e-05"
## [5] "Proportion of C0 in pool 1= 0.0881134705009501"

```

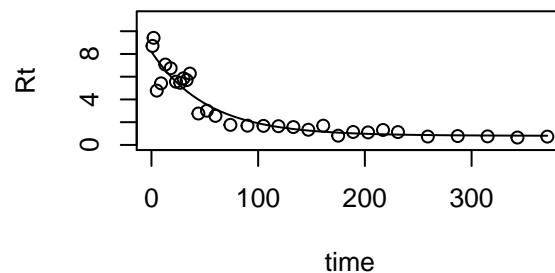
two pool_parallel structure



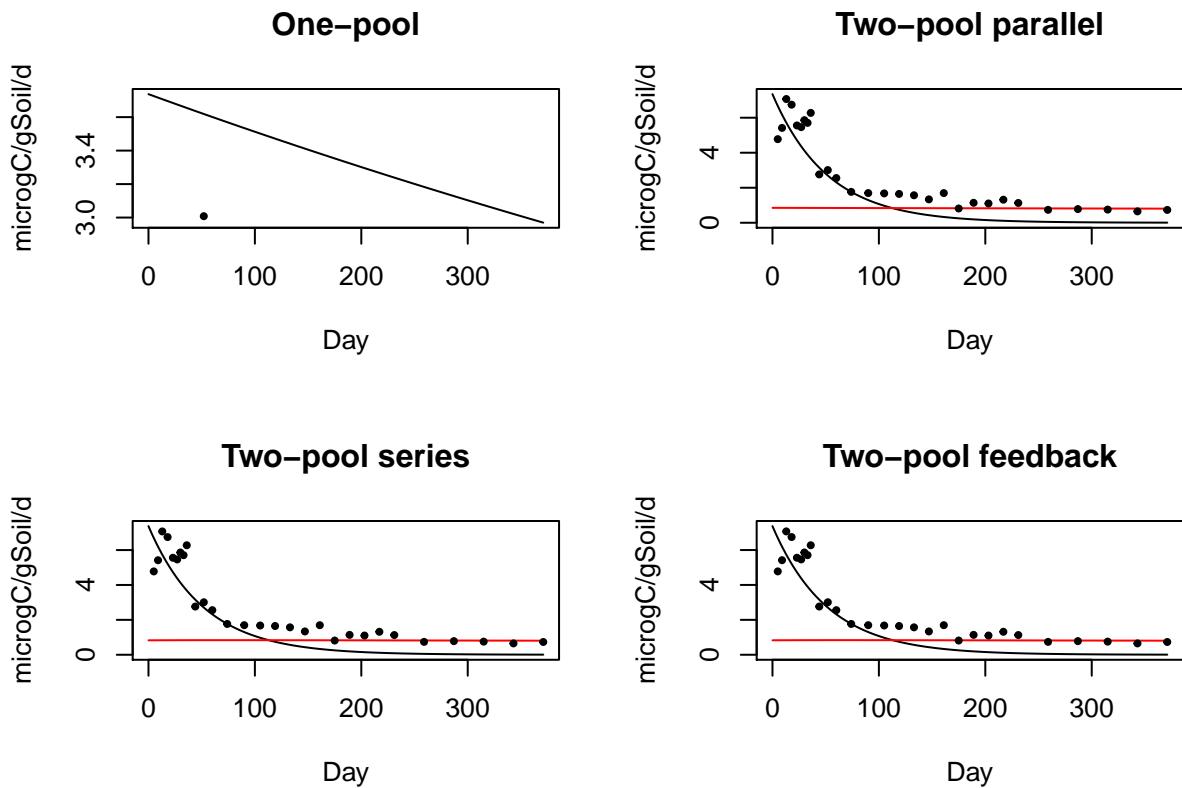
two pool_Series structure



two pool_feedback structure



```
## [1] "AIC = 9.33096837632537"
```



```
##
##
## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|0.00062|NA|NA|NA|NA|
## |Two-pool parallel|0.0193|0.000151|0.0632|NA|NA|
## |Two-pool series|0.0193|0.000151|0.0902|0.297|NA|
## |Two-pool feedback|0.0193|0.000151|0.0881|0.281|0.0902|
## |
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|5.54|9.46|659|5.55|0.405|6030|NA|182|5.88|
## |Two-pool parallel|5.33|17.1|-118|5.4|0.438|736|42.2|22.2|0.716|
## |Two-pool series|7.33|23|-116|7.44|0.158|2020|64.1|22.2|0.716|
## |Two-pool feedback|9.33|28.9|-114|9.5|0.0564|1920|61.4|22.2|0.716|
```

Variable Site36;

CO₂ production rate

```
##
Crow_V37=modelFitTS_Markdown(db = db[[9]], ts.col = 37, ic.col = 36, unitConverter = 1e3,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.05, 0.0001, 0.01, 0.1),
                                             feedback=c(0.01, 0.0001, 0.1, 0.01, 0.1)) )
```

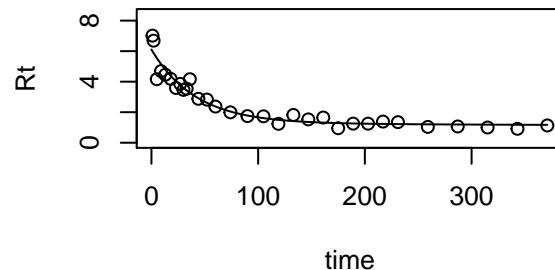
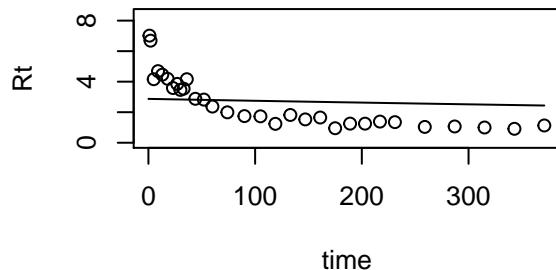
```
## [1] "Crow2019a; variable: Site36"
## [1] "One pool model"
```

```

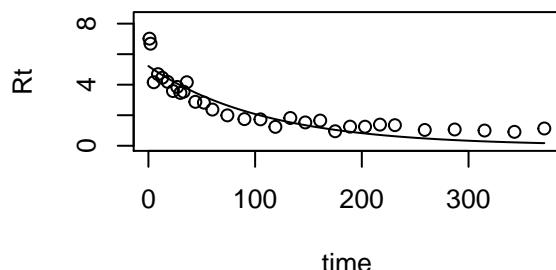
## [1] "Best fit parameter: 0.0004418644629407"
## [1] "AIC = 3.74882742158281"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0243028031270947"
## [2] "k2= 0.000199981544317473"
## [3] "proportion of C0 in pool 1= 0.0306869164699602"
## [1] "AIC = 2.63556394882525"
## [1] "Two pool model-Series structure"
## [1] "k1= 5.34638362493219e-286"
## [2] "k2= 0.00921491056546782"
## [3] "a21= 0.999999537544831"
## [4] "Proportion of C0 in pool 1= 0.912845745646155"
## [1] "AIC = 6.39227698069503"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0240772806414971"
## [2] "k2= 0.000422430252034709"
## [3] "a21= 0.522363607357951"
## [4] "a12= 0.999785081775439"
## [5] "Proportion of C0 in pool 1= 0.0816960832461098"

```

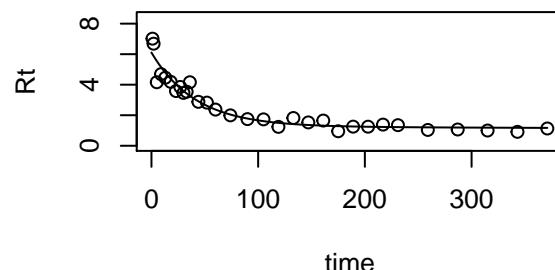
two pool_parallel structure



two pool_Series structure

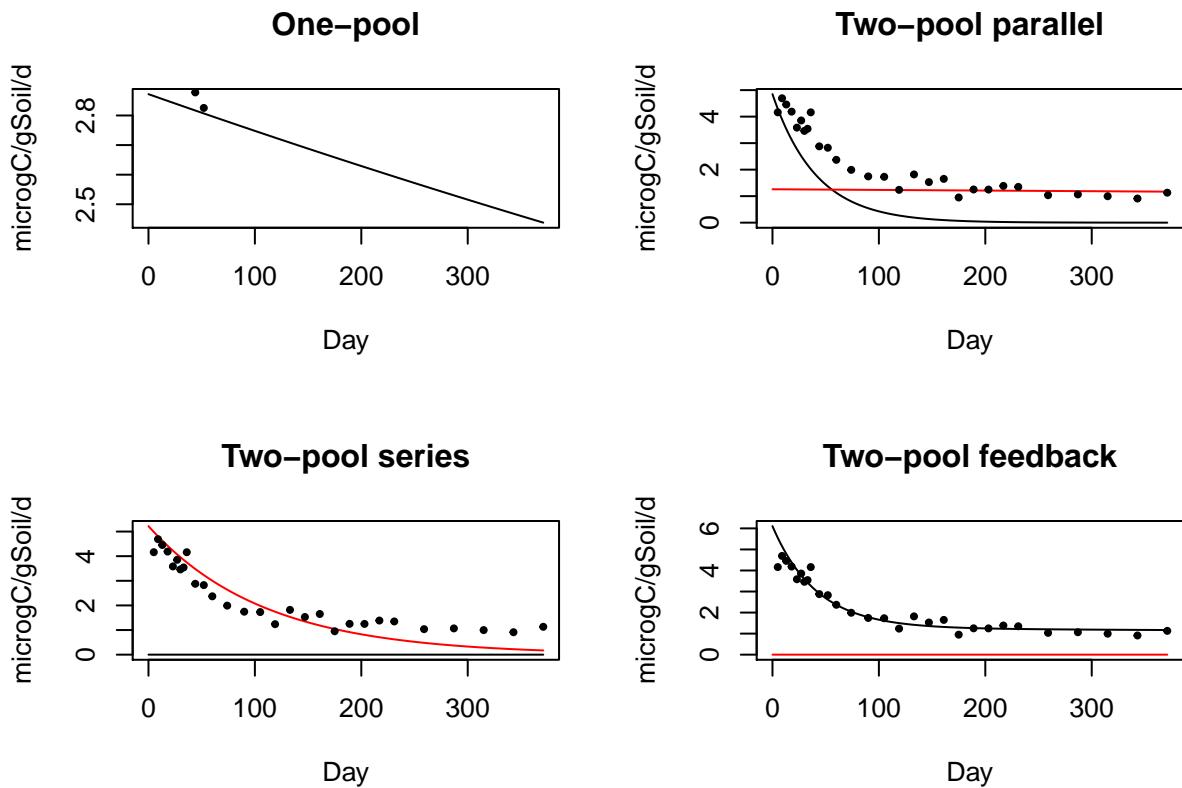


two pool_feedback structure



```
## [1] "AIC = 6.63556265595852"
```

```
## Error in solve.default(A): system is computationally singular: reciprocal condition number = 5.80188
```

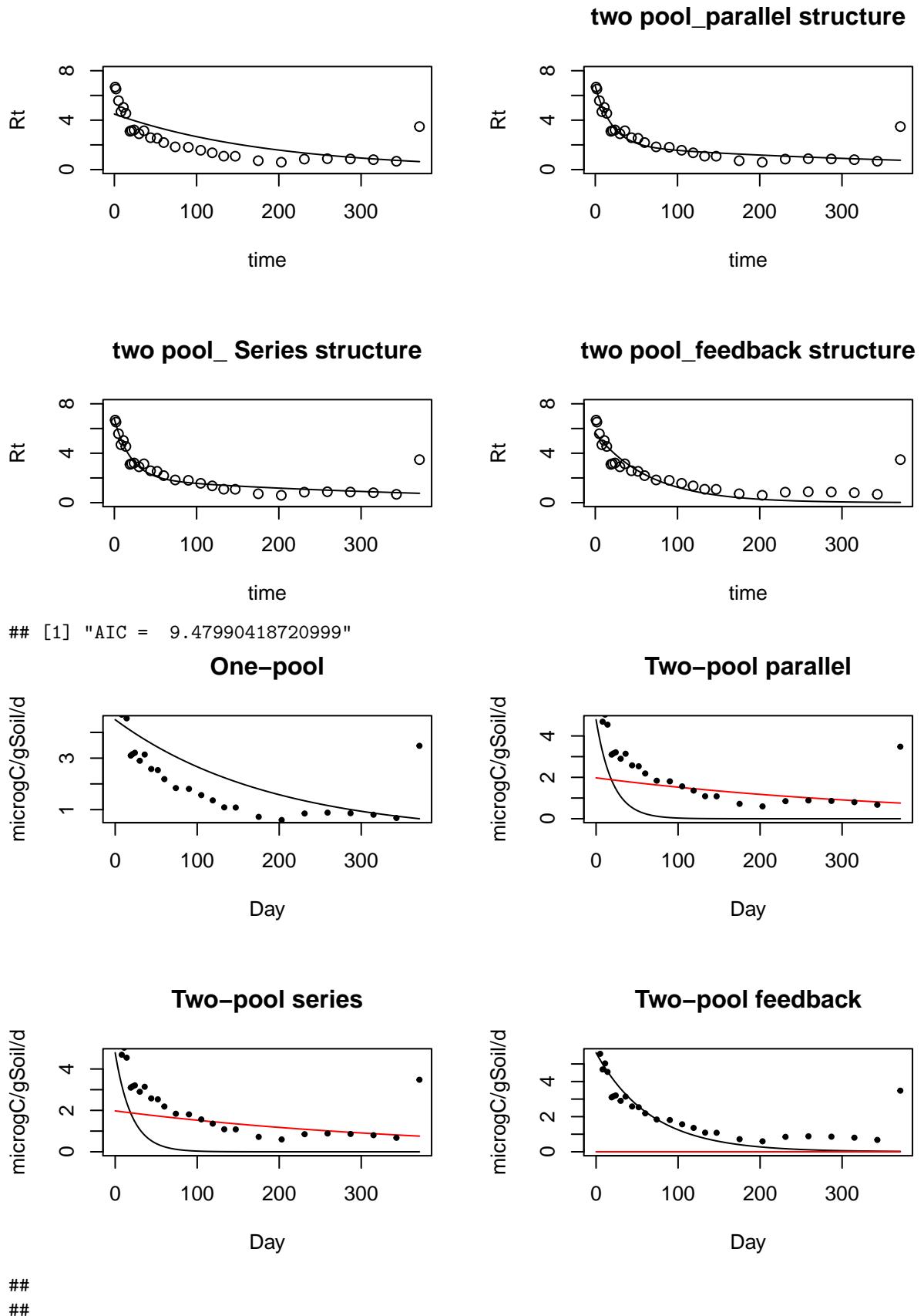


Variable Site37;

CO₂ production rate

```
Crow_V38=modelFitTS_Markdown(db = db[[9]], ts.col = 38, ic.col = 37, unitConverter = 1e3 )
```

```
## [1] "Crow2019a; variable: Site37"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00522739068221512"
## [1] "AIC = 2.47222734926867"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0497127051283284"
## [2] "k2= 0.00258724700780508"
## [3] "proportion of CO in pool 1= 0.11195212976005"
## [1] "AIC = 3.95359417760061"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0497165639726841"
## [2] "k2= 0.00258733451801405"
## [3] "a21= 0.000147369199155756"
## [4] "Proportion of CO in pool 1= 0.111959257083919"
## [1] "AIC = 5.95359418267302"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0150561258979131"
## [2] "k2= 4.150871193116e-15"
## [3] "a21= 0.562429938860131"
## [4] "a12= 0.999999483856156"
## [5] "Proportion of CO in pool 1= 0.99548501074292"
```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.00523|NA|NA|NA|NA|
## |Two-pool parallel|0.0497|0.00259|0.112|NA|NA|
## |Two-pool series|0.0497|0.00259|0.112|0.000147|NA|
## |Two-pool feedback|0.0151|4.15e-15|0.995|0.562|0.112|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|2.47|6.39|89.6|2.48|0.613|860|NA|35.5|1.27|
## |Two-pool parallel|3.95|15.7|-374|4.02|0.284|127|23.1|10.1|0.359|
## |Two-pool series|5.95|21.6|-372|6.06|0.102|20.2|13.9|10.1|0.359|
## |Two-pool feedback|9.48|29.1|-86.5|9.64|0.0171|3.1e+14|6.48e+13|21.6|0.771|

```

Variable Site38;

CO2 production rate

```
Crow_V39=modelFitTS_Markdown(db = db[[9]], ts.col = 39, ic.col = 38, unitConverter = 1e3 )
```

```

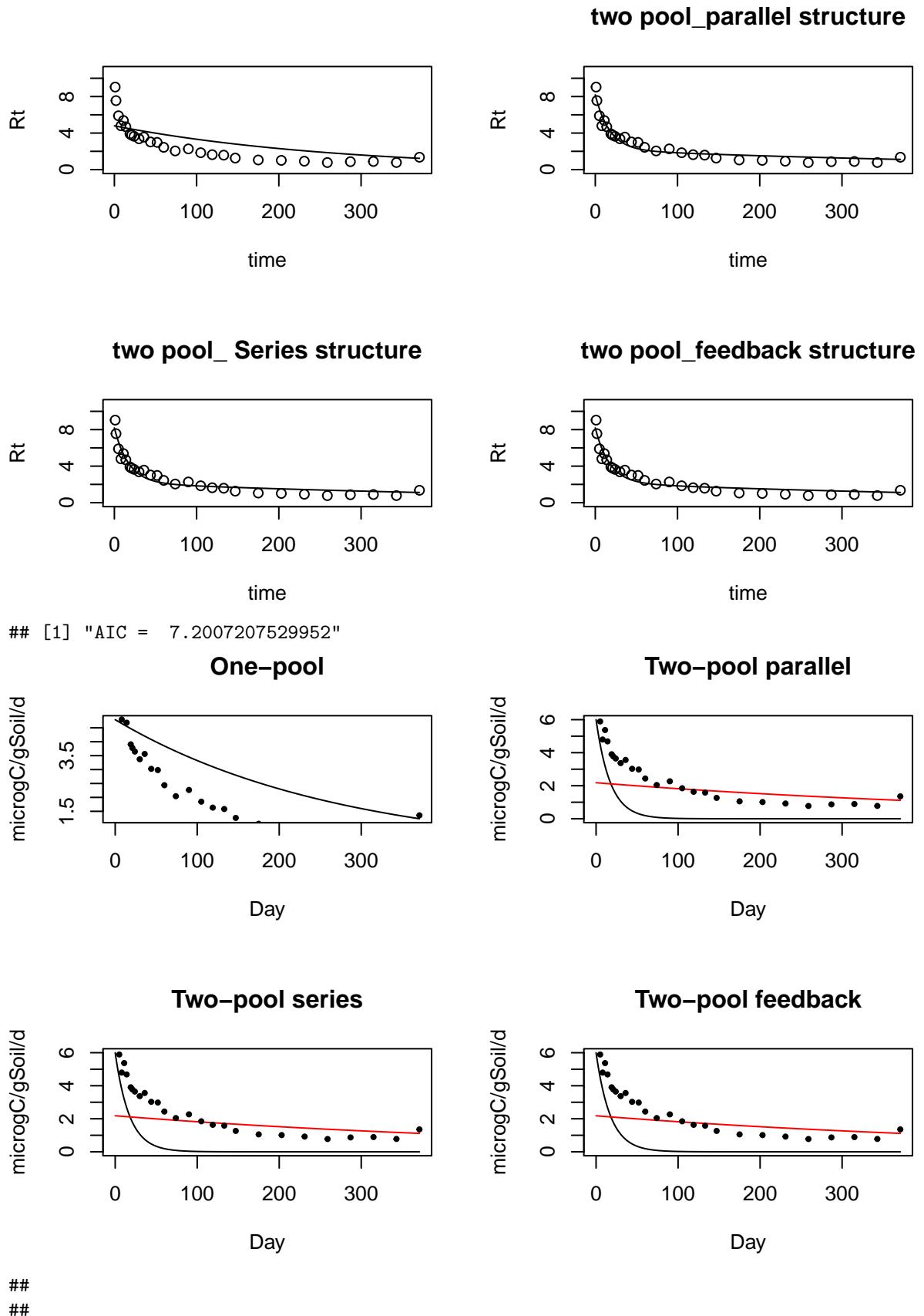
## [1] "Crow2019a; variable: Site38"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00365836256182028"

## [1] "AIC = 3.3394163709452"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0576632774421042"
## [2] "k2= 0.00180926231381553"
## [3] "proportion of CO in pool 1= 0.079433407596456"

## [1] "AIC = 3.20072075754985"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.057657120463871"
## [2] "k2= 0.0018091719735807"
## [3] "a21= 0.000183461631863613"
## [4] "Proportion of CO in pool 1= 0.0794555535932017"

## [1] "AIC = 5.20072076037344"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0576606513456775"
## [2] "k2= 0.00180922381318167"
## [3] "a21= 0.0058380846556822"
## [4] "a12= 1.34386596567504e-06"
## [5] "Proportion of CO in pool 1= 0.0799185236097249"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00366|NA|NA|NA|NA|
## |Two-pool parallel|0.0577|0.00181|0.0794|NA|NA|
## |Two-pool series|0.0577|0.00181|0.0795|0.000183|NA|
## |Two-pool feedback|0.0577|0.00181|0.0799|0.00584|0.0795|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|3.34|7.26|250|3.35|0.414|1310|NA|54.7|1.95|
## |Two-pool parallel|3.2|14.9|-513|3.27|0.431|160|19.2|6.91|0.247|
## |Two-pool series|5.2|20.9|-511|5.31|0.155|17.4|12|6.91|0.247|
## |Two-pool feedback|7.2|26.8|-509|7.37|0.0555|20.6|12.1|6.91|0.247|

```

Variable Site39;

CO2 production rate

```

Crow_V40=modelFitTS_Markdown(db = db[[9]], ts.col = 40, ic.col = 39, unitConverter = 1e3)

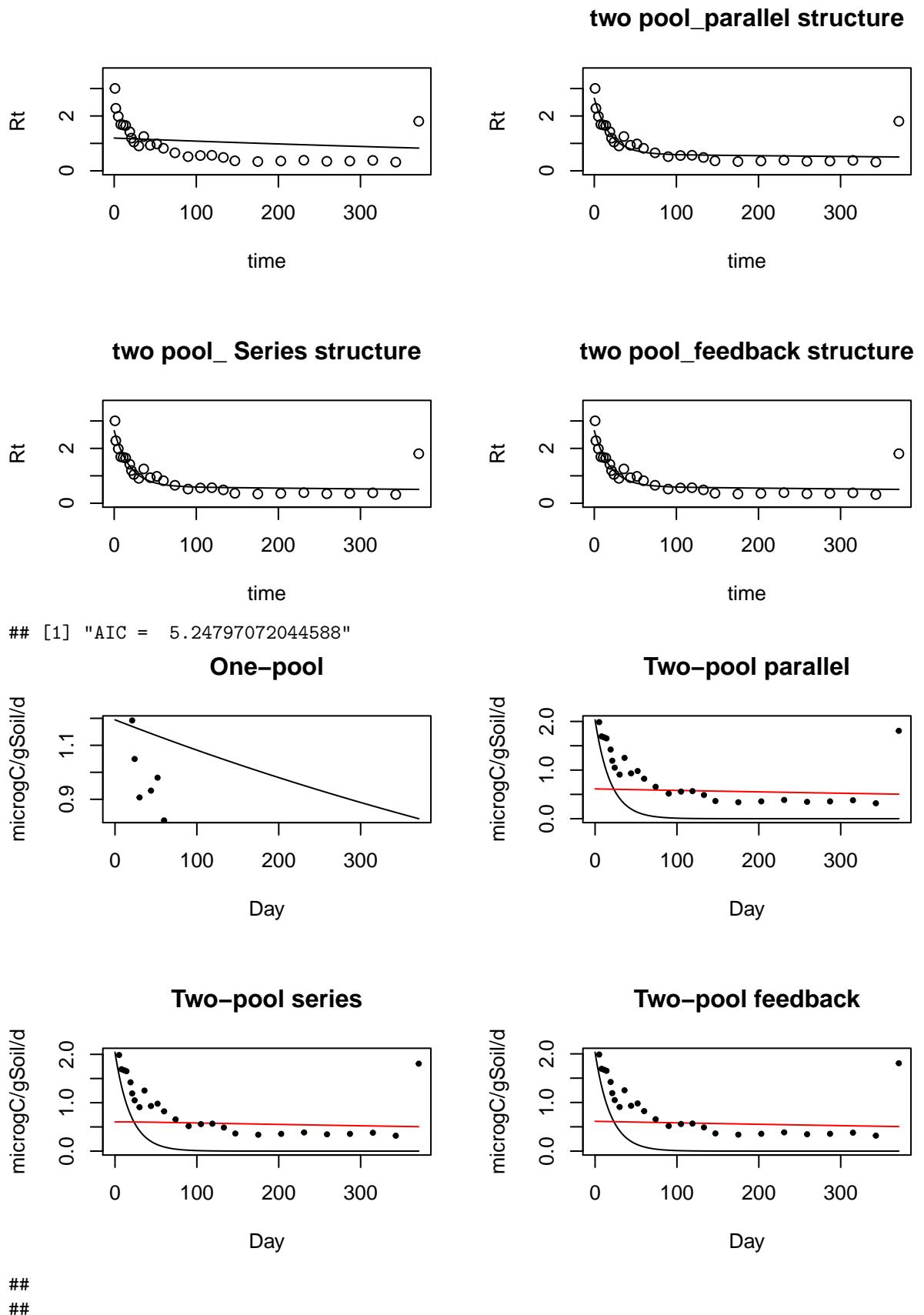
## [1] "Crow2019a; variable: Site39"
## [1] "One pool model"
## [1] "Best fit parameter: -0.000987129792992647"

## [1] "AIC = 0.170979045430834"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0527513748170046"
## [2] "k2= 0.000522945878140466"
## [3] "proportion of CO in pool 1= 0.0318547950120958"

## [1] "AIC = 1.24797072061764"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0527532186774386"
## [2] "k2= 0.000522952928851675"
## [3] "a21= 0.337508866550882"
## [4] "Proportion of CO in pool 1= 0.0483283296725641"

## [1] "AIC = 3.24797072695022"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0527545356965893"
## [2] "k2= 0.000522957795434166"
## [3] "a21= 0.0150803633103221"
## [4] "a12= 3.4924770908662e-05"
## [5] "Proportion of CO in pool 1= 0.0323461737050124"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.000987|NA|NA|NA|NA|
## |Two-pool parallel|0.0528|0.000523|0.0319|NA|NA|
## |Two-pool series|0.0528|0.000523|0.0483|0.338|NA|
## |Two-pool feedback|0.0528|0.000523|0.0323|0.0151|0.0483|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|0.171|4.09|-337|0.182|0.564|1210|NA|11.2|0.401|
## |Two-pool parallel|1.25|13|-876|1.31|0.32|457|19.8|2.6|0.0929|
## |Two-pool series|3.25|18.9|-874|3.36|0.115|664|26.4|2.6|0.0929|
## |Two-pool feedback|5.25|24.8|-872|5.41|0.0413|47.8|13.4|2.6|0.0929|

```

Variable Site40;

CO2 production rate

```

Crow_V41=modelFitTS_Markdown(db = db[[9]], ts.col = 41, ic.col = 40, unitConverter = 1e3 )

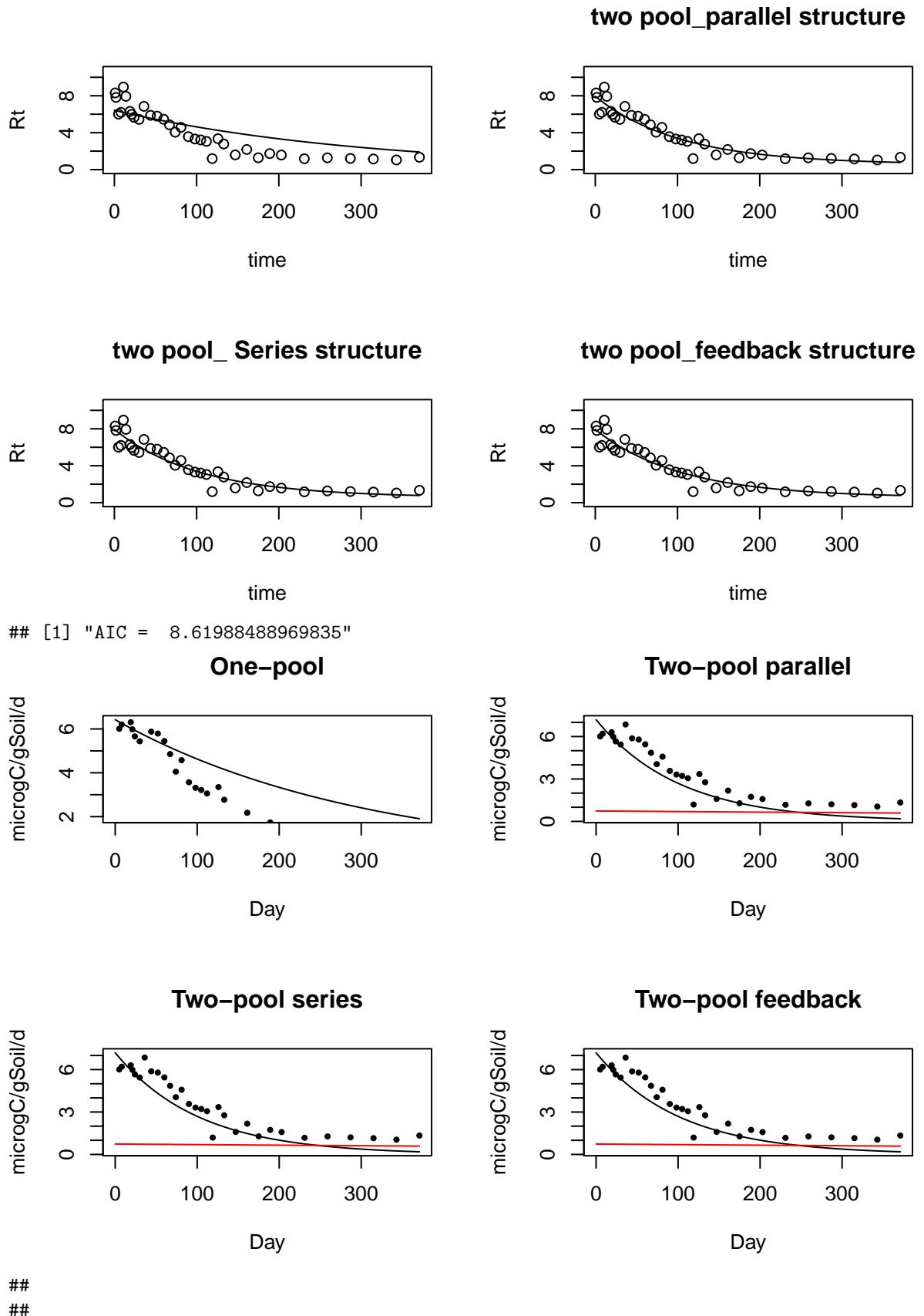
## [1] "Crow2019a; variable: Site40"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00327728510520764"

## [1] "AIC = 3.35547107743355"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0098201610092445"
## [2] "k2= 0.000601782954089287"
## [3] "proportion of CO in pool 1= 0.373737903628587"

## [1] "AIC = 4.61988489075764"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00981984799850031"
## [2] "k2= 0.000601711428431565"
## [3] "a21= 0.00108855438000777"
## [4] "Proportion of CO in pool 1= 0.374186661669766"

## [1] "AIC = 6.61988489033869"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00981998003102495"
## [2] "k2= 0.00060174158444491"
## [3] "a21= 0.00652329924639516"
## [4] "a12= 9.51060681464444e-06"
## [5] "Proportion of CO in pool 1= 0.376362932686411"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00328|NA|NA|NA|NA|
## |Two-pool parallel|0.00982|0.000602|0.374|NA|NA|
## |Two-pool series|0.00982|0.000602|0.374|0.00109|NA|
## |Two-pool feedback|0.00982|0.000602|0.376|0.00652|0.374|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|3.36|7.27|253|3.37|0.587|1960|NA|68.9|1.97|
## |Two-pool parallel|4.62|16.4|-250|4.69|0.304|247|80.5|17.6|0.502|
## |Two-pool series|6.62|22.3|-248|6.73|0.109|104|70.7|17.6|0.502|
## |Two-pool feedback|8.62|28.2|-246|8.78|0.0391|113|71.2|17.6|0.502|

```

Variable Site41;

CO2 production rate

```

Crow_V42=modelFitTS_Markdown(db = db[[9]], ts.col = 42, ic.col = 41, unitConverter = 1e3)

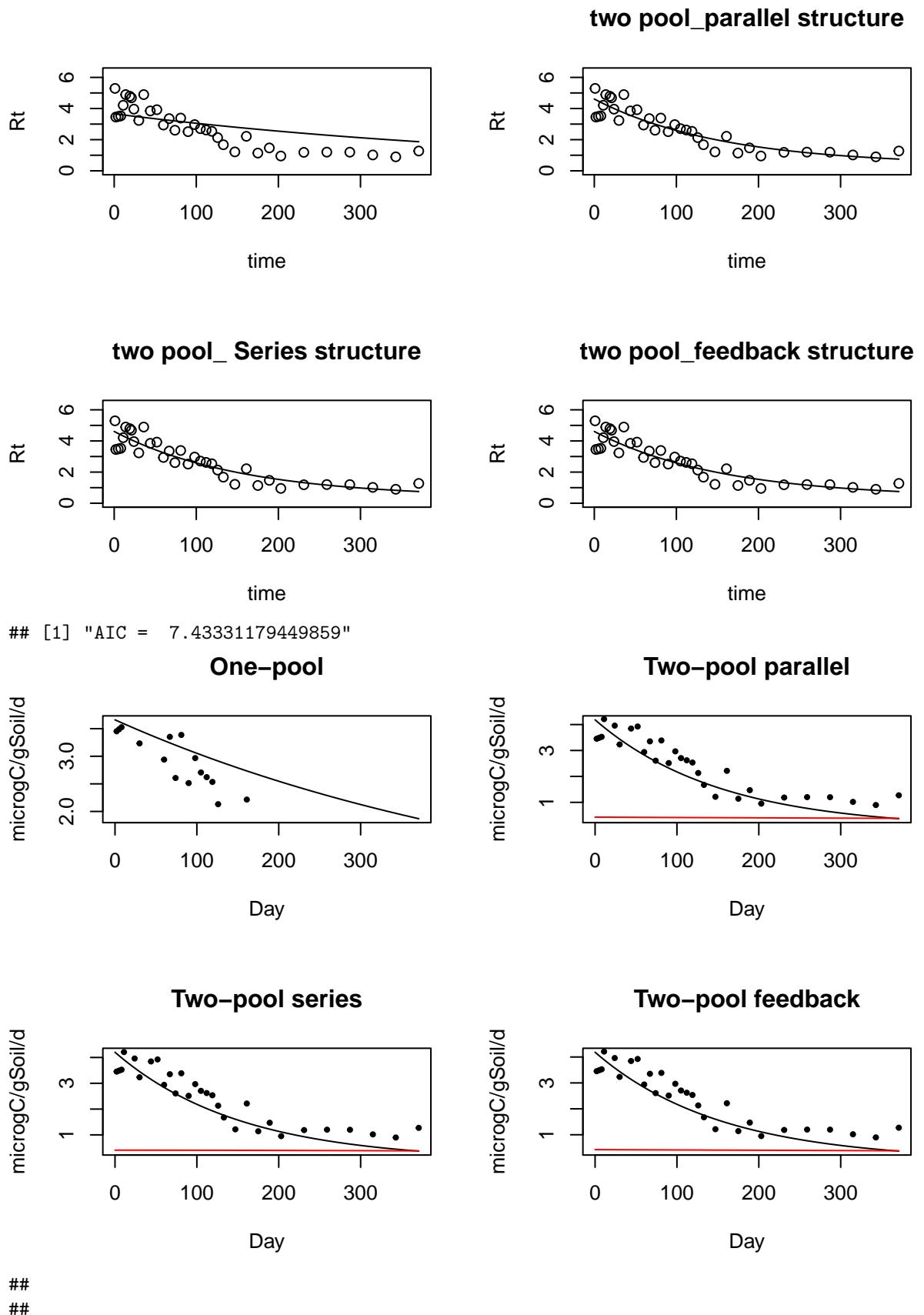
## [1] "Crow2019a; variable: Site41"
## [1] "One pool model"
## [1] "Best fit parameter: -0.0018120236035486"

## [1] "AIC = 1.64440677812137"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00654173221062781"
## [2] "k2= 0.000310475344094715"
## [3] "proportion of CO in pool 1= 0.316517536558733"

## [1] "AIC = 3.43331179142959"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00654219463155194"
## [2] "k2= 0.000310573940235897"
## [3] "a21= 0.0930776019782992"
## [4] "Proportion of CO in pool 1= 0.350755546170661"

## [1] "AIC = 5.43331180091594"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00654156912497382"
## [2] "k2= 0.000310441017340594"
## [3] "a21= 0.010216591604741"
## [4] "a12= 2.24233435998644e-05"
## [5] "Proportion of CO in pool 1= 0.319959440692948"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00181|NA|NA|NA|NA|
## |Two-pool parallel|0.00654|0.00031|0.317|NA|NA|
## |Two-pool series|0.00654|0.000311|0.351|0.0931|NA|
## |Two-pool feedback|0.00654|0.00031|0.32|0.0102|0.351|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|1.64|5.56|-64|1.66|0.649|2020|NA|29.3|0.837|
## |Two-pool parallel|3.43|15.2|-470|3.5|0.258|438|121|9.7|0.277|
## |Two-pool series|5.43|21.1|-468|5.54|0.0929|453|122|9.7|0.277|
## |Two-pool feedback|7.43|27|-466|7.6|0.0333|186|108|9.7|0.277|

```

Variable Site42;

CO2 production rate

```

Crow_V43=modelFitTS_Markdown(db = db[[9]], ts.col = 43, ic.col = 42, unitConverter = 1e3 )

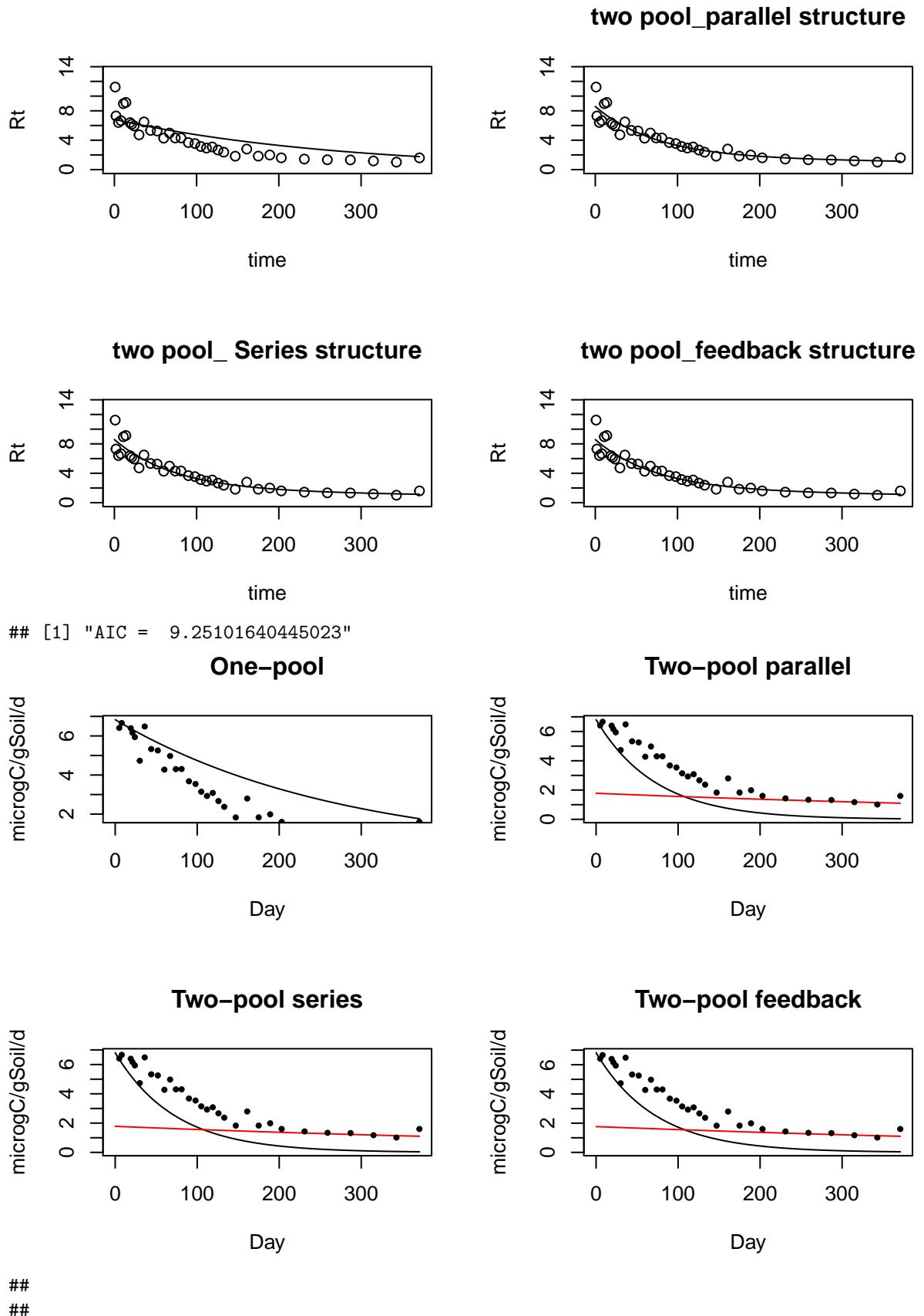
## [1] "Crow2019a; variable: Site42"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00365397593668071"

## [1] "AIC = 3.52350252638119"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0137429687405774"
## [2] "k2= 0.00129533330427992"
## [3] "proportion of CO in pool 1= 0.264853277318832"

## [1] "AIC = 5.25101640445197"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0137433700614413"
## [2] "k2= 0.00129538096379141"
## [3] "a21= 0.000556439129961561"
## [4] "Proportion of CO in pool 1= 0.265005191827463"

## [1] "AIC = 7.25101640575872"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0137429050671559"
## [2] "k2= 0.00129532606320551"
## [3] "a21= 0.0224082965509067"
## [4] "a12= 5.64692827387248e-06"
## [5] "Proportion of CO in pool 1= 0.271573838976547"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00365|NA|NA|NA|NA|
## |Two-pool parallel|0.0137|0.0013|0.265|NA|NA|
## |Two-pool series|0.0137|0.0013|0.265|0.000556|NA|
## |Two-pool feedback|0.0137|0.0013|0.272|0.0224|0.265|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|3.52|7.44|285|3.53|0.642|1870|NA|75|2.14|
## |Two-pool parallel|5.25|17|-133|5.32|0.263|218|68.3|24.1|0.688|
## |Two-pool series|7.25|22.9|-131|7.36|0.0948|73.2|50.5|24.1|0.688|
## |Two-pool feedback|9.25|28.8|-129|9.42|0.0339|90.1|52.1|24.1|0.688|

```

Variable Site43;

CO2 production rate

```

Crow_V44=modelFitTS_Markdown(db = db[[9]], ts.col = 44, ic.col = 43, unitConverter = 1e3)

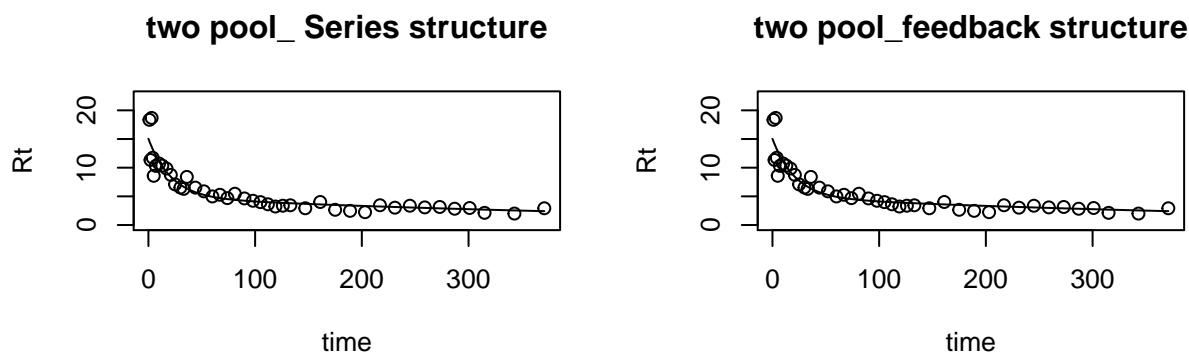
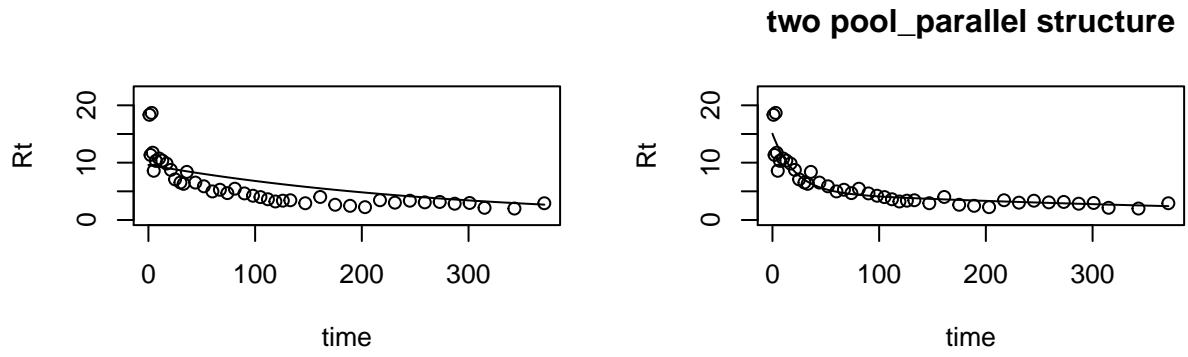
## [1] "Crow2019a; variable: Site43"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00344366794009154"

## [1] "AIC = 6.00504901846402"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0477387280692213"
## [2] "k2= 0.0018869248980969"
## [3] "proportion of CO in pool 1= 0.0764698976654727"

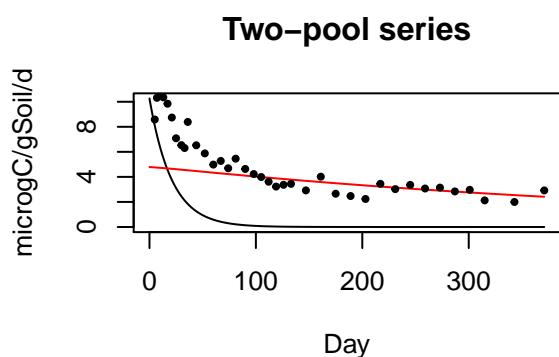
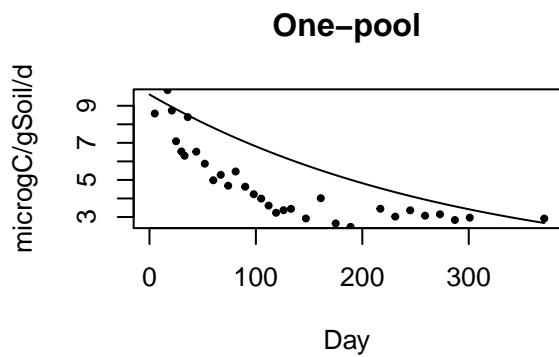
## [1] "AIC = 7.39686050065059"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0477348797858957"
## [2] "k2= 0.00188687970328482"
## [3] "a21= 0.152318946604913"
## [4] "Proportion of CO in pool 1= 0.0908888532855347"

## [1] "AIC = 9.3968605004217"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00188688947892572"
## [2] "k2= 0.0477355630383085"
## [3] "a21= 0.999061107719894"
## [4] "a12= 9.34040410738302e-07"
## [5] "Proportion of CO in pool 1= 0.8870529691711"

```



```
## [1] "AIC = 11.3968609887936"
```



```
##  
##
```

```

## |model          |k1      |k2      |COInp1 |a21     |a12     |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.00344 |NA      |NA      |NA      |NA      |
## |Two-pool parallel |0.0477  |0.00189 |0.0765 |NA      |NA      |
## |Two-pool series   |0.0477  |0.00189 |0.0909 |0.152   |NA      |
## |Two-pool feedback  |0.00189 |0.0477  |0.887   |0.999   |0.0909 |
##
##
## |model          |AIC    |BIC    |AICn   |AICc   |wi     |MeanTrT |q05    |SSR    |MSR    |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |6.01   |9.92   |745    |6.02   |0.602  |2790    |NA     |311    |7.41   |
## |Two-pool parallel |7.4    |19.1   |265    |7.46   |0.292  |185     |26.3   |84.4   |2.01   |
## |Two-pool series   |9.4    |25.1   |267    |9.51   |0.105  |102     |18.6   |84.4   |2.01   |
## |Two-pool feedback  |11.4   |31     |269    |11.6   |0.0377 |551     |389   |84.4   |2.01   |

```

Variable Site44;

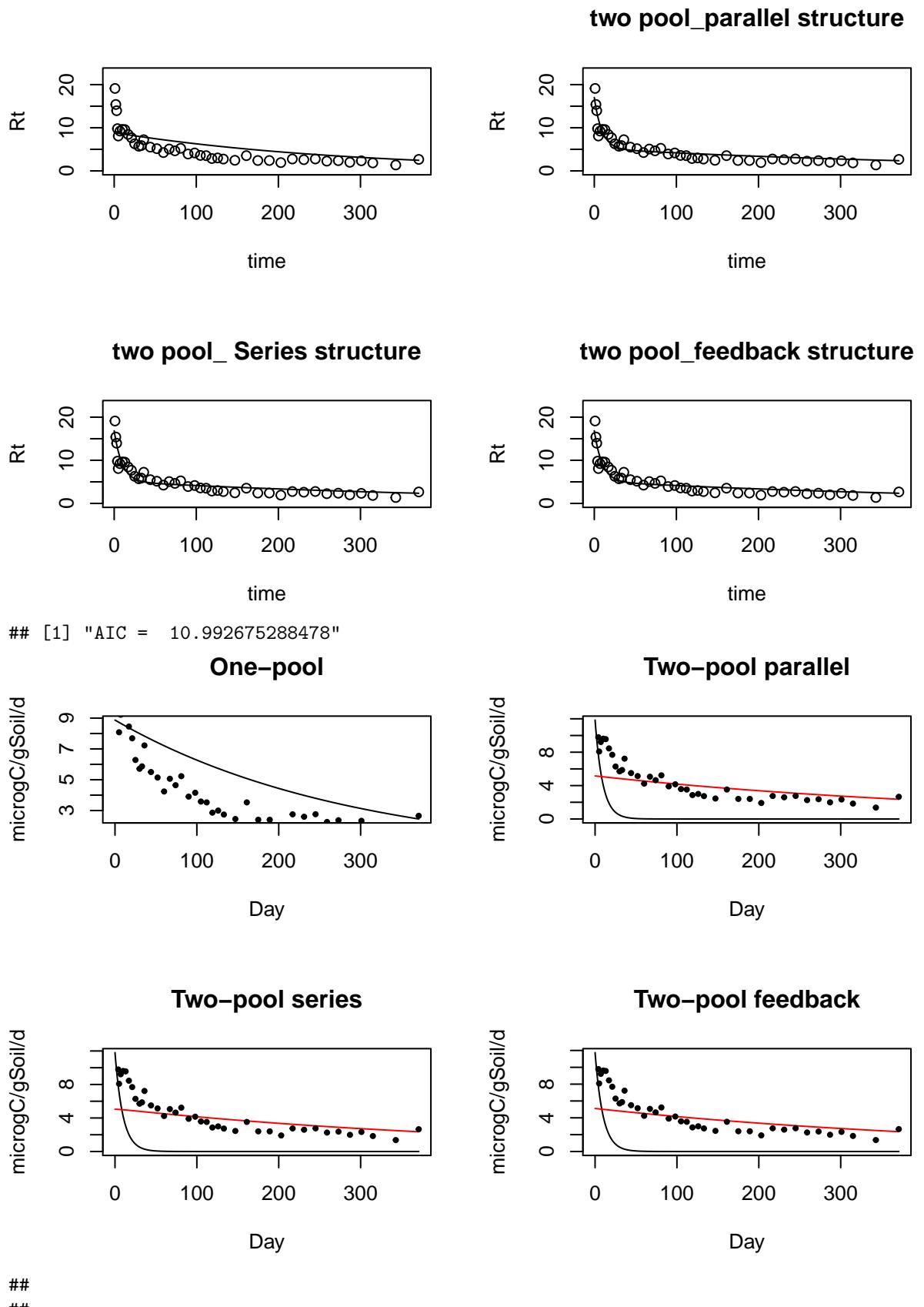
CO2 production rate

```
Crow_V45=modelFitTS_Markdown(db = db[[9]], ts.col = 45, ic.col = 44, unitConverter = 1e3 )
```

```

## [1] "Crow2019a; variable: Site44"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00346551228747494"
## [1] "AIC = 6.01409379513177"
## [1] "Two pool model-parallel structure"
## Warning in nls.lm(par = Pars, fn = Fun, control = Contr, ...): lmdif: info = -1. Number of iterations
## [1] "k1= 0.107975682417379"
## [2] "k2= 0.00210469106724599"
## [3] "proportion of CO in pool 1= 0.0428637358100487"
## [1] "AIC = 6.99280990523983"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.103660381199892"
## [2] "k2= 0.00208820017316022"
## [3] "a21= 0.21748392438107"
## [4] "Proportion of CO in pool 1= 0.0568519619991053"
## [1] "AIC = 8.99267526957245"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.103900202684665"
## [2] "k2= 0.00208914251107324"
## [3] "a21= 0.00843323002199481"
## [4] "a12= 2.24689790523369e-06"
## [5] "Proportion of CO in pool 1= 0.0445378351419887"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.00347|NA|NA|NA|NA|
## |Two-pool parallel|0.108|0.0021|0.0429|NA|NA|
## |Two-pool series|0.104|0.00209|0.0569|0.217|NA|
## |Two-pool feedback|0.104|0.00209|0.0445|0.00843|0.0569|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|6.01|9.93|747|6.02|0.552|2560|NA|313|7.44|
## |Two-pool parallel|6.99|18.7|190|7.06|0.329|151|11.4|69|1.64|
## |Two-pool series|8.99|24.7|192|9.1|0.119|114|9.77|69|1.64|
## |Two-pool feedback|11|30.6|194|11.2|0.0424|13.7|6.75|69|1.64|

```

Variable Site45;

CO2 production rate

```
Crow_V46=modelFitTS_Markdown(db = db[[9]], ts.col = 46, ic.col = 45, unitConverter = 1e3 )
```

```

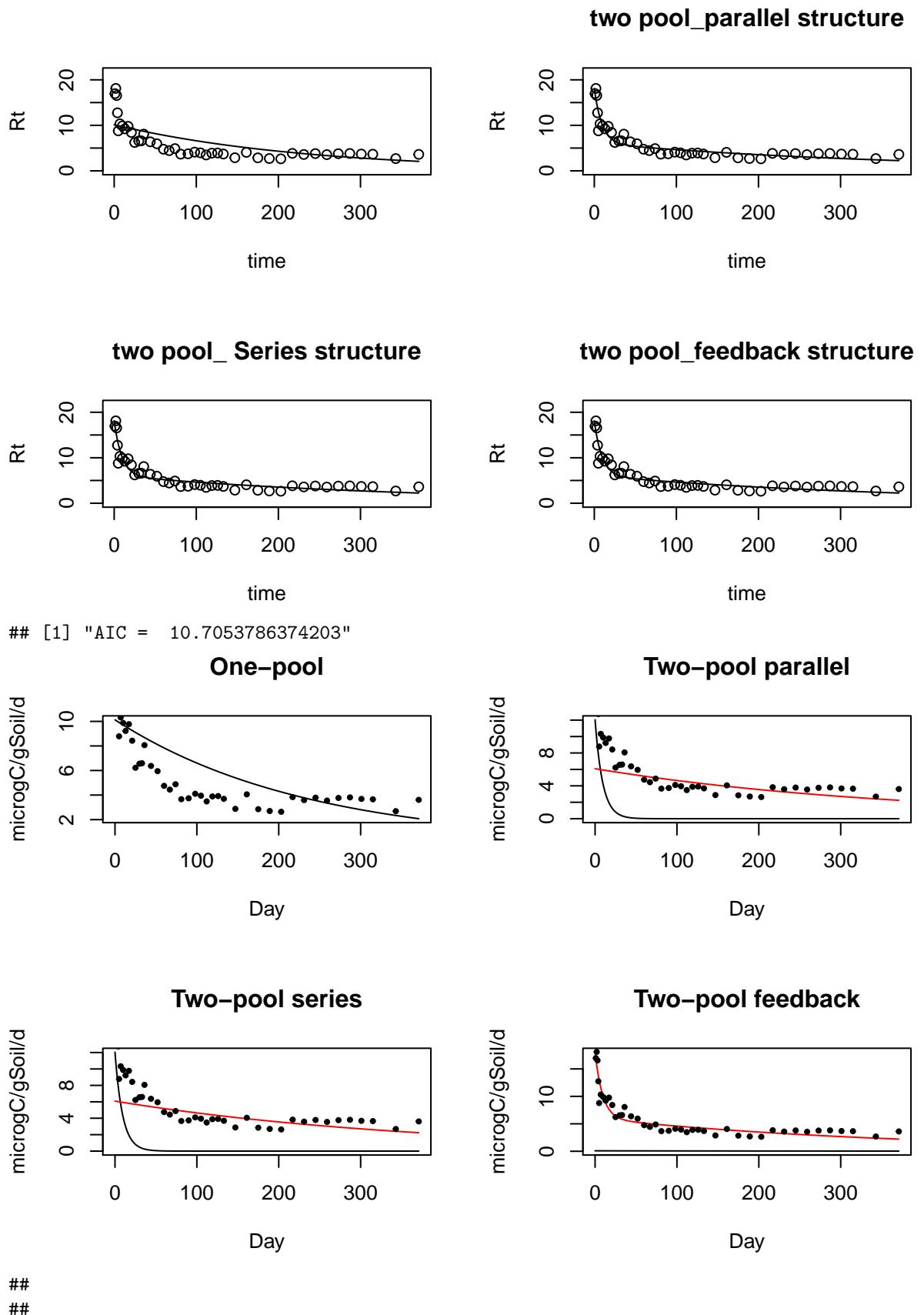
## [1] "Crow2019a; variable: Site45"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00427333887508219"

## [1] "AIC = 5.91839414284505"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.107572178538879"
## [2] "k2= 0.00269536443743524"
## [3] "proportion of CO in pool 1= 0.0472134153231689"

## [1] "AIC = 6.70537844842895"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.107579563092178"
## [2] "k2= 0.00269539669616898"
## [3] "a21= 0.000554805693131322"
## [4] "Proportion of CO in pool 1= 0.0472375454691351"

## [1] "AIC = 8.70537843883639"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00269537002737719"
## [2] "k2= 0.107572903232955"
## [3] "a21= 0.98617234443448"
## [4] "a12= 9.31673141135736e-07"
## [5] "Proportion of CO in pool 1= 0.929235098217804"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.00427|NA|NA|NA|NA|
## |Two-pool parallel|0.108|0.0027|0.0472|NA|NA|
## |Two-pool series|0.108|0.0027|0.0472|0.000555|NA|
## |Two-pool feedback|0.0027|0.108|0.929|0.986|0.0472|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|5.92|9.83|729|5.93|0.528|2370|NA|298|7.09|
## |Two-pool parallel|6.71|18.5|137|6.77|0.347|131|12.4|59.8|1.42|
## |Two-pool series|8.71|24.4|139|8.81|0.125|9.5|6.45|59.8|1.42|
## |Two-pool feedback|10.7|30.3|141|10.9|0.0447|380|266|59.8|1.42|

```

Variable Site46;

CO2 production rate

```

Crow_V47= modelFitTS_Markdown(db = db[[9]], ts.col = 47, ic.col = 46, unitConverter = 1e3 )

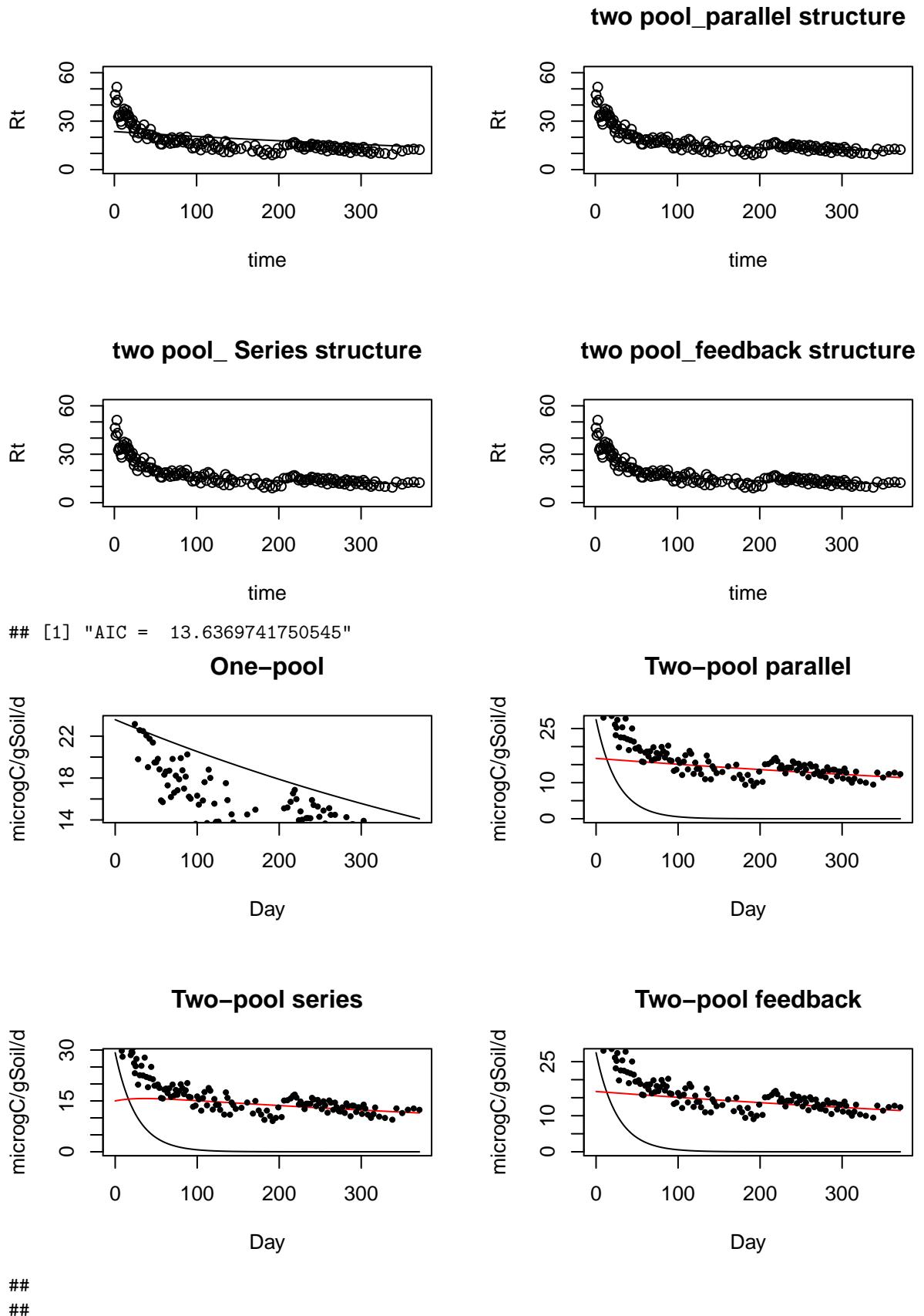
## [1] "Crow2019a; variable: Site46"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00138269794661738"

## [1] "AIC = 9.43138369345513"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0390678211215938"
## [2] "k2= 0.00102340613799625"
## [3] "proportion of CO in pool 1= 0.0412388098511655"

## [1] "AIC = 9.6369741750552"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0390677876936174"
## [2] "k2= 0.0010234061885451"
## [3] "a21= 0.688883771588014"
## [4] "Proportion of CO in pool 1= 0.140947194349037"

## [1] "AIC = 11.6369741754979"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0390677944726871"
## [2] "k2= 0.00102340676092684"
## [3] "a21= 0.0106707911256298"
## [4] "a12= 5.17771065050021e-05"
## [5] "Proportion of CO in pool 1= 0.0416970491271371"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|-0.00138|NA|NA|NA|NA|
## |Two-pool parallel|0.0391|0.00102|0.0412|NA|NA|
## |Two-pool series|0.0391|0.00102|0.141|0.689|NA|
## |Two-pool feedback|0.0391|0.00102|0.0417|0.0107|0.141|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|9.43|13.3|1380|9.44|0.456|17000|NA|6080|41.1|
## |Two-pool parallel|9.64|21.4|681|9.7|0.4|386|38.8|912|6.16|
## |Two-pool series|11.6|27.3|683|11.7|0.144|699|339|912|6.16|
## |Two-pool feedback|13.6|33.2|685|13.8|0.0515|36|18|912|6.16|

```

Variable Site47;

CO2 production rate

```

Crow_V48=modelFitTS_Markdown(db = db[[9]], ts.col = 48, ic.col = 47, unitConverter = 1e3 )

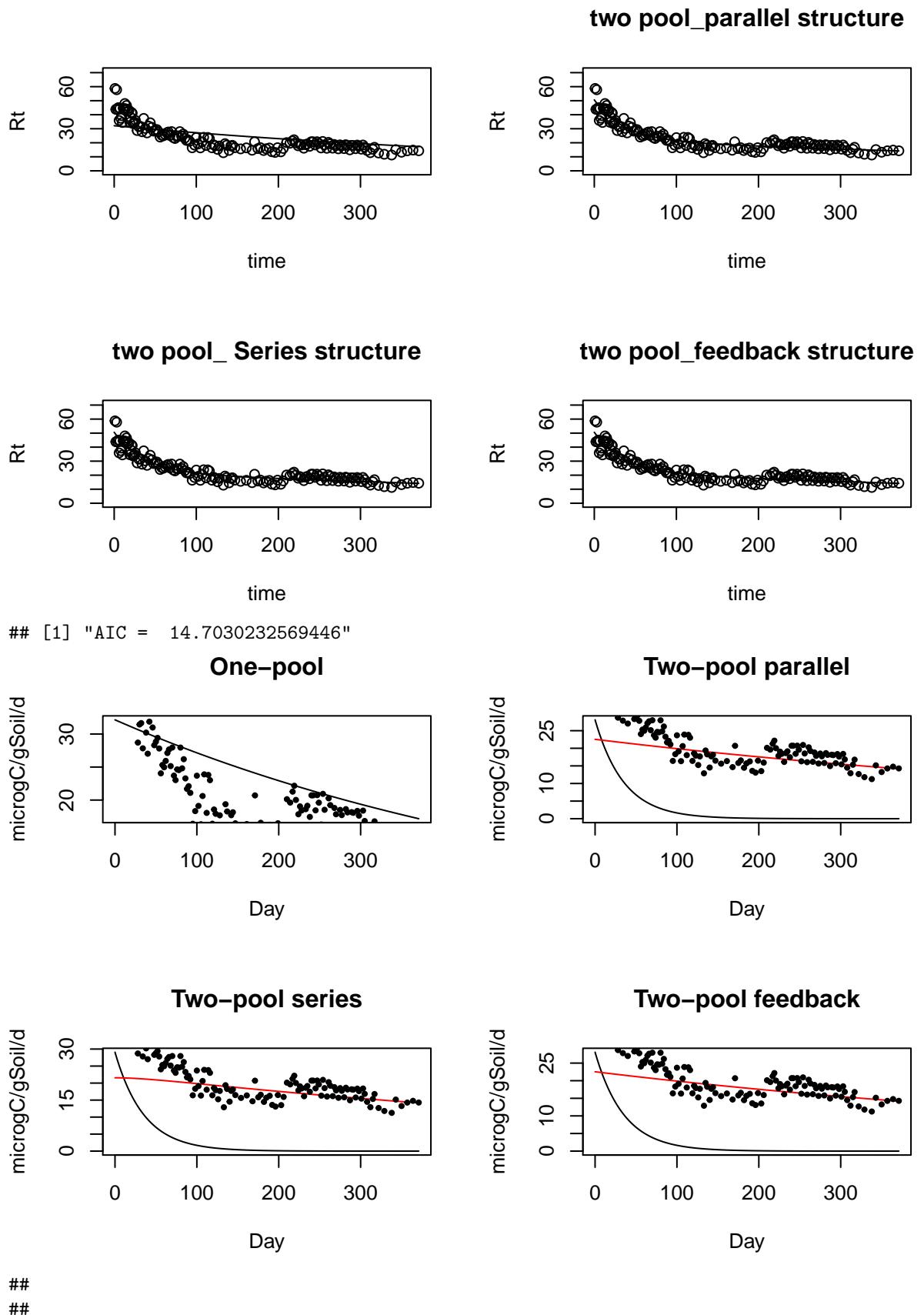
## [1] "Crow2019a; variable: Site47"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00168952064241878"

## [1] "AIC = 9.7925443439438"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0284237936692063"
## [2] "k2= 0.00124951870061338"
## [3] "proportion of CO in pool 1= 0.0519239145099826"

## [1] "AIC = 10.7030232572581"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0284241485370315"
## [2] "k2= 0.00124952054450917"
## [3] "a21= 0.424837968699965"
## [4] "Proportion of CO in pool 1= 0.093450026461511"

## [1] "AIC = 12.7030232571439"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0284241876313594"
## [2] "k2= 0.00124952135894652"
## [3] "a21= 0.00316853794015715"
## [4] "a12= 8.12790081433645e-06"
## [5] "Proportion of CO in pool 1= 0.0520964246209251"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00169|NA|NA|NA|NA|
## |Two-pool parallel|0.0284|0.00125|0.0519|NA|NA|
## |Two-pool series|0.0284|0.00125|0.0935|0.425|NA|
## |Two-pool feedback|0.0284|0.00125|0.0521|0.00317|0.0935|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|9.79|13.7|1450|9.8|0.544|19000|NA|7280|49.2|
## |Two-pool parallel|10.7|22.5|878|10.8|0.336|376|64.3|1550|10.5|
## |Two-pool series|12.7|28.4|880|12.8|0.121|375|64.1|1550|10.5|
## |Two-pool feedback|14.7|34.3|882|14.9|0.0432|37.7|24.5|1550|10.5|

```

Variable Site48;

CO2 production rate

```
Crow_V49=modelFitTS_Markdown(db = db[[9]], ts.col = 49, ic.col = 48, unitConverter = 1e3 )
```

```

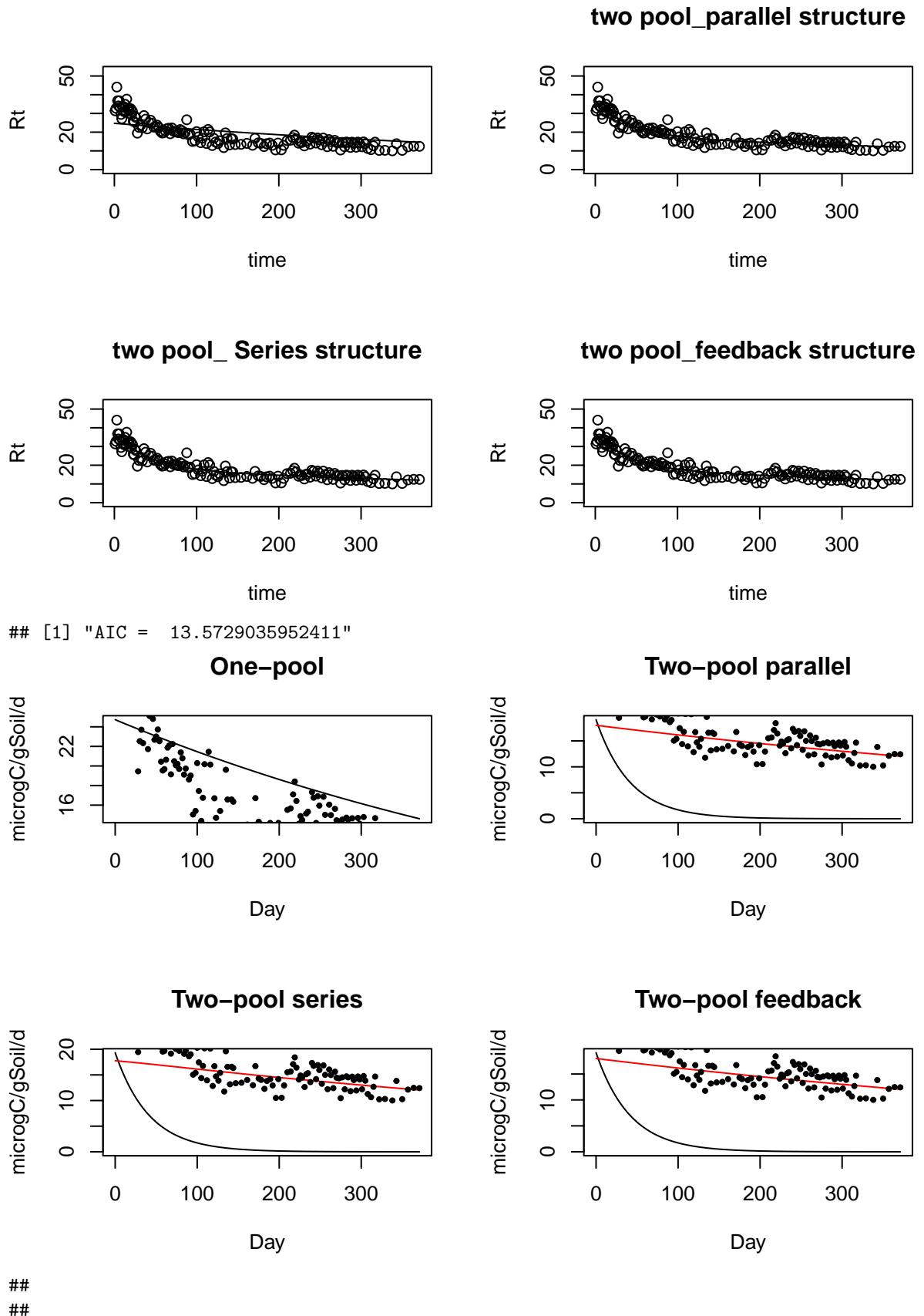
## [1] "Crow2019a; variable: Site48"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00141885895869187"

## [1] "AIC = 8.50168829299918"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0241145759424994"
## [2] "k2= 0.00108189276069781"
## [3] "proportion of CO in pool 1= 0.0454224148539825"

## [1] "AIC = 9.57290359537004"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0241144318540014"
## [2] "k2= 0.00108189110445175"
## [3] "a21= 0.205219312520308"
## [4] "Proportion of CO in pool 1= 0.0578527355277146"

## [1] "AIC = 11.5729035953233"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0241144171445886"
## [2] "k2= 0.00108189103083525"
## [3] "a21= 0.0148621910170638"
## [4] "a12= 2.03077027943754e-06"
## [5] "Proportion of CO in pool 1= 0.0461408239171716"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:----|:----|:----|:----|:----|
## |One-pool|-0.00142|NA|NA|NA|NA|
## |Two-pool parallel|0.0241|0.00108|0.0454|NA|NA|
## |Two-pool series|0.0241|0.00108|0.0579|0.205|NA|
## |Two-pool feedback|0.0241|0.00108|0.0461|0.0149|0.0579|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:----|:----|:----|:----|:----|:----|:----|:----|
## |One-pool|8.5|12.4|1210|8.51|0.564|17400|NA|3820|25.8|
## |Two-pool parallel|9.57|21.3|669|9.64|0.321|470|89.5|883|5.97|
## |Two-pool series|11.6|27.2|671|11.7|0.116|231|40.7|883|5.97|
## |Two-pool feedback|13.6|33.2|673|13.7|0.0413|55.2|29.4|883|5.97|

```

Variable Site49;

CO2 production rate

```
Crow_V50=modelFitTS_Markdown(db = db[[9]], ts.col = 50, ic.col = 49, unitConverter = 1e3 )
```

```

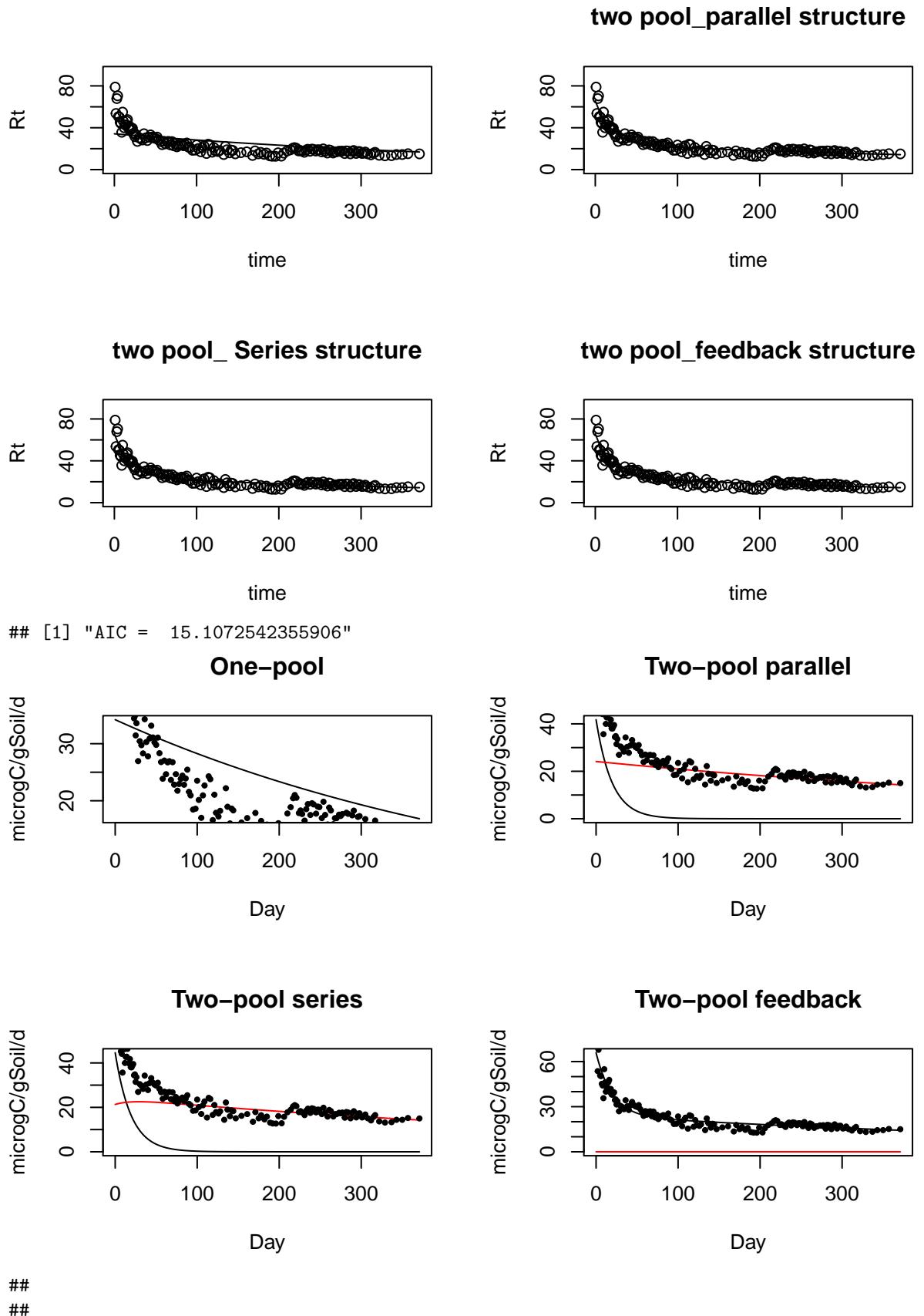
## [1] "Crow2019a; variable: Site49"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00190915217627996"

## [1] "AIC = 10.677931123038"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.051432575399109"
## [2] "k2= 0.00141057990900574"
## [3] "proportion of CO in pool 1= 0.0453162467664809"

## [1] "AIC = 11.1072550068447"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0514338690709657"
## [2] "k2= 0.00141058466994198"
## [3] "a21= 0.692364198826727"
## [4] "Proportion of CO in pool 1= 0.15728447625295"

## [1] "AIC = 13.107255006537"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0514321981017084"
## [2] "k2= 0.00141225942943647"
## [3] "a21= 0.00115375631891101"
## [4] "a12= 0.999998026382363"
## [5] "Proportion of CO in pool 1= 0.0715828051983818"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:----|:----|:----|:----|:----|
## |One-pool|-0.00191|NA|NA|NA|NA|
## |Two-pool parallel|0.0514|0.00141|0.0453|NA|NA|
## |Two-pool series|0.0514|0.00141|0.157|0.692|NA|
## |Two-pool feedback|0.0514|0.00141|0.0716|0.00115|0.157|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|10.7|14.6|1610|10.7|0.484|17900|NA|11300|76.6|
## |Two-pool parallel|11.1|22.9|953|11.2|0.38|272|28.3|1890|12.9|
## |Two-pool series|13.1|28.8|955|13.2|0.137|510|250|1890|12.9|
## |Two-pool feedback|15.1|34.7|957|15.3|0.0489|20.3|13.5|1890|12.9|

```

Variable Site50;

CO2 production rate

```

Crow_V51=modelFitTS_Markdown(db = db[[9]], ts.col = 51, ic.col = 50, unitConverter = 1e3)

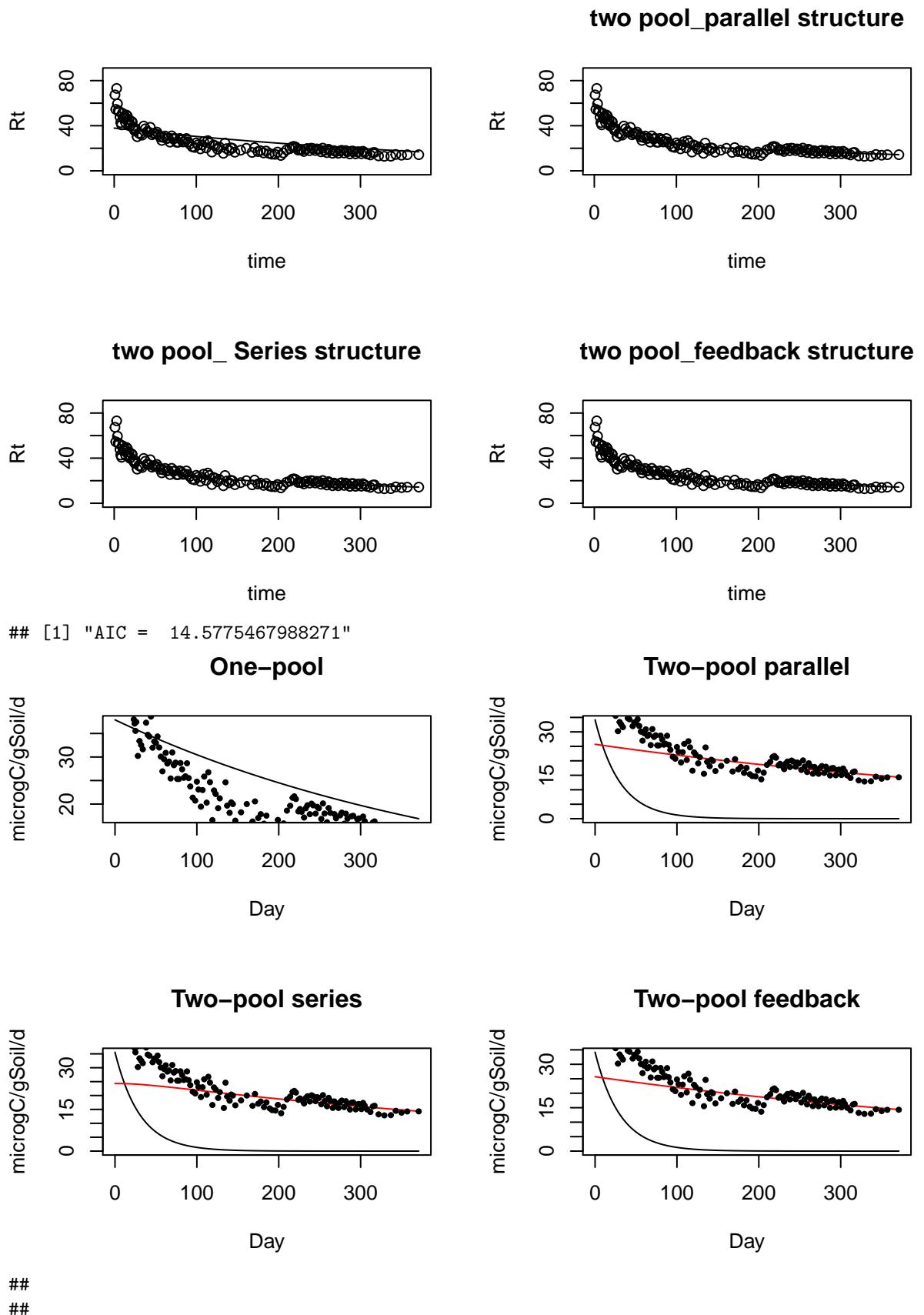
## [1] "Crow2019a; variable: Site50"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00217840867031249"

## [1] "AIC = 10.1566744593949"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0328650693343986"
## [2] "k2= 0.00157172016680901"
## [3] "proportion of CO in pool 1= 0.0597527534929103"

## [1] "AIC = 10.5775467996488"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0328643423571711"
## [2] "k2= 0.0015717147717547"
## [3] "a21= 0.441610927596047"
## [4] "Proportion of CO in pool 1= 0.11143757571902"

## [1] "AIC = 12.5775467989795"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0328643651552964"
## [2] "k2= 0.00157171486395899"
## [3] "a21= 0.00252696672744118"
## [4] "a12= 4.99144354404457e-07"
## [5] "Proportion of CO in pool 1= 0.0599128316597828"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00218|NA|NA|NA|NA|
## |Two-pool parallel|0.0329|0.00157|0.0598|NA|NA|
## |Two-pool series|0.0329|0.00157|0.111|0.442|NA|
## |Two-pool feedback|0.0329|0.00157|0.0599|0.00253|0.111|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|10.2|14.1|1520|10.2|0.483|17400|NA|8680|59|
## |Two-pool parallel|10.6|22.3|855|10.6|0.38|291|51.8|1450|9.86|
## |Two-pool series|12.6|28.2|857|12.7|0.137|311|59|1450|9.86|
## |Two-pool feedback|14.6|34.2|859|14.7|0.049|32|21.2|1450|9.86|

```

Variable Site51;

CO2 production rate

```

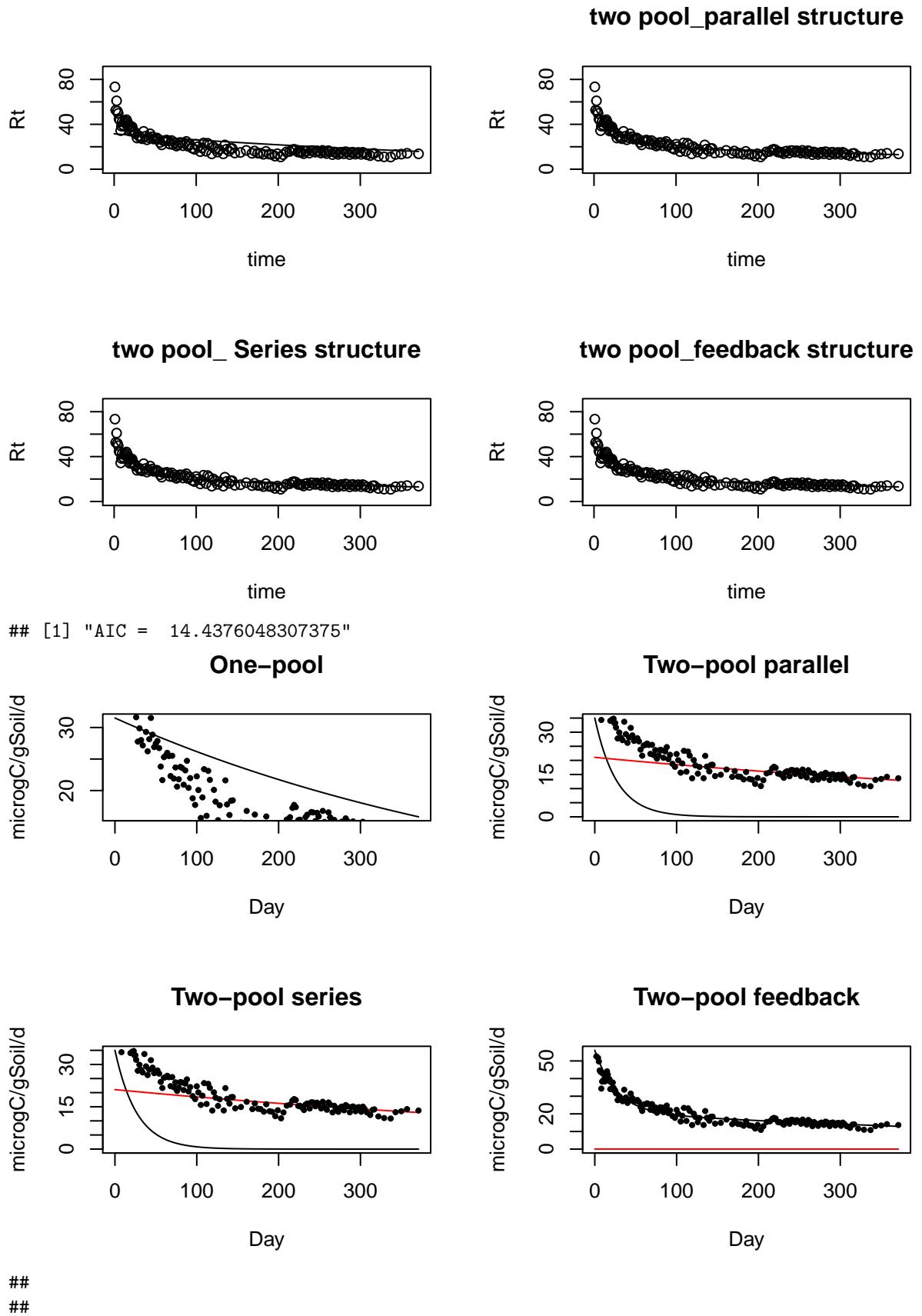
Crow_V52=modelFitTS_Markdown(db = db[[9]], ts.col = 52, ic.col = 51, unitConverter = 1e3,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.01, 0.0001, 0.01, 0.1),
                                             feedback=c(0.01, 0.0005, 0.1, 0.01, 0.1)))

```

```

## [1] "Crow2019a; variable: Site51"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00185455457697969"
## [1] "AIC = 10.2608657486606"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0376996419302183"
## [2] "k2= 0.00131266542627514"
## [3] "proportion of CO in pool 1= 0.0546867897843724"
## [1] "AIC = 10.4376051895905"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0376999971923741"
## [2] "k2= 0.00131266708006467"
## [3] "a21= 1.38467497621808e-05"
## [4] "Proportion of CO in pool 1= 0.0546870537042795"
## [1] "AIC = 12.4376051891226"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0376785748501735"
## [2] "k2= 0.00133541626168218"
## [3] "a21= 0.0164753886638787"
## [4] "a12= 0.997601284363483"
## [5] "Proportion of CO in pool 1= 0.0890411164407184"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00185|NA|NA|NA|NA|
## |Two-pool parallel|0.0377|0.00131|0.0547|NA|NA|
## |Two-pool series|0.0377|0.00131|0.0547|1.38e-05|NA|
## |Two-pool feedback|0.0377|0.00134|0.089|0.0165|0.0547|
## 
## 
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|10.3|14.2|1530|10.3|0.452|17000|NA|9140|62.2|
## |Two-pool parallel|10.4|22.2|829|10.5|0.403|303|39.1|1350|9.2|
## |Two-pool series|12.4|28.1|831|12.5|0.145|26.5|18.4|1350|9.2|
## |Two-pool feedback|14.4|34|833|14.6|0.0519|39.5|18.8|1350|9.2|

```

Variable Site52;

CO2 production rate

```

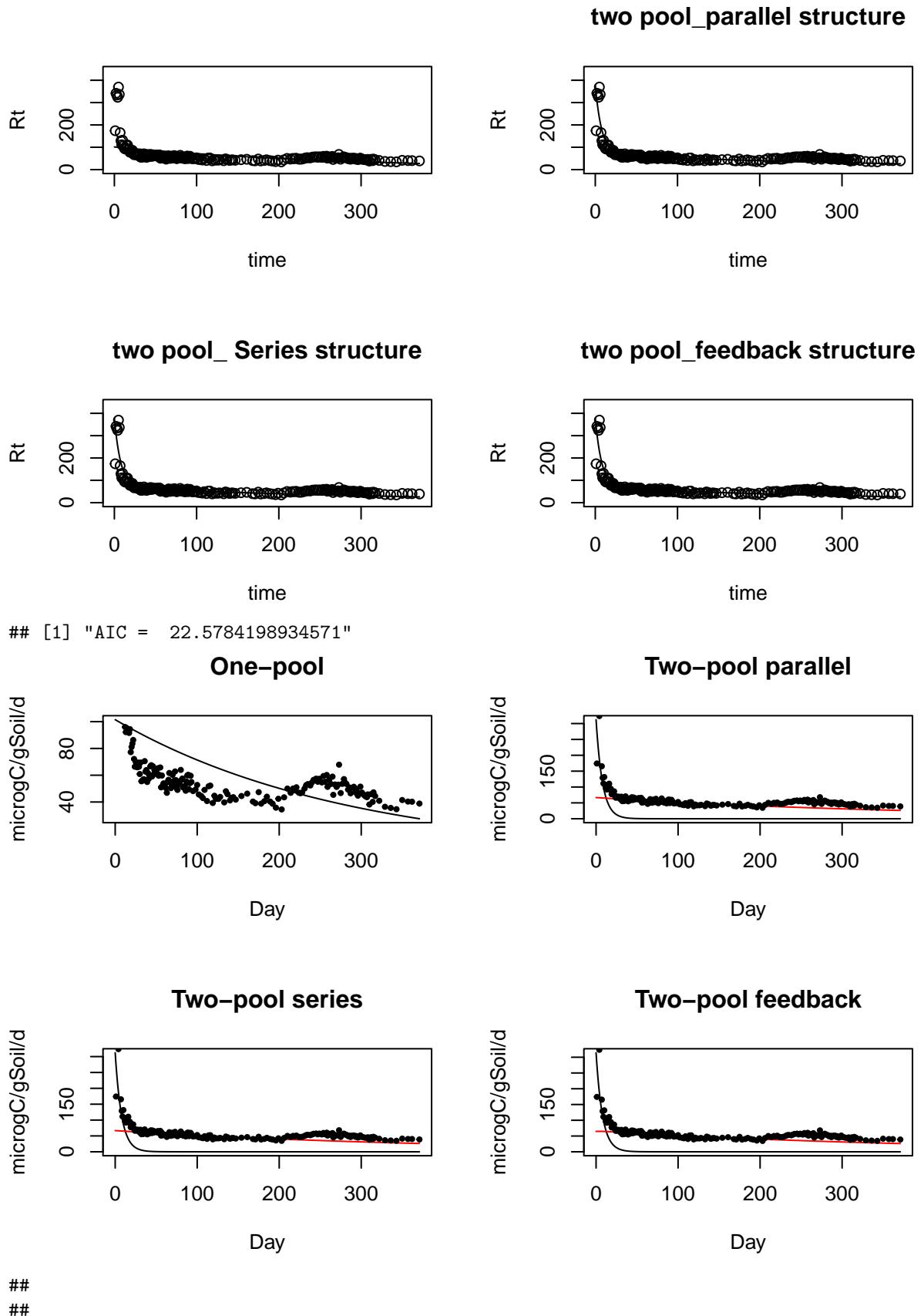
Crow_V53=modelFitTS_Markdown(db = db[[9]], ts.col = 53, ic.col = 52, unitConverter = 1e3 ,
inipars=list(oneP=0.5,
parallel=c(0.01, 0.001, 0.1),
series=c(0.05, 0.0001, 0.01, 0.1),
feedback=c(0.01, 0.0005, 0.1, 0.01, 0.1)))

```

```

## [1] "Crow2019a; variable: Site52"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00351927139801944"
## [1] "AIC = 17.1284698217194"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.127670293343143"
## [2] "k2= 0.00253008350204208"
## [3] "proportion of CO in pool 1= 0.0848030107993669"
## [1] "AIC = 18.57841989458"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.1276780867775"
## [2] "k2= 0.00253012573920565"
## [3] "a21= 0.000374070259693826"
## [4] "Proportion of CO in pool 1= 0.0848312440670238"
## [1] "AIC = 20.5784198963463"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.127675235701133"
## [2] "k2= 0.00253053492986649"
## [3] "a21= 0.243476817033883"
## [4] "a12= 0.000675628812025597"
## [5] "Proportion of CO in pool 1= 0.112839477284501"

```



```

## |model          |k1      |k2      |COInp1 |a21      |a12      |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.00352 |NA      |NA      |NA      |NA      |
## |Two-pool parallel |0.128   |0.00253 |0.0848 |NA      |NA      |
## |Two-pool series    |0.128   |0.00253 |0.0848 |0.000374 |NA      |
## |Two-pool feedback  |0.128   |0.00253 |0.113   |0.243   |0.0848 |
##
##
## |model          |AIC   |BIC   |AICn  |AICc  |wi   |MeanTrT |q05   |SSR   |MSR   |
## |:-----|:----|:----|:----|:----|:----|:-----|:----|:----|:----|
## |One-pool      |17.1  |21    |2810  |17.1  |0.609 |28800  |NA    |370000 |1930  |
## |Two-pool parallel |18.6  |30.3  |2340  |18.6  |0.287 |76.1   |7.24  |103000 |539   |
## |Two-pool series    |20.6  |36.2  |2340  |20.7  |0.103 |7.98   |5.43  |103000 |539   |
## |Two-pool feedback  |22.6  |42.2  |2340  |22.7  |0.037 |104    |8.41  |103000 |539   |

```

Variable Site53;

CO2 production rate

```
Crow_V54=modelFitTS_Markdown(db = db[[9]], ts.col = 54, ic.col = 53, unitConverter = 1e3 )
```

```

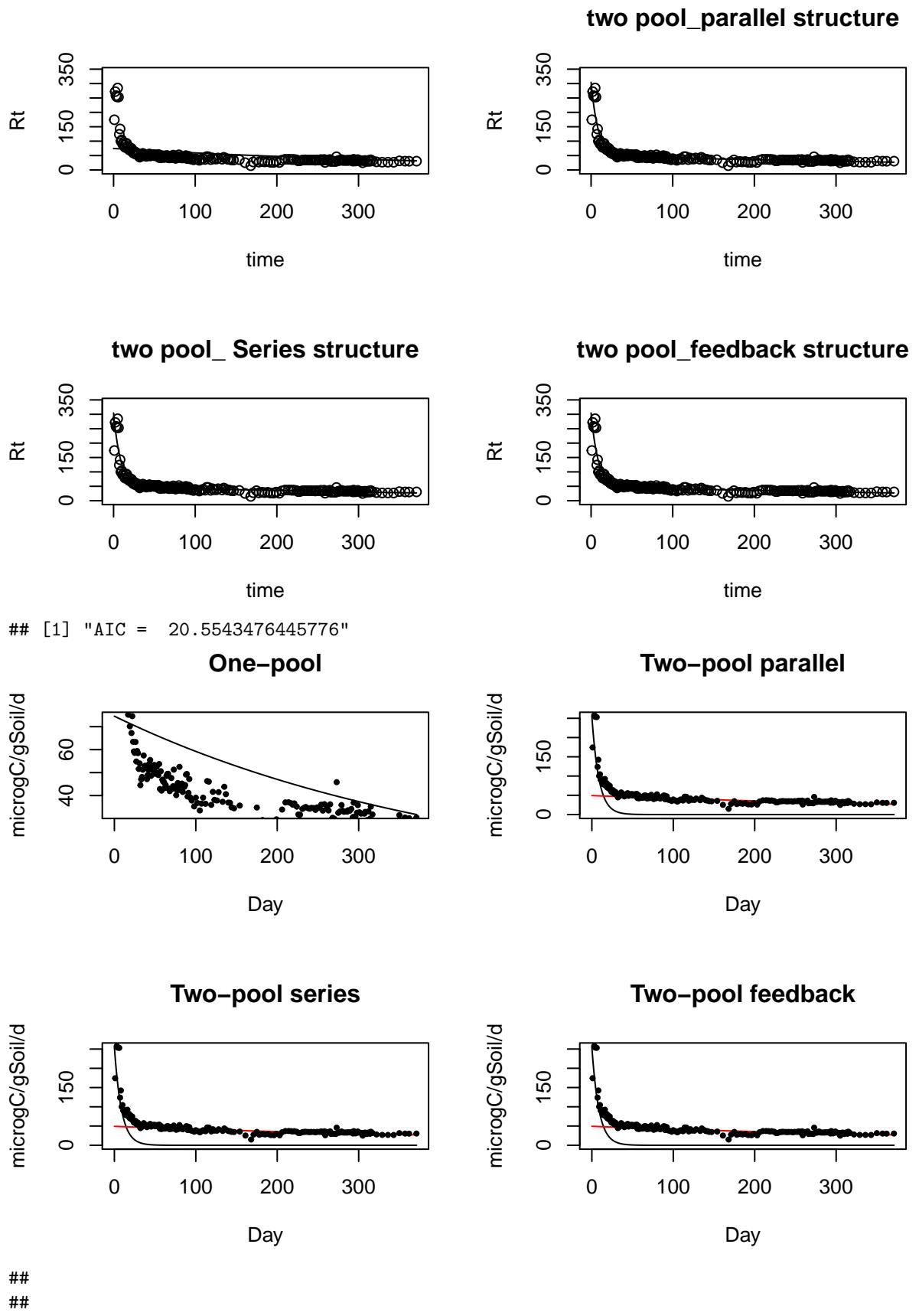
## [1] "Crow2019a; variable: Site53"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00230293642583668"

## [1] "AIC = 16.2707270848224"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.116099561140531"
## [2] "k2= 0.00163161396717155"
## [3] "proportion of CO in pool 1= 0.0679636335417936"

## [1] "AIC = 16.5543476446733"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.116099898110064"
## [2] "k2= 0.00163161509579557"
## [3] "a21= 0.0361903924204933"
## [4] "Proportion of CO in pool 1= 0.0705531687932045"

## [1] "AIC = 18.5543476446615"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.116100202195536"
## [2] "k2= 0.00163161611017919"
## [3] "a21= 0.00259342439619314"
## [4] "a12= 9.50707479629997e-07"
## [5] "Proportion of CO in pool 1= 0.0681426602975256"

```



```

## |model          |k1      |k2      |COInp1 |a21      |a12      |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.0023 |NA      |NA      |NA      |NA      |
## |Two-pool parallel |0.116  |0.00163 |0.068  |NA      |NA      |
## |Two-pool series   |0.116  |0.00163 |0.0706 |0.0362 |NA      |
## |Two-pool feedback  |0.116  |0.00163 |0.0681 |0.00259 |0.0706 |
##
##
## |model          |AIC    |BIC    |AICn   |AICc   |wi     |MeanTrT |q05    |SSR     |MSR    |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |16.3   |20.2   |2650   |16.3   |0.465  |32400   |NA     |241000  |1260   |
## |Two-pool parallel |16.6   |28.3   |1960   |16.6   |0.393  |106     |7.76   |37600   |196   |
## |Two-pool series   |18.6   |34.2   |1970   |18.7   |0.141  |30.8    |6.3    |37600   |196   |
## |Two-pool feedback  |20.6   |40.1   |1970   |20.7   |0.0506 |10.2    |5.99   |37600   |196   |

```

Variable Site54;

CO2 production rate

```

Crow_V55=modelFitTS_Markdown(db = db[[9]], ts.col = 55, ic.col = 54, unitConverter = 1e3 )

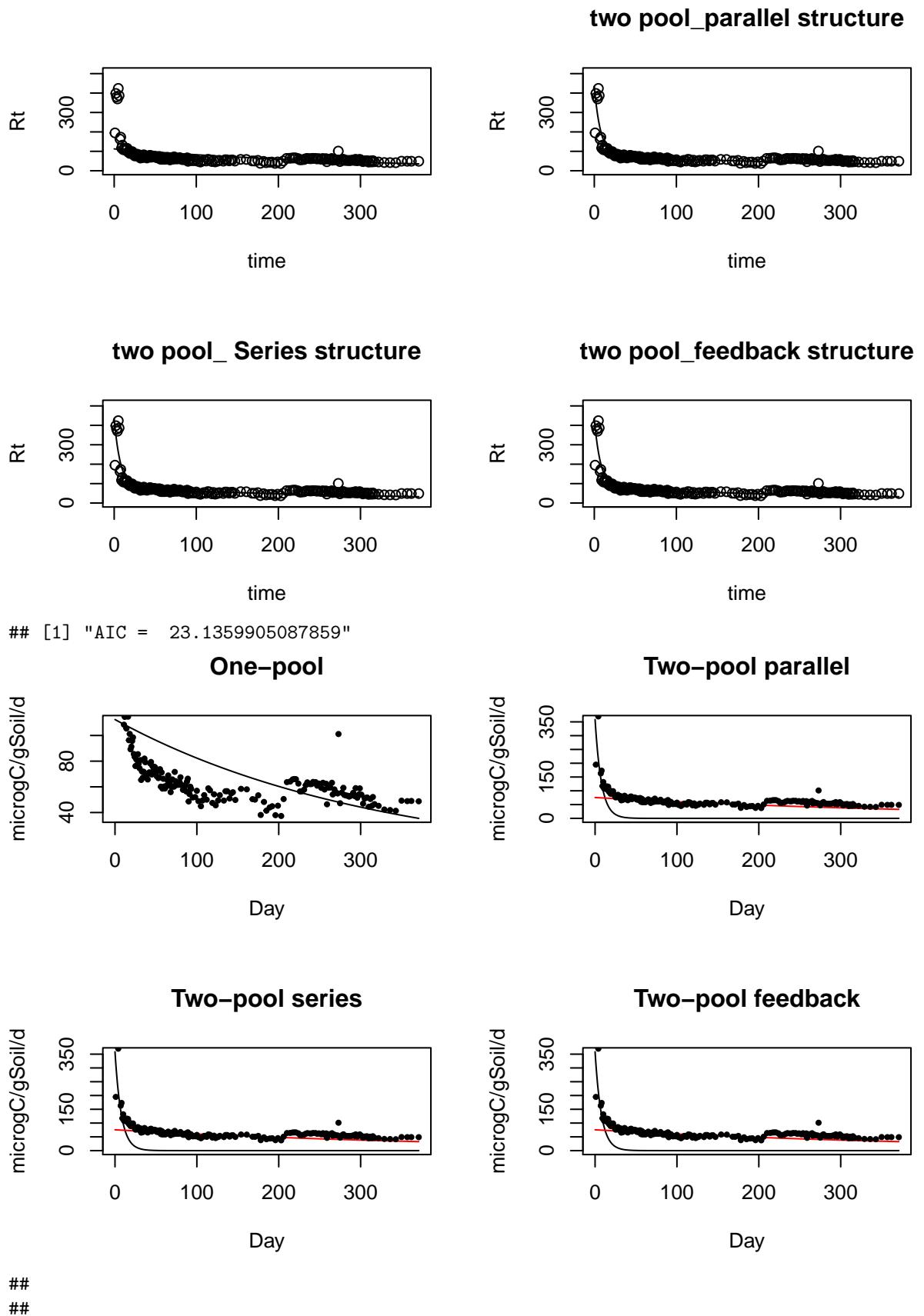
## [1] "Crow2019a; variable: Site54"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00311107759924667"

## [1] "AIC = 17.6845783732787"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.129435914087525"
## [2] "k2= 0.00226697862456489"
## [3] "proportion of CO in pool 1= 0.0766411858931706"

## [1] "AIC = 19.1359905086792"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.129436618107711"
## [2] "k2= 0.00226698163953391"
## [3] "a21= 0.000175364707250325"
## [4] "Proportion of CO in pool 1= 0.0766544014170797"

## [1] "AIC = 21.1359905093189"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.129430921713268"
## [2] "k2= 0.00226695730746494"
## [3] "a21= 0.00680785642863807"
## [4] "a12= 9.50100969687728e-06"
## [5] "Proportion of CO in pool 1= 0.0771776614032146"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.00311|NA|NA|NA|NA|
## |Two-pool parallel|0.129|0.00227|0.0766|NA|NA|
## |Two-pool series|0.129|0.00227|0.0767|0.000175|NA|
## |Two-pool feedback|0.129|0.00227|0.0772|0.00681|0.0767|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|17.7|21.6|2910|17.7|0.61|36100|NA|489000|2550|
## |Two-pool parallel|19.1|30.9|2440|19.2|0.287|83.2|7.12|137000|712|
## |Two-pool series|21.1|36.8|2440|21.2|0.103|7.8|5.36|137000|712|
## |Two-pool feedback|23.1|42.7|2450|23.3|0.037|10.7|5.41|137000|712|

```

Variable Site55;

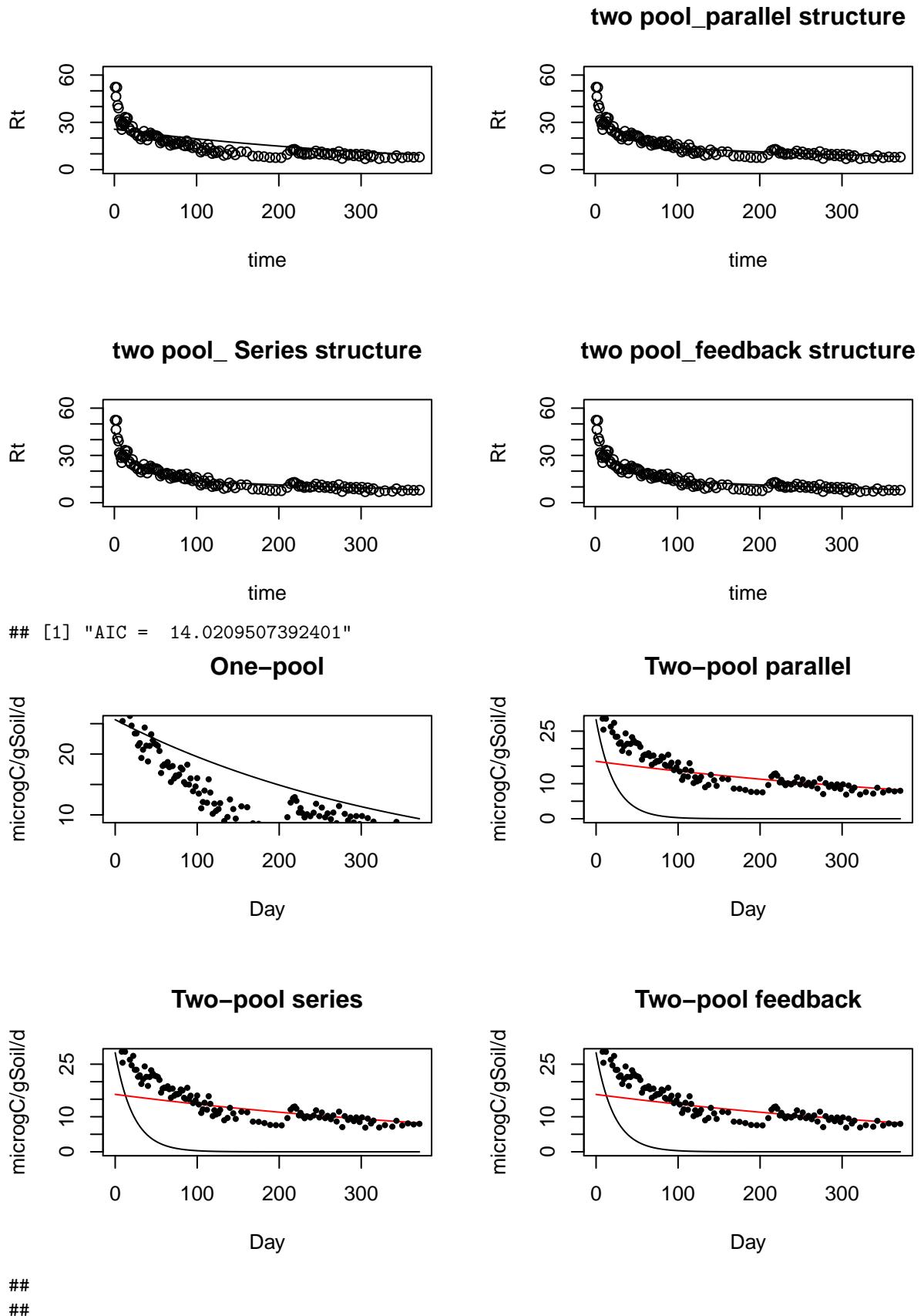
CO2 production rate

```

Crow_V56=modelFitTS_Markdown(db = db[[9]], ts.col = 56, ic.col = 55, unitConverter = 1e3,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.05, 0.0001, 0.01, 0.1),
                                             feedback=c(0.01, 0.0005, 0.1, 0.01, 0.1)) )

## [1] "Crow2019a; variable: Site55"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00271534584059907"
## [1] "AIC = 9.277577526569"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.04529160175102"
## [2] "k2= 0.00185663371023784"
## [3] "proportion of CO in pool 1= 0.0660573352309849"
## [1] "AIC = 10.0209507470427"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0452804739687953"
## [2] "k2= 0.0018565432461793"
## [3] "a21= 0.000213660522893788"
## [4] "Proportion of CO in pool 1= 0.066083761790132"
## [1] "AIC = 12.0209507555382"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0452874898598864"
## [2] "k2= 0.00185660191606629"
## [3] "a21= 0.0133271742301493"
## [4] "a12= 1.75641291348394e-05"
## [5] "Proportion of CO in pool 1= 0.0669937580078694"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00272|NA|NA|NA|NA|
## |Two-pool parallel|0.0453|0.00186|0.0661|NA|NA|
## |Two-pool series|0.0453|0.00186|0.0661|0.000214|NA|
## |Two-pool feedback|0.0453|0.00186|0.067|0.0133|0.0661|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|9.28|13.2|1350|9.29|0.523|9450|NA|4680|38|
## |Two-pool parallel|10|21.8|752|10.1|0.351|212|31.2|918|7.47|
## |Two-pool series|12|27.7|754|12.1|0.126|22.2|15.3|918|7.47|
## |Two-pool feedback|14|33.6|756|14.2|0.0452|29.3|15.6|918|7.47|

```

Variable Site56;

CO2 production rate

```
Crow_V57= modelFitTS_Markdown(db = db[[9]], ts.col = 57, ic.col = 56, unitConverter = 1e3 )
```

```

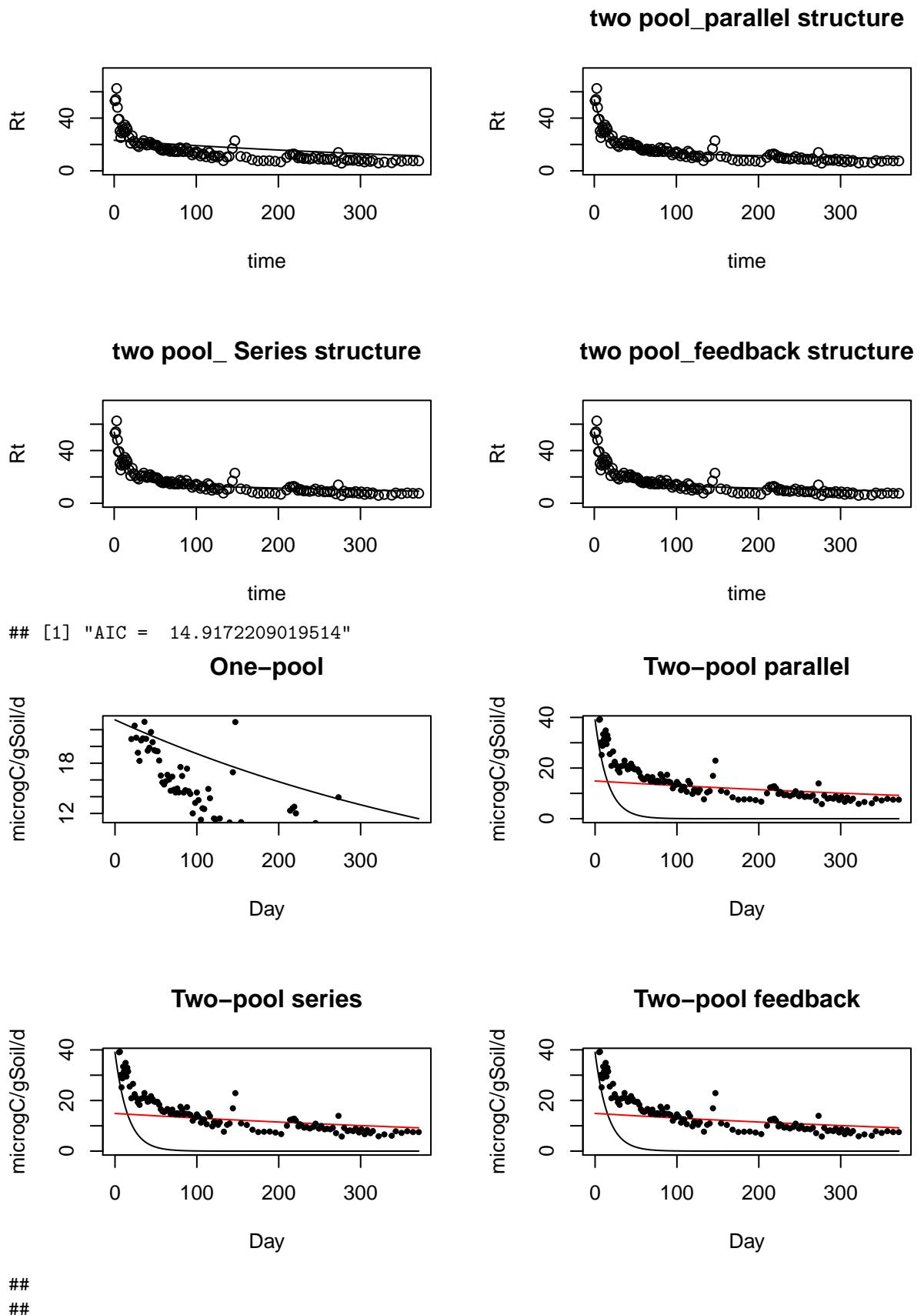
## [1] "Crow2019a; variable: Site56"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00191867669009937"

## [1] "AIC = 10.4103336777478"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0643188153277254"
## [2] "k2= 0.00129788010388902"
## [3] "proportion of CO in pool 1= 0.0502600872844731"

## [1] "AIC = 10.9172209055979"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0643075012180765"
## [2] "k2= 0.00129783751526693"
## [3] "a21= 0.0350370048012089"
## [4] "Proportion of CO in pool 1= 0.0521301877921773"

## [1] "AIC = 12.9172209004945"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0643158541582544"
## [2] "k2= 0.0012978694178962"
## [3] "a21= 0.00889187669171732"
## [4] "a12= 3.91331409659856e-05"
## [5] "Proportion of CO in pool 1= 0.0507220511160756"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|-0.00192|NA|NA|NA|NA|
## |Two-pool parallel|0.0643|0.0013|0.0503|NA|NA|
## |Two-pool series|0.0643|0.0013|0.0521|0.035|NA|
## |Two-pool feedback|0.0643|0.0013|0.0507|0.00889|0.0521|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|10.4|14.3|1560|10.4|0.493|12100|NA|8240|67|
## |Two-pool parallel|10.9|22.7|918|11|0.373|224|17.8|1440|11.7|
## |Two-pool series|12.9|28.6|920|13|0.134|42.5|11.3|1440|11.7|
## |Two-pool feedback|14.9|34.5|922|15.1|0.048|22.4|10.9|1440|11.7|

```

Variable Site57;

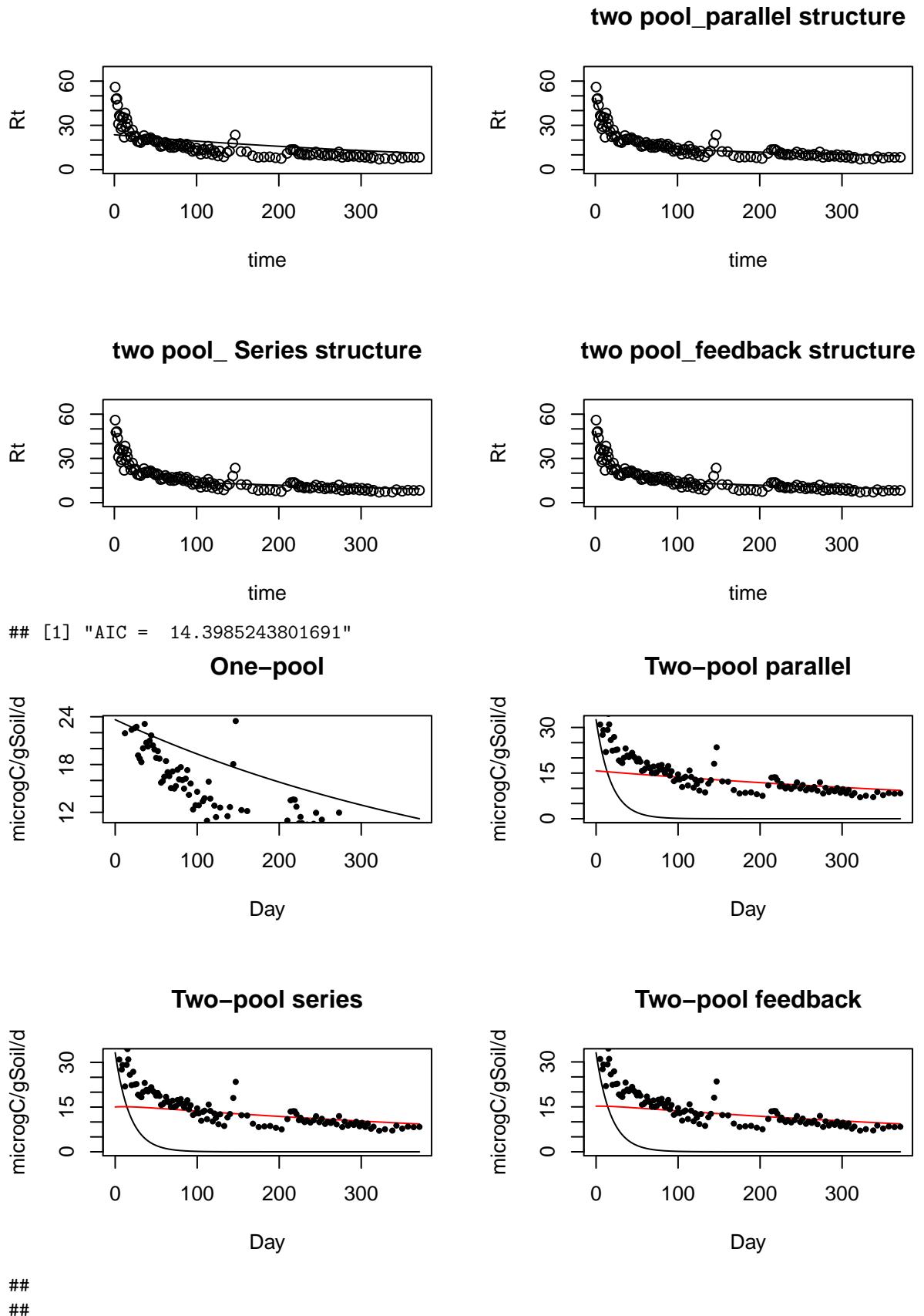
CO2 production rate

```

Crow_V58=modelFitTS_Markdown(db = db[[9]], ts.col = 58, ic.col = 57, unitConverter = 1e3,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.05, 0.0001, 0.01, 0.1),
                                             feedback=c(0.01, 0.0005, 0.1, 0.01, 0.1)) )

## [1] "Crow2019a; variable: Site57"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00201299637023844"
## [1] "AIC = 9.83945484788868"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0552435073611665"
## [2] "k2= 0.00141146680283245"
## [3] "proportion of CO in pool 1= 0.0501996787533646"
## [1] "AIC = 10.3985243859849"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0552380936171791"
## [2] "k2= 0.00141144279328994"
## [3] "a21= 0.441618557779926"
## [4] "Proportion of CO in pool 1= 0.0918118955385107"
## [1] "AIC = 12.3985243814112"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0552381881986219"
## [2] "k2= 0.00141195522050974"
## [3] "a21= 0.368631056550951"
## [4] "a12= 0.000954403657262237"
## [5] "Proportion of CO in pool 1= 0.080774383709016"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|-0.00201|NA|NA|NA|NA|
## |Two-pool parallel|0.0552|0.00141|0.0502|NA|NA|
## |Two-pool series|0.0552|0.00141|0.0918|0.442|NA|
## |Two-pool feedback|0.0552|0.00141|0.0808|0.369|0.0918|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|9.84|13.8|1460|9.85|0.5|11700|NA|6200|50.4|
## |Two-pool parallel|10.4|22.1|822|10.5|0.368|243|23.4|1110|9.02|
## |Two-pool series|12.4|28.1|824|12.5|0.132|331|37.2|1110|9.02|
## |Two-pool feedback|14.4|34|826|14.6|0.0474|279|27.5|1110|9.02|

```

Variable Site58;

CO2 production rate

```
Crow_V59=modelFitTS_Markdown(db = db[[9]], ts.col = 59, ic.col = 58, unitConverter = 1e3 )
```

```

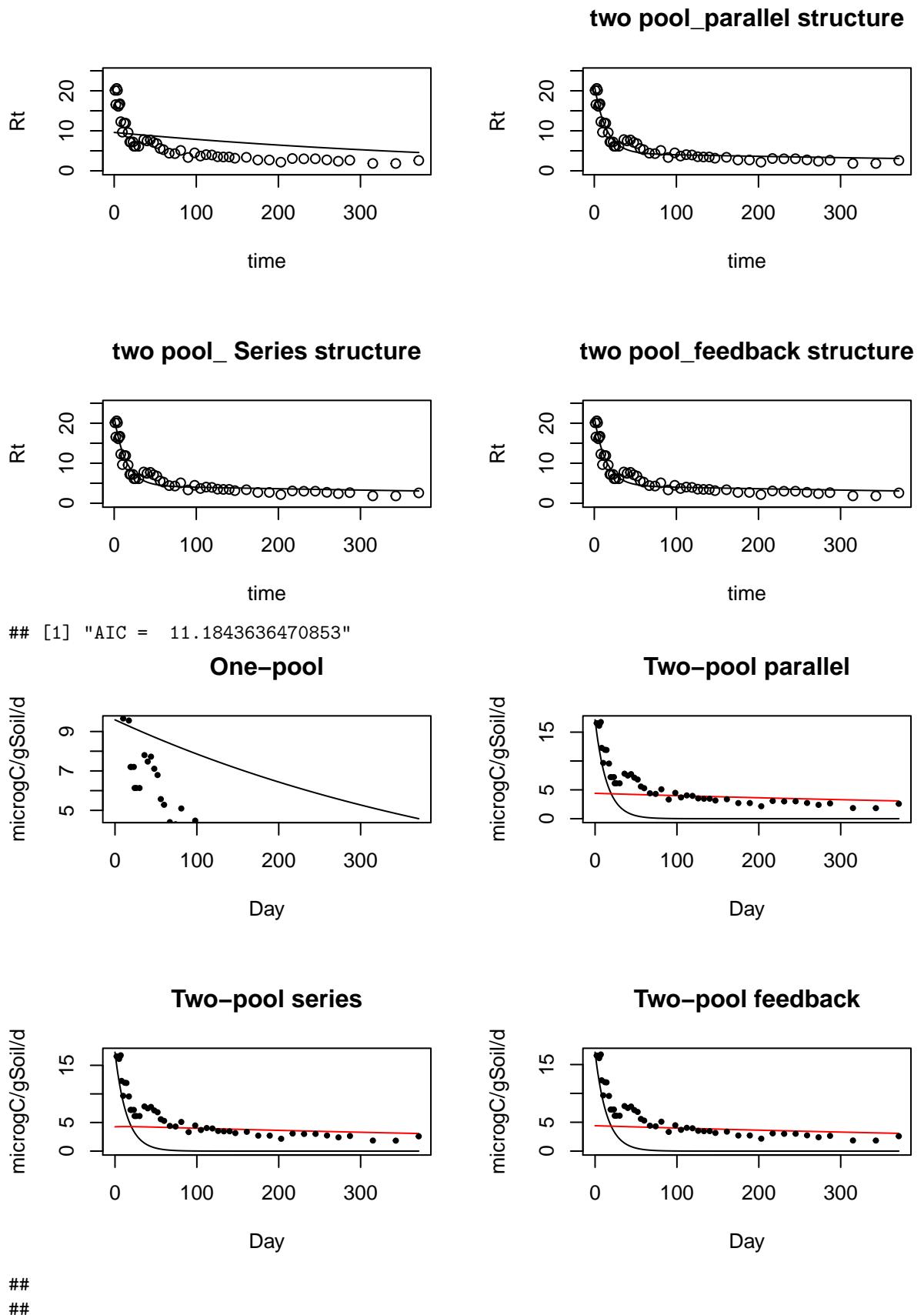
## [1] "Crow2019a; variable: Site58"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00199433701395257"

## [1] "AIC = 7.89051699584913"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0699287535618657"
## [2] "k2= 0.000963652151119603"
## [3] "proportion of CO in pool 1= 0.0509484797655088"

## [1] "AIC = 7.18436364899851"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0699295814741649"
## [2] "k2= 0.00096365681684581"
## [3] "a21= 0.383136047993755"
## [4] "Proportion of CO in pool 1= 0.0833149020606254"

## [1] "AIC = 9.18436364894026"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0699308770941428"
## [2] "k2= 0.000963664128037063"
## [3] "a21= 0.00353866017010507"
## [4] "a12= 4.57276241078164e-06"
## [5] "Proportion of CO in pool 1= 0.0511307392278319"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00199|NA|NA|NA|NA|
## |Two-pool parallel|0.0699|0.000964|0.0509|NA|NA|
## |Two-pool series|0.0699|0.000964|0.0833|0.383|NA|
## |Two-pool feedback|0.0699|0.000964|0.0511|0.00354|0.0833|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|7.89|11.8|1090|7.9|0.347|4810|NA|951|19|
## |Two-pool parallel|7.18|18.9|226|7.25|0.48|223|14|90.4|1.81|
## |Two-pool series|9.18|24.8|228|9.29|0.173|412|23.3|90.4|1.81|
## |Two-pool feedback|11.2|30.8|230|11.3|0.0619|18|9.96|90.4|1.81|

```

Variable Site59;

CO2 production rate

```
Crow_V60=modelFitTS_Markdown(db = db[[9]], ts.col = 60, ic.col = 59, unitConverter = 1e3 )
```

```

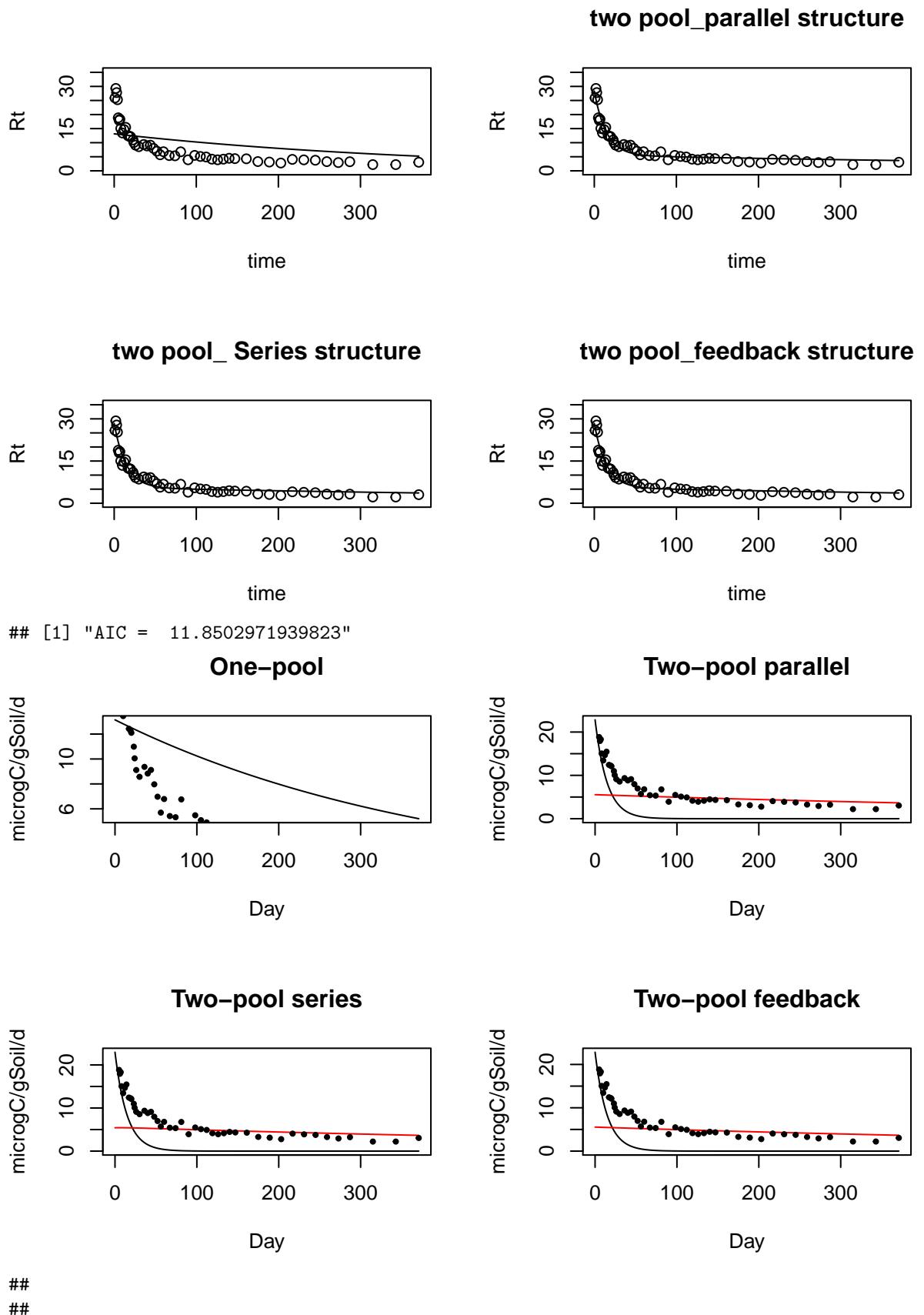
## [1] "Crow2019a; variable: Site59"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00249392637564227"

## [1] "AIC = 8.90650463929914"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0684229522969089"
## [2] "k2= 0.00112332444261784"
## [3] "proportion of CO in pool 1= 0.0632869597139549"

## [1] "AIC = 7.85029719481497"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0684201272748422"
## [2] "k2= 0.00112330359094412"
## [3] "a21= 0.251055716255316"
## [4] "Proportion of CO in pool 1= 0.0849791225280396"

## [1] "AIC = 9.85029719701341"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0684220572485554"
## [2] "k2= 0.00112331787462471"
## [3] "a21= 0.0120180208569901"
## [4] "a12= 2.16433495880963e-06"
## [5] "Proportion of CO in pool 1= 0.0640703370723594"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|-0.00249|NA|NA|NA|NA|
## |Two-pool parallel|0.0684|0.00112|0.0633|NA|NA|
## |Two-pool series|0.0684|0.00112|0.085|0.251|NA|
## |Two-pool feedback|0.0684|0.00112|0.0641|0.012|0.085|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|8.91|12.8|1280|8.92|0.308|5270|NA|1580|31.6|
## |Two-pool parallel|7.85|19.6|349|7.92|0.509|186|14.1|126|2.52|
## |Two-pool series|9.85|25.5|351|9.96|0.183|238|16|126|2.52|
## |Two-pool feedback|11.9|31.4|353|12|0.0655|25.3|10.3|126|2.52|

```

Variable Site60;

CO2 production rate

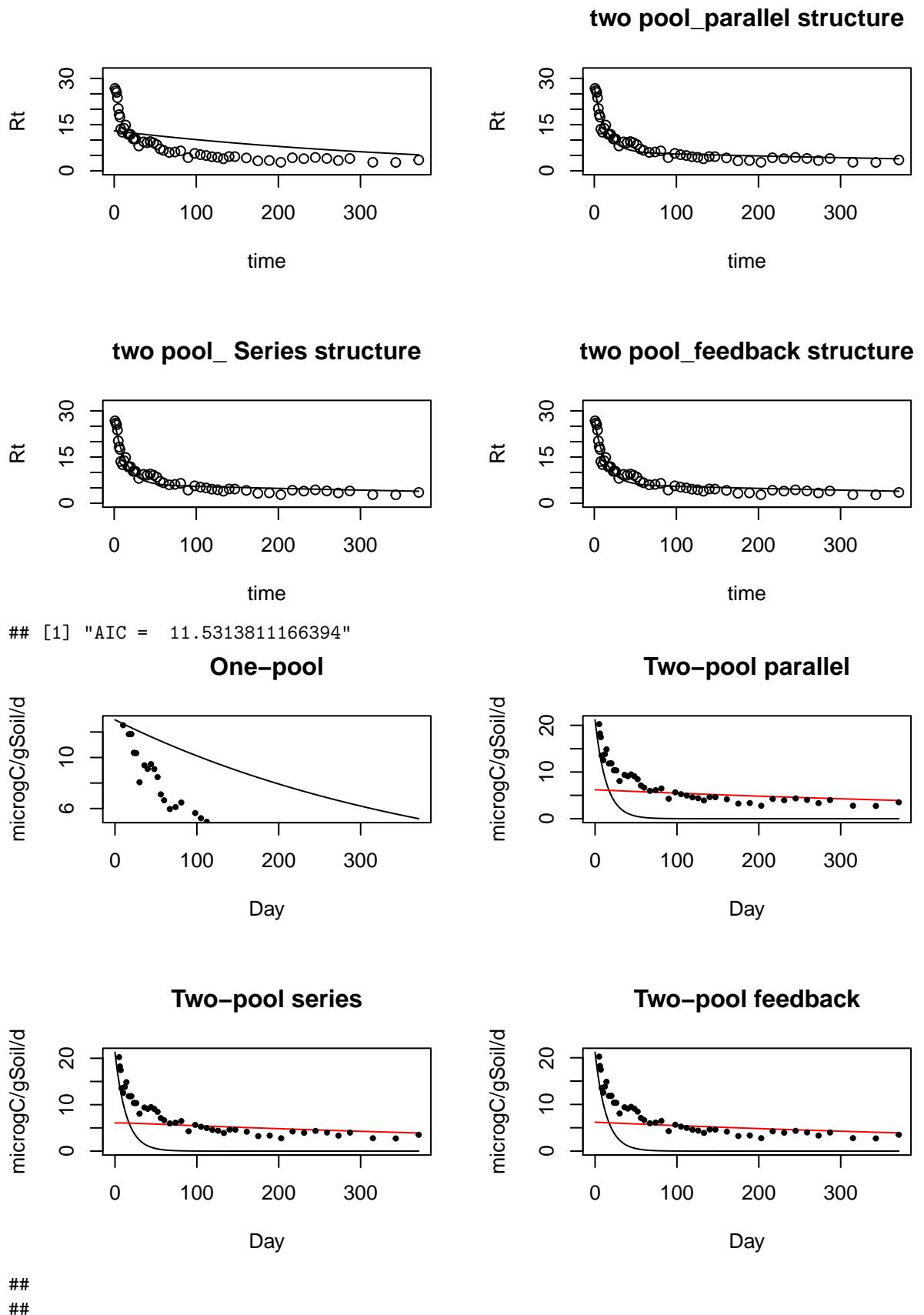
```
Crow_V61=modelFitTS_Markdown(db = db[[9]], ts.col = 61, ic.col = 59, unitConverter = 1e3 )

## [1] "Crow2019a; variable: Site60"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00245824063991051"

## [1] "AIC = 8.54348433093213"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.073415882254979"
## [2] "k2= 0.00124407952531646"
## [3] "proportion of CO in pool 1= 0.0547500617726134"

## [1] "AIC = 7.53138111670455"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0734057512799262"
## [2] "k2= 0.00124401707637982"
## [3] "a21= 0.253077705472829"
## [4] "Proportion of CO in pool 1= 0.0737391832837054"

## [1] "AIC = 9.53138113214863"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0734157870827799"
## [2] "k2= 0.00124408004252377"
## [3] "a21= 0.001856821905244"
## [4] "a12= 0.000446138790394179"
## [5] "Proportion of CO in pool 1= 0.0548609620244102"
```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00246|NA|NA|NA|NA|
## |Two-pool parallel|0.0734|0.00124|0.0548|NA|NA|
## |Two-pool series|0.0734|0.00124|0.0737|0.253|NA|
## |Two-pool feedback|0.0734|0.00124|0.0549|0.00186|0.0737|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|8.54|12.5|1220|8.55|0.313|5270|NA|1320|26.4|
## |Two-pool parallel|7.53|19.3|290|7.6|0.505|192|14|108|2.15|
## |Two-pool series|9.53|25.2|292|9.64|0.182|217|15|108|2.15|
## |Two-pool feedback|11.5|31.1|294|11.7|0.0651|15.1|9.47|108|2.15|

```

Variable Site61;

CO2 production rate

```

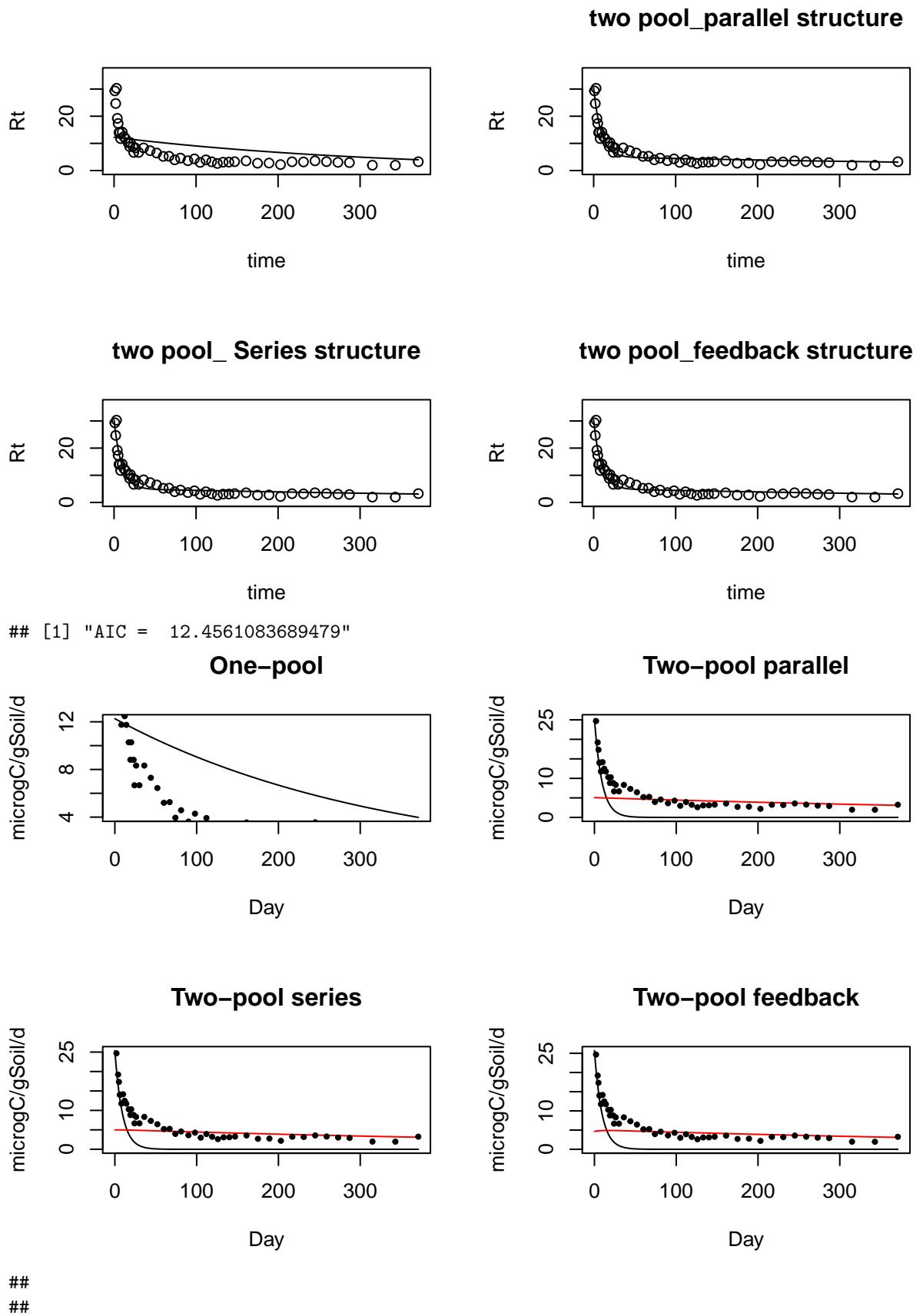
Crow_V62=modelFitTS_Markdown(db = db[[9]], ts.col = 62, ic.col = 61, unitConverter = 1e3,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.05, 0.0001, 0.01, 0.1),
                                             feedback=c(0.01, 0.0005, 0.1, 0.01, 0.1)) )

```

```

## [1] "Crow2019a; variable: Site61"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00303522627672059"
## [1] "AIC = 8.86207534271281"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.109983026864474"
## [2] "k2= 0.0013309281485722"
## [3] "proportion of CO in pool 1= 0.0569184514055152"
## [1] "AIC = 8.45610835008897"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.109972837700327"
## [2] "k2= 0.00133087119838325"
## [3] "a21= 0.238598445293567"
## [4] "Proportion of CO in pool 1= 0.0750469468648818"
## [1] "AIC = 10.4561083594994"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.109969450472553"
## [2] "k2= 0.00133086268964209"
## [3] "a21= 0.574254520961446"
## [4] "a12= 1.32493727423855e-05"
## [5] "Proportion of CO in pool 1= 0.13595087073262"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|-0.00304|NA|NA|NA|NA|
## |Two-pool parallel|0.11|0.00133|0.0569|NA|NA|
## |Two-pool series|0.11|0.00133|0.075|0.239|NA|
## |Two-pool feedback|0.11|0.00133|0.136|0.574|0.075|
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|8.86|12.8|1270|8.87|0.382|4040|NA|1450|30.9|
## |Two-pool parallel|8.46|20.2|462|8.52|0.455|133|8.29|160|3.41|
## |Two-pool series|10.5|26.1|464|10.6|0.164|188|9.68|160|3.41|
## |Two-pool feedback|12.5|32|466|12.6|0.0586|441|113|160|3.41|

```

Variable Site62;

CO2 production rate

```
Crow_V63=modelFitTS_Markdown(db = db[[9]], ts.col = 63, ic.col = 62, unitConverter = 1e3 )
```

```

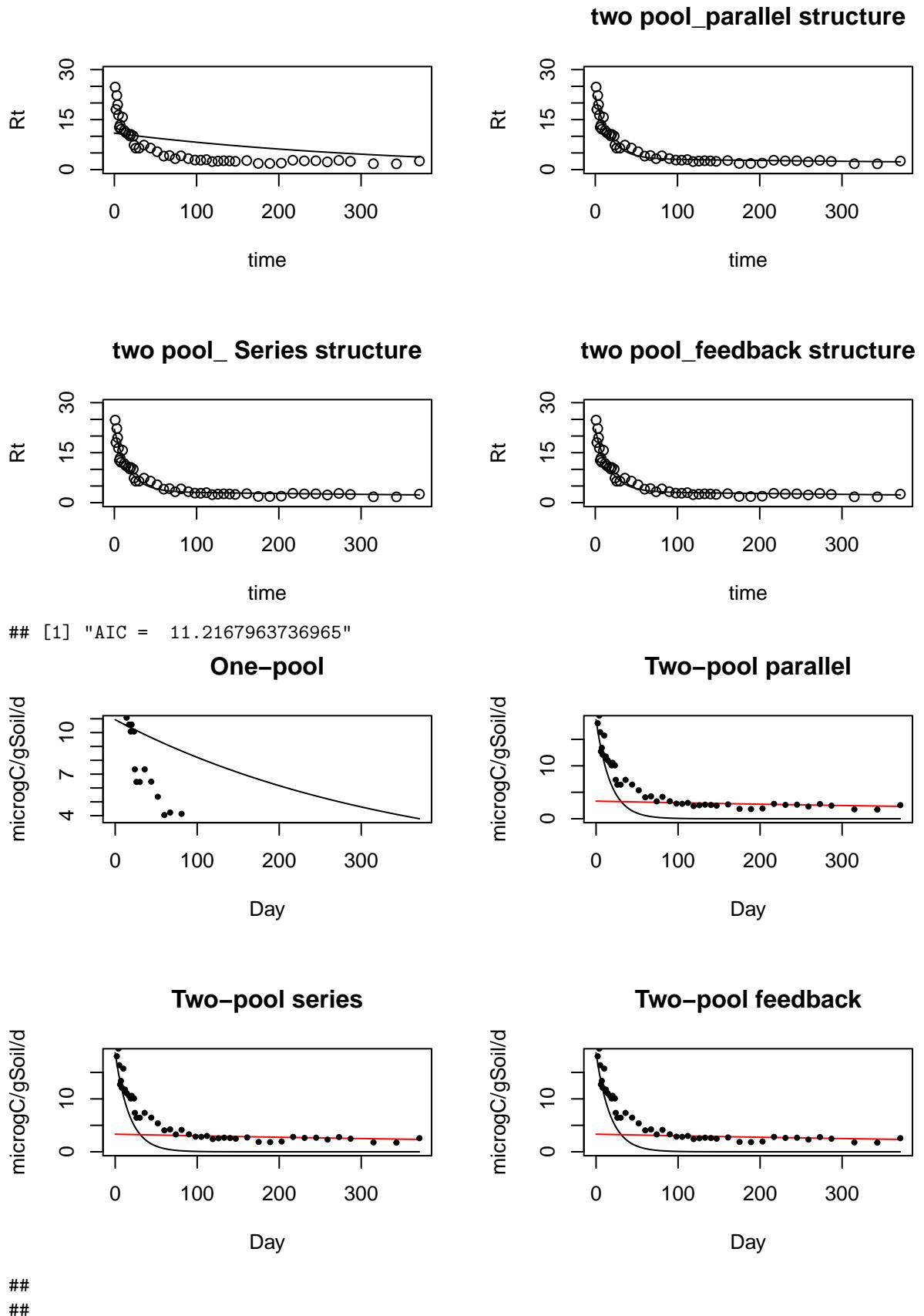
## [1] "Crow2019a; variable: Site62"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00286247690399044"

## [1] "AIC = 8.22843332674539"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0573002712968653"
## [2] "k2= 0.000951404946242432"
## [3] "proportion of CO in pool 1= 0.085546405670939"

## [1] "AIC = 7.2167963730873"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0572987980104351"
## [2] "k2= 0.000951390259205753"
## [3] "a21= 0.00615427165148646"
## [4] "Proportion of CO in pool 1= 0.0860868289827377"

## [1] "AIC = 9.21679637265521"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0572998395652249"
## [2] "k2= 0.000951400610439141"
## [3] "a21= 0.00375062559282341"
## [4] "a12= 1.09450188834348e-06"
## [5] "Proportion of CO in pool 1= 0.085874041733251"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00286|NA|NA|NA|NA|
## |Two-pool parallel|0.0573|0.000951|0.0855|NA|NA|
## |Two-pool series|0.0573|0.000951|0.0861|0.00615|NA|
## |Two-pool feedback|0.0573|0.000951|0.0859|0.00375|0.0861|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|8.23|12.1|1160|8.24|0.313|3820|NA|1060|22.5|
## |Two-pool parallel|7.22|19|232|7.28|0.505|173|15.4|86.4|1.84|
## |Two-pool series|9.22|24.9|234|9.33|0.182|23.9|12.2|86.4|1.84|
## |Two-pool feedback|11.2|30.8|236|11.4|0.0651|21.4|12.2|86.4|1.84|

```

Variable Site63;

CO2 production rate

```
Crow_V64=modelFitTS_Markdown(db = db[[9]], ts.col = 64, ic.col = 63, unitConverter = 1e3 )
```

```

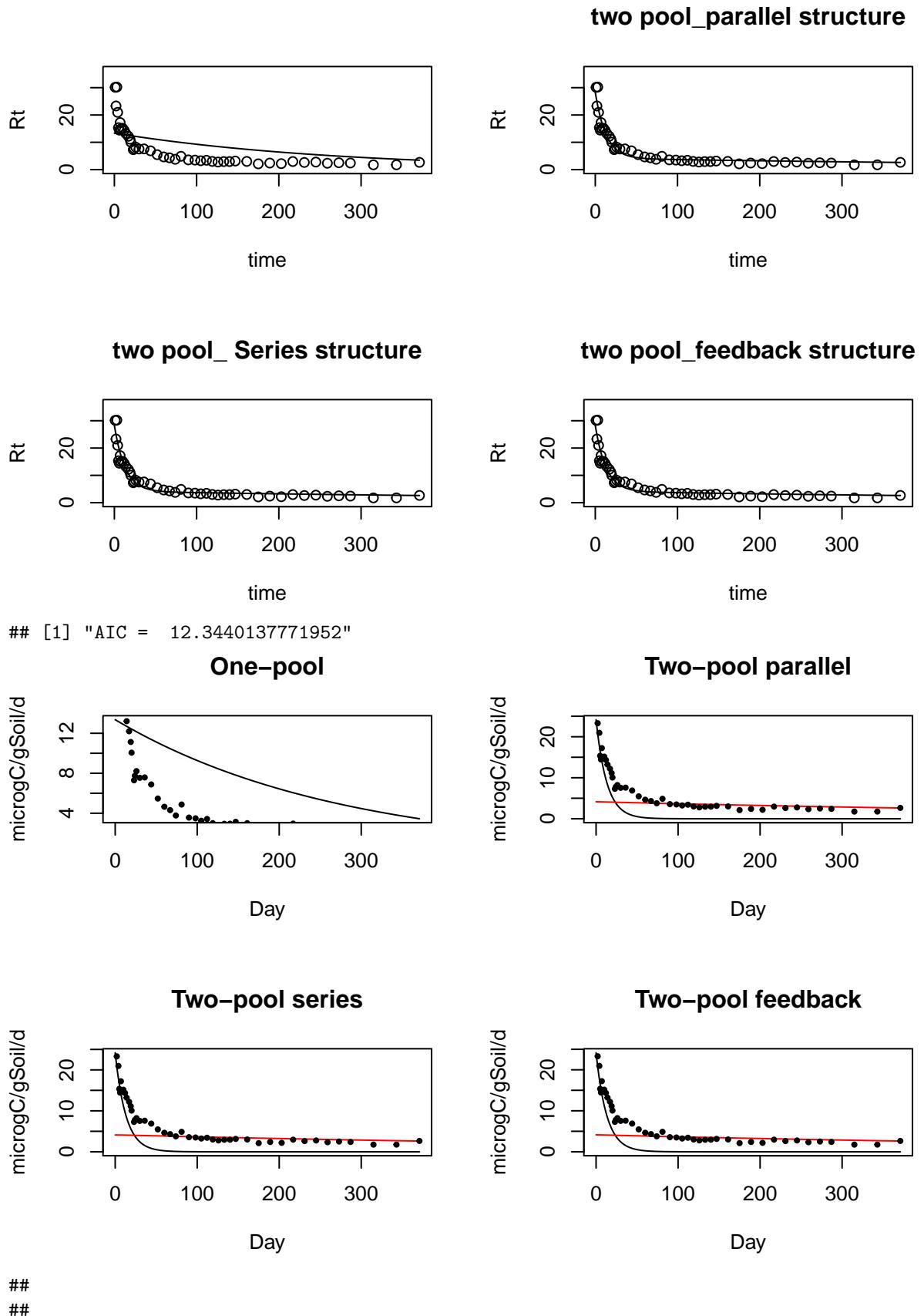
## [1] "Crow2019a; variable: Site63"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00365117034588636"

## [1] "AIC = 8.8991847580209"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0766218283257824"
## [2] "k2= 0.00123827128060193"
## [3] "proportion of CO in pool 1= 0.0861756221342051"

## [1] "AIC = 8.3440137786963"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0766217885262299"
## [2] "k2= 0.00123827085941168"
## [3] "a21= 0.0683250711320479"
## [4] "Proportion of CO in pool 1= 0.0926068211293873"

## [1] "AIC = 10.3440137782466"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.076623665369663"
## [2] "k2= 0.00123829026911457"
## [3] "a21= 0.00259644671520182"
## [4] "a12= 1.3812989799189e-06"
## [5] "Proportion of CO in pool 1= 0.0864020353665764"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00365|NA|NA|NA|NA|
## |Two-pool parallel|0.0766|0.00124|0.0862|NA|NA|
## |Two-pool series|0.0766|0.00124|0.0926|0.0683|NA|
## |Two-pool feedback|0.0766|0.00124|0.0864|0.0026|0.0926|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|8.9|12.8|1280|8.91|0.364|3660|NA|1480|31.5|
## |Two-pool parallel|8.34|20.1|441|8.41|0.468|129|11.4|152|3.23|
## |Two-pool series|10.3|26|443|10.5|0.168|68.2|10|152|3.23|
## |Two-pool feedback|12.3|31.9|445|12.5|0.0602|15.1|9.08|152|3.23|

```

Variable Site64;

CO2 production rate

```

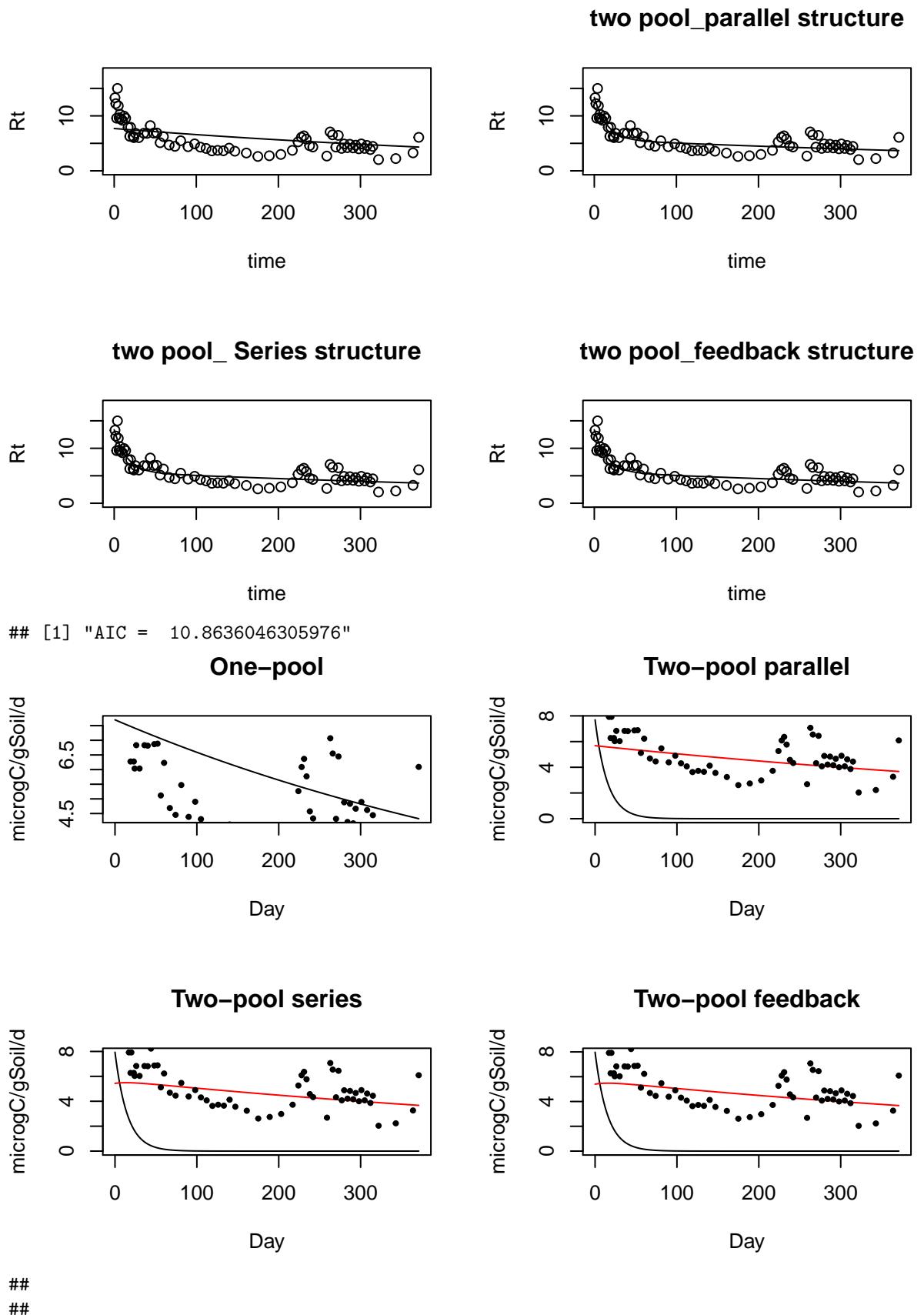
Crow_V65=modelFitTS_Markdown(db = db[[9]], ts.col = 65, ic.col = 64, unitConverter = 1e3,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.05, 0.0001, 0.01, 0.1),
                                             feedback=c(0.01, 0.0005, 0.1, 0.01, 0.1)) )

```

```

## [1] "Crow2019a; variable: Site64"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00155534943569791"
## [1] "AIC = 4.98289514636734"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0659934253915603"
## [2] "k2= 0.00117524422543583"
## [3] "proportion of CO in pool 1= 0.0235517711914062"
## [1] "AIC = 6.86360463199999"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0659939732956714"
## [2] "k2= 0.00117524520807183"
## [3] "a21= 0.629026737870161"
## [4] "Proportion of CO in pool 1= 0.0654999343084283"
## [1] "AIC = 8.86360463064614"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0659948259123614"
## [2] "k2= 0.00117538039652984"
## [3] "a21= 0.659679455864047"
## [4] "a12= 0.000171518954349914"
## [5] "Proportion of CO in pool 1= 0.0717273431386732"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|-0.00156|NA|NA|NA|NA|
## |Two-pool parallel|0.066|0.00118|0.0236|NA|NA|
## |Two-pool series|0.066|0.00118|0.0655|0.629|NA|
## |Two-pool feedback|0.066|0.00118|0.0717|0.66|0.0655|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|4.98|8.9|555|4.99|0.659|4950|NA|307|4.44|
## |Two-pool parallel|6.86|18.6|166|6.93|0.251|370|28.3|106|1.54|
## |Two-pool series|8.86|24.5|168|8.97|0.0902|550|211|106|1.54|
## |Two-pool feedback|10.9|30.4|170|11|0.0323|576|251|106|1.54|

```

Variable Site65;

CO2 production rate

```

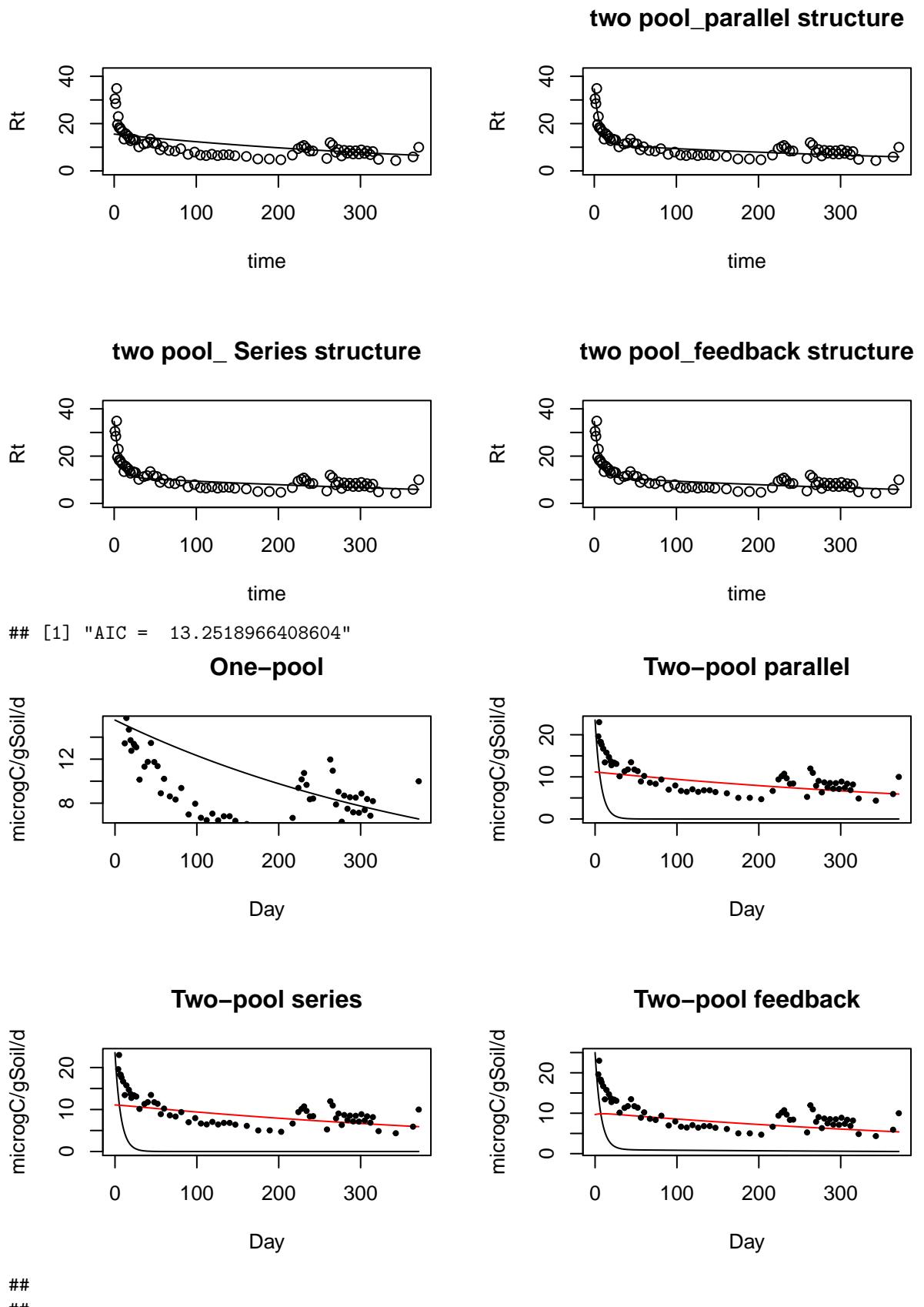
Crow_V66=modelFitTS_Markdown(db = db[[9]], ts.col = 66, ic.col = 65, unitConverter = 1e3 ,
  inipars=list(oneP=0.5,
    parallel=c(0.01, 0.001, 0.1),
    series=c(0.05, 0.0001, 0.01, 0.1),
    feedback=c(0.05, 0.0005, 0.1, 0.01, 0.1)))

```

```

## [1] "Crow2019a; variable: Site65"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00232493409786372"
## [1] "AIC = 8.05088054598856"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.141887797837117"
## [2] "k2= 0.00171129836675125"
## [3] "proportion of CO in pool 1= 0.0247401237556527"
## [1] "AIC = 9.25189663999678"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.141883841841211"
## [2] "k2= 0.00171129254550969"
## [3] "a21= 0.212271335100896"
## [4] "Proportion of CO in pool 1= 0.031509714247478"
## [1] "AIC = 11.2518966589856"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.141596420170169"
## [2] "k2= 0.00200268414127625"
## [3] "a21= 0.653895229900314"
## [4] "a12= 0.219848506839395"
## [5] "Proportion of CO in pool 1= 0.0762324355780884"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00232|NA|NA|NA|NA|
## |Two-pool parallel|0.142|0.00171|0.0247|NA|NA|
## |Two-pool series|0.142|0.00171|0.0315|0.212|NA|
## |Two-pool feedback|0.142|0.002|0.0762|0.654|0.0315|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|8.05|12|1120|8.06|0.579|6690|NA|1420|20.6|
## |Two-pool parallel|9.25|21|609|9.32|0.309|193|9.23|351|5.08|
## |Two-pool series|11.3|26.9|611|11.4|0.111|131|7.08|351|5.08|
## |Two-pool feedback|13.3|32.8|613|13.4|0.0398|390|165|351|5.08|

```

Variable Site66;

CO2 production rate

```

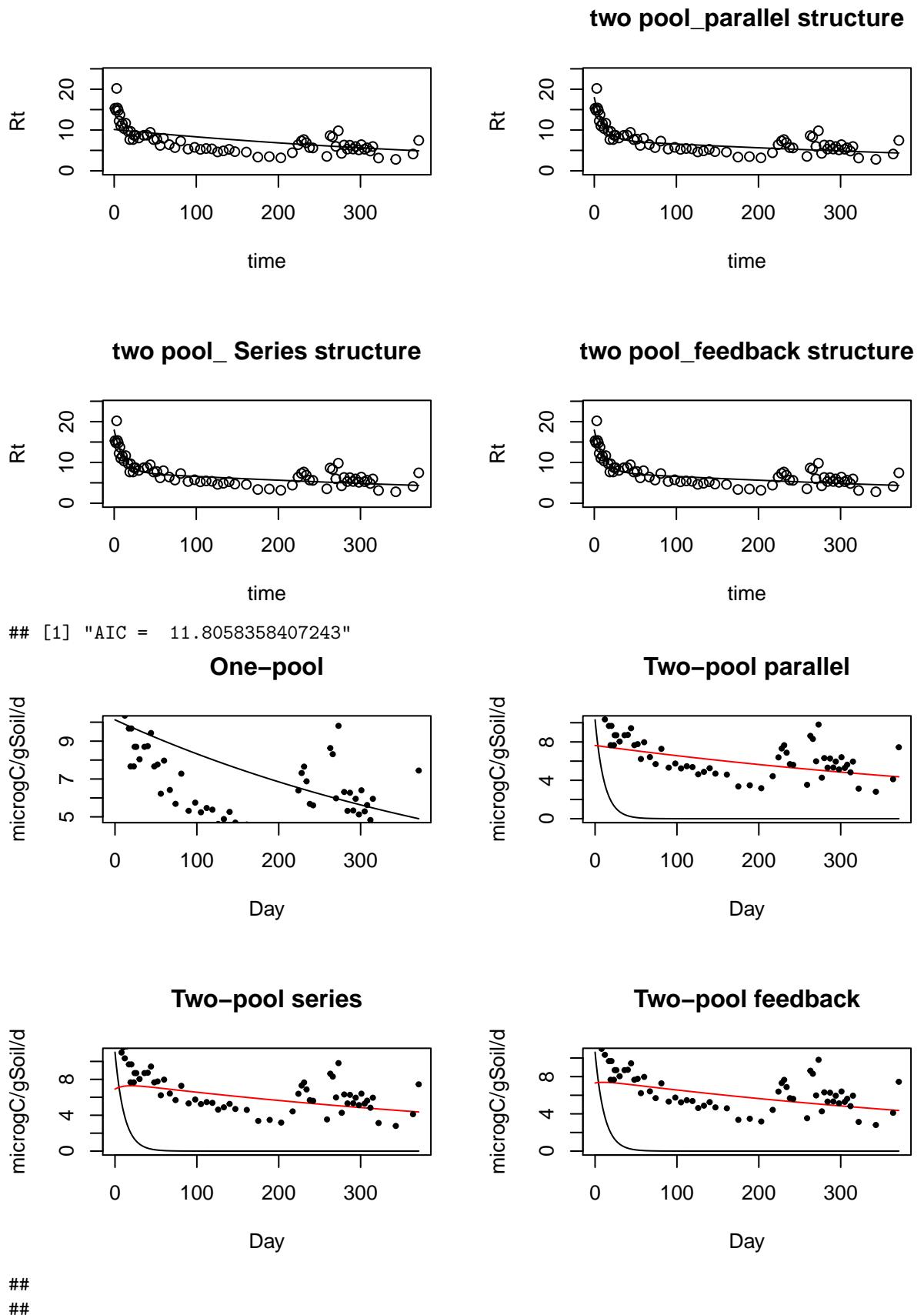
Crow_V67=modelFitTS_Markdown(db = db[[9]], ts.col = 67, ic.col = 66, unitConverter = 1e3,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.05, 0.0001, 0.01, 0.1),
                                             feedback=c(0.01, 0.0005, 0.1, 0.01, 0.1)) )

```

```

## [1] "Crow2019a; variable: Site66"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00195477303534908"
## [1] "AIC = 5.79627013016618"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0882689801121668"
## [2] "k2= 0.00150768503858564"
## [3] "proportion of CO in pool 1= 0.022534052998378"
## [1] "AIC = 7.80583583485937"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0882783849553695"
## [2] "k2= 0.00150769783902133"
## [3] "a21= 0.790210636279919"
## [4] "Proportion of CO in pool 1= 0.114928740309113"
## [1] "AIC = 9.80583584966497"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0882696747738629"
## [2] "k2= 0.0015077420415871"
## [3] "a21= 0.633434958032472"
## [4] "a12= 5.76017217974734e-05"
## [5] "Proportion of CO in pool 1= 0.0633774194676255"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|-0.00195|NA|NA|NA|NA|
## |Two-pool parallel|0.0883|0.00151|0.0225|NA|NA|
## |Two-pool series|0.0883|0.00151|0.115|0.79|NA|
## |Two-pool feedback|0.0883|0.00151|0.0634|0.633|0.115|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|5.8|9.71|706|5.81|0.674|5180|NA|460|6.67|
## |Two-pool parallel|7.81|19.6|341|7.87|0.24|289|21.3|170|2.47|
## |Two-pool series|9.81|25.5|343|9.92|0.0864|535|315|170|2.47|
## |Two-pool feedback|11.8|31.4|345|12|0.0309|431|168|170|2.47|

```

Variable Site67;

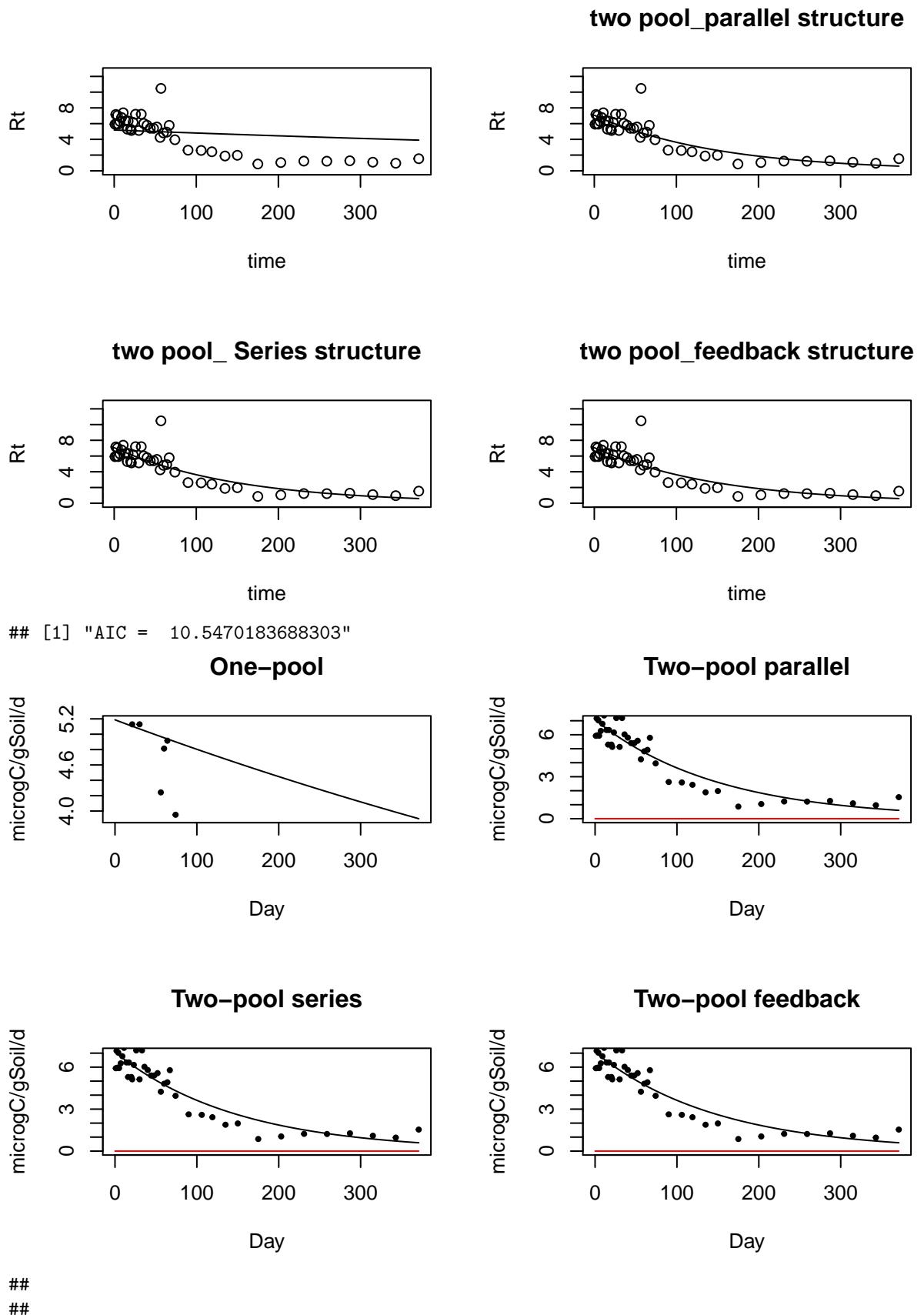
CO2 production rate

```

##
Crow_V68=modelFitTS_Markdown(db = db[[9]], ts.col = 68, ic.col = 67, unitConverter = 1e3,
    inipars=list(oneP=0.5,
                  parallel=c(0.01, 0.001, 0.1),
                  series=c(0.01, 0.0005, 0.01, 0.1),
                  feedback=c(0.01, 0.0001, 0.1, 0.01, 0.1)) )

## [1] "Crow2019a; variable: Site67"
## [1] "One pool model"
## [1] "Best fit parameter: -0.000768490196854543"
## [1] "AIC = 4.86217728634526"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00666649704285578"
## [2] "k2= 2.4060972785591e-10"
## [3] "proportion of CO in pool 1= 0.157014394727763"
## [1] "AIC = 6.54701823650904"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00666651726183574"
## [2] "k2= 2.07439903271072e-09"
## [3] "a21= 0.00114398967917534"
## [4] "Proportion of CO in pool 1= 0.157193486525866"
## [1] "AIC = 8.54701835887871"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00666652143209384"
## [2] "k2= 2.2216708867705e-09"
## [3] "a21= 0.0357987871850963"
## [4] "a12= 9.35923974361152e-05"
## [5] "Proportion of CO in pool 1= 0.162842895329501"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.000768|NA|NA|NA|NA|
## |Two-pool parallel|0.00667|2.41e-10|0.157|NA|NA|
## |Two-pool series|0.00667|2.07e-09|0.157|0.00114|NA|
## |Two-pool feedback|0.00667|2.22e-09|0.163|0.0358|0.157|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:----|:----|:----|:----|:-----|:-----|:----|:----|:----|
## |One-pool|4.86|8.78|533|4.87|0.637|6750|NA|172|4.18|
## |Two-pool parallel|6.55|18.3|107|6.61|0.267|955|104|53.9|1.31|
## |Two-pool series|8.55|24.2|109|8.66|0.0961|552000|104|53.9|1.31|
## |Two-pool feedback|10.5|30.1|111|10.7|0.0344|16100000|110|53.9|1.31|

```

Variable Site68;

CO2 production rate

```
Crow_V69=modelFitTS_Markdown(db = db[[9]], ts.col = 69, ic.col = 68, unitConverter = 1e3 )
```

```

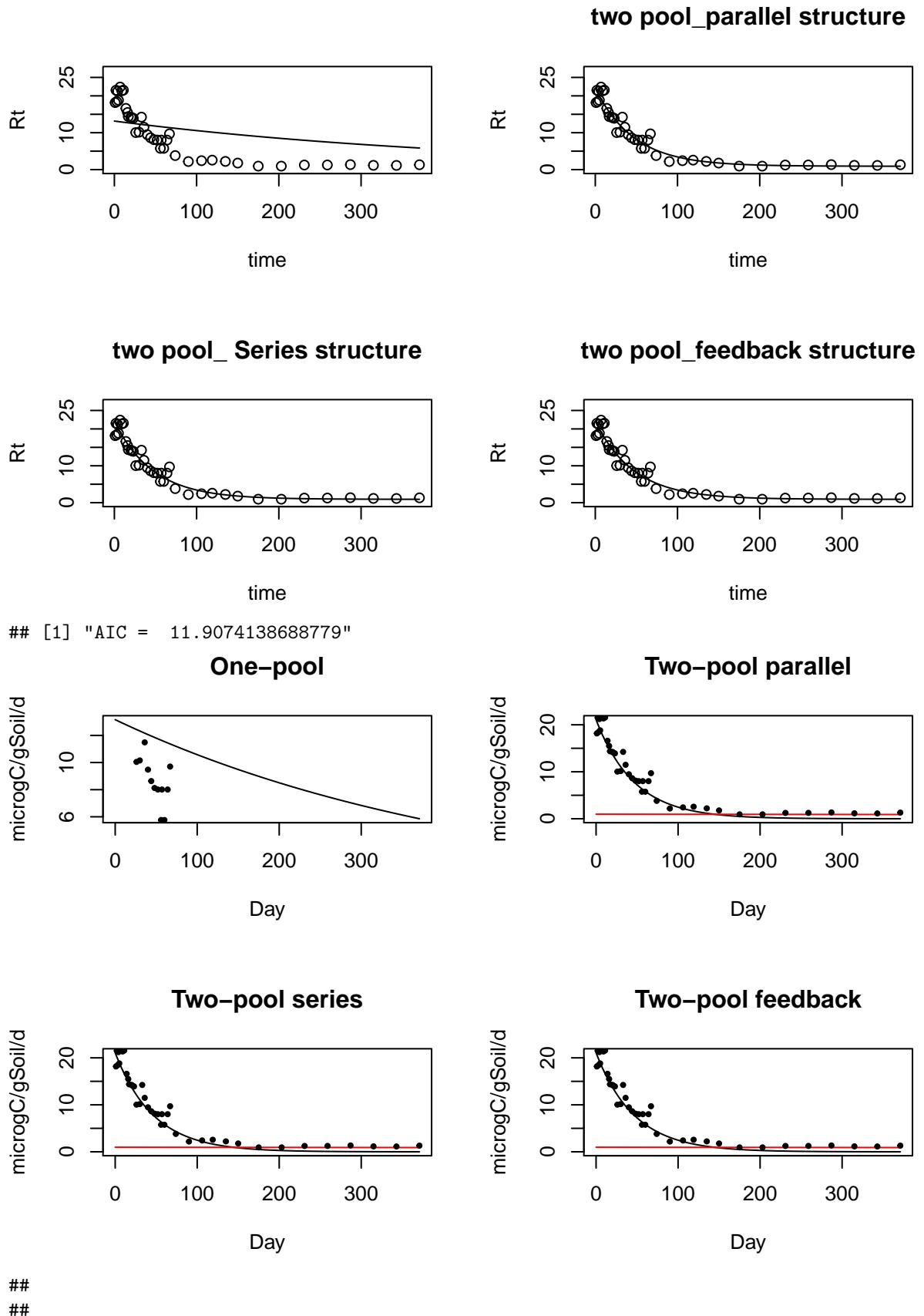
## [1] "Crow2019a; variable: Site68"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00218262209974185"

## [1] "AIC = 8.96109133468233"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0214221020711252"
## [2] "k2= 0.000192903592586185"
## [3] "proportion of CO in pool 1= 0.163289353293293"

## [1] "AIC = 7.90741386885734"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0214220949716466"
## [2] "k2= 0.000192903254042044"
## [3] "a21= 0.000708004933330897"
## [4] "Proportion of CO in pool 1= 0.163405641994491"

## [1] "AIC = 9.90741386975809"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0214221350773314"
## [2] "k2= 0.000192905055684686"
## [3] "a21= 0.00117406451068519"
## [4] "a12= 9.20238133111928e-06"
## [5] "Proportion of CO in pool 1= 0.163482844085706"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.00218|NA|NA|NA|NA|
## |Two-pool parallel|0.0214|0.000193|0.163|NA|NA|
## |Two-pool series|0.0214|0.000193|0.163|0.000708|NA|
## |Two-pool feedback|0.0214|0.000193|0.163|0.00117|0.163|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|8.96|12.9|1290|8.97|0.309|6030|NA|1330|32.5|
## |Two-pool parallel|7.91|19.7|360|7.97|0.508|273|34.5|106|2.6|
## |Two-pool series|9.91|25.6|362|10|0.183|50.4|32.4|106|2.6|
## |Two-pool feedback|11.9|31.5|364|12.1|0.0655|52.8|32.4|106|2.6|

```

Variable Site69;

CO2 production rate

```

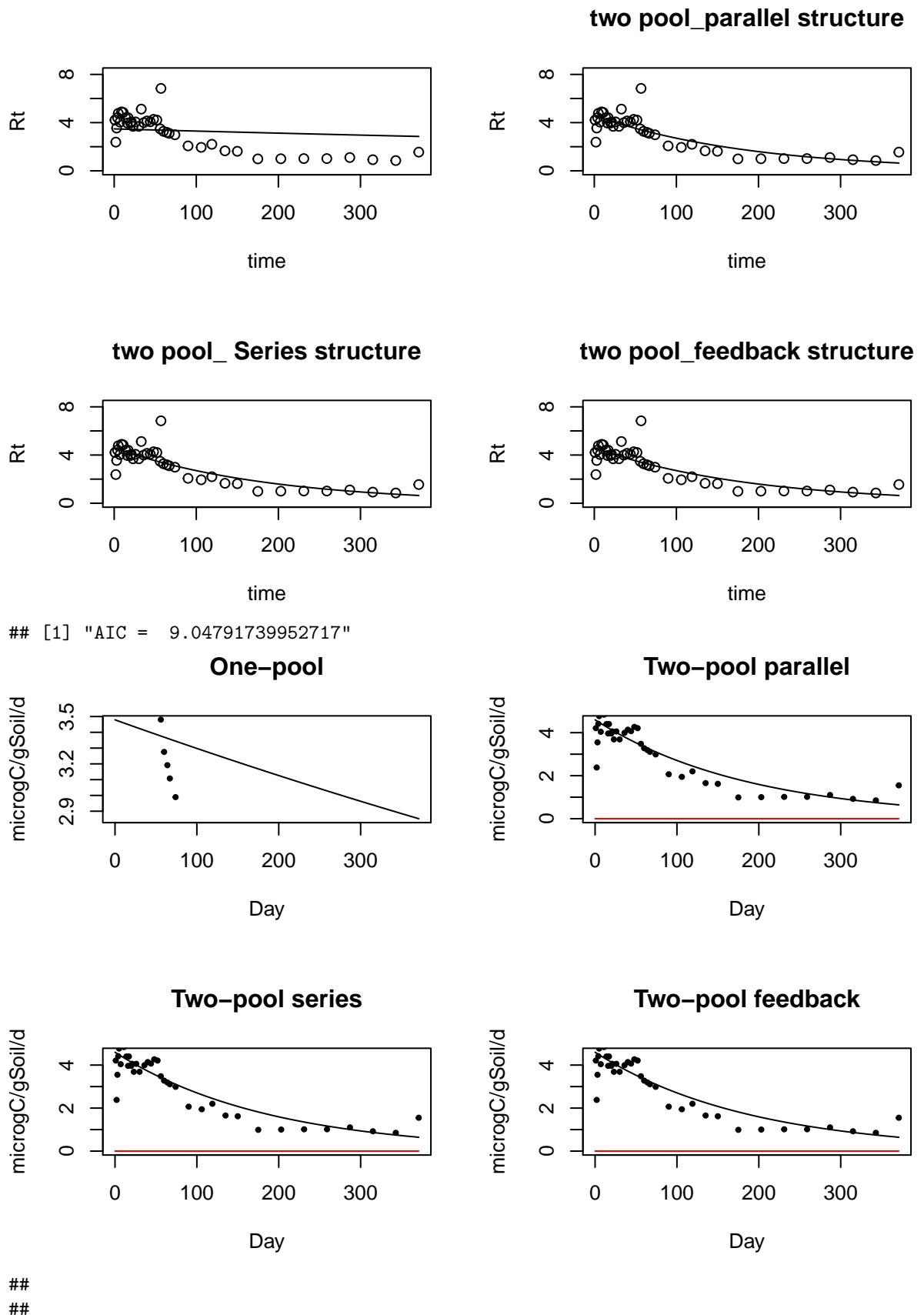
Crow_V70=modelFitTS_Markdown(db = db[[9]], ts.col = 70, ic.col = 69, unitConverter = 1e3,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.05, 0.001, 0.1),
                                             series=c(0.5, 0.0001, 0.01, 0.1),
                                             feedback=c(0.01, 0.0005, 0.1, 0.01, 0.1)) )

```

```

## [1] "Crow2019a; variable: Site69"
## [1] "One pool model"
## [1] "Best fit parameter: -0.000535260307566787"
## [1] "AIC = 3.07847186258911"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00529771114667627"
## [2] "k2= 1.38759342623958e-10"
## [3] "proportion of CO in pool 1= 0.133516919063079"
## [1] "AIC = 5.04791736753145"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00529771439151761"
## [2] "k2= 6.7282840069215e-13"
## [3] "a21= 1.41211357485016e-06"
## [4] "Proportion of CO in pool 1= 0.133517066722726"
## [1] "AIC = 7.04791736152411"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00529772105382624"
## [2] "k2= 8.72479096099369e-10"
## [3] "a21= 0.00574546190338204"
## [4] "a12= 2.596756626011e-05"
## [5] "Proportion of CO in pool 1= 0.134287897757174"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.000535|NA|NA|NA|NA|
## |Two-pool parallel|0.0053|1.39e-10|0.134|NA|NA|
## |Two-pool series|0.0053|6.73e-13|0.134|1.41e-06|NA|
## |Two-pool feedback|0.0053|8.72e-10|0.134|0.00575|0.134|
## 
## 
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:----|:----|:----|:----|:----|:----|:----|:----|:----|
## |One-pool|3.08|6.99|202|3.09|0.669|6500|NA|70.3|11.71|
## |Two-pool parallel|5.05|16.8|-171|5.11|0.243|1410|131|25.5|0.621|
## |Two-pool series|7.05|22.7|-169|7.16|0.0875|2100000|131|25.5|0.621|
## |Two-pool feedback|9.05|28.6|-167|9.21|0.0313|6590000|132|25.5|0.621|

```

Variable Site70;

CO2 production rate

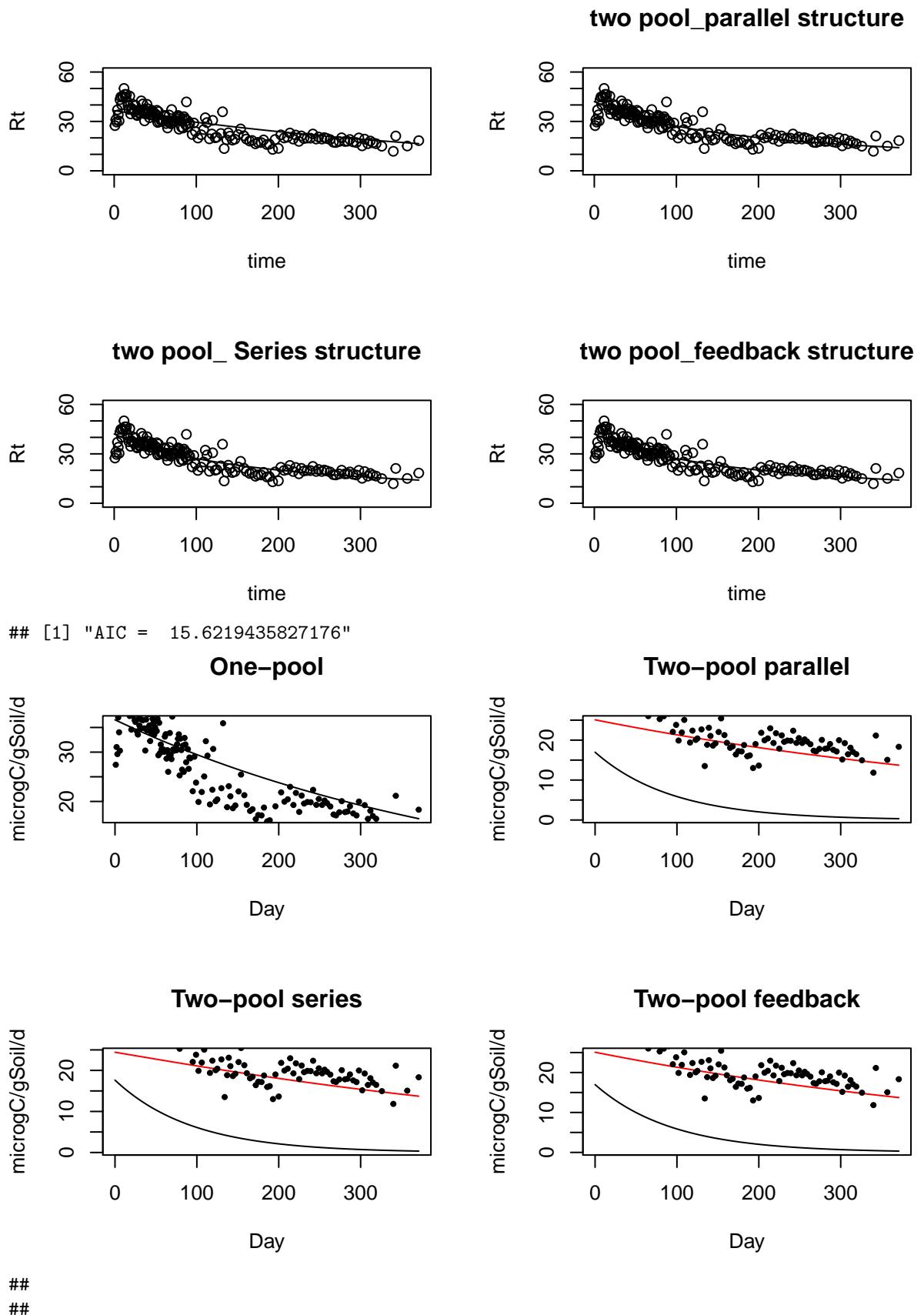
```
Crow_V71=modelFitTS_Markdown(db = db[[9]], ts.col = 71, ic.col = 70, unitConverter = 1e3)

## [1] "Crow2019a; variable: Site70"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00214382759353349"

## [1] "AIC = 8.38681415387391"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0106148623331065"
## [2] "k2= 0.00162345552980326"
## [3] "proportion of CO in pool 1= 0.0938265764871061"

## [1] "AIC = 11.6219435832025"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0106182018399101"
## [2] "k2= 0.00162359037585378"
## [3] "a21= 0.170861778436967"
## [4] "Proportion of CO in pool 1= 0.117479366920074"

## [1] "AIC = 13.6219435857725"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0106149302743929"
## [2] "k2= 0.00162345828733144"
## [3] "a21= 0.000668578144410514"
## [4] "a12= 4.48265533320447e-06"
## [5] "Proportion of CO in pool 1= 0.0939005444791489"
```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00214|NA|NA|NA|NA|
## |Two-pool parallel|0.0106|0.00162|0.0938|NA|NA|
## |Two-pool series|0.0106|0.00162|0.117|0.171|NA|
## |Two-pool feedback|0.0106|0.00162|0.0939|0.000669|0.117|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|8.39|12.3|1190|8.4|0.792|17000|NA|4070|24.4|
## |Two-pool parallel|11.6|23.4|1050|11.7|0.153|405|184|2780|16.6|
## |Two-pool series|13.6|29.3|1050|13.7|0.055|199|84.8|2780|16.6|
## |Two-pool feedback|15.6|35.2|1050|15.8|0.0197|94.6|65.4|2780|16.6|

```

Variable Site71;

CO2 production rate

```

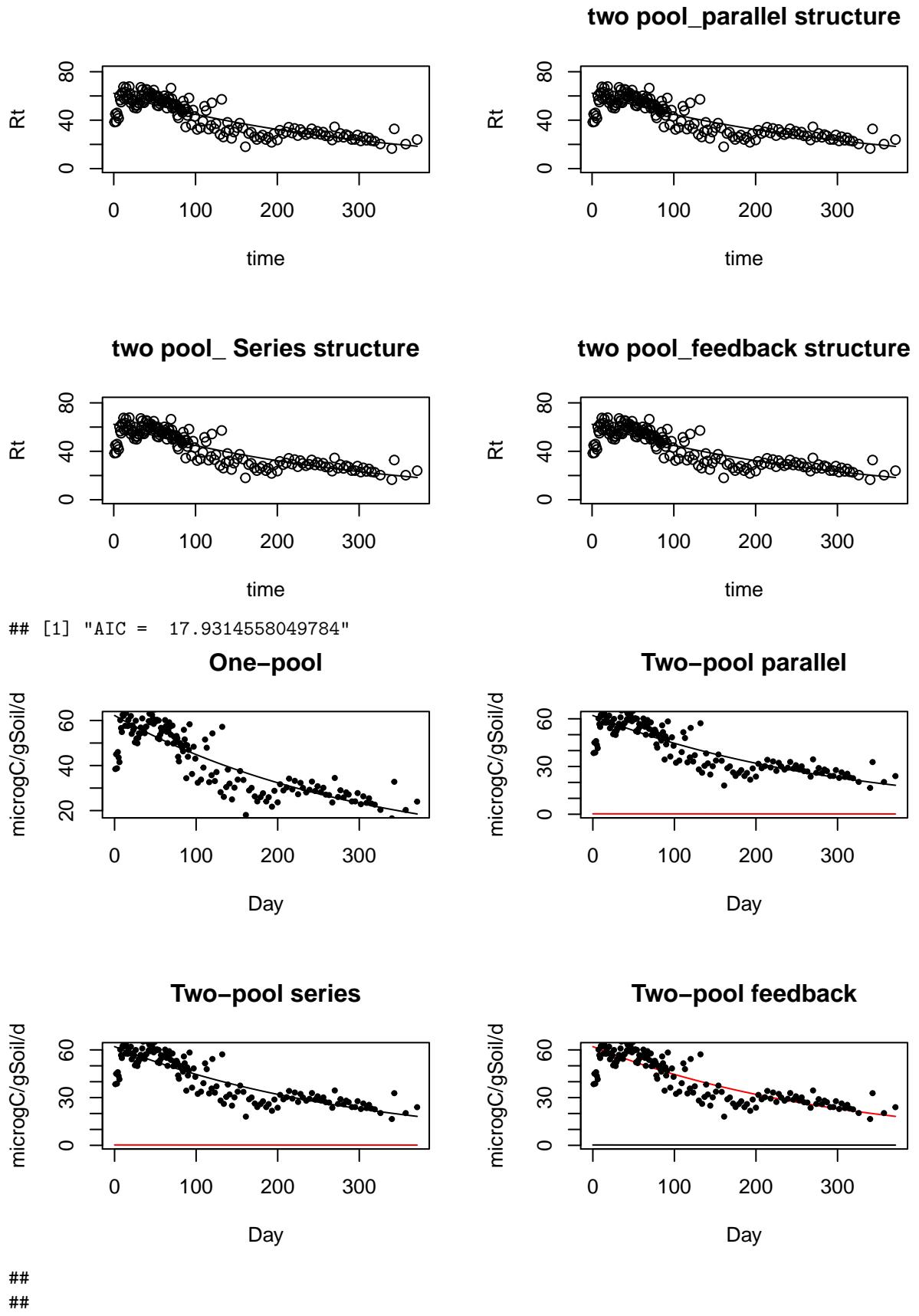
Crow_V72=modelFitTS_Markdown(db = db[[9]], ts.col = 72, ic.col = 71, unitConverter = 1e3,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.05, 0.001, 0.1),
                                             series=c(0.01, 0.0005, 0.01, 0.1),
                                             feedback=c(0.01, 0.0005, 0.1, 0.01, 0.1)))

```

```

## [1] "Crow2019a; variable: Site71"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00327057313104717"
## [1] "AIC = 9.93168212334149"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00330621015747063"
## [2] "k2= 0.000956021896529675"
## [3] "proportion of CO in pool 1= 0.986690527575216"
## [1] "AIC = 13.9314557975723"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00330627265210472"
## [2] "k2= 0.000954901004899192"
## [3] "a21= 0.00013595510643194"
## [4] "Proportion of CO in pool 1= 0.98687170762015"
## [1] "AIC = 15.9314557945984"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.000967549613681786"
## [2] "k2= 0.00330658786374384"
## [3] "a21= 0.00750690961917333"
## [4] "a12= 5.45045559230406e-05"
## [5] "Proportion of CO in pool 1= 0.0133977706553653"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|-0.00327|NA|NA|NA|NA|
## |Two-pool parallel|0.00331|0.000956|0.987|NA|NA|
## |Two-pool series|0.00331|0.000955|0.987|0.000136|NA|
## |Two-pool feedback|0.000968|0.00331|0.0134|0.00751|0.987|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|9.93|13.8|1470|9.94|0.848|19000|NA|8810|52.8|
## |Two-pool parallel|13.9|25.7|1480|14|0.112|305|210|8810|52.8|
## |Two-pool series|15.9|31.6|1480|16|0.0402|303|210|8810|52.8|
## |Two-pool feedback|17.9|37.5|1480|18.1|0.0144|1040|719|8810|52.8|

```

Variable Site72;

CO2 production rate

```
Crow_V73=modelFitTS_Markdown(db = db[[9]], ts.col = 73, ic.col = 72, unitConverter = 1e3)
```

```

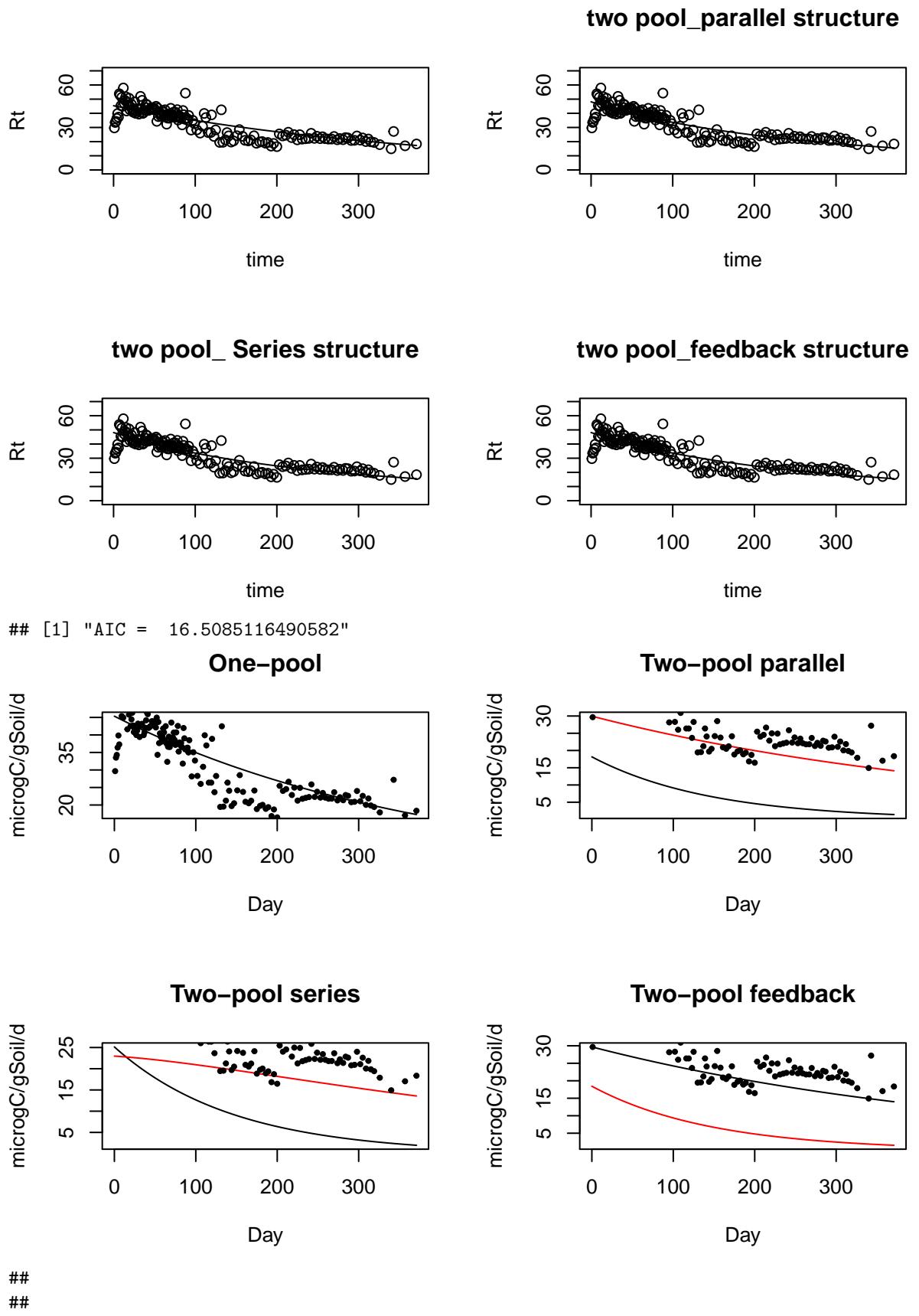
## [1] "Crow2019a; variable: Site72"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00260229548731594"

## [1] "AIC = 8.71725315399741"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00686293553941449"
## [2] "k2= 0.00202624540176353"
## [3] "proportion of CO in pool 1= 0.15184995163043"

## [1] "AIC = 12.5085116482954"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00686146388495034"
## [2] "k2= 0.00202609191154242"
## [3] "a21= 0.398307180112567"
## [4] "Proportion of CO in pool 1= 0.349392864293654"

## [1] "AIC = 14.5085116554959"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00202626565824871"
## [2] "k2= 0.00686334191620983"
## [3] "a21= 0.0064225440566496"
## [4] "a12= 6.71875563851287e-06"
## [5] "Proportion of CO in pool 1= 0.845886966858025"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|-0.0026|NA|NA|NA|NA|
## |Two-pool parallel|0.00686|0.00203|0.152|NA|NA|
## |Two-pool series|0.00686|0.00203|0.349|0.398|NA|
## |Two-pool feedback|0.00203|0.00686|0.846|0.00642|0.349|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|8.72|12.6|1250|8.73|0.834|17400|NA|4800|28.7|
## |Two-pool parallel|12.5|24.3|1210|12.6|0.122|362|207|4330|25.9|
## |Two-pool series|14.5|30.2|1220|14.6|0.0439|342|192|4330|25.9|
## |Two-pool feedback|16.5|36.1|1220|16.7|0.0157|494|343|4330|25.9|

```

Variable Site73;

CO2 production rate

```

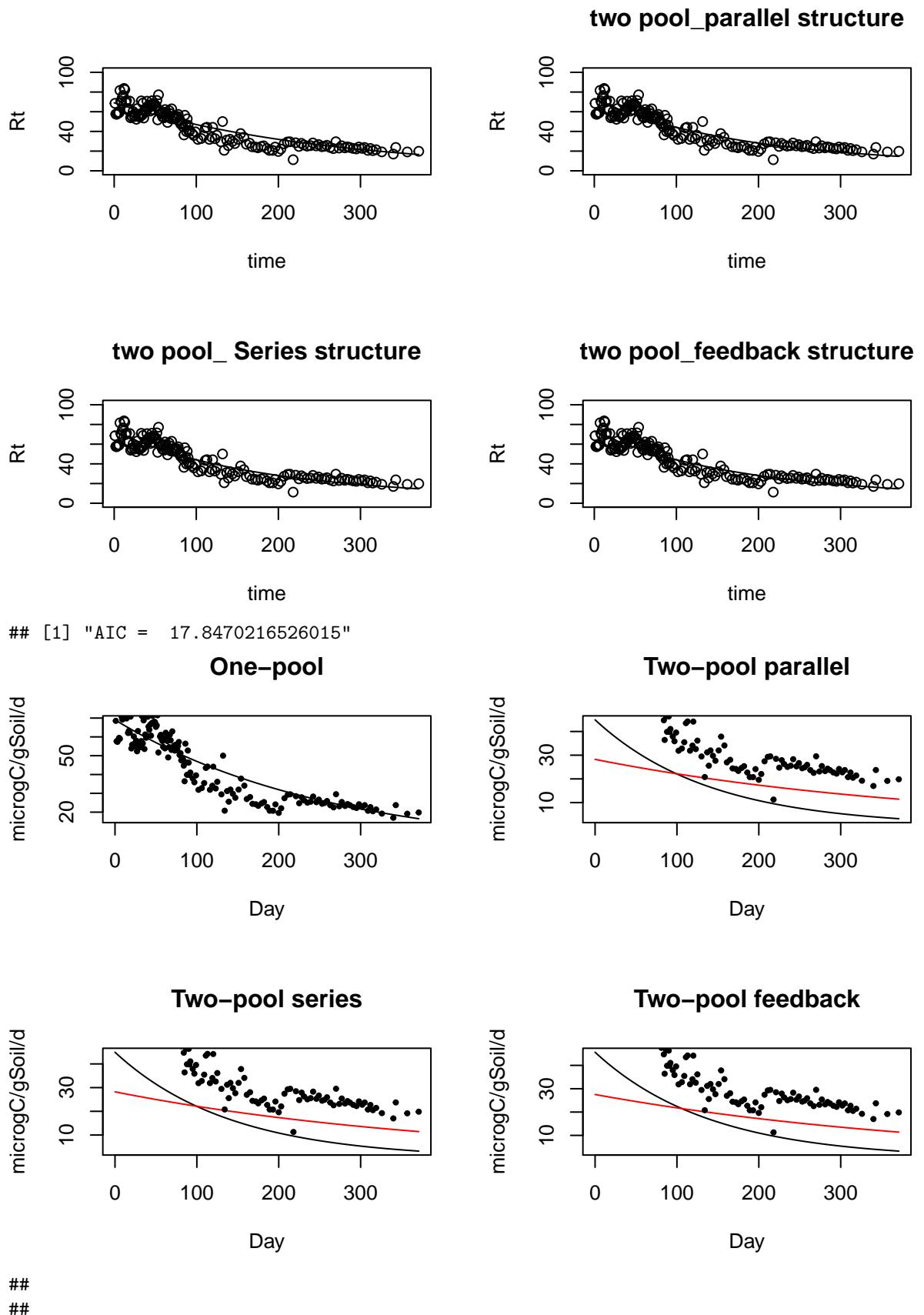
Crow_V74=modelFitTS_Markdown(db = db[[9]], ts.col = 74, ic.col = 73, unitConverter = 1e3,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.05, 0.001, 0.1),
                                             series=c(0.01, 0.0005, 0.01, 0.1),
                                             feedback=c(0.05, 0.0001, 0.1, 0.01, 0.1)))

```

```

## [1] "Crow2019a; variable: Site73"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00385456800651873"
## [1] "AIC = 10.1062650892643"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00710899373325262"
## [2] "k2= 0.00243425307591868"
## [3] "proportion of CO in pool 1= 0.352610215771724"
## [1] "AIC = 13.847021655882"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00710730140661983"
## [2] "k2= 0.0024337373665815"
## [3] "a21= 2.94605297613271e-05"
## [4] "Proportion of CO in pool 1= 0.352815802357431"
## [1] "AIC = 15.8470216470236"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00710864896344611"
## [2] "k2= 0.00243416942941452"
## [3] "a21= 0.0292649403782294"
## [4] "a12= 2.35351760630165e-06"
## [5] "Proportion of CO in pool 1= 0.369070788263296"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00385|NA|NA|NA|NA|
## |Two-pool parallel|0.00711|0.00243|0.353|NA|NA|
## |Two-pool series|0.00711|0.00243|0.353|2.95e-05|NA|
## |Two-pool feedback|0.00711|0.00243|0.369|0.0293|0.353|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|10.1|14|1510|10.1|0.831|17900|NA|9620|57.6|
## |Two-pool parallel|13.8|25.6|1460|13.9|0.125|245|141|8450|50.6|
## |Two-pool series|15.8|31.5|1460|16|0.0448|141|97.5|8450|50.6|
## |Two-pool feedback|17.8|37.4|1470|18|0.016|153|101|8450|50.6|

```

Variable Site74;

CO2 production rate

```

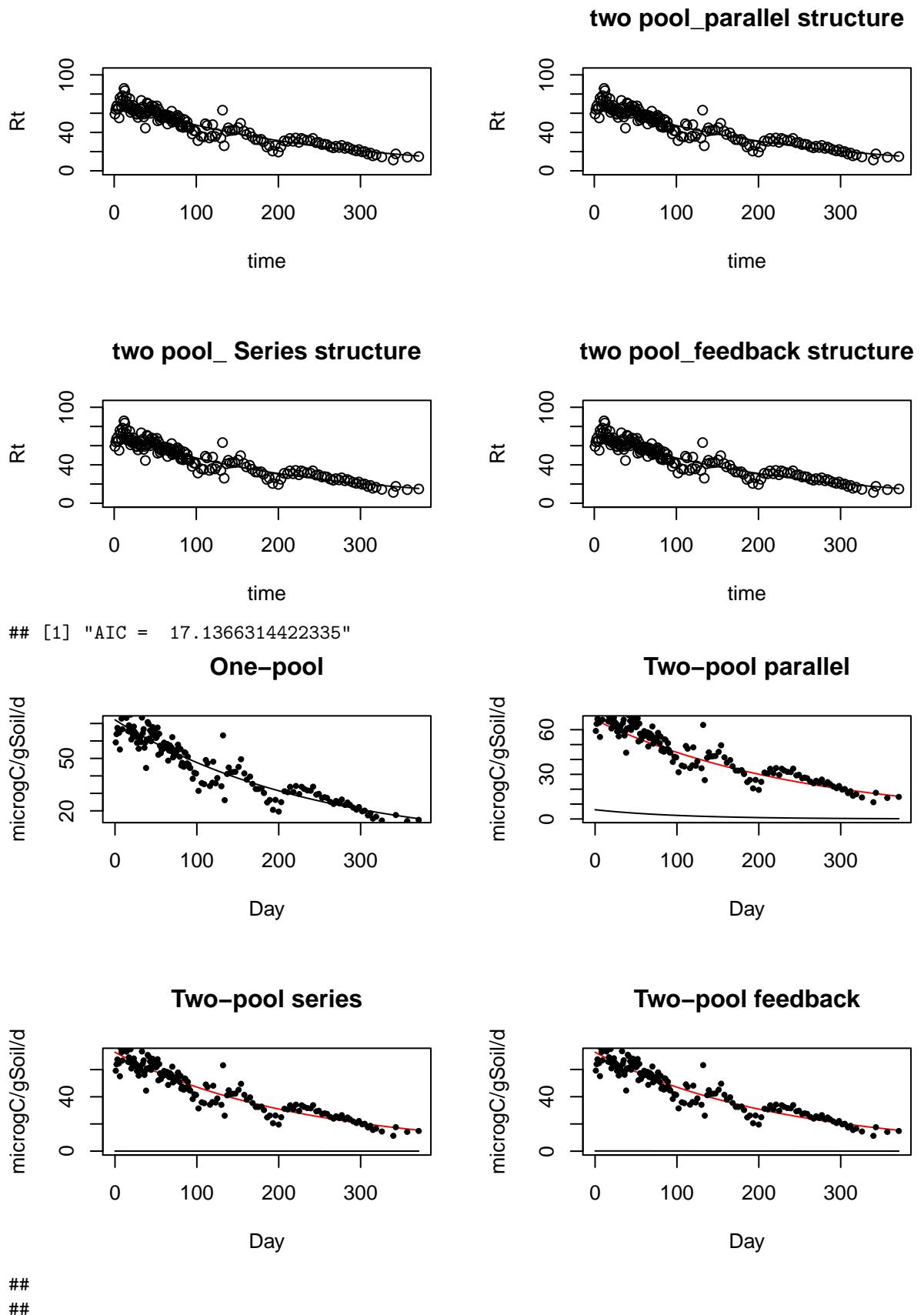
Crow_V75=modelFitTS_Markdown(db = db[[9]], ts.col = 75, ic.col = 74, unitConverter = 1e3,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.1, 0.005, 0.1),
                                             series=c(0.01, 0.005, 0.01, 0.1),
                                             feedback=c(0.01, 0.005, 0.01, 0.01, 0.1)))

```

```

## [1] "Crow2019a; variable: Site74"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00414351670146829"
## [1] "AIC = 9.14490808992723"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00948959503354297"
## [2] "k2= 0.00397928126492799"
## [3] "proportion of CO in pool 1= 0.0375604226028503"
## [1] "AIC = 13.1366314490417"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00397962716036035"
## [2] "k2= 0.00950447589890239"
## [3] "a21= 0.999323645985735"
## [4] "Proportion of CO in pool 1= 0.559704727523374"
## [1] "AIC = 15.1366314397475"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0084301921896063"
## [2] "k2= 0.00504535510195316"
## [3] "a21= 0.982575174916696"
## [4] "a12= 0.113522143955845"
## [5] "Proportion of CO in pool 1= 0.0661930343218197"

```



```

## |model          |k1        |k2        |COInp1 |a21      |a12    |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-0.00414 |NA       |NA      |NA      |NA     |
## |Two-pool parallel |0.00949 |0.00398 |0.0376 |NA      |NA     |
## |Two-pool series   |0.00398 |0.0095  |0.56    |0.999   |NA     |
## |Two-pool feedback  |0.00843 |0.00505 |0.0662 |0.983   |0.56   |
##
##
## |model          |AIC    |BIC    |AICn   |AICc   |wi      |MeanTrT |q05    |SSR    |MSR    |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |9.14   |13.1   |1330   |9.16   |0.848   |17400   |NA     |5950   |35.6   |
## |Two-pool parallel |13.1   |24.9   |1330   |13.2   |0.112   |239     |161    |5920   |35.5   |
## |Two-pool series   |15.1   |30.8   |1330   |15.2   |0.0403  |356     |288    |5920   |35.5   |
## |Two-pool feedback  |17.1   |36.7   |1330   |17.3   |0.0144  |353     |284    |5920   |35.5   |

```

Variable Site75;

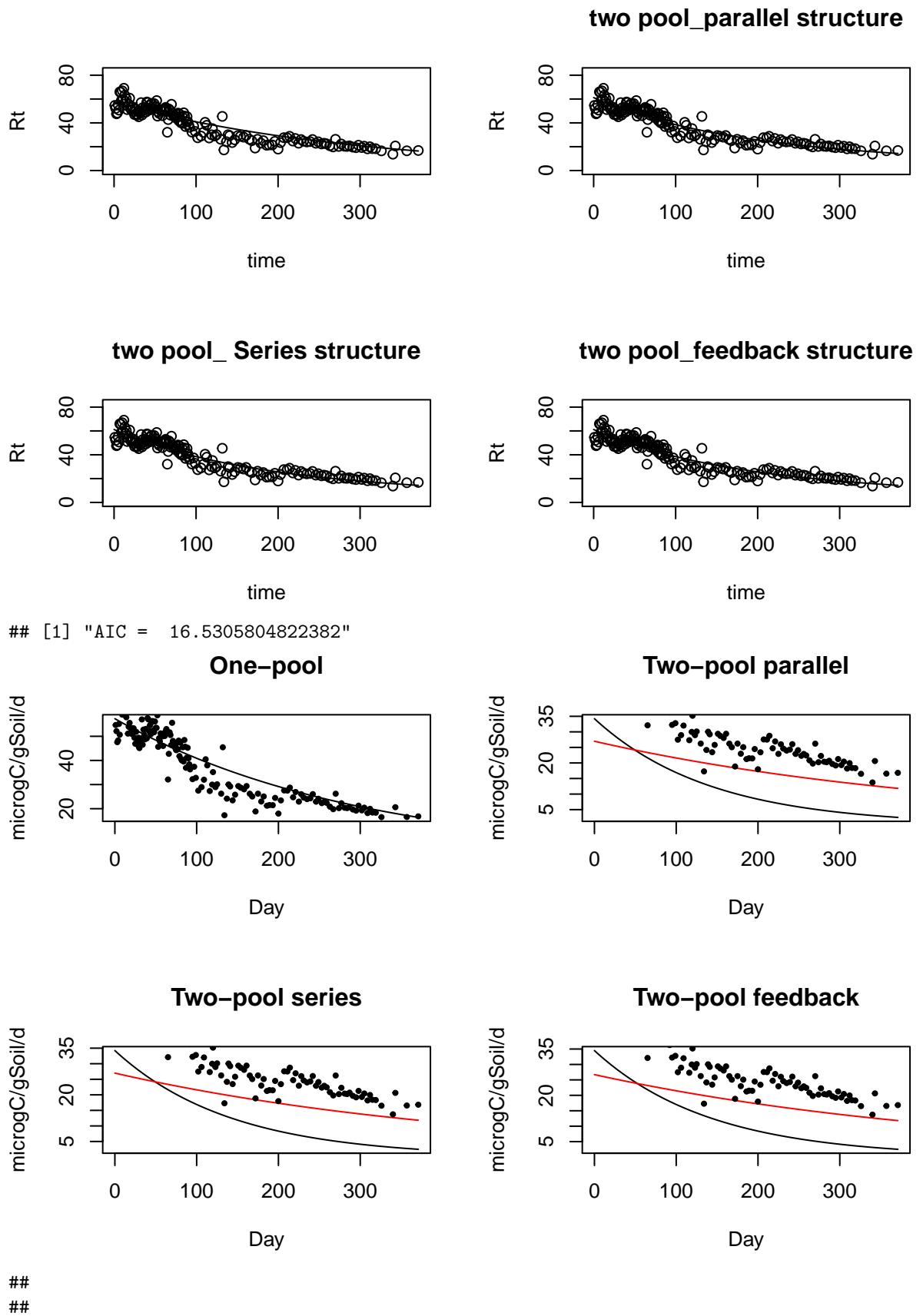
CO2 production rate

```

##
Crow_V76=modelFitTS_Markdown(db = db[[9]], ts.col = 76, ic.col = 75, unitConverter = 1e3 ,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.5, 0.001, 0.1),
                                             series=c(0.01, 0.0005, 0.01, 0.1),
                                             feedback=c(0.05, 0.0001, 0.1, 0.01, 0.1)))

## [1] "Crow2019a; variable: Site75"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00337264899467193"
## [1] "AIC = 8.95183968557241"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00705729491419424"
## [2] "k2= 0.00222231045169627"
## [3] "proportion of CO in pool 1= 0.285526124019436"
## [1] "AIC = 12.5305804826291"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0070584970128739"
## [2] "k2= 0.00222258971744504"
## [3] "a21= 6.83146983154193e-05"
## [4] "Proportion of CO in pool 1= 0.285446958284214"
## [1] "AIC = 14.5305804902721"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00705686062016721"
## [2] "k2= 0.00222221033852614"
## [3] "a21= 0.0163165356634843"
## [4] "a12= 2.13679725341587e-06"
## [5] "Proportion of CO in pool 1= 0.29253267200858"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|-0.00337|NA|NA|NA|NA|
## |Two-pool parallel|0.00706|0.00222|0.286|NA|NA|
## |Two-pool series|0.00706|0.00222|0.285|6.83e-05|NA|
## |Two-pool feedback|0.00706|0.00222|0.293|0.0163|0.285|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|8.95|12.9|1290|8.96|0.819|17000|NA|5400|32.3|
## |Two-pool parallel|12.5|24.3|1220|12.6|0.133|278|155|4370|26.2|
## |Two-pool series|14.5|30.2|1220|14.6|0.0479|142|98.2|4370|26.2|
## |Two-pool feedback|16.5|36.1|1220|16.7|0.0171|149|100|4370|26.2|

```

Variable Site76;

CO2 production rate

```
Crow_V77= modelFitTS_Markdown(db = db[[9]], ts.col = 77, ic.col = 76, unitConverter = 1e3)
```

```

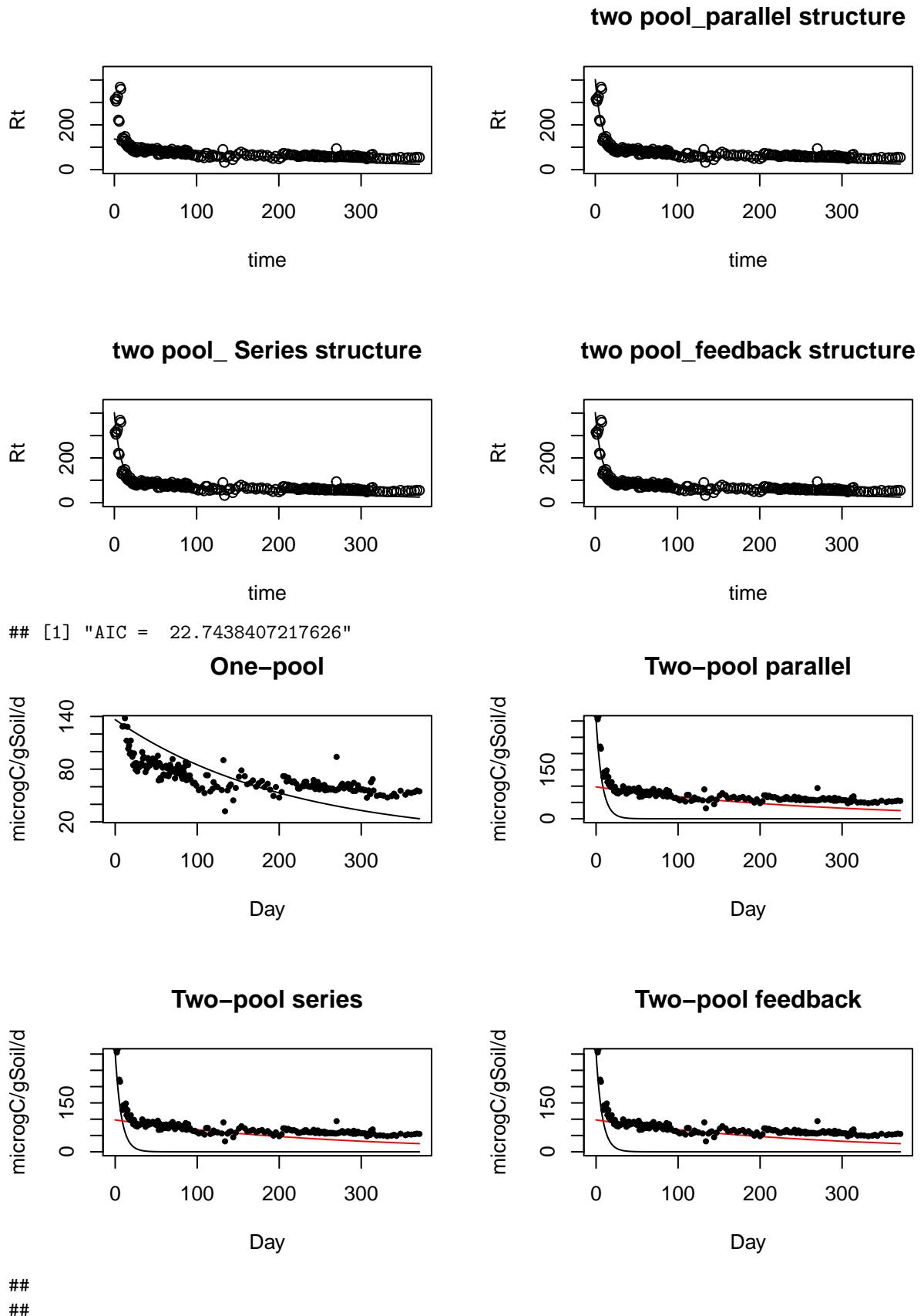
## [1] "Crow2019a; variable: Site76"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00472796834398892"

## [1] "AIC = 16.8854255192051"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.134540334779172"
## [2] "k2= 0.00367881880017175"
## [3] "proportion of CO in pool 1= 0.0783779736684117"

## [1] "AIC = 18.7438407241509"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.134529085220941"
## [2] "k2= 0.00367874644977943"
## [3] "a21= 9.59466368086193e-05"
## [4] "Proportion of CO in pool 1= 0.0783896306282388"

## [1] "AIC = 20.7438407205117"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.134538149690646"
## [2] "k2= 0.00367880472917513"
## [3] "a21= 0.000166430732526202"
## [4] "a12= 3.19708395868368e-07"
## [5] "Proportion of CO in pool 1= 0.0783921646487686"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.00473|NA|NA|NA|NA|
## |Two-pool parallel|0.135|0.00368|0.0784|NA|NA|
## |Two-pool series|0.135|0.00368|0.0784|9.59e-05|NA|
## |Two-pool feedback|0.135|0.00368|0.0784|0.000166|0.0784|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|16.9|20.8|2760|16.9|0.657|28800|NA|350000|1710|
## |Two-pool parallel|18.7|30.5|2370|18.8|0.252|71.8|7.84|120000|585|
## |Two-pool series|20.7|36.4|2370|20.9|0.0908|7.46|5.15|120000|585|
## |Two-pool feedback|22.7|42.3|2370|22.9|0.0325|7.48|5.15|120000|585|

```

Variable Site77;

CO2 production rate

```

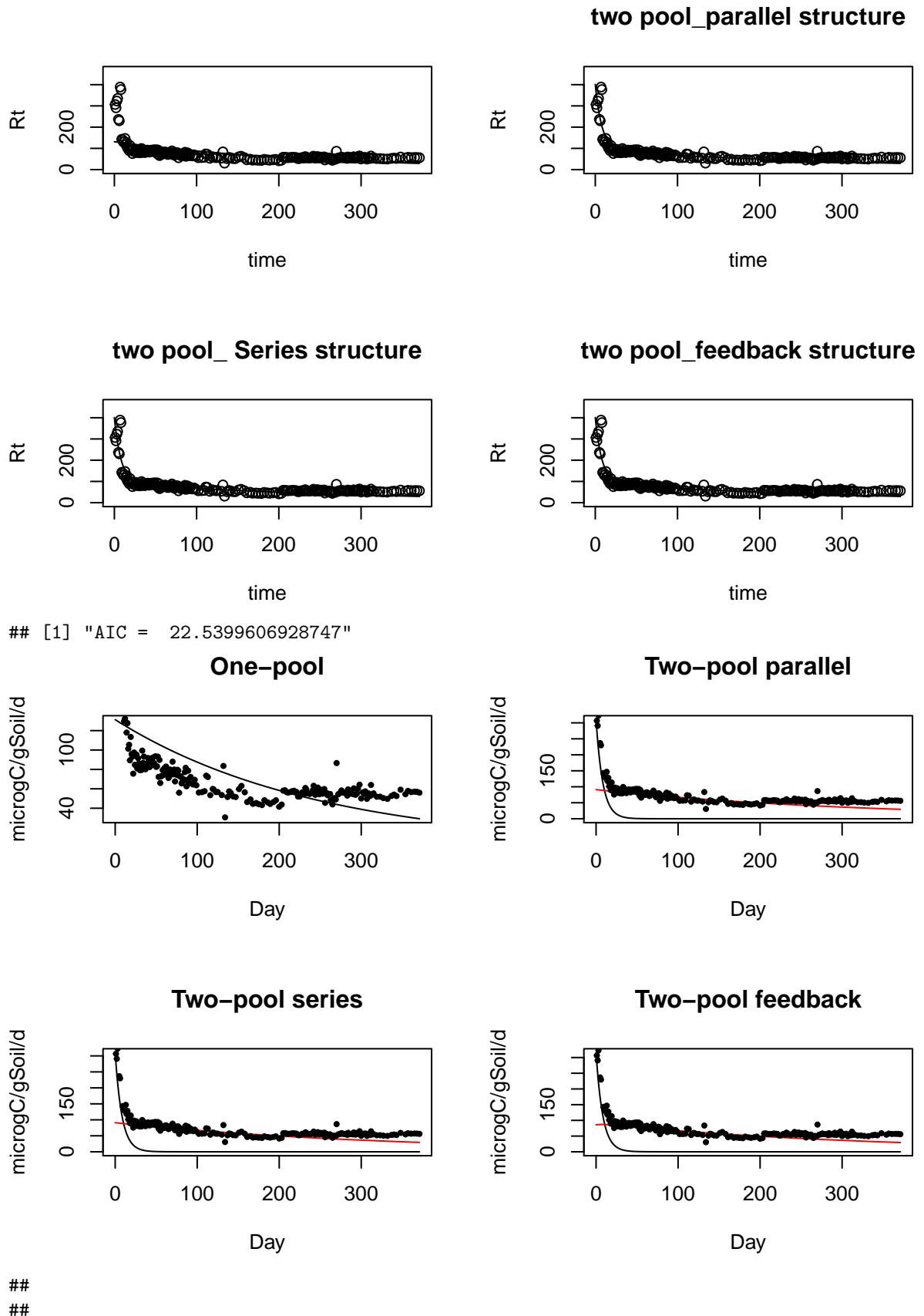
Crow_V78=modelFitTS_Markdown(db = db[[9]], ts.col = 78, ic.col = 77, unitConverter = 1e3,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.05, 0.001, 0.1),
                                             series=c(0.01, 0.0005, 0.01, 0.1),
                                             feedback=c(0.01, 0.0005, 0.1, 0.01, 0.1)))

```

```

## [1] "Crow2019a; variable: Site77"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00405386358186632"
## [1] "AIC = 17.0200869983437"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.121950125544076"
## [2] "k2= 0.00305127156203094"
## [3] "proportion of CO in pool 1= 0.0785005025574233"
## [1] "AIC = 18.5399606951098"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.121957482642928"
## [2] "k2= 0.00305131414554864"
## [3] "a21= 7.83086736083627e-06"
## [4] "Proportion of CO in pool 1= 0.0784982624582405"
## [1] "AIC = 20.5399606929435"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.121956849268284"
## [2] "k2= 0.00305133195217245"
## [3] "a21= 0.399313933863679"
## [4] "a12= 1.71947985881937e-05"
## [5] "Proportion of CO in pool 1= 0.13294876572769"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.00405|NA|NA|NA|NA|
## |Two-pool parallel|0.122|0.00305|0.0785|NA|NA|
## |Two-pool series|0.122|0.00305|0.0785|7.83e-06|NA|
## |Two-pool feedback|0.122|0.00305|0.133|0.399|0.0785|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|17|20.9|2790|17|0.618|32400|NA|374000|1830|
## |Two-pool parallel|18.5|30.3|2330|18.6|0.281|80.7|8.37|108000|528|
## |Two-pool series|20.5|36.2|2330|20.6|0.101|8.2|5.68|108000|528|
## |Two-pool feedback|22.5|42.1|2340|22.7|0.0362|139|14|108000|528|

```

Variable Site78;

CO2 production rate

```
Crow_V79=modelFitTS_Markdown(db = db[[9]], ts.col = 79, ic.col = 78, unitConverter = 1e3)
```

```

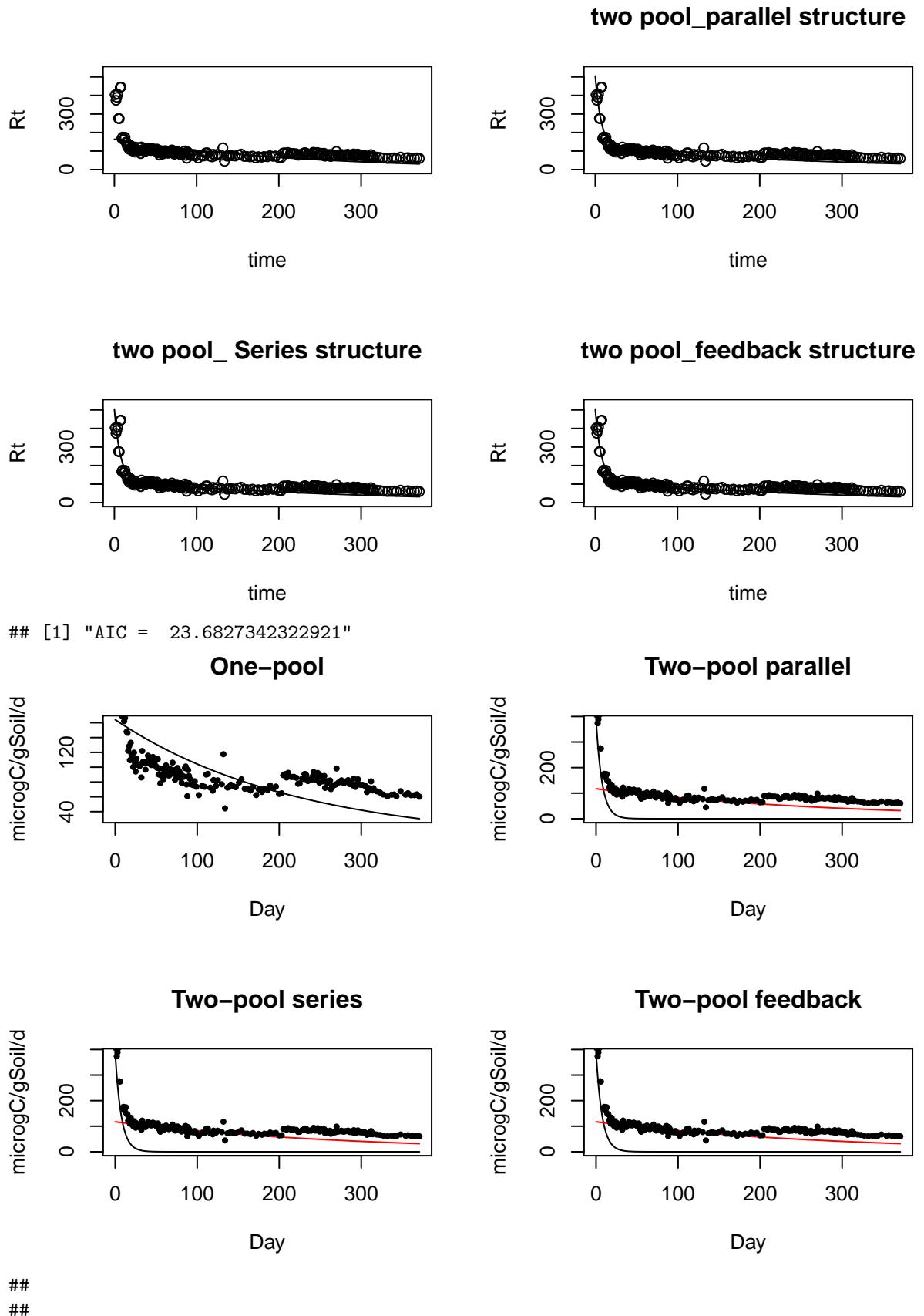
## [1] "Crow2019a; variable: Site78"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00454234608683279"

## [1] "AIC = 17.8472915947332"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.135774996018178"
## [2] "k2= 0.00352327431213903"
## [3] "proportion of CO in pool 1= 0.0789822277884253"

## [1] "AIC = 19.6827342376979"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.135776927760255"
## [2] "k2= 0.00352328710825069"
## [3] "a21= 9.09868798236735e-05"
## [4] "Proportion of CO in pool 1= 0.0789888591907253"

## [1] "AIC = 21.6827342353157"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.135781185932033"
## [2] "k2= 0.00352331531259015"
## [3] "a21= 0.000558358956652572"
## [4] "a12= 1.54984921225121e-05"
## [5] "Proportion of CO in pool 1= 0.0790257392545549"

```



```

## |model          |k1      |k2      |COInp1 |a21      |a12    |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.00454 |NA      |NA      |NA      |NA     |
## |Two-pool parallel |0.136   |0.00352 |0.079   |NA      |NA     |
## |Two-pool series   |0.136   |0.00352 |0.079   |9.1e-05  |NA     |
## |Two-pool feedback  |0.136   |0.00352 |0.079   |0.000558 |0.079  |
##
##
## |model          |AIC    |BIC    |AICn   |AICc   |wi     |MeanTrT |q05    |SSR     |MSR    |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |17.8   |21.8   |2940   |17.9   |0.654  |36100   |NA     |566000  |2760   |
## |Two-pool parallel |19.7   |31.4   |2540   |19.7   |0.254  |71.6    |7.59   |192000 |936    |
## |Two-pool series   |21.7   |37.3   |2550   |21.8   |0.0915 |7.39    |5.11   |192000 |936    |
## |Two-pool feedback  |23.7   |43.3   |2550   |23.8   |0.0328 |7.52    |5.11   |192000 |936    |

```

Dataset Haddix2011SSSJA

Variable C_SasNG_15;

Decomposition rates over time at 15 degrees for Saskatchewan, native grassland

```

Haddix_V2=modelFitTS_Markdown(db = db[[15]], ts.col = 2, ic.col = 1, unitConverter = 0.1,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.1, 0.001, 0.1),
                                             series=c(0.1, 0.001, 0.01, 0.1),
                                             feedback=c(0.1, 0.001, 0.1, 0.01, 0.01)) )

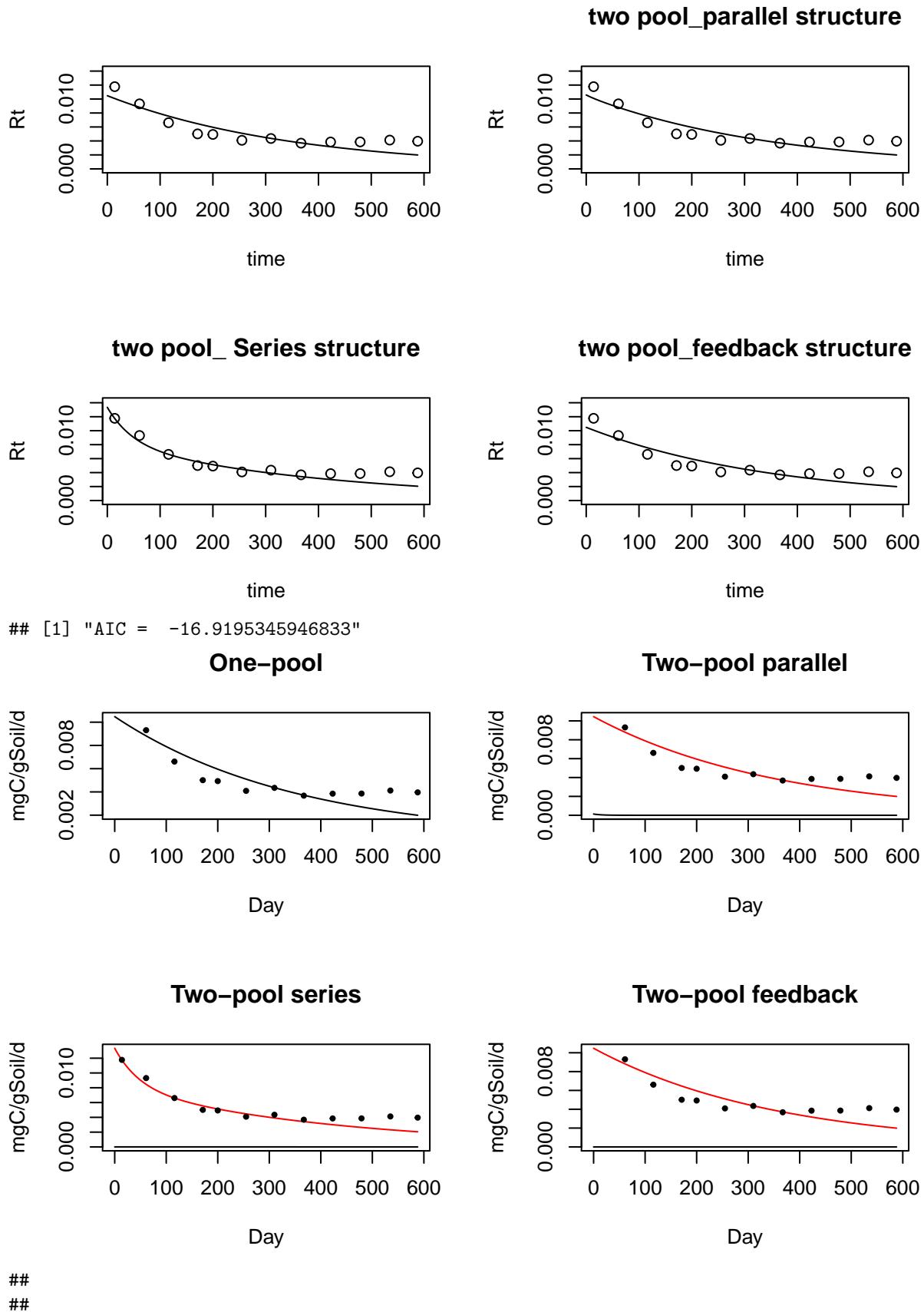
## [1] "Haddix2011SSSJA; variable: C_SasNG_15"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00282454420772105"

## [1] "AIC = -24.9195346371546"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.069215619569333"
## [2] "k2= 0.00281893598631422"
## [3] "proportion of CO in pool 1= 0.000513856435812143"

## [1] "AIC = -20.9387182957149"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00232765069520952"
## [2] "k2= 0.0208094150634683"
## [3] "a21= 0.999504665017962"
## [4] "Proportion of CO in pool 1= 0.827191031275621"

## [1] "AIC = -19.8853258188166"
## [1] "Two pool model-feedback structure"
## [1] "k1= 5.29616143238766e-15"
## [2] "k2= 0.00282455712539001"
## [3] "a21= 0.997023922479369"
## [4] "a12= 3.47489897967179e-09"
## [5] "Proportion of CO in pool 1= 2.35501911305391e-08"

```



```

## |model          |k1      |k2      |COInp1   |a21     |a12    |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.00282 |NA       |NA       |NA       |NA     |
## |Two-pool parallel|0.0692  |0.00282 |0.000514 |NA       |NA     |
## |Two-pool series  |0.00233 |0.0208  |0.827    |1        |NA     |
## |Two-pool feedback |5.3e-15 |0.00282 |2.36e-08 |0.997   |0.827  |
##
##
## |model          |AIC     |BIC     |AICn    |AICc    |wi      |MeanTrT  |q05     |SSR      |MSR     |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-24.9   |-24.4   |-173    |-24.6   |0.951   |3.71     |NA      |1.71e-05 |1.43e-06 |
## |Two-pool parallel|-20.9   |-19.2   |-169    |-18.3   |0.0411  |351      |241     |1.7e-05  |1.41e-06 |
## |Two-pool series  |-19.9   |-17.6   |-173    |-14.9   |0.00756 |478      |349     |1.06e-05 |8.81e-07 |
## |Two-pool feedback |-16.9   |-14.1   |-165    |-8.35   |0.000288|1.89e+14 |1.31e+14 |1.71e-05 |1.43e-06 |

```

Variable C_SasNG_25;

Decomposition rates over time at 25 degrees for Saskatchewan, native grassland

```

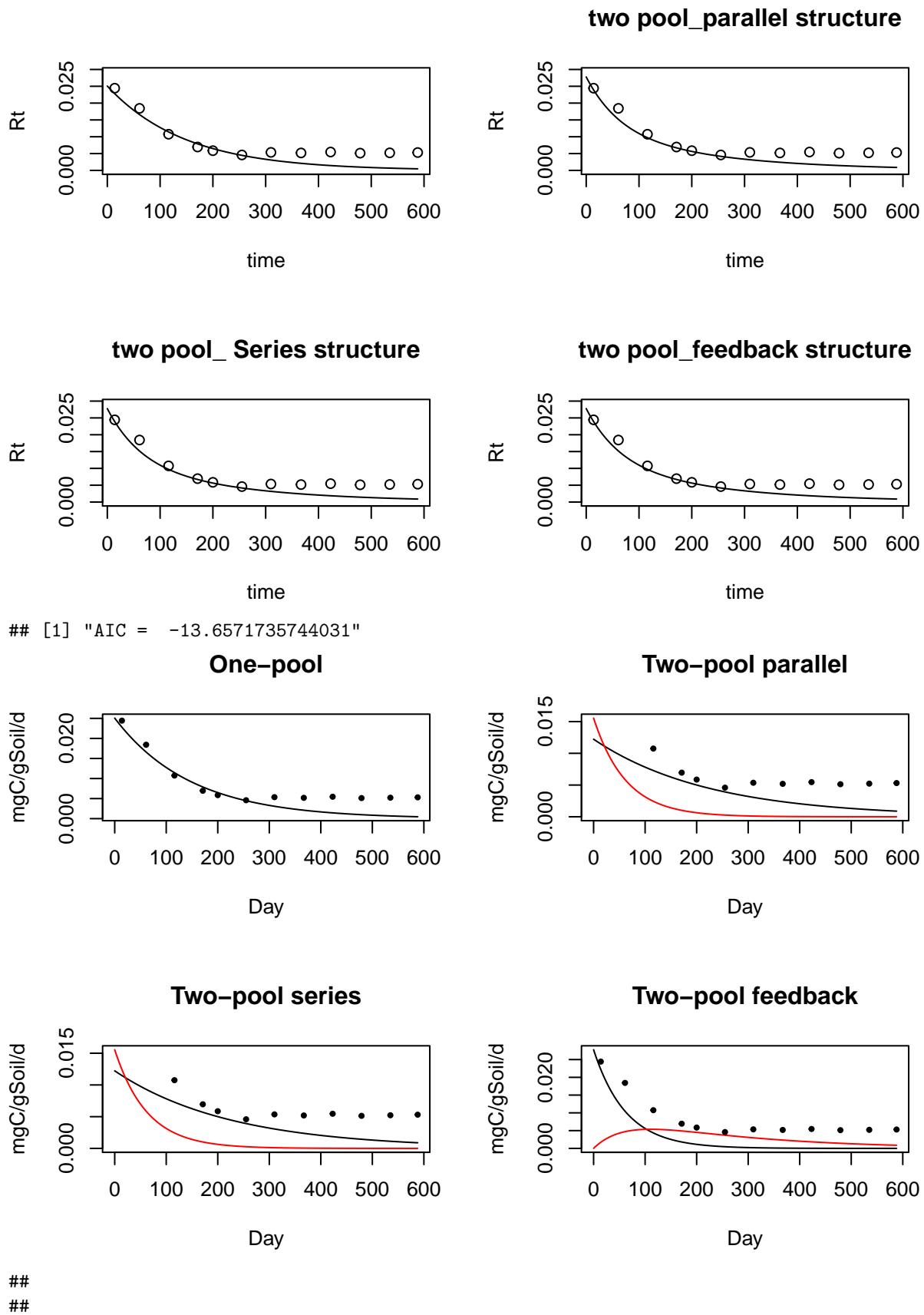
Haddix_V3=modelFitTS_Markdown(db = db[[15]], ts.col = 3, ic.col = 1, unitConverter = 0.1,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.1, 0.0001, 0.1),
                                             series=c(0.1, 0.0001, 0.01, 0.1),
                                             feedback=c(0.1, 0.0001, 0.1, 0.005, 0.01)))

```

```

## [1] "Haddix2011SSSJA; variable: C_SasNG_25"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00675590507954382"
## [1] "AIC = -21.3921571440399"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00446524573537702"
## [2] "k2= 0.0159870743079966"
## [3] "proportion of CO in pool 1= 0.737828287050434"
## [1] "AIC = -17.6571719434054"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00446579401714651"
## [2] "k2= 0.01598830433186"
## [3] "a21= 4.97110643041809e-05"
## [4] "Proportion of CO in pool 1= 0.737861262741875"
## [1] "AIC = -15.6571719478072"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0159892617425954"
## [2] "k2= 0.00446580124106446"
## [3] "a21= 0.531693531443446"
## [4] "a12= 7.09843434365531e-07"
## [5] "Proportion of CO in pool 1= 0.99937478944701"

```



```

## |model          |k1      |k2      |COInp1 |a21      |a12    |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.00676 |NA      |NA      |NA      |NA     |
## |Two-pool parallel|0.00447 |0.016   |0.738   |NA      |NA     |
## |Two-pool series  |0.00447 |0.016   |0.738   |4.97e-05 |NA     |
## |Two-pool feedback |0.016   |0.00447 |0.999   |0.532   |0.738  |
##
##
## |model          |AIC     |BIC     |AICn    |AICc    |wi      |MeanTrT |q05     |SSR      |MSR      |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-21.4   |-20.8   |-150    |-21     |0.948   |3.71    |NA      |9.99e-05 |8.33e-06 |
## |Two-pool parallel|-17.7   |-16     |-148    |-15     |0.0463  |134     |71.1   |8.75e-05 |7.29e-06 |
## |Two-pool series  |-15.7   |-13.4   |-146    |-10.7   |0.00531 |224     |155    |8.75e-05 |7.29e-06 |
## |Two-pool feedback |-13.7   |-10.8   |-144    |-5.09   |0.000327 |182     |109    |8.75e-05 |7.29e-06 |

```

Variable C_SasNG_35;

Decomposition rates over time at 35 degrees for Saskatchewan, native grassland

```

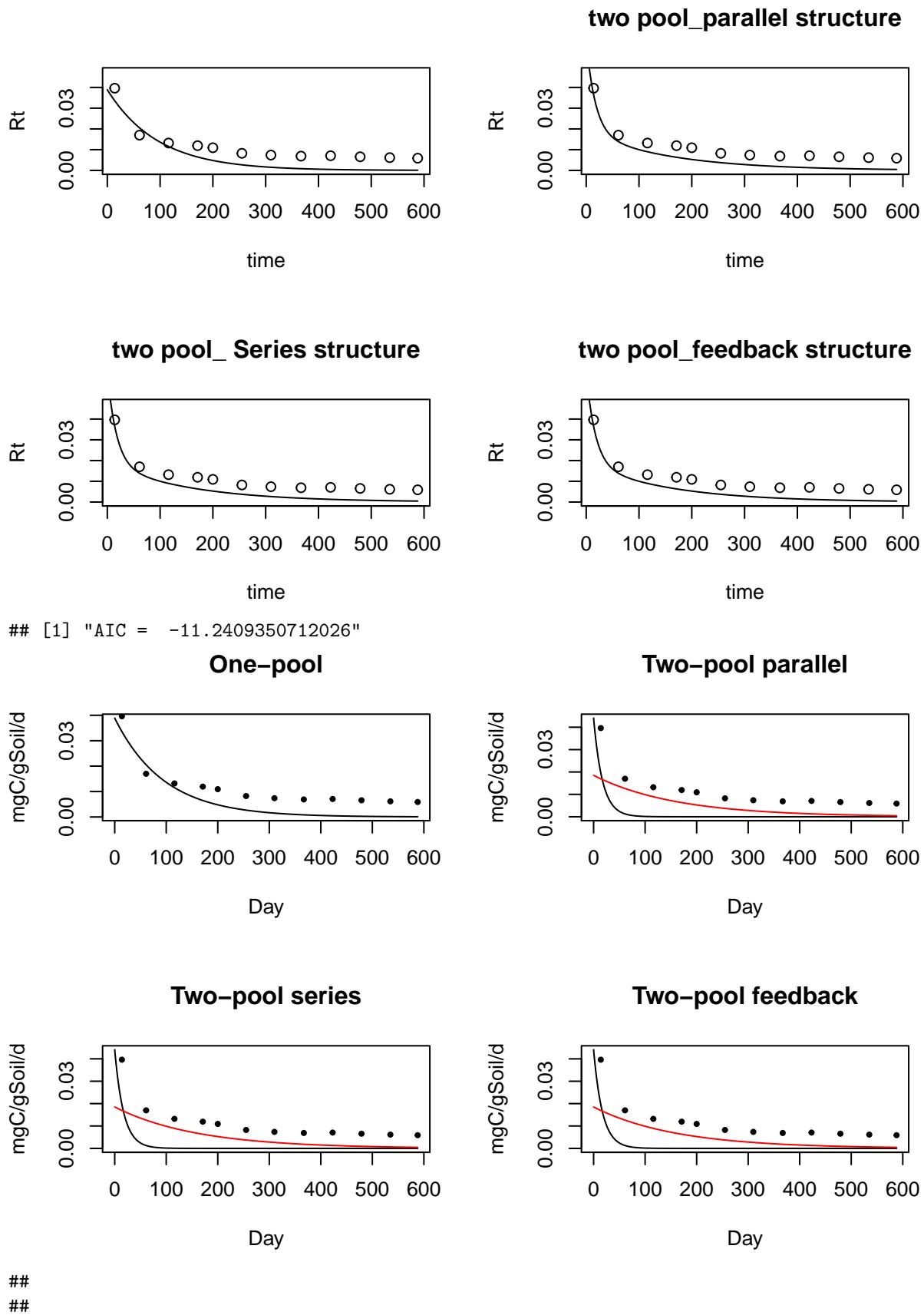
Haddix_V4=modelFitTS_Markdown(db = db[[15]], ts.col = 4, ic.col = 1, unitConverter = 0.1,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.1, 0.001, 0.1),
                                             series=c(0.1, 0.001, 0.01, 0.1),
                                             feedback=c(0.1, 0.001, 0.1, 0.01)))

```

```

## [1] "Haddix2011SSSJA; variable: C_SasNG_35"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0104821427280886"
## [1] "AIC = -18.7495037376223"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0579891360817989"
## [2] "k2= 0.00627266160730566"
## [3] "proportion of CO in pool 1= 0.204847407346169"
## [1] "AIC = -15.2409350675142"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.057982230119423"
## [2] "k2= 0.00627288958022402"
## [3] "a21= 0.000234711437498758"
## [4] "Proportion of CO in pool 1= 0.204888560291734"
## [1] "AIC = -13.2409350770715"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0579939947126304"
## [2] "k2= 0.00627297054084845"
## [3] "a21= 0.00100932361051836"
## [4] "a12= 2.04361753824434e-05"
## [5] "Proportion of CO in pool 1= 0.205057468554461"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.0105|NA|NA|NA|NA|
## |Two-pool parallel|0.058|0.00627|0.205|NA|NA|
## |Two-pool series|0.058|0.00627|0.205|0.000235|NA|
## |Two-pool feedback|0.058|0.00627|0.205|0.00101|0.205|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|-18.7|-18.2|-133|-18.4|0.943|3.71|NA|0.000375|3.12e-05|
## |Two-pool parallel|-15.2|-13.5|-132|-12.6|0.0516|59.3|18.8|0.000293|2.44e-05|
## |Two-pool series|-13.2|-11|-130|-8.24|0.00591|17.3|12|0.000293|2.44e-05|
## |Two-pool feedback|-11.2|-8.42|-128|-2.67|0.000364|17.4|12|0.000293|2.44e-05|

```

Variable C_SasCul_15;

Decomposition rates over time at 15 degrees for Saskatchewan, cultivated

```
Haddix_V5=modelFitTS_Markdown(db = db[[15]], ts.col = 5, ic.col = 2, unitConverter = 0.1,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.1, 0.001, 0.1),
                                             series=c(0.1, 0.001, 0.01, 0.1),
                                             feedback=c(0.1, 0.001, 0.05, 0.01, 0.01)))
```

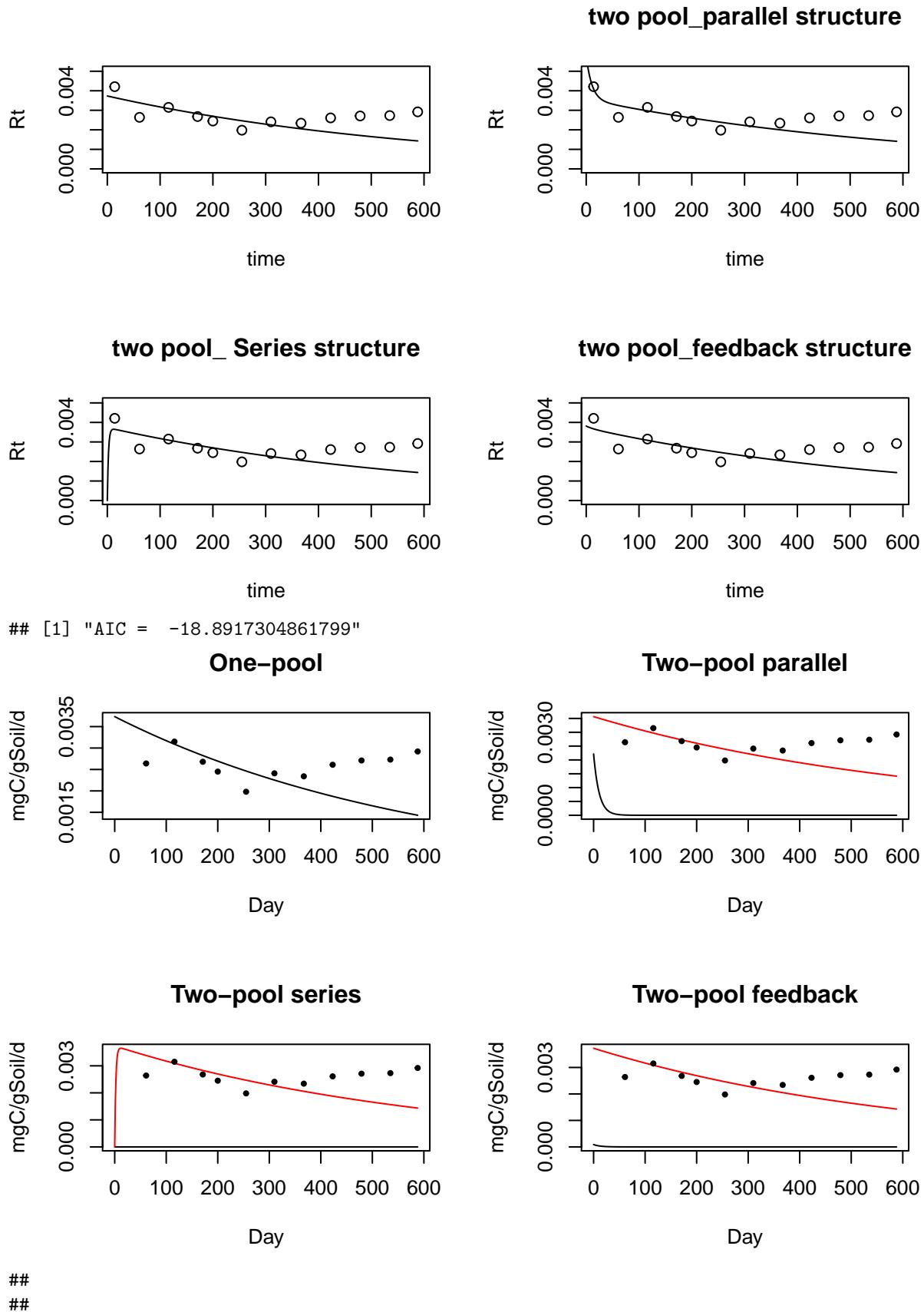
```

## [1] "Haddix2011SSSJA; variable: C_SasCul_15"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00163025606405576"

## [1] "AIC = -26.8838217206659"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0928877212798501"
## [2] "k2= 0.00157349911725238"
## [3] "proportion of CO in pool 1= 0.0104205213254541"

## [1] "AIC = -22.9739841676677"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.474091735417855"
## [2] "k2= 0.00162519245461989"
## [3] "a21= 0.99999974735414"
## [4] "Proportion of CO in pool 1= 0.999760252060302"

## [1] "AIC = -20.8937398438122"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0814946122474001"
## [2] "k2= 0.00162747381666344"
## [3] "a21= 0.00399479805998182"
## [4] "a12= 5.98099821185194e-05"
## [5] "Proportion of CO in pool 1= 0.000482315342358763"
```



```

## |model          |k1      |k2      |COInp1    |a21      |a12   |
## |:-----|:-----|:-----|:-----|:-----|:---|
## |One-pool      |0.00163 |NA       |NA       |NA       |NA    |
## |Two-pool parallel |0.0929  |0.00157 |0.0104   |NA       |NA    |
## |Two-pool series   |0.474   |0.00163 |1        |1        |NA    |
## |Two-pool feedback  |0.0815  |0.00163 |0.000482 |0.00399 |1     |
##
##
## |model          |AIC     |BIC     |AICn    |AICc    |wi      |MeanTrT |q05     |SSR      |MSR      |
## |:-----|:-----|:-----|:----|:----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-26.9   |-26.3   |-186    |-26.5   |0.953   |2.29    |NA      |1.641e-06 |5.35e-07 |
## |Two-pool parallel |-23     |-21.3   |-182    |-20.3   |0.0426  |396     |133    |1.613e-06 |5.11e-07 |
## |Two-pool series   |-20.9   |-18.6   |-180    |-15.9   |0.00469 |617     |429    |1.638e-06 |5.32e-07 |
## |Two-pool feedback  |-18.9   |-16.1   |-178    |-10.3   |0.000289 |14.7    |8.55   |1.639e-06 |5.32e-07 |

```

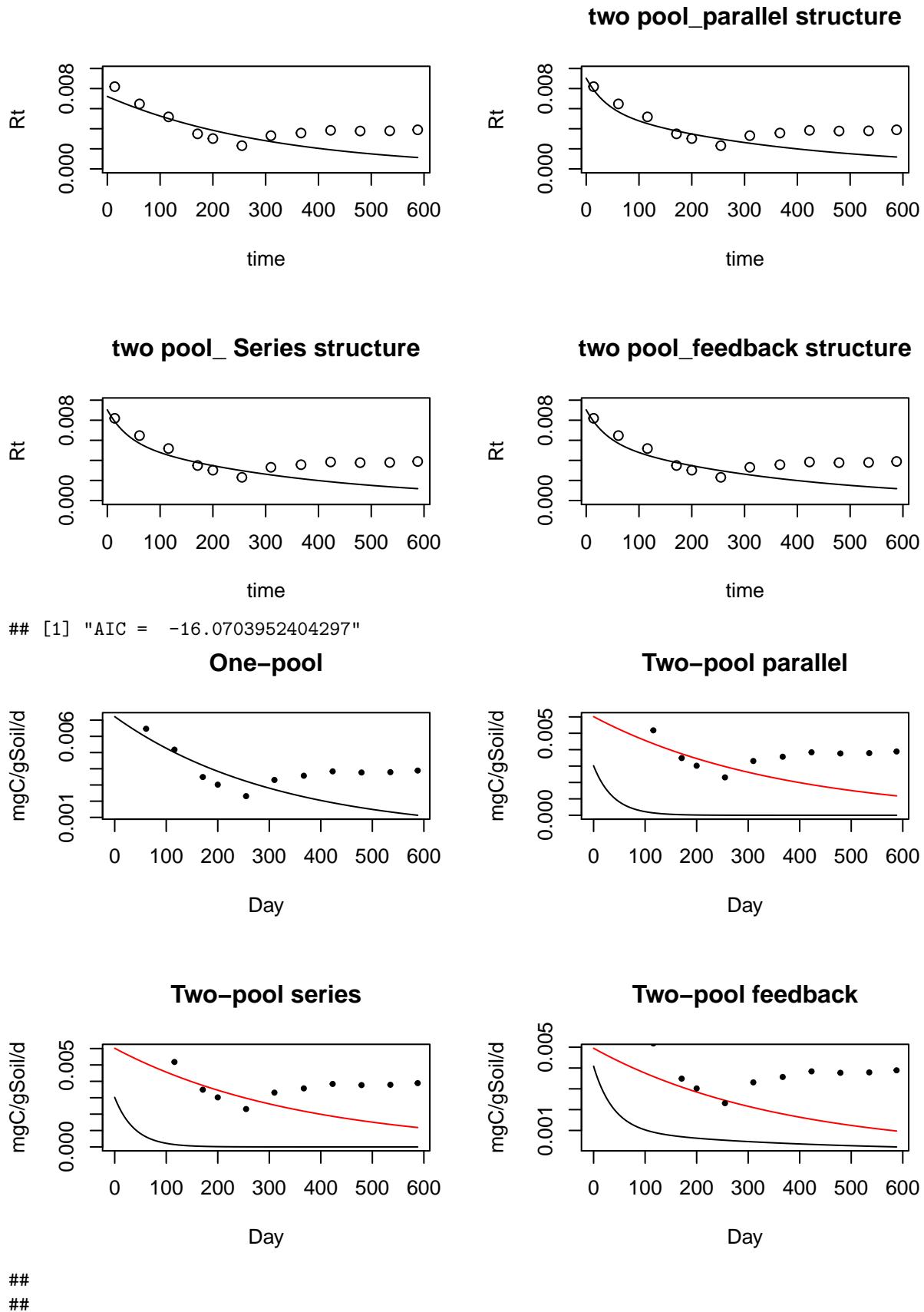
Variable C_SasCul_25;

Decomposition rates over time at 25 degrees for Saskatchewan, cultivated

```
Haddix_V6=modelFitTS_Markdown(db = db[[15]], ts.col = 6, ic.col = 2, unitConverter = 0.1,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.01, 0.001, 0.01, 0.1),
                                             feedback=c(0.01, 0.0001, 0.1, 0.1, 0.01)))
```

```

## [1] "Haddix2011SSSJA; variable: C_SasCul_25"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0031522744336403"
## [1] "AIC = -23.9263084407018"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0262133197632922"
## [2] "k2= 0.00276664905688465"
## [3] "proportion of CO in pool 1= 0.050308753794764"
## [1] "AIC = -20.0703952366319"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0262156026707755"
## [2] "k2= 0.00276662271804184"
## [3] "a21= 4.20548686279609e-05"
## [4] "Proportion of CO in pool 1= 0.0503126183536207"
## [1] "AIC = -18.0703952298501"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0262002574972653"
## [2] "k2= 0.00276988974733568"
## [3] "a21= 0.00660813752990325"
## [4] "a12= 0.162226996781052"
## [5] "Proportion of CO in pool 1= 0.0685648122177098"
```



```

## |model          |k1      |k2      |COInp1 |a21      |a12      |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.00315 |NA      |NA      |NA      |NA      |
## |Two-pool parallel |0.0262  |0.00277 |0.0503 |NA      |NA      |
## |Two-pool series    |0.0262  |0.00277 |0.0503 |4.21e-05 |NA      |
## |Two-pool feedback   |0.0262  |0.00277 |0.0686 |0.00661 |0.0503 |
##
##
## |model          |AIC     |BIC     |AICn    |AICc     |wi       |MeanTrT  |q05     |SSR      |MSR      |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-23.9   |-23.4   |-167    |-23.6    |0.951    |2.29     |NA      |1.281e-05 |1.235e-06 |
## |Two-pool parallel |-20.1   |-18.4   |-163    |-17.4    |0.0437   |253      |115     |1.262e-05 |1.218e-06 |
## |Two-pool series    |-18.1   |-15.8   |-161    |-13.1    |0.00501  |38.2     |26.4    |1.262e-05 |1.218e-06 |
## |Two-pool feedback   |-16.1   |-13.2   |-159    |-7.5     |0.000309 |40.6     |26.7    |1.262e-05 |1.218e-06 |

```

Variable C_SasCul_35;

Decomposition rates over time at 35 degrees for Saskatchewan, cultivated

```

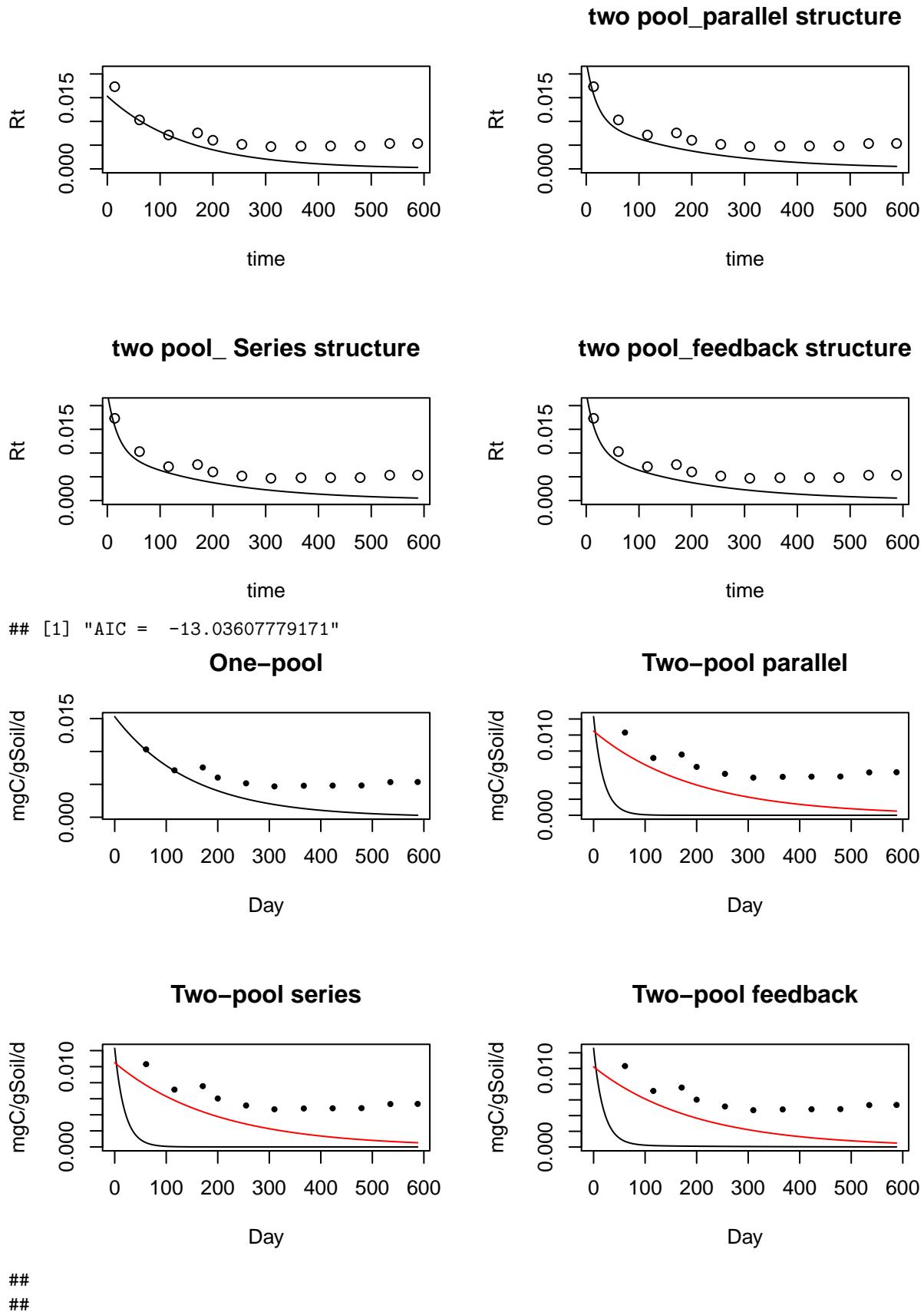
Haddix_V7=modelFitTS_Markdown(db = db[[15]], ts.col = 7, ic.col = 2, unitConverter = 0.1,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.01, 0.001, 0.01, 0.1),
                                             feedback=c(0.05, 0.001, 0.01, 0.1, 0.01)))

```

```

## [1] "Haddix2011SSSJA; variable: C_SasCul_35"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00668133723097242"
## [1] "AIC = -20.8545885362689"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0518999974227983"
## [2] "k2= 0.00510901093337175"
## [3] "proportion of CO in pool 1= 0.103453118213234"
## [1] "AIC = -17.0360777985029"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0518848382069728"
## [2] "k2= 0.00510900583600204"
## [3] "a21= 0.000149788456234479"
## [4] "Proportion of CO in pool 1= 0.103476698942596"
## [1] "AIC = -15.036077797385"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.051902931701332"
## [2] "k2= 0.00510910926373444"
## [3] "a21= 0.000176621533738985"
## [4] "a12= 0.0240978209411382"
## [5] "Proportion of CO in pool 1= 0.105818743602123"

```



```

## |model          |k1      |k2      |COInp1 |a21      |a12    |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.00668 |NA      |NA      |NA      |NA     |
## |Two-pool parallel |0.0519 |0.00511 |0.103   |NA      |NA     |
## |Two-pool series    |0.0519 |0.00511 |0.103   |0.00015 |NA     |
## |Two-pool feedback  |0.0519 |0.00511 |0.106   |0.000177 |0.103  |
##
##
## |model          |AIC     |BIC     |AICn    |AICc     |wi      |MeanTrT |q05     |SSR      |MSR      |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-20.9   |-20.3   |-147    |-20.5   |0.95    |2.29    |NA      |0.000131 |1.09e-05 |
## |Two-pool parallel |-17    |-15.3   |-144    |-14.4   |0.0445  |101     |31.1   |0.000119 |9.95e-06 |
## |Two-pool series    |-15    |-12.8   |-142    |-10     |0.0051  |19.3    |13.4   |0.000119 |9.95e-06 |
## |Two-pool feedback  |-13    |-10.2   |-140    |-4.46   |0.000315 |19.3    |13.4   |0.000119 |9.95e-06 |

```

Variable C_NDakNG_15;

Decomposition rates over time at 15 degrees for North Dakota, native grassland

```

Haddix_V8=modelFitTS_Markdown(db = db[[15]], ts.col = 8, ic.col = 3, unitConverter = 0.1,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.1, 0.001, 0.1),
                                             series=c(0.1, 0.0001, 0.01, 0.1),
                                             feedback=c(0.1, 0.001, 0.1, 0.01)))

```

```

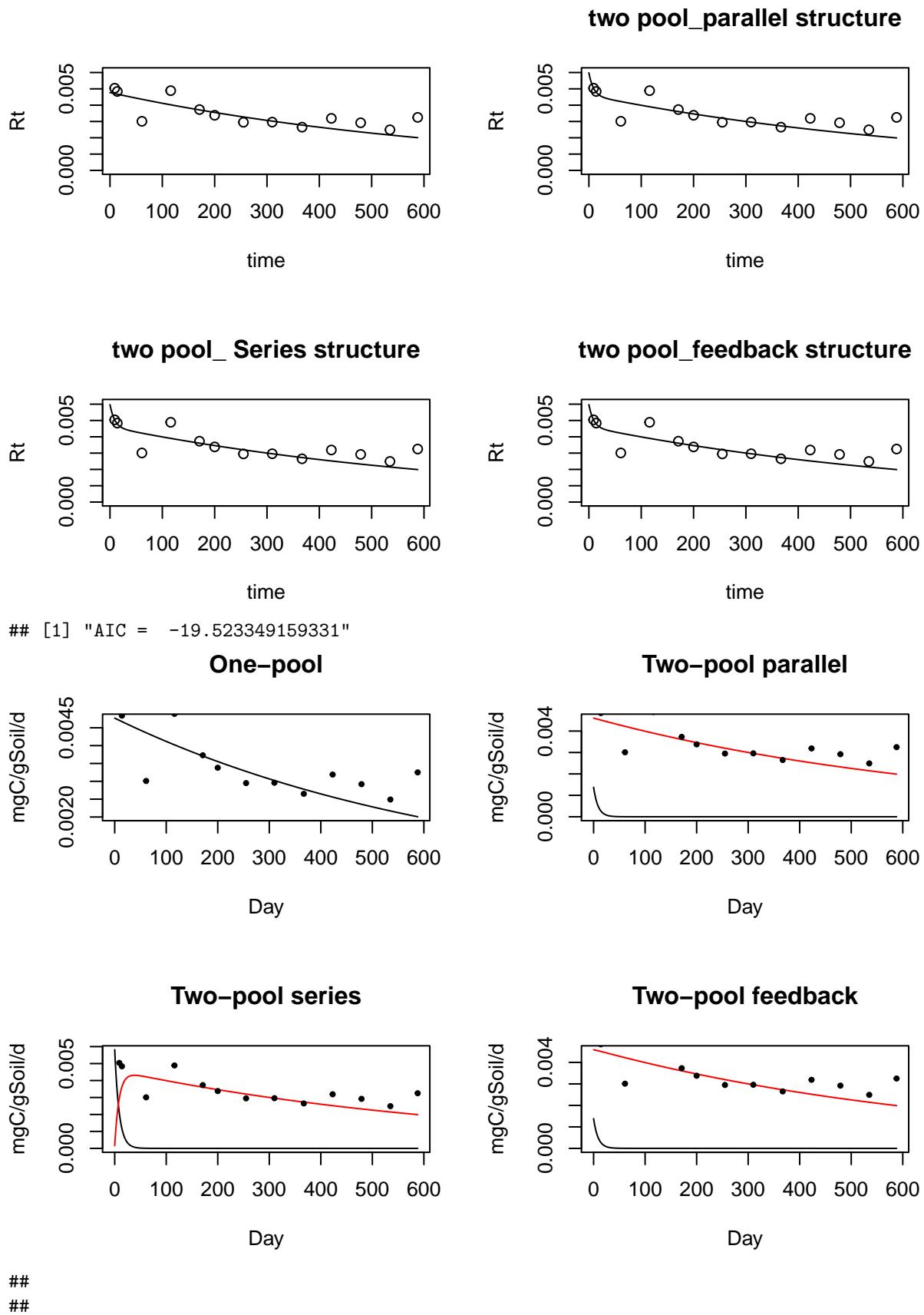
## [1] "Haddix2011SSSJA; variable: C_NDakNG_15"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00147256779459681"

## [1] "AIC = -27.449049992237"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.115408630570874"
## [2] "k2= 0.00142661891280698"
## [3] "proportion of CO in pool 1= 0.00368122120348469"

## [1] "AIC = -23.5233466522375"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.115205203126337"
## [2] "k2= 0.0014268617037639"
## [3] "a21= 0.983873736635901"
## [4] "Proportion of CO in pool 1= 0.966167865255788"

## [1] "AIC = -21.5233483613068"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.115295196971676"
## [2] "k2= 0.00142744670526433"
## [3] "a21= 0.472210803592139"
## [4] "a12= 0.00083621182019461"
## [5] "Proportion of CO in pool 1= 0.00702136938154568"

```



```

## |model          |k1      |k2      |COInp1 |a21     |a12    |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.00147 |NA      |NA      |NA      |NA     |
## |Two-pool parallel |0.115   |0.00143 |0.00368 |NA      |NA     |
## |Two-pool series   |0.115   |0.00143 |0.966   |0.984   |NA     |
## |Two-pool feedback  |0.115   |0.00143 |0.00702 |0.472   |0.966  |
##
##
## |model          |AIC     |BIC     |AICn    |AICc    |wi      |MeanTrT |q05     |SSR      |MSR      |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-27.4   |-26.9   |-189    |-27.1   |0.953   |3.24    |NA      |15.24e-06 |4.03e-07 |
## |Two-pool parallel |-23.5   |-21.8   |-186    |-20.9   |0.0423  |542     |303    |15.05e-06 |3.88e-07 |
## |Two-pool series    |-21.5   |-19.3   |-184    |-16.5   |0.00485 |698     |483    |15.05e-06 |3.88e-07 |
## |Two-pool feedback   |-19.5   |-16.7   |-182    |-11     |0.000299 |340     |22.9   |15.05e-06 |3.88e-07 |

```

Variable C_NDakNG_25;

Decomposition rates over time at 25 degrees for North Dakota, native grassland

```

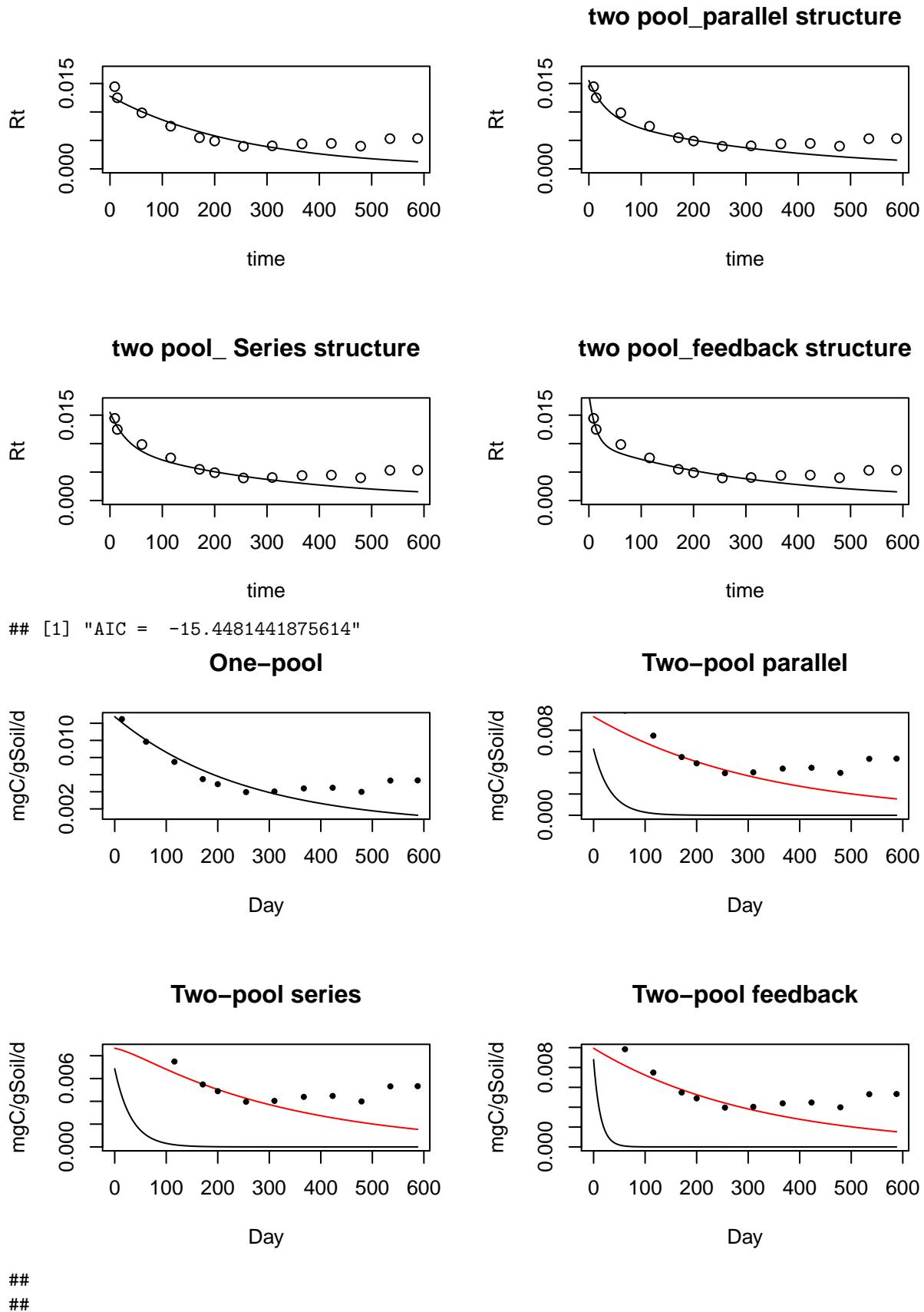
Haddix_V9=modelFitTS_Markdown(db = db[[15]], ts.col = 9, ic.col = 3, unitConverter = 0.1,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.1, 0.001, 0.1),
                                             series=c(0.1, 0.0001, 0.01, 0.1),
                                             feedback=c(0.05, 0.001, 0.1, 0.01)))

```

```

## [1] "Haddix2011SSSJA; variable: C_NDakNG_25"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00394355741294206"
## [1] "AIC = -22.9930020449078"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0308986013990452"
## [2] "k2= 0.00305558930684744"
## [3] "proportion of CO in pool 1= 0.0621990063911722"
## [1] "AIC = -19.4541243986502"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0309059697408072"
## [2] "k2= 0.0030557459519976"
## [3] "a21= 0.455485158229715"
## [4] "Proportion of CO in pool 1= 0.12573326811833"
## [1] "AIC = -17.4541250889526"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.075965601174065"
## [2] "k2= 0.00318116207070912"
## [3] "a21= 0.00199961006689703"
## [4] "a12= 0.000162681632600692"
## [5] "Proportion of CO in pool 1= 0.0357817375012389"

```



```

## |model          |k1      |k2      |COInp1 |a21     |a12    |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.00394 |NA      |NA      |NA      |NA     |
## |Two-pool parallel|0.0309 |0.00306 |0.0622 |NA      |NA     |
## |Two-pool series   |0.0309 |0.00306 |0.126  |0.455  |NA     |
## |Two-pool feedback  |0.076   |0.00318 |0.0358 |0.002  |0.126  |
##
##
## |model          |AIC     |BIC     |AICn    |AICc    |wi      |MeanTrT |q05     |SSR      |MSR      |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-23     |-22.4   |-160    |-22.6   |0.943   |3.24    |NA      |4.86e-05 |3.74e-06 |
## |Two-pool parallel|-19.5   |-17.8   |-159    |-16.8   |0.0508  |209     |81.1   |3.86e-05 |2.97e-06 |
## |Two-pool series    |-17.5   |-15.2   |-157    |-12.5   |0.00582 |181     |59.5   |3.86e-05 |2.97e-06 |
## |Two-pool feedback   |-15.4   |-12.6   |-155    |-6.88   |0.000358|13.8    |9.15   |3.87e-05 |2.98e-06 |

```

Variable C_NDakNG_35;

Decomposition rates over time at 35 degrees for North Dakota, native grassland

```

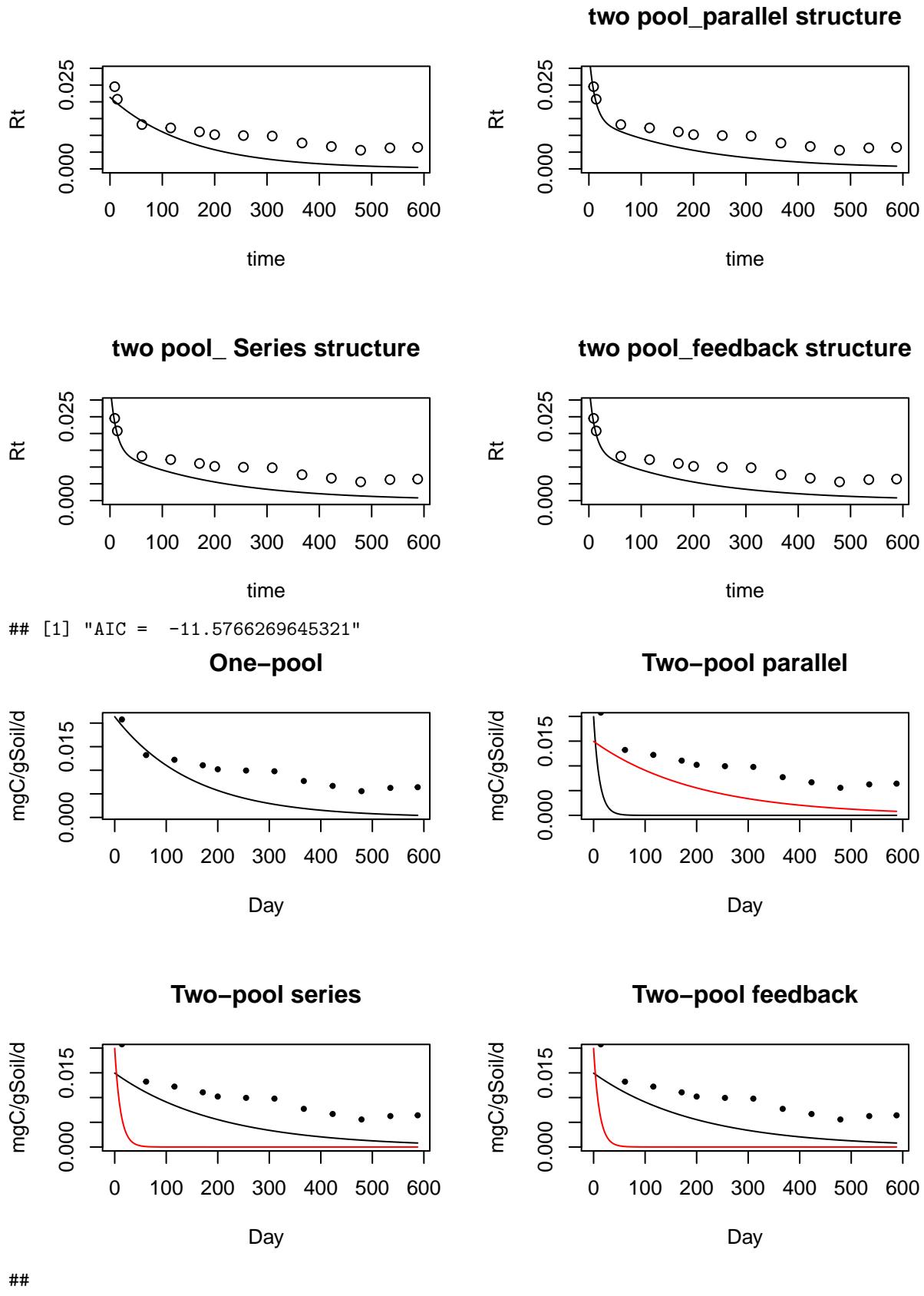
Haddix_V10=modelFitTS_Markdown(db = db[[15]], ts.col = 10, ic.col = 3, unitConverter = 0.1,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.1, 0.0001, 0.01, 0.1),
                                             feedback=c(0.1, 0.001, 0.1, 0.01)))

```

```

## [1] "Haddix2011SSSJA; variable: C_NDakNG_35"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00659229778342407"
## [1] "AIC = -19.3450469298579"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0882595703415934"
## [2] "k2= 0.00496198431204862"
## [3] "proportion of CO in pool 1= 0.0697592757295348"
## [1] "AIC = -15.5766269621378"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00496222723122372"
## [2] "k2= 0.0882556874252316"
## [3] "a21= 0.000167963733834875"
## [4] "Proportion of CO in pool 1= 0.930237198000176"
## [1] "AIC = -13.5766269623741"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00496221008859525"
## [2] "k2= 0.0882509604745554"
## [3] "a21= 0.000820085829125849"
## [4] "a12= 2.03455367172589e-05"
## [5] "Proportion of CO in pool 1= 0.930199102057368"

```



```

## |model          |k1      |k2      |COInp1 |a21      |a12   |
## |:-----|:-----|:-----|:-----|:-----|:----|
## |One-pool      |0.00659 |NA      |NA      |NA      |NA    |
## |Two-pool parallel|0.0883  |0.00496 |0.0698 |NA      |NA    |
## |Two-pool series  |0.00496  |0.0883  |0.93    |0.000168 |NA    |
## |Two-pool feedback |0.00496  |0.0883  |0.93    |0.00082  |0.93  |
##
##
## |model          |AIC     |BIC     |AICn    |AICc     |wi      |MeanTrT |q05     |SSR      |MSR      |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-19.3   |-18.8   |-137    |-19      |0.949   |3.24    |NA      |0.000301 |2.32e-05 |
## |Two-pool parallel|-15.6   |-13.9   |-134    |-12.9    |0.0456  |92.8    |18.7    |0.000268 |2.06e-05 |
## |Two-pool series  |-13.6   |-11.3   |-132    |-8.58    |0.00522 |202     |140     |0.000268 |2.06e-05 |
## |Two-pool feedback |-11.6   |-8.75   |-130    |-3.01    |0.000322 |202     |140     |0.000268 |2.06e-05 |

```

Variable C_NDakCul_15;

Decomposition rates over time at 15 degrees for North Dakota, cultivated

```

Haddix_V11=modelFitTS_Markdown(db = db[[15]], ts.col = 11, ic.col = 4, unitConverter = 0.1,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.1, 0.001, 0.1),
                                             series=c(0.1, 0.0001, 0.01, 0.1),
                                             feedback=c(0.1, 0.001, 0.1, 0.01)))

```

```

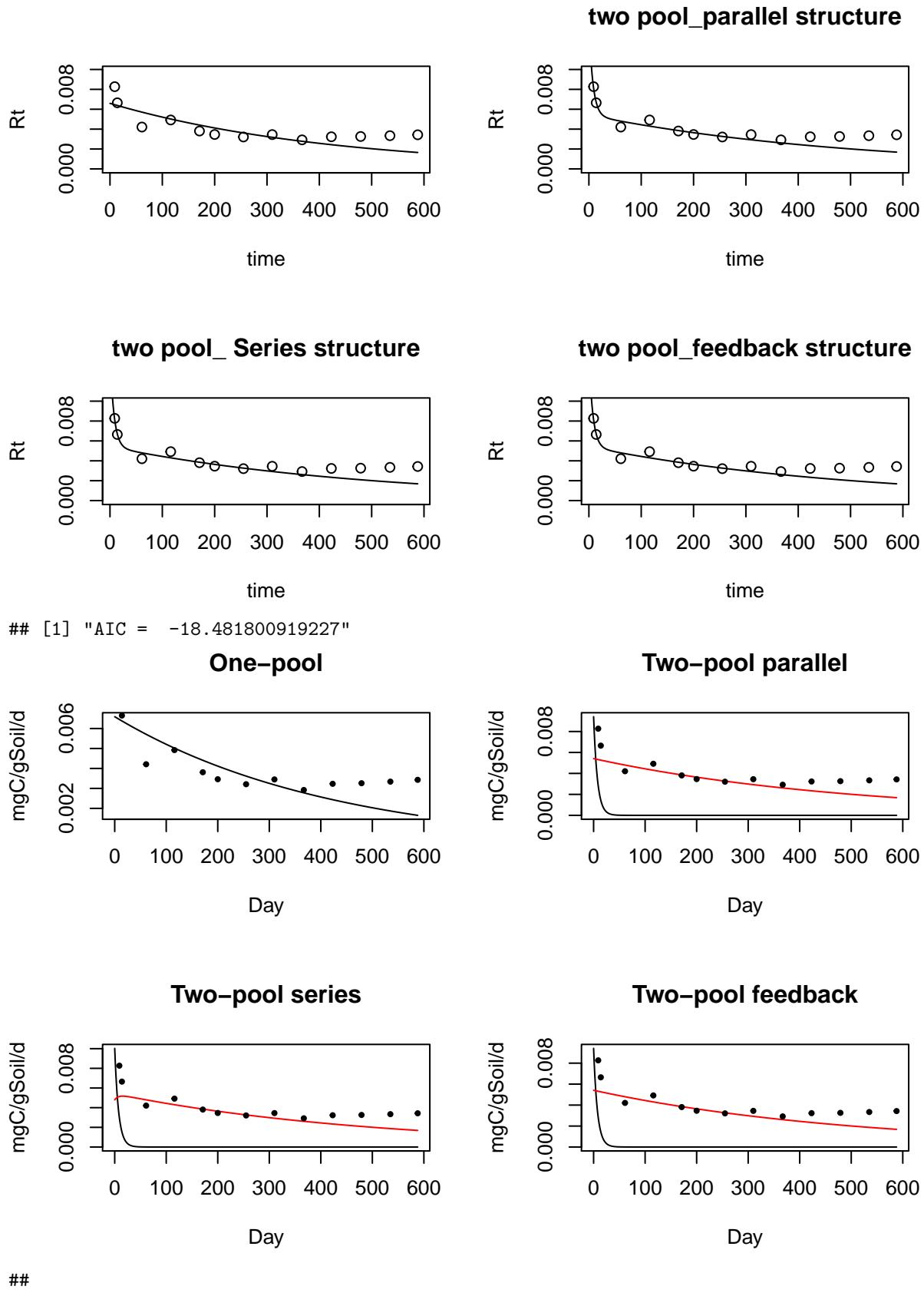
## [1] "Haddix2011SSSJA; variable: C_NDakCul_15"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00235459172572838"

## [1] "AIC = -25.4969302519179"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.134371744183914"
## [2] "k2= 0.00198315714982559"
## [3] "proportion of CO in pool 1= 0.0250202413006507"

## [1] "AIC = -22.4818009356302"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.134350359313636"
## [2] "k2= 0.0019831341018292"
## [3] "a21= 0.804943518080824"
## [4] "Proportion of CO in pool 1= 0.136720049708119"

## [1] "AIC = -20.4818015053381"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.1343346779528"
## [2] "k2= 0.00198312073110085"
## [3] "a21= 0.016002831125737"
## [4] "a12= 2.9432288444875e-05"
## [5] "Proportion of CO in pool 1= 0.0254321880625703"

```



```

## |model          |k1      |k2      |COInp1 |a21     |a12    |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.00235 |NA      |NA      |NA      |NA     |
## |Two-pool parallel |0.134   |0.00198 |0.025   |NA      |NA     |
## |Two-pool series   |0.134   |0.00198 |0.137   |0.805   |NA     |
## |Two-pool feedback  |0.134   |0.00198 |0.0254  |0.016   |0.137  |
##
##
## |model          |AIC     |BIC     |AICn    |AICc    |wi      |MeanTrT |q05     |SSR      |MSR      |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-25.5   |-24.9   |-177    |-25.1   |0.928   |2.8     |NA      |1.39e-05 |1.07e-06 |
## |Two-pool parallel |-22.5   |-20.8   |-179    |-19.8   |0.0649  |189    |11.1    |18.5e-06 |6.54e-07 |
## |Two-pool series   |-20.5   |-18.2   |-177    |-15.5   |0.00744 |413    |248    |18.5e-06 |6.54e-07 |
## |Two-pool feedback  |-18.5   |-15.7   |-175    |-9.91   |0.000459 |15.5   |5.28   |18.5e-06 |6.54e-07 |

```

Variable C_NDakCul_25;

Decomposition rates over time at 25 degrees for North Dakota, cultivated

```

Haddix_V12=modelFitTS_Markdown(db = db[[15]], ts.col = 12, ic.col = 4, unitConverter = 0.1,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.1, 0.001, 0.1),
                                             series=c(0.05, 0.0001, 0.01, 0.1),
                                             feedback=c(0.05, 0.001, 0.01, 0.01)))

```

```

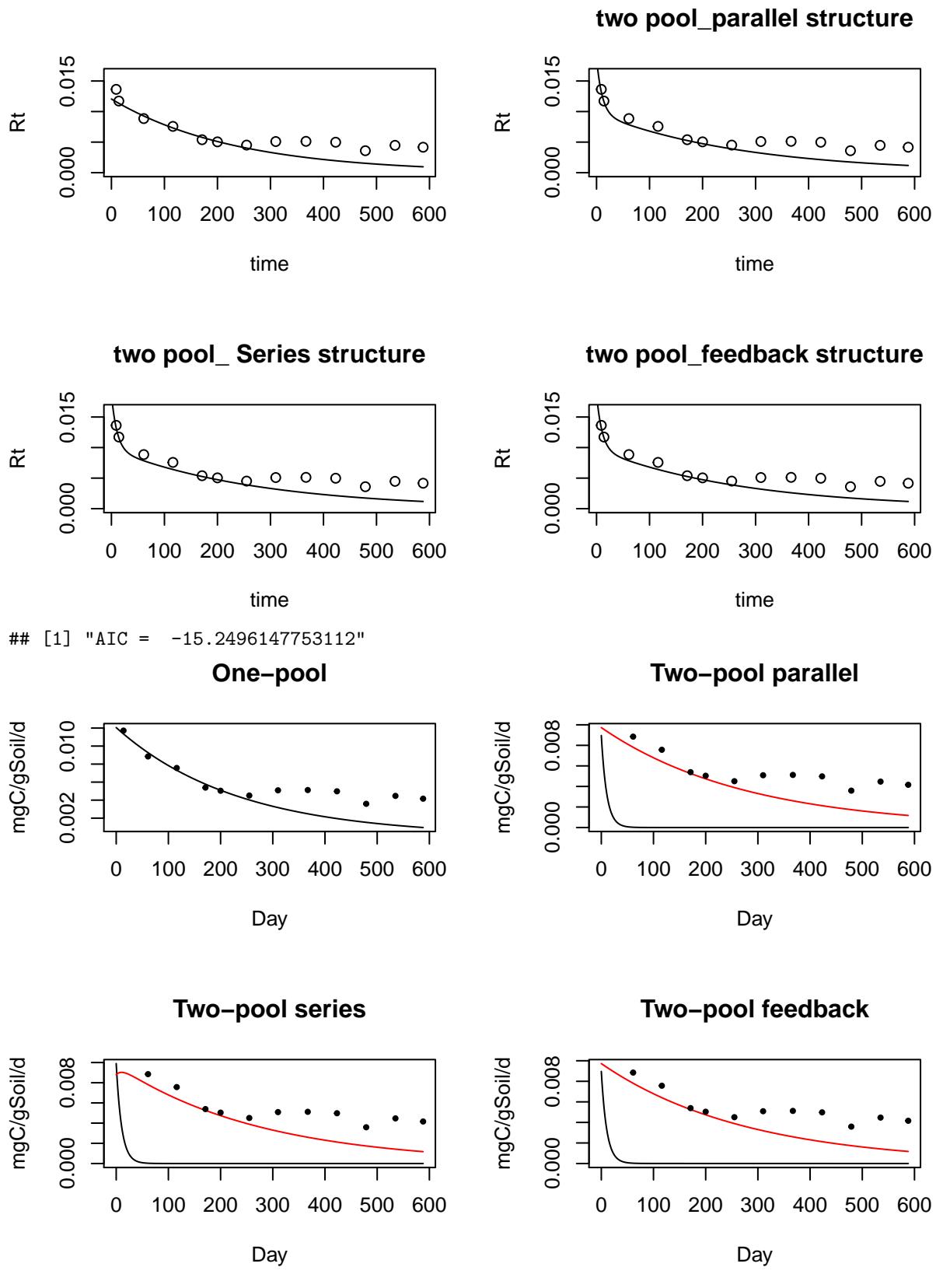
## [1] "Haddix2011SSSJA; variable: C_NDakCul_25"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00430519918472783"

## [1] "AIC = -22.94304709086"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0957152520917848"
## [2] "k2= 0.00359575233905355"
## [3] "proportion of CO in pool 1= 0.0334275379704883"

## [1] "AIC = -19.249614771036"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0957254004720582"
## [2] "k2= 0.00359583549626528"
## [3] "a21= 0.708352412819303"
## [4] "Proportion of CO in pool 1= 0.126607829771937"

## [1] "AIC = -17.2496131907692"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0957256997853642"
## [2] "k2= 0.00359583899195762"
## [3] "a21= 0.00022224382164171"
## [4] "a12= 0.000554351506841577"
## [5] "Proportion of CO in pool 1= 0.0334519974732039"

```



```

## |model          |k1      |k2      |COInp1 |a21      |a12    |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.00431 |NA      |NA      |NA      |NA     |
## |Two-pool parallel |0.0957  |0.0036 |0.0334 |NA      |NA     |
## |Two-pool series   |0.0957  |0.0036 |0.127  |0.708   |NA     |
## |Two-pool feedback  |0.0957  |0.0036 |0.0335 |0.000222 |0.127  |
##
##
## |model          |AIC     |BIC     |AICn   |AICc    |wi      |MeanTrT |q05    |SSR     |MSR    |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-22.9   |-22.4   |-160   |-22.6   |0.947   |2.8     |NA     |4.98e-05 |3.83e-06 |
## |Two-pool parallel |-19.2   |-17.6   |-158   |-16.6   |0.0472  |150    |28.8   |4.28e-05 |3.29e-06 |
## |Two-pool series    |-17.2   |-15     |-156   |-12.2   |0.00541 |207    |108    |4.28e-05 |3.29e-06 |
## |Two-pool feedback   |-15.2   |-12.4   |-154   |-6.68   |0.000334 |10.5   |7.24   |4.28e-05 |3.29e-06 |

```

Variable C_NDakCul_35;

Decomposition rates over time at 35 degrees for North Dakota, cultivated

```

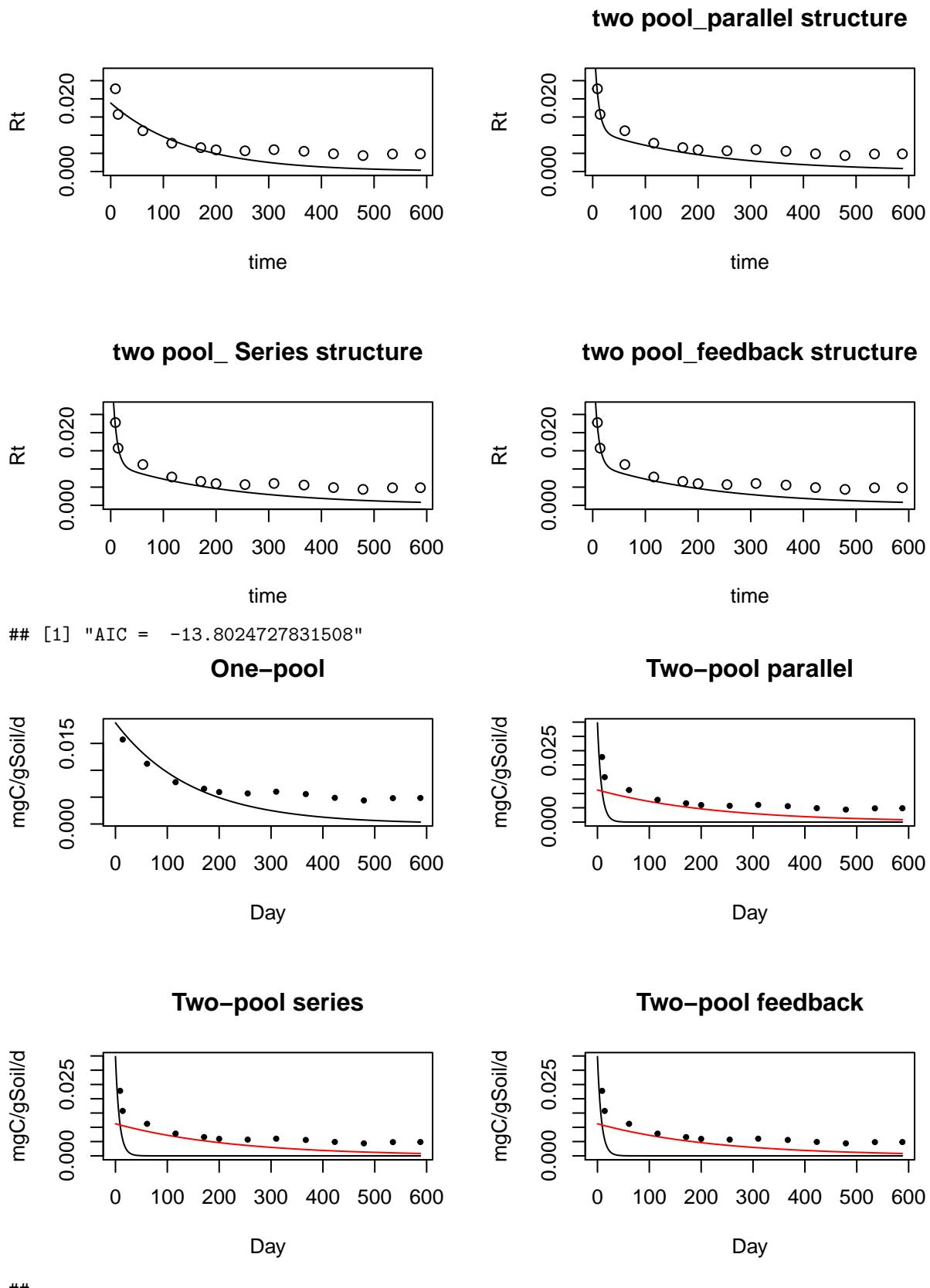
Haddix_V13=modelFitTS_Markdown(db = db[[15]], ts.col = 13, ic.col = 4, unitConverter = 0.1,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.1, 0.001, 0.1),
                                             series=c(0.1, 0.001, 0.01, 0.1),
                                             feedback=c(0.1, 0.001, 0.1, 0.01)))

```

```

## [1] "Haddix2011SSSJA; variable: C_NDakCul_35"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00673051687475557"
## [1] "AIC = -20.9998862140413"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.129963300439319"
## [2] "k2= 0.00444303827892964"
## [3] "proportion of CO in pool 1= 0.0955532435324784"
## [1] "AIC = -17.8024727548598"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.129989864887884"
## [2] "k2= 0.00444322133652534"
## [3] "a21= 0.000118621606649993"
## [4] "Proportion of CO in pool 1= 0.0955666082027605"
## [1] "AIC = -15.8024727653843"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.129982924419173"
## [2] "k2= 0.0044431808262969"
## [3] "a21= 0.01161684261754"
## [4] "a12= 0.000213050535907422"
## [5] "Proportion of CO in pool 1= 0.0967256194874765"

```



```
##  
##
```

```

## |model          |k1      |k2      |COInp1 |a21      |a12      |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.00673 |NA      |NA      |NA      |NA      |
## |Two-pool parallel |0.13    |0.00444 |0.0956 |NA      |NA      |
## |Two-pool series   |0.13    |0.00444 |0.0956 |0.000119 |NA      |
## |Two-pool feedback  |0.13    |0.00444 |0.0967 |0.0116   |0.0956 |
##
##
## |model          |AIC     |BIC     |AICn    |AICc     |wi      |MeanTrT |q05     |SSR      |MSR      |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-21     |-20.4   |-147    |-20.6    |0.934   |2.8     |NA      |0.000132 |1.01e-05 |
## |Two-pool parallel |-17.8  |-16.1   |-149    |-15.1    |0.0597  |60.8    |8.09   |18.82e-05 |6.78e-06 |
## |Two-pool series    |-15.8  |-13.5   |-147    |-10.8    |0.00683 |7.72   |5.33   |18.82e-05 |6.78e-06 |
## |Two-pool feedback   |-13.8  |-11     |-145    |-5.23    |0.000422 |10.3   |5.42   |18.82e-05 |6.78e-06 |

```

Dataset NeffHooper2002

Variable CO2_Fair_30;

CO2 Flux of Fairbanks soils incubated at 30deg

```

Nethooper_V2= modelFitTS_Markdown(db = db[[19]], ts.col = 2, ic.col = 2, unitConverter = 10,
                                    inipars=list(oneP=0.5,
                                                 parallel=c(0.01, 0.001, 0.01),
                                                 series=c(0.01, 0.00001, 0.01, 0.01),
                                                 feedback=c(0.01, 0.00001, 0.01, 0.01, 0.05)))

```

```

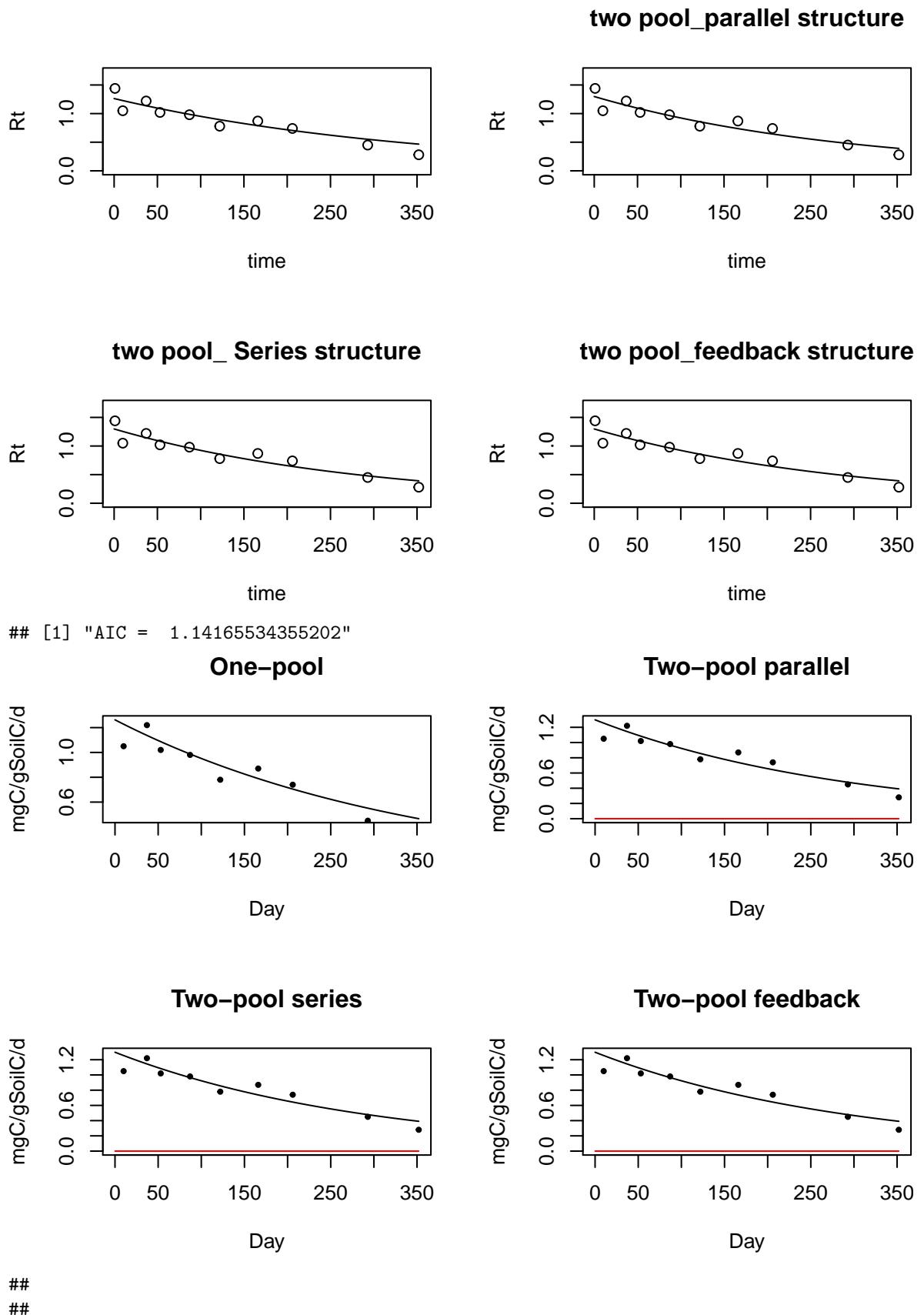
## [1] "NeffHooper2002; variable: CO2_Fair_30"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00282996189182505"

## [1] "AIC = -6.51953466687475"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00340652739445484"
## [2] "k2= 7.2322143484134e-13"
## [3] "proportion of C0 in pool 1= 0.854155990974105"

## [1] "AIC = -2.85834513152239"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00340652692365376"
## [2] "k2= 7.28543500003743e-12"
## [3] "a21= 1.3760989359124e-06"
## [4] "Proportion of C0 in pool 1= 0.85415714867035"

## [1] "AIC = -0.858345131228635"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.003406529490734"
## [2] "k2= 1.0702022806556e-08"
## [3] "a21= 0.000155056436091483"
## [4] "a12= 1.27508708497315e-06"
## [5] "Proportion of C0 in pool 1= 0.854287444004229"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|0.00283|NA|NA|NA|NA|
## |Two-pool parallel|0.00341|7.23e-13|0.854|NA|NA|
## |Two-pool series|0.00341|7.29e-12|0.854|1.38e-06|NA|
## |Two-pool feedback|0.00341|1.07e-08|0.854|0.000155|0.854|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:---|:-----|:-----|
## |One-pool|-6.52|-6.22|-40.6|-6.02|0.972|446|NA|0.141|0.0141|
## |Two-pool parallel|-2.86|-1.95|-38.3|1.14|0.0271|344|203|0.119|0.0119|
## |Two-pool series|-0.858|0.352|-36.3|7.14|0.00135|189000|203|0.119|0.0119|
## |Two-pool feedback|1.14|2.65|-34.3|16.1|1.5e-05|14800|204|0.119|0.0119|

```

Variable CO2_Chan_30;

CO2 Flux of Chandalar soils incubated at 30deg

```

NetHooper_V3= modelFitTS_Markdown(db = db[[19]], ts.col = 3, ic.col = 3, unitConverter = 10,
                                    inipars=list(oneP=0.5,
                                                 parallel=c(0.01, 0.001, 0.1),
                                                 series=c(0.05, 0.0001, 0.01, 0.1),
                                                 feedback=c(0.01, 0.0001, 0.01, 0.01)))

```

```

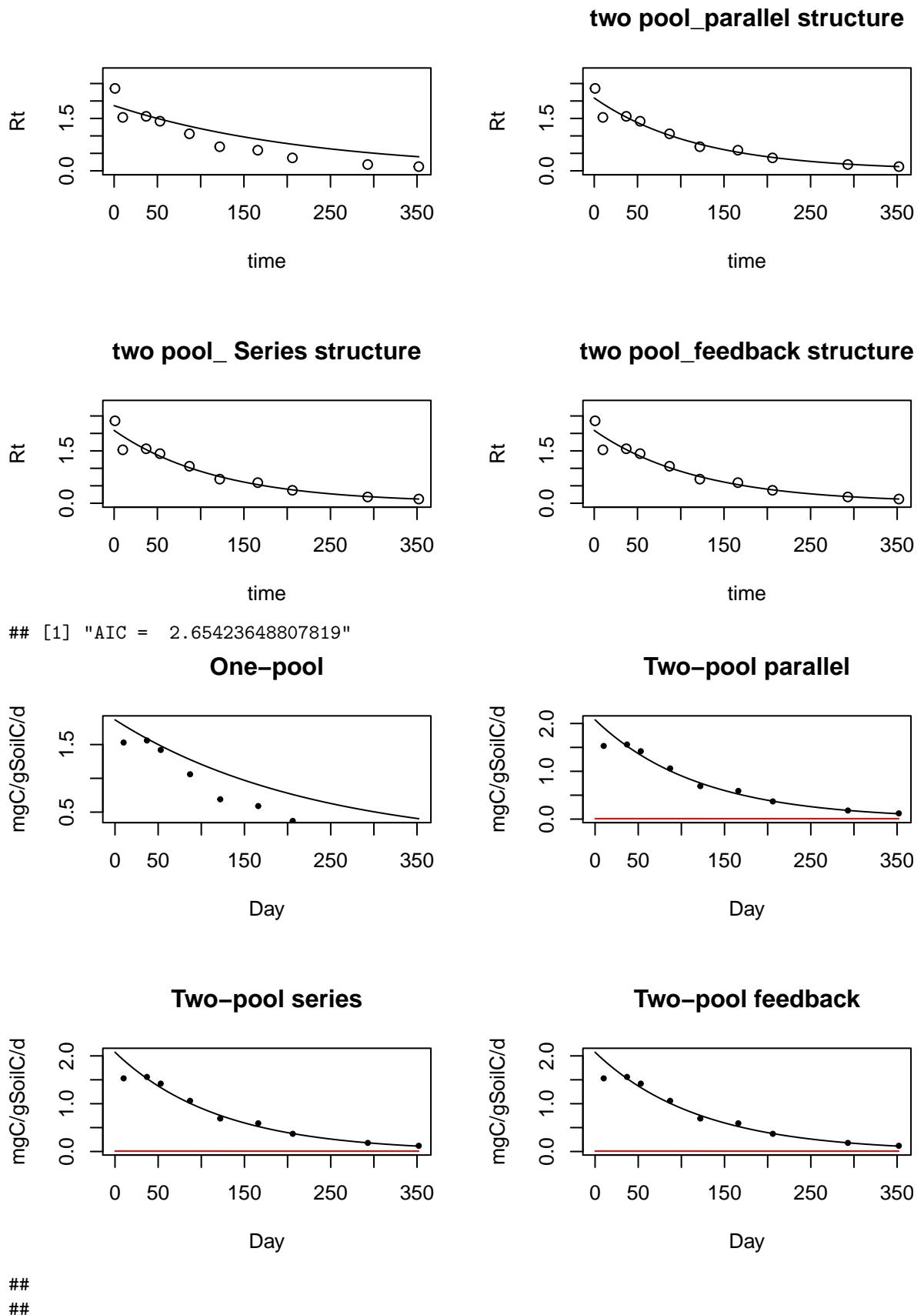
## [1] "NeffHooper2002; variable: CO2_Chan_30"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00435517124449625"

## [1] "AIC = -2.63724618002183"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00830173526897007"
## [2] "k2= 4.99037691664537e-05"
## [3] "proportion of CO in pool 1= 0.583782588382955"

## [1] "AIC = -1.3457635119217"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00830173187128849"
## [2] "k2= 4.99019535237434e-05"
## [3] "a21= 1.83664622346313e-05"
## [4] "Proportion of CO in pool 1= 0.583793573286207"

## [1] "AIC = 0.654236488082112"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00830173233790673"
## [2] "k2= 4.99021264131247e-05"
## [3] "a21= 3.09011294818973e-06"
## [4] "a12= 3.56637169478535e-05"
## [5] "Proportion of CO in pool 1= 0.583784747590498"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00436|NA|NA|NA|NA|
## |Two-pool parallel|0.0083|4.99e-05|0.584|NA|NA|
## |Two-pool series|0.0083|4.99e-05|0.584|1.84e-05|NA|
## |Two-pool feedback|0.0083|4.99e-05|0.584|3.09e-06|0.584|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-2.64|-2.33|-21.2|-2.14|0.913|428|NA|0.984|0.0984|
## |Two-pool parallel|-1.35|-0.438|-30.7|2.65|0.0832|205|84|0.254|0.0254|
## |Two-pool series|0.654|1.86|-28.7|8.65|0.00414|121|83.5|0.254|0.0254|
## |Two-pool feedback|2.65|4.17|-26.7|17.7|4.6e-05|121|83.5|0.254|0.0254|

```

Variable CO2_Too_30;

CO2 Flux of Toolik Lake soils incubated at 30deg

```

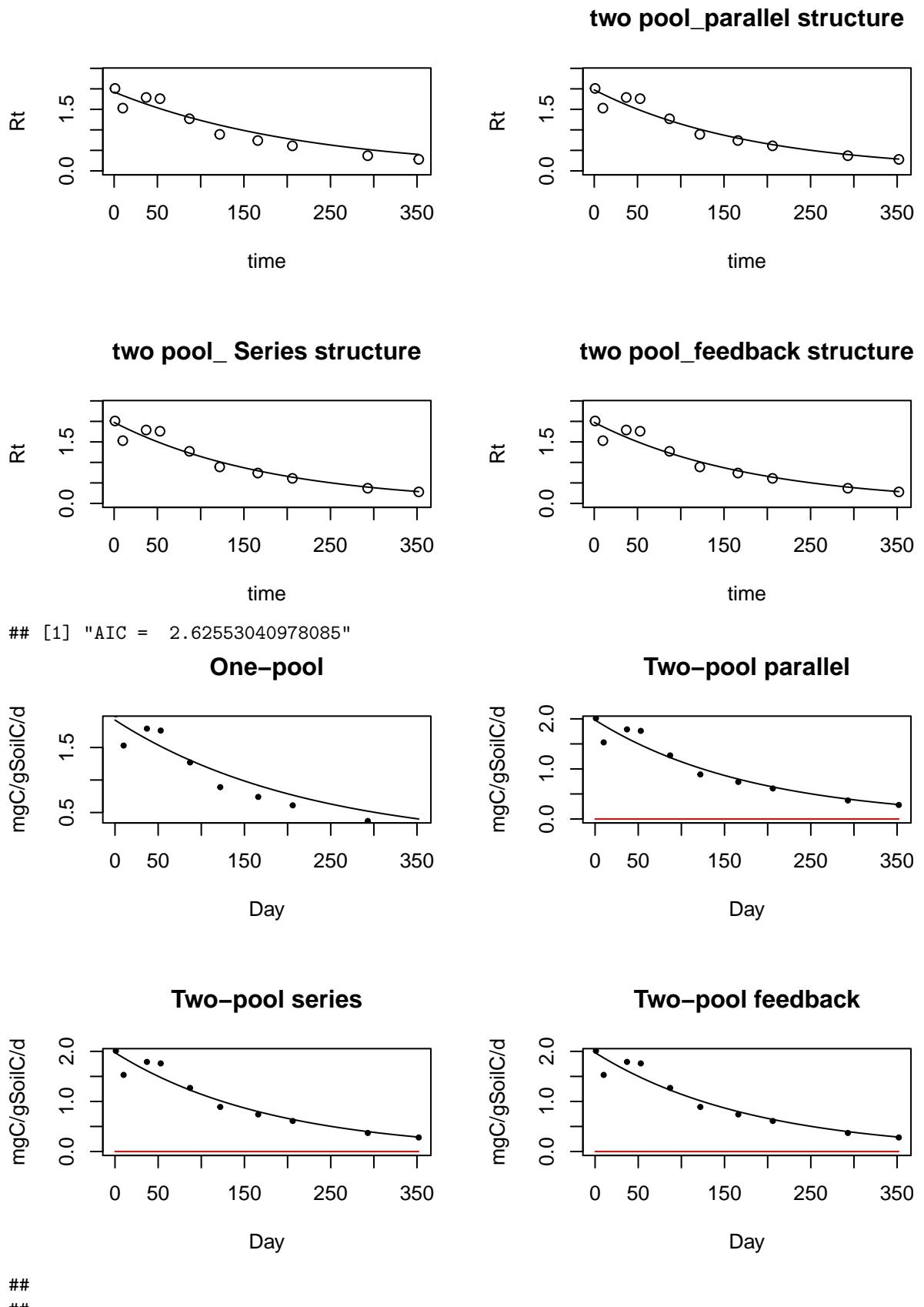
NetHooper_V4= modelFitTS_Markdown(db = db[[19]], ts.col = 4, ic.col = 4, unitConverter = 10,
                                    inipars=list(oneP=0.5,
                                                 parallel=c(0.01, 0.001, 0.1),
                                                 series=c(0.05, 0.0001, 0.01, 0.1),
                                                 feedback=c(0.01, 0.0001, 0.01, 0.01)))

```

```

## [1] "NeffHooper2002; variable: CO2_Too_30"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00445430027158977"
## [1] "AIC = -4.79477988221544"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00547121721686497"
## [2] "k2= 2.99964731892586e-12"
## [3] "proportion of CO in pool 1= 0.837160375956941"
## [1] "AIC = -1.37448877033818"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00547121323503841"
## [2] "k2= 3.34028939585593e-09"
## [3] "a21= 0.00161528790731219"
## [4] "Proportion of CO in pool 1= 0.838510517381541"
## [1] "AIC = 0.625511391405791"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00547135439053624"
## [2] "k2= 4.0546938298538e-07"
## [3] "a21= 0.000164357660082382"
## [4] "a12= 0.993169347872421"
## [5] "Proportion of CO in pool 1= 0.837278012852619"

```



```

## |model          |k1        |k2        |COInp1 |a21       |a12      |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-0.00445 |NA        |NA      |NA        |NA        |
## |Two-pool parallel|0.00547 |3e-12    |0.837   |NA        |NA        |
## |Two-pool series |0.00547 |3.34e-09|0.839   |0.00162  |NA        |
## |Two-pool feedback|0.00547 |4.05e-07|0.837   |0.000164 |0.839   |
##
##
## |model          |AIC      |BIC      |AICn     |AICc      |wi       |MeanTrT |q05     |SSR      |MSR      |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-4.79    |-4.49    |-32      |-4.29    |0.968   |431     |NA      |0.335   |0.0335  |
## |Two-pool parallel|-1.37    |-0.467   |-30.9    |2.63     |0.0304  |218     |127     |0.25    |0.025   |
## |Two-pool series |0.626   |1.84     |-28.9    |8.63     |0.00151 |484000 |127     |0.25    |0.025   |
## |Two-pool feedback|2.63    |4.14     |-26.9    |17.6    |1.68e-05|588     |127     |0.25    |0.025

```

Variable CO2_Sag_30;

CO2 Flux of Sagwon soils incubated at 30deg

```

NetHooper_V5= modelFitTS_Markdown(db = db[[19]], ts.col = 5, ic.col = 7, unitConverter = 10)

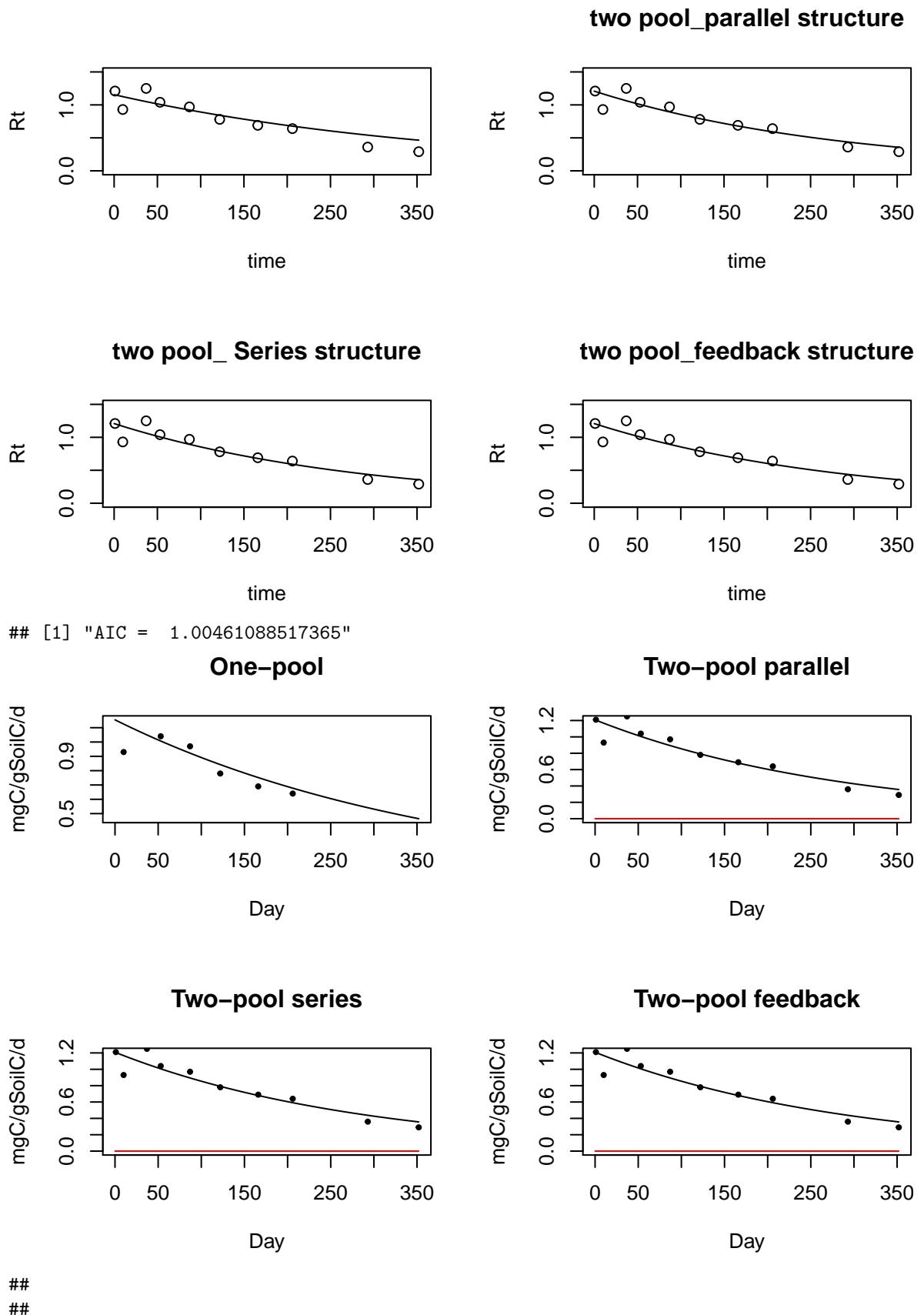
## [1] "NeffHooper2002; variable: CO2_Sag_30"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00258737373703255"

## [1] "AIC = -6.30106644137066"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00346767981356344"
## [2] "k2= 9.03921679400822e-11"
## [3] "proportion of CO in pool 1= 0.780720884903023"

## [1] "AIC = -2.99539147618225"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0034676808496077"
## [2] "k2= 1.92866522260162e-18"
## [3] "a21= 1.31770885346549e-05"
## [4] "Proportion of CO in pool 1= 0.780729662499856"

## [1] "AIC = -0.995391485675896"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00346768798101175"
## [2] "k2= 2.1680237427581e-08"
## [3] "a21= 0.00806114566118521"
## [4] "a12= 2.76397143017526e-06"
## [5] "Proportion of CO in pool 1= 0.787060130680808"

```



```
##  
##
```

```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.00259|NA|NA|NA|NA|
## |Two-pool parallel|0.00347|9.04e-11|0.781|NA|NA|
## |Two-pool series|0.00347|1.93e-18|0.781|1.32e-05|NA|
## |Two-pool feedback|0.00347|2.17e-08|0.787|0.00806|0.781|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:-----|:---|:---|:---|
## |One-pool|-6.3|-6|-39.5|-5.8|0.966|446|NA|0.158|0.0158|
## |Two-pool parallel|-3|-2.09|-39|1|0.0322|369|200|0.111|0.0111|
## |Two-pool series|-0.995|0.215|-37|7|0.0016|6.83e+12|200|0.111|0.0111|
## |Two-pool feedback|1|2.52|-35|16|1.78e-05|372000|202|0.111|0.0111|

```

Variable CO2_Fair_10;

CO2 Flux of Fairbanks soils incubated at 10deg

```

##
Nethooper_V6= modelFitTS_Markdown(db = db[[19]], ts.col = 6, ic.col = 2, unitConverter = 10)

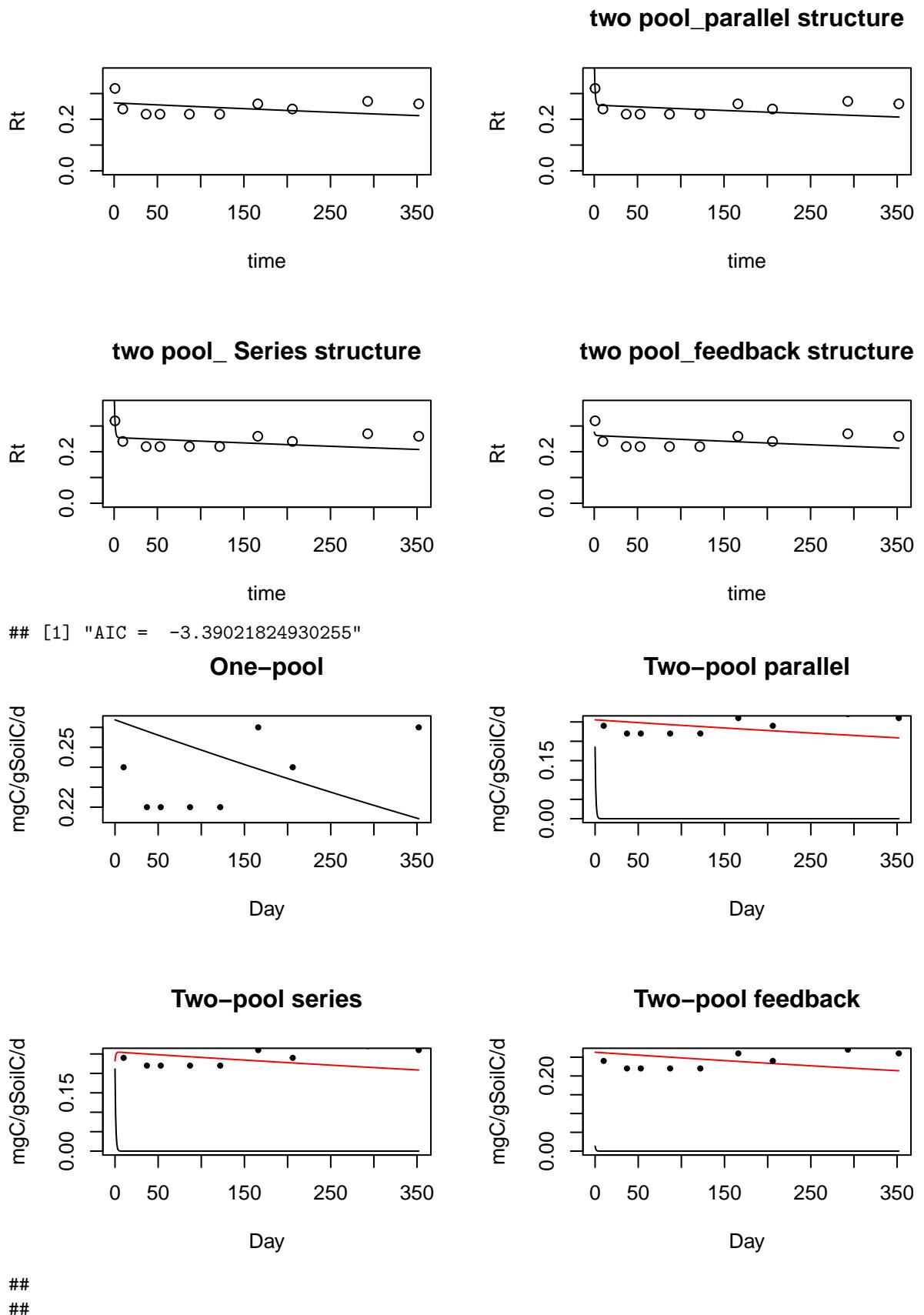
## [1] "NeffHooper2002; variable: CO2_Fair_10"
## [1] "One pool model"
## [1] "Best fit parameter: 0.000591170061905899"

## [1] "AIC = -11.3115219627325"
## [1] "Two pool model-parallel structure"
## [1] "k1= 1.14083597253487"
## [2] "k2= 0.000572717257602006"
## [3] "proportion of C0 in pool 1= 0.000363271940456433"

## [1] "AIC = -7.97954445750539"
## [1] "Two pool model-Series structure"
## [1] "k1= 1.13874820801039"
## [2] "k2= 0.000572366937541497"
## [3] "a21= 0.995437196648395"
## [4] "Proportion of C0 in pool 1= 0.0911384145340213"

## [1] "AIC = -5.97982602434811"
## [1] "Two pool model-feedback structure"
## [1] "k1= 1.13722394078202"
## [2] "k2= 0.000589837208900386"
## [3] "a21= 2.48654763145284e-05"
## [4] "a12= 6.74523638388713e-07"
## [5] "Proportion of C0 in pool 1= 2.60707176160113e-05"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|0.000591|NA|NA|NA|NA|
## |Two-pool parallel|1.14|0.000573|0.000363|NA|NA|
## |Two-pool series|1.14|0.000572|0.0911|0.995|NA|
## |Two-pool feedback|1.14|0.00059|2.61e-05|2.49e-05|0.0911|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-11.3|-11|-64.6|-10.8|0.967|446|NA|0.0129|0.00129|
## |Two-pool parallel|-7.98|-7.07|-63.9|-3.98|0.0317|1010|259|0.00921|0.000921|
## |Two-pool series|-5.98|-4.77|-61.9|2.02|0.00158|1740|1200|0.00921|0.000921|
## |Two-pool feedback|-3.39|-1.88|-57|11.6|1.31e-05|0.921|0.61|0.0124|0.00124|

```

Variable CO2_Chan_10;

CO2 Flux of Chandalar soils incubated at 10deg

```
Nethooper_V7 = modelFitTS_Markdown(db = db[[19]], ts.col = 7, ic.col = 3, unitConverter = 10)
```

```

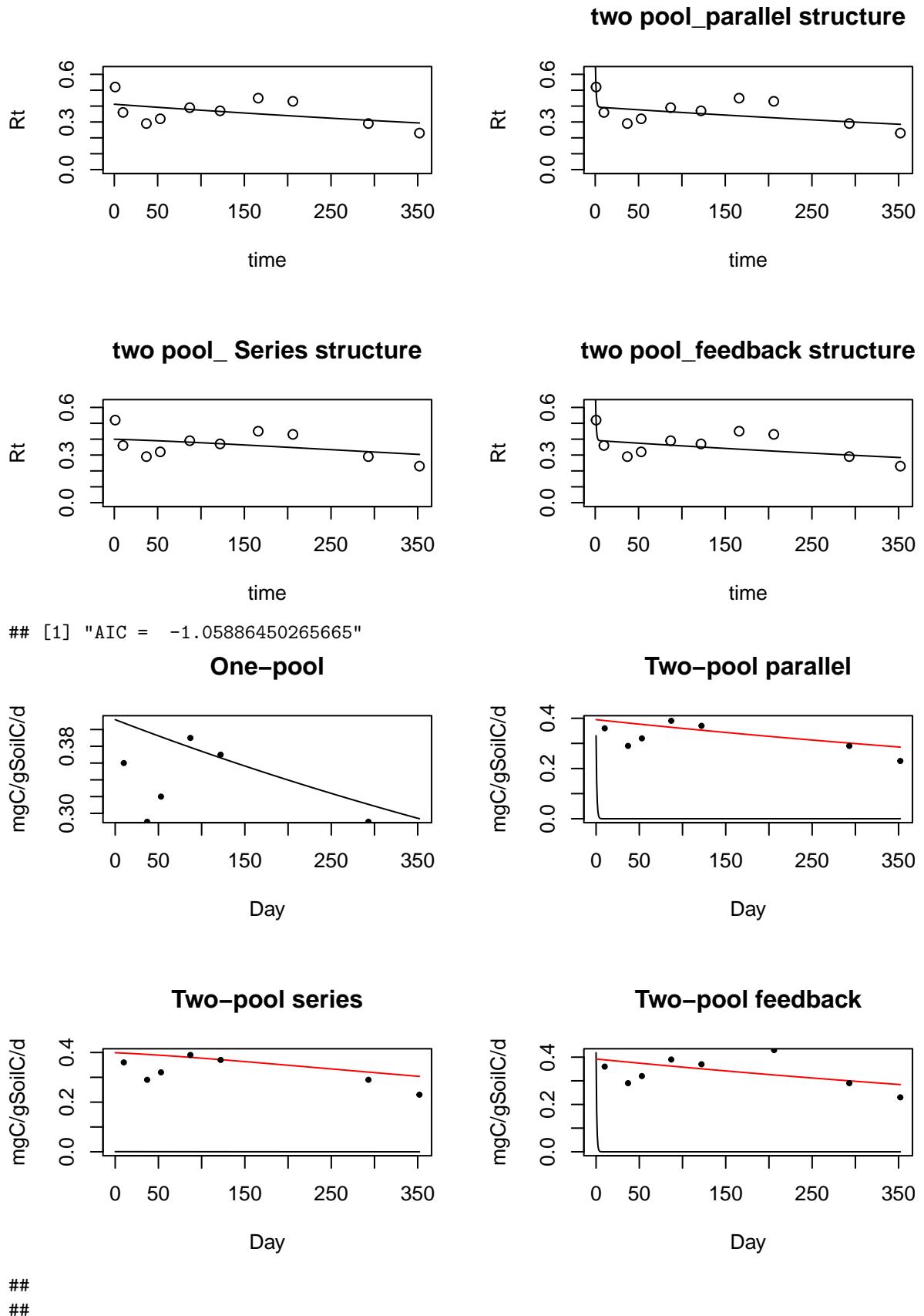
## [1] "NeffHooper2002; variable: CO2_Chan_10"
## [1] "One pool model"
## [1] "Best fit parameter: 0.000960952200690812"

## [1] "AIC = -8.45725697534865"
## [1] "Two pool model-parallel structure"
## [1] "k1= 1.14802813127432"
## [2] "k2= 0.000921256983458107"
## [3] "proportion of CO in pool 1= 0.00067197807944791"

## [1] "AIC = -5.04908771996605"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00748946476316104"
## [2] "k2= 0.00100795116093573"
## [3] "a21= 0.997452931784446"
## [4] "Proportion of CO in pool 1= 0.0759206477190379"

## [1] "AIC = -2.48137557739767"
## [1] "Two pool model-feedback structure"
## [1] "k1= 1.27022532619793"
## [2] "k2= 0.000916086502097438"
## [3] "a21= 0.861193668206007"
## [4] "a12= 8.82505288632429e-05"
## [5] "Proportion of CO in pool 1= 0.0055425686702929"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|0.000961|NA|NA|NA|NA|
## |Two-pool parallel|1.15|0.000921|0.000672|NA|NA|
## |Two-pool series|0.00749|0.00101|0.0759|0.997|NA|
## |Two-pool feedback|1.27|0.000916|0.00554|0.861|0.0759|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-8.46|-8.15|-50.3|-7.96|0.968|428|NA|0.0536|0.00536|
## |Two-pool parallel|-5.05|-4.14|-49.2|-1.05|0.0306|591|91.7|0.0399|0.00399|
## |Two-pool series|-2.48|-1.27|-44.4|5.52|0.00115|1120|828|0.053|0.0053|
## |Two-pool feedback|-1.06|0.454|-45.3|13.9|1.7e-05|941|594|0.0397|0.00397|

```

Variable CO2_Sag_10;

CO2 Flux of Sagwon soils incubated at 10deg

```

NetHooper_V9= modelFitTS_Markdown(db = db[[19]], ts.col = 9, ic.col = 7, unitConverter = 10)

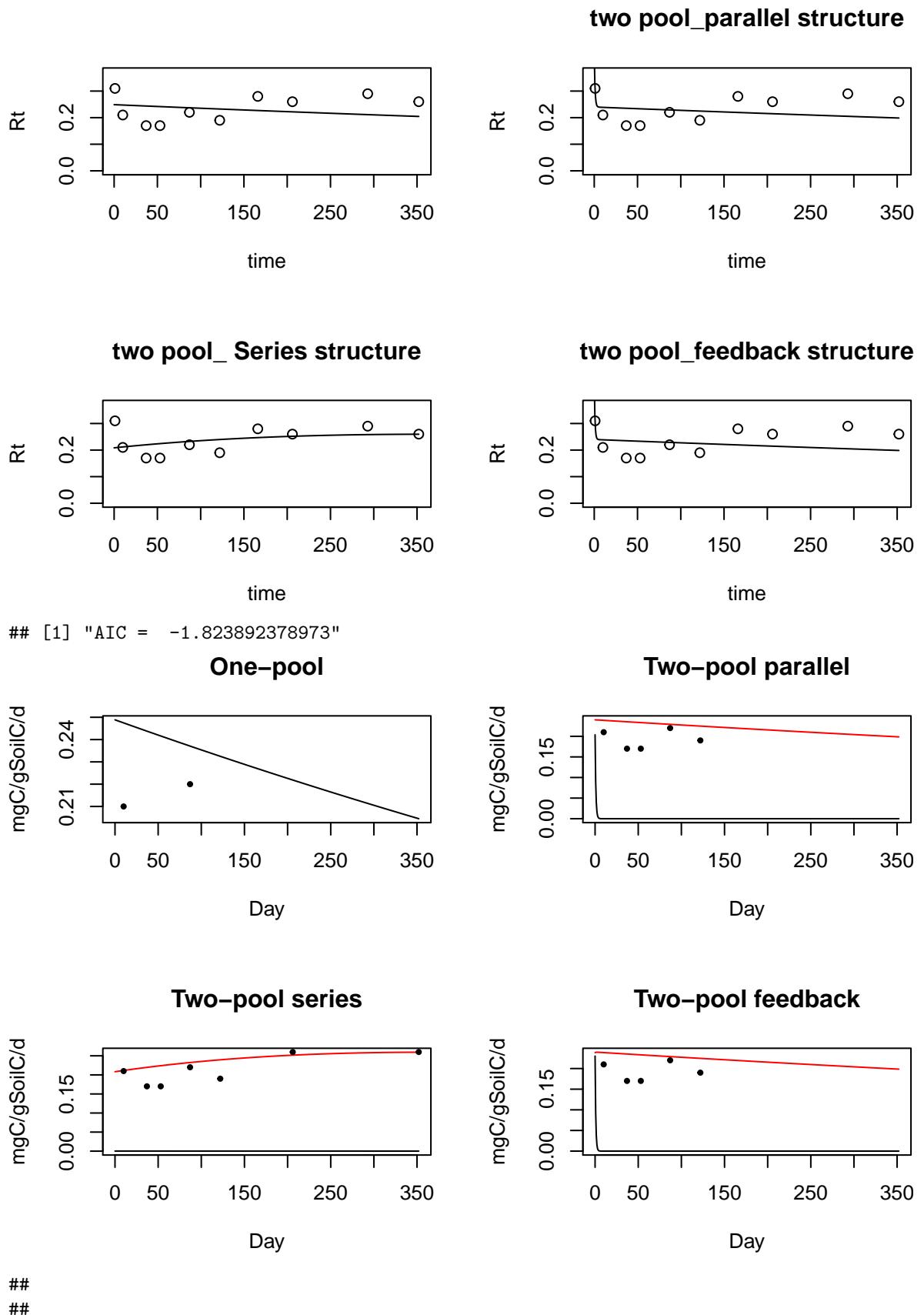
## [1] "NeffHooper2002; variable: CO2_Sag_10"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0005574827703132"

## [1] "AIC = -9.52895418890783"
## [1] "Two pool model-parallel structure"
## [1] "k1= 1.15794204142952"
## [2] "k2= 0.000537930714891926"
## [3] "proportion of CO in pool 1= 0.000394234991664133"

## [1] "AIC = -5.82380335966976"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00144984699075584"
## [2] "k2= 0.00144983203224256"
## [3] "a21= 0.999512843890927"
## [4] "Proportion of CO in pool 1= 0.678153794612704"

## [1] "AIC = -4.3817602244931"
## [1] "Two pool model-feedback structure"
## [1] "k1= 1.27118402858565"
## [2] "k2= 0.000537682786144492"
## [3] "a21= 0.941449278140383"
## [4] "a12= 0.000146144508502588"
## [5] "Proportion of CO in pool 1= 0.00692864554416689"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|0.000557|NA|NA|NA|NA|
## |Two-pool parallel|1.16|0.000538|0.000394|NA|NA|
## |Two-pool series|0.00145|0.00145|0.678|1|NA|
## |Two-pool feedback|1.27|0.000538|0.00693|0.941|0.678|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-9.53|-9.23|-55.6|-9.03|0.972|446|NA|0.0314|0.00314|
## |Two-pool parallel|-5.82|-4.92|-53.1|-1.82|0.0265|1010|146|0.0271|0.00271|
## |Two-pool series|-4.38|-3.17|-53.9|3.62|0.00174|1380|1160|0.0205|0.00205|
## |Two-pool feedback|-1.82|-0.311|-49.1|13.2|1.46e-05|1750|1180|0.0271|0.00271|

```

Variable CO2_FairTuss_30;

CO2 Flux of Fairbanks soils incubated at 10deg

```

Nethooper_V10= modelFitTS_Markdown(db = db[[19]], ts.col = 10, ic.col = 2, unitConverter = 10,
                                     inipars=list(oneP=0.5,
                                                 parallel=c(0.01, 0.001, 0.1),
                                                 series=c(0.01, 0.0001, 0.01, 0.1),
                                                 feedback=c(0.01, 0.001, 0.01, 0.01, 0.1)))

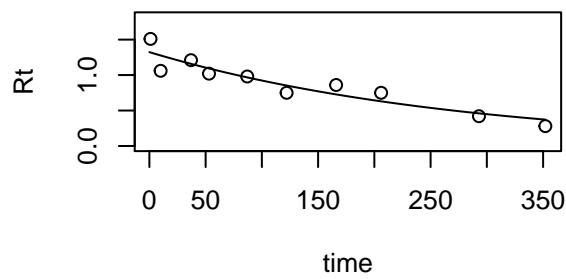
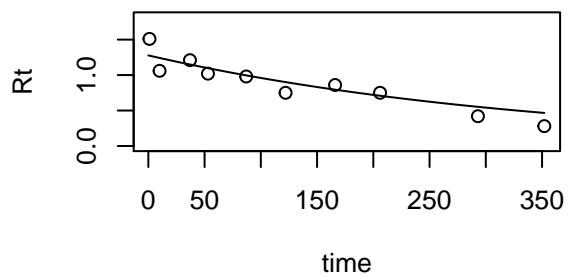
```

```

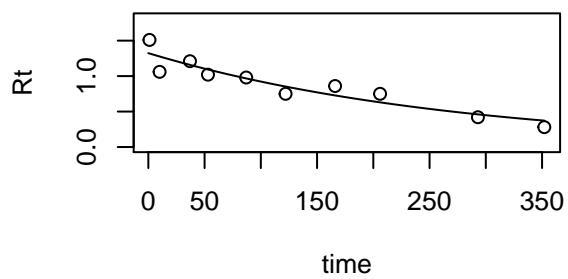
## [1] "NeffHooper2002; variable: CO2_FairTuss_30"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0028628696876023"
## [1] "AIC = -6.0383834506853"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00360506851388163"
## [2] "k2= 1.31615084135274e-13"
## [3] "proportion of CO in pool 1= 0.822753615750975"
## [1] "AIC = -2.47620751789857"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00360507180293347"
## [2] "k2= 9.96919858976937e-09"
## [3] "a21= 0.00040287281615442"
## [4] "Proportion of CO in pool 1= 0.823083028873616"
## [1] "AIC = -0.476207168222833"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00360508633908426"
## [2] "k2= 5.32557316552129e-08"
## [3] "a21= 0.000318693622608557"
## [4] "a12= 5.51551202928602e-05"
## [5] "Proportion of CO in pool 1= 0.823009155720176"

```

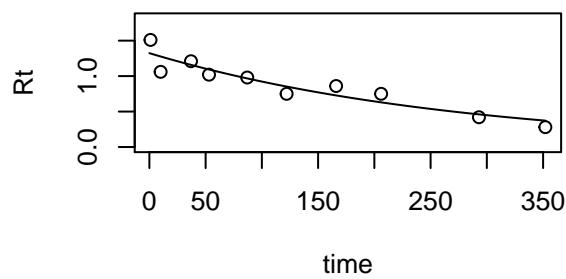
two pool_parallel structure



two pool_Series structure

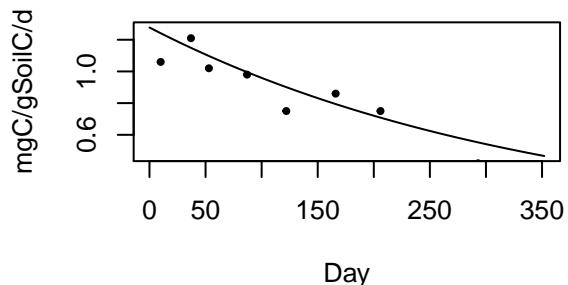


two pool_feedback structure

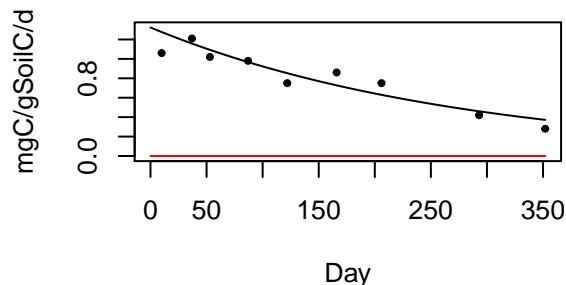


```
## [1] "AIC = 1.52379434920231"
```

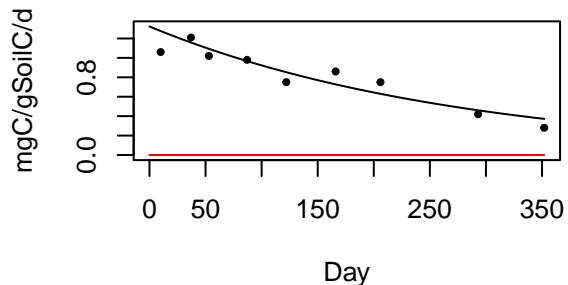
One-pool



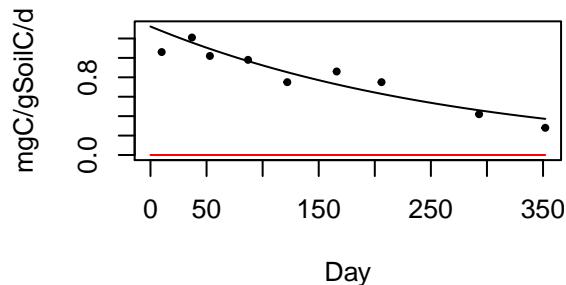
Two-pool parallel



Two-pool series



Two-pool feedback



```
##  
##
```

```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|0.00286|NA|NA|NA|NA|
## |Two-pool parallel|0.00361|1.32e-13|0.823|NA|NA|
## |Two-pool series|0.00361|9.97e-09|0.823|0.000403|NA|
## |Two-pool feedback|0.00361|5.33e-08|0.823|0.000319|0.823|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-6.04|-5.74|-38.2|-5.54|0.97|446|NA|0.18|0.018|
## |Two-pool parallel|-2.48|-1.57|-36.4|1.52|0.0284|337|192|0.144|0.0144|
## |Two-pool series|-0.476|0.734|-34.4|7.52|0.00141|40700|192|0.144|0.0144|
## |Two-pool feedback|1.52|3.04|-32.4|16.5|1.57e-05|6260|192|0.144|0.0144|

```

Variable CO2_FairSpru_30;

CO2 Flux of Fairbanks soils incubated at 10deg

```

Nethooper_V11= modelFitTS_Markdown(db = db[[19]], ts.col = 11, ic.col = 1, unitConverter = 10,
                                     inipars=list(oneP=0.5,
                                                 parallel=c(0.01, 0.001, 0.1),
                                                 series=c(0.05, 0.0001, 0.01, 0.1),
                                                 feedback=c(0.05, 0.0001, 0.01, 0.01)))

```

```

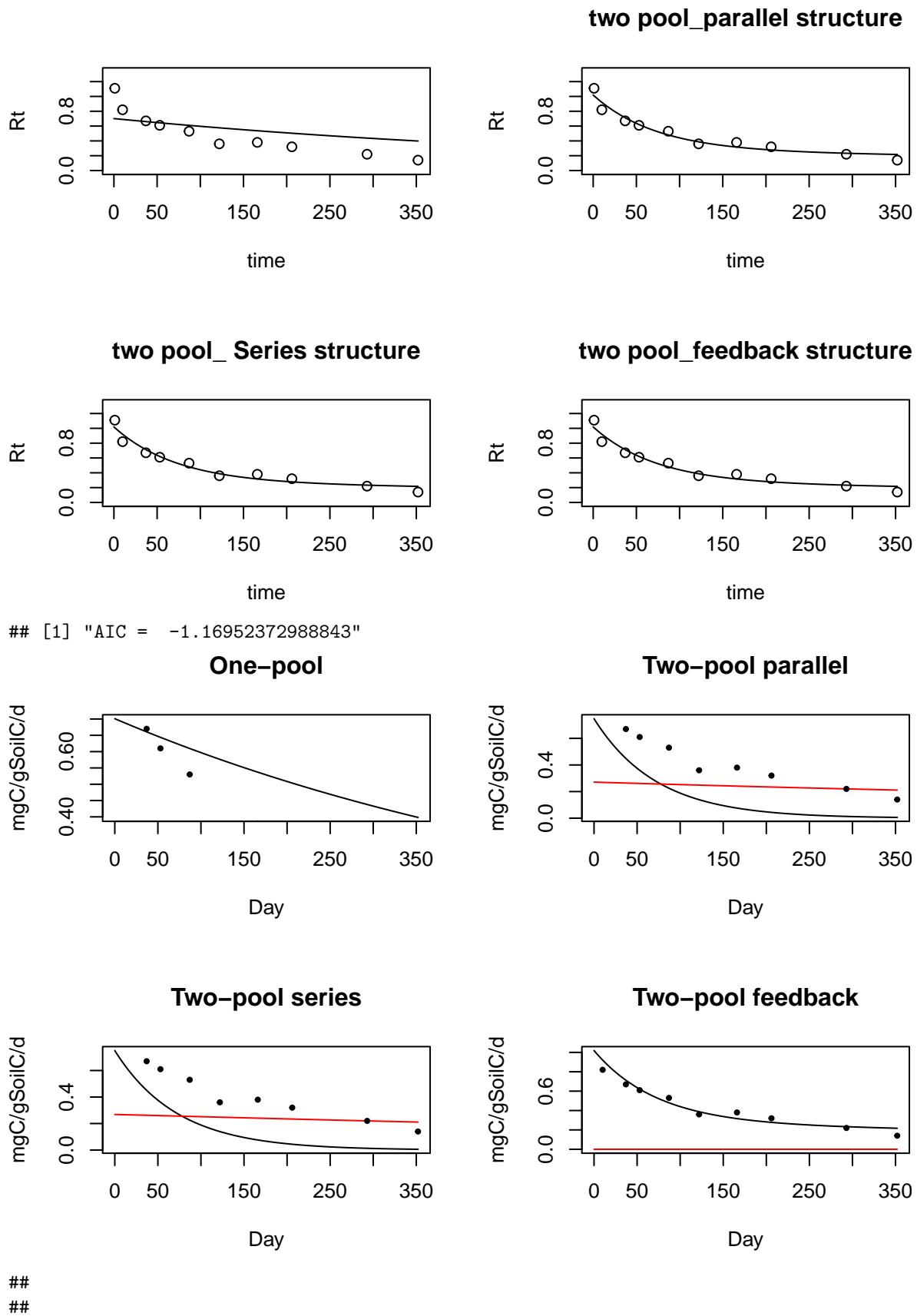
## [1] "NeffHooper2002; variable: CO2_FairSpru_30"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00160595158243559"

## [1] "AIC = -4.37859705660741"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0137963574125607"
## [2] "k2= 0.000708831045204358"
## [3] "proportion of CO in pool 1= 0.12418271684091"

## [1] "AIC = -5.16952373628992"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0137968764154185"
## [2] "k2= 0.000708850204912635"
## [3] "a21= 0.0625830366980329"
## [4] "Proportion of CO in pool 1= 0.132947523545877"

## [1] "AIC = -3.16952373538479"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0137492397431484"
## [2] "k2= 0.000757002867191511"
## [3] "a21= 0.0603107848837692"
## [4] "a12= 0.999993687586094"
## [5] "Proportion of CO in pool 1= 0.180656457998744"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|0.00161|NA|NA|NA|NA|
## |Two-pool parallel|0.0138|0.000709|0.124|NA|NA|
## |Two-pool series|0.0138|0.000709|0.133|0.0626|NA|
## |Two-pool feedback|0.0137|0.000757|0.181|0.0603|0.133|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-4.38|-4.08|-29.9|-3.88|0.787|436|NA|0.412|0.0412|
## |Two-pool parallel|-5.17|-4.26|-49.8|-1.17|0.203|428|78.5|0.0375|0.00375|
## |Two-pool series|-3.17|-1.96|-47.8|4.83|0.0101|161|55.1|0.0375|0.00375|
## |Two-pool feedback|-1.17|0.343|-45.8|13.8|0.000112|162|55.2|0.0375|0.00375|

```

Variable CO2_TooTuss_30;

CO2 Flux of Fairbanks soils incubated at 10deg

```

Nethooper_V12= modelFitTS_Markdown(db = db[[19]], ts.col = 12, ic.col = 4, unitConverter = 10,
                                     inipars=list(oneP=0.5,
                                                 parallel=c(0.01, 0.001, 0.1),
                                                 series=c(0.05, 0.0001, 0.01, 0.1),
                                                 feedback=c(0.01, 0.001, 0.01, 0.01)))

```

```

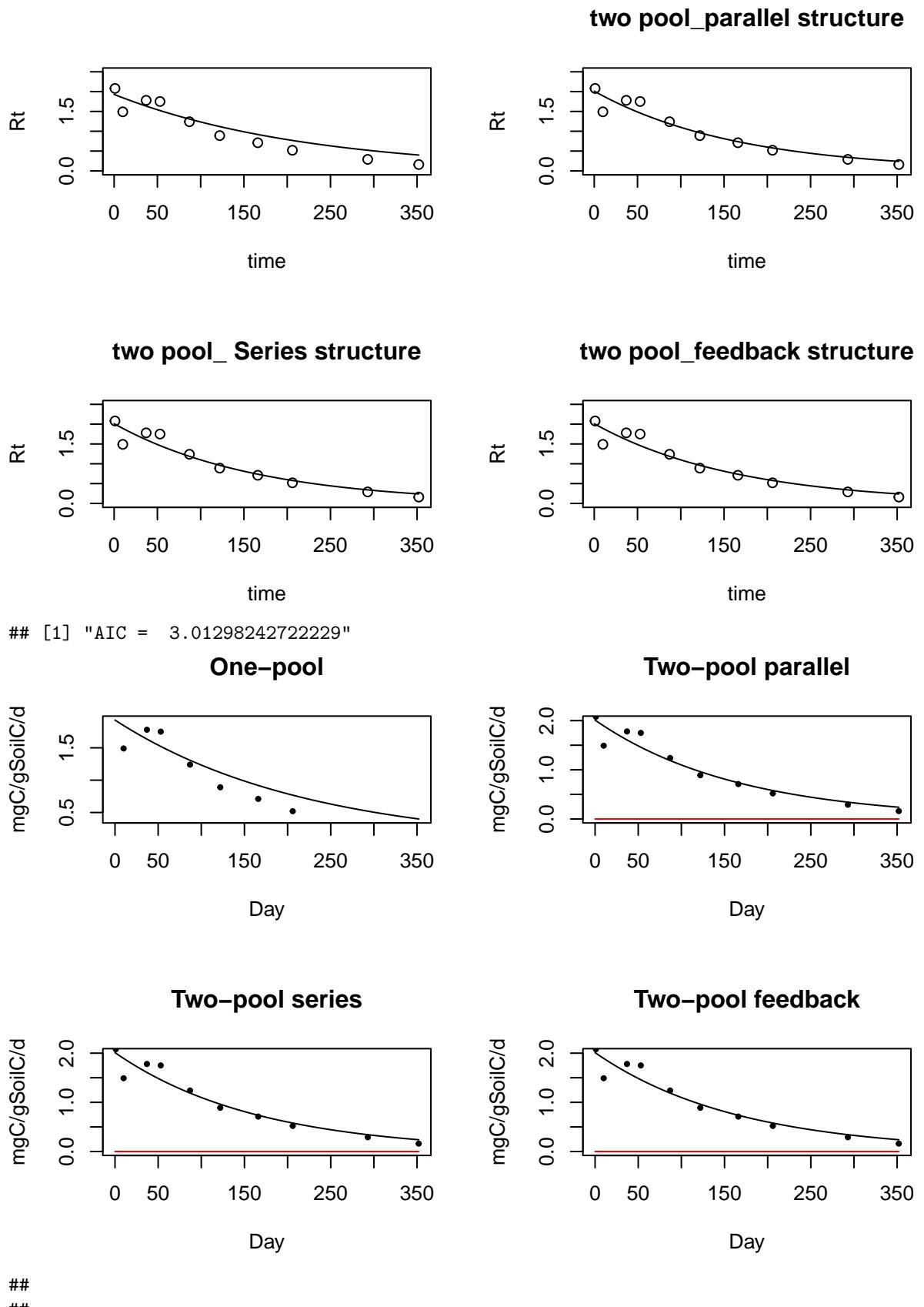
## [1] "NeffHooper2002; variable: CO2_TooTuss_30"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00447206172074566"

## [1] "AIC = -4.00684822137856"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00604860844834223"
## [2] "k2= 2.88729989267623e-12"
## [3] "proportion of CO in pool 1= 0.770831908882579"

## [1] "AIC = -0.987017622170018"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00604860950519125"
## [2] "k2= 9.25851786769527e-09"
## [3] "a21= 0.00156809517594392"
## [4] "Proportion of CO in pool 1= 0.772040886353123"

## [1] "AIC = 1.01298354627253"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00604860578980392"
## [2] "k2= 3.92235624427197e-10"
## [3] "a21= 5.69325820333755e-05"
## [4] "a12= 0.99998215449408"
## [5] "Proportion of CO in pool 1= 0.770874824894638"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00447|NA|NA|NA|NA|
## |Two-pool parallel|0.00605|2.89e-12|0.771|NA|NA|
## |Two-pool series|0.00605|9.26e-09|0.772|0.00157|NA|
## |Two-pool feedback|0.00605|3.92e-10|0.771|5.69e-05|0.772|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-4.01|-3.7|-28|-3.51|0.961|431|NA|0.496|0.0496|
## |Two-pool parallel|-0.987|-0.0793|-28.9|3.01|0.0369|214|115|0.304|0.0304|
## |Two-pool series|1.01|2.22|-26.9|9.01|0.00184|170000|115|0.304|0.0304|
## |Two-pool feedback|3.01|4.53|-24.9|18|2.04e-05|145000|115|0.304|0.0304|

```

Variable CO2_TooWet_30;

CO2 Flux of Toolik Lake soils incubated at 10deg

```

Nethooper_V13= modelFitTS_Markdown(db = db[[19]], ts.col = 13, ic.col = 6, unitConverter = 10,
                                     inipars=list(oneP=0.5,
                                                 parallel=c(0.01, 0.001, 0.1),
                                                 series=c(0.05, 0.0001, 0.01, 0.1),
                                                 feedback=c(0.01, 0.001, 0.01, 0.01)))

```

```

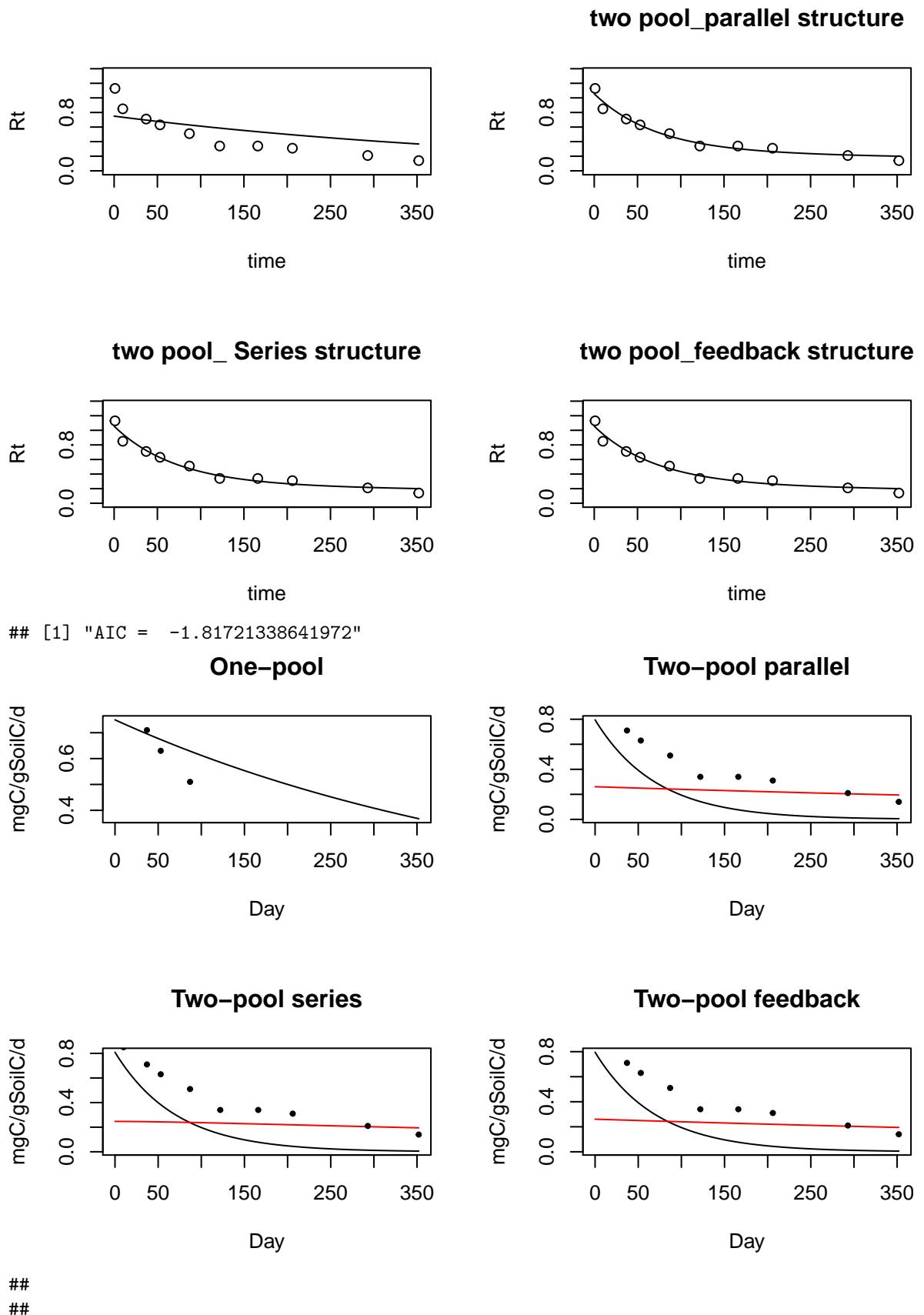
## [1] "NeffHooper2002; variable: CO2_TooWet_30"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00202419764395678"

## [1] "AIC = -4.43075813268474"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0141199530311996"
## [2] "k2= 0.000830715251307785"
## [3] "proportion of CO in pool 1= 0.152071417636296"

## [1] "AIC = -5.81721338680921"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.014120632449714"
## [2] "k2= 0.000830747821457996"
## [3] "a21= 0.216636994202605"
## [4] "Proportion of CO in pool 1= 0.197529282239993"

## [1] "AIC = -3.8172133768443"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0141201123743514"
## [2] "k2= 0.000830723626270603"
## [3] "a21= 0.00160142677552771"
## [4] "a12= 0.000505979976593685"
## [5] "Proportion of CO in pool 1= 0.152355330269443"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|0.00202|NA|NA|NA|NA|
## |Two-pool parallel|0.0141|0.000831|0.152|NA|NA|
## |Two-pool series|0.0141|0.000831|0.198|0.217|NA|
## |Two-pool feedback|0.0141|0.000831|0.152|0.0016|0.198|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-4.43|-4.13|-30.2|-3.93|0.733|370|NA|0.401|0.0401|
## |Two-pool parallel|-5.82|-4.91|-53.1|-1.82|0.255|351|73.3|0.0272|0.00272|
## |Two-pool series|-3.82|-2.61|-51.1|4.18|0.0127|332|70.9|0.0272|0.00272|
## |Two-pool feedback|-1.82|-0.304|-49.1|13.2|0.000141|72.7|49.2|0.0272|0.00272|

```

Variable CO2_TooShru_30;

CO2 Flux of Fairbanks soils incubated at 10deg

```

Nethooper_V14= modelFitTS_Markdown(db = db[[19]], ts.col = 14, ic.col = 5, unitConverter = 10,
                                     inipars=list(oneP=0.5,
                                                 parallel=c(0.01, 0.001, 0.1),
                                                 series=c(0.01, 0.0001, 0.01, 0.1),
                                                 feedback=c(0.01, 0.001, 0.01, 0.1, 0.1)))

```

```

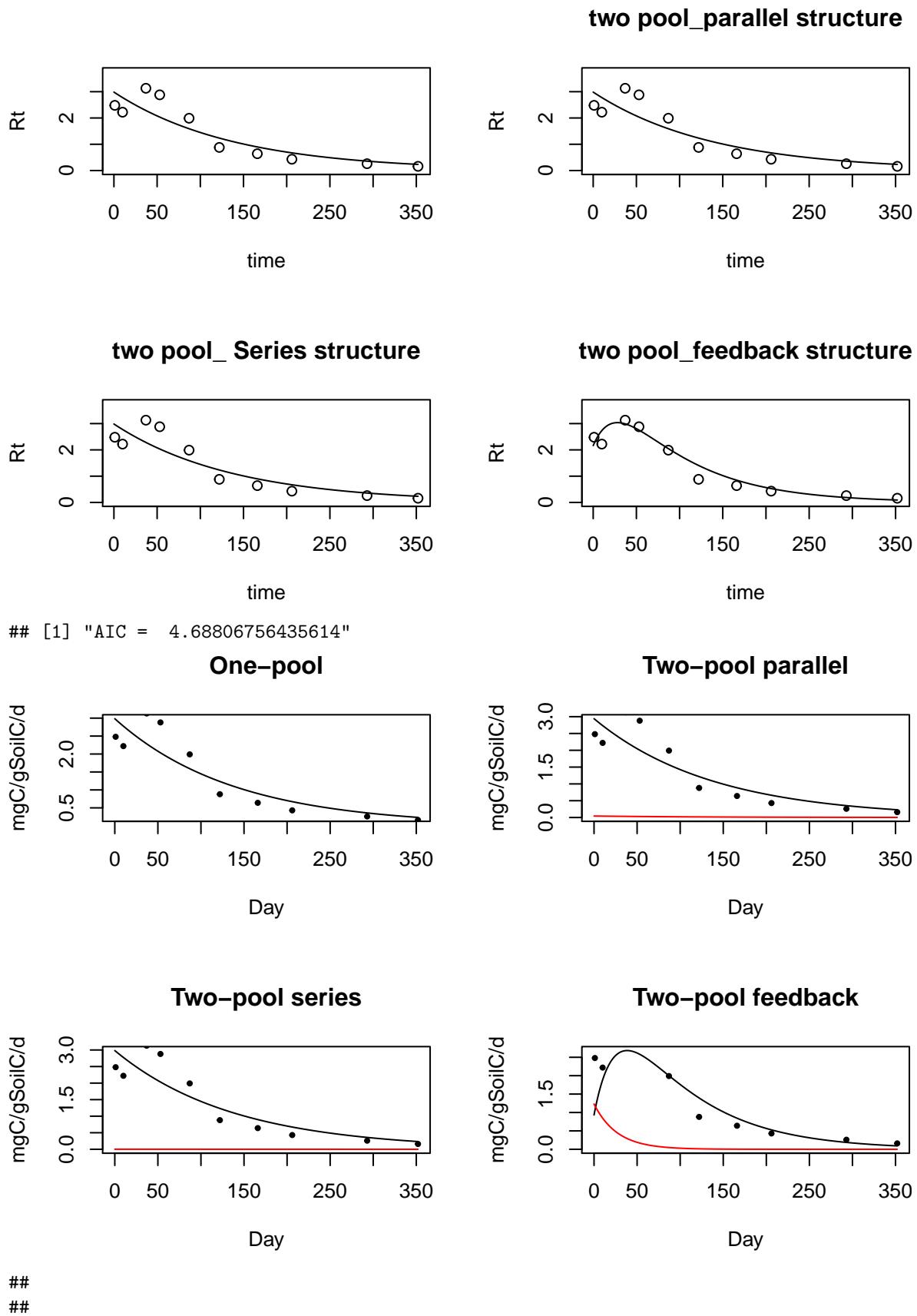
## [1] "NeffHooper2002; variable: CO2_TooShru_30"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00723331772796065"

## [1] "AIC = -0.853782888038007"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00723332219957851"
## [2] "k2= 0.00723301259961696"
## [3] "proportion of CO in pool 1= 0.985143287699674"

## [1] "AIC = 3.1462171119981"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0072334080041594"
## [2] "k2= 0.00734488209299154"
## [3] "a21= 1.91706401161951e-05"
## [4] "Proportion of CO in pool 1= 0.999372168804045"

## [1] "AIC = 5.14621692526934"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0119833960412033"
## [2] "k2= 0.0374233794380268"
## [3] "a21= 6.78824535046418e-05"
## [4] "a12= 0.90178447631674"
## [5] "Proportion of CO in pool 1= 0.18832050975986"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00723|NA|NA|NA|NA|
## |Two-pool parallel|0.00723|0.00723|0.985|NA|NA|
## |Two-pool series|0.00723|0.00734|0.999|1.92e-05|NA|
## |Two-pool feedback|0.012|0.0374|0.188|6.79e-05|0.999|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.854|-0.551|-12.3|-0.354|0.976|413|NA|2.4|0.24|
## |Two-pool parallel|3.15|4.05|-8.27|7.15|0.023|138|95.8|2.4|0.24|
## |Two-pool series|5.15|6.36|-6.27|13.1|0.00114|138|95.8|2.4|0.24|
## |Two-pool feedback|4.69|6.2|-16.6|19.7|4.34e-05|83.5|57.8|0.702|0.0702|

```

Dataset Rey2008EJSS

Variable CMin_Hain_0_5;

Carbon mineralization rates for the 0–5 cm soil layer at the Hainich site

```

Rey_V2= modelFitTS_Markdown(db = db[[22]], ts.col = 2, ic.col = 1, unitConverter = 1,
                             inipars=list(oneP=0.5,
                                         parallel=c(0.05, 0.001, 0.01),
                                         series=c(0.05, 0.001, 0.01, 0.01),
                                         feedback=c(0.05, 0.001, 0.01, 0.01)))

```

```

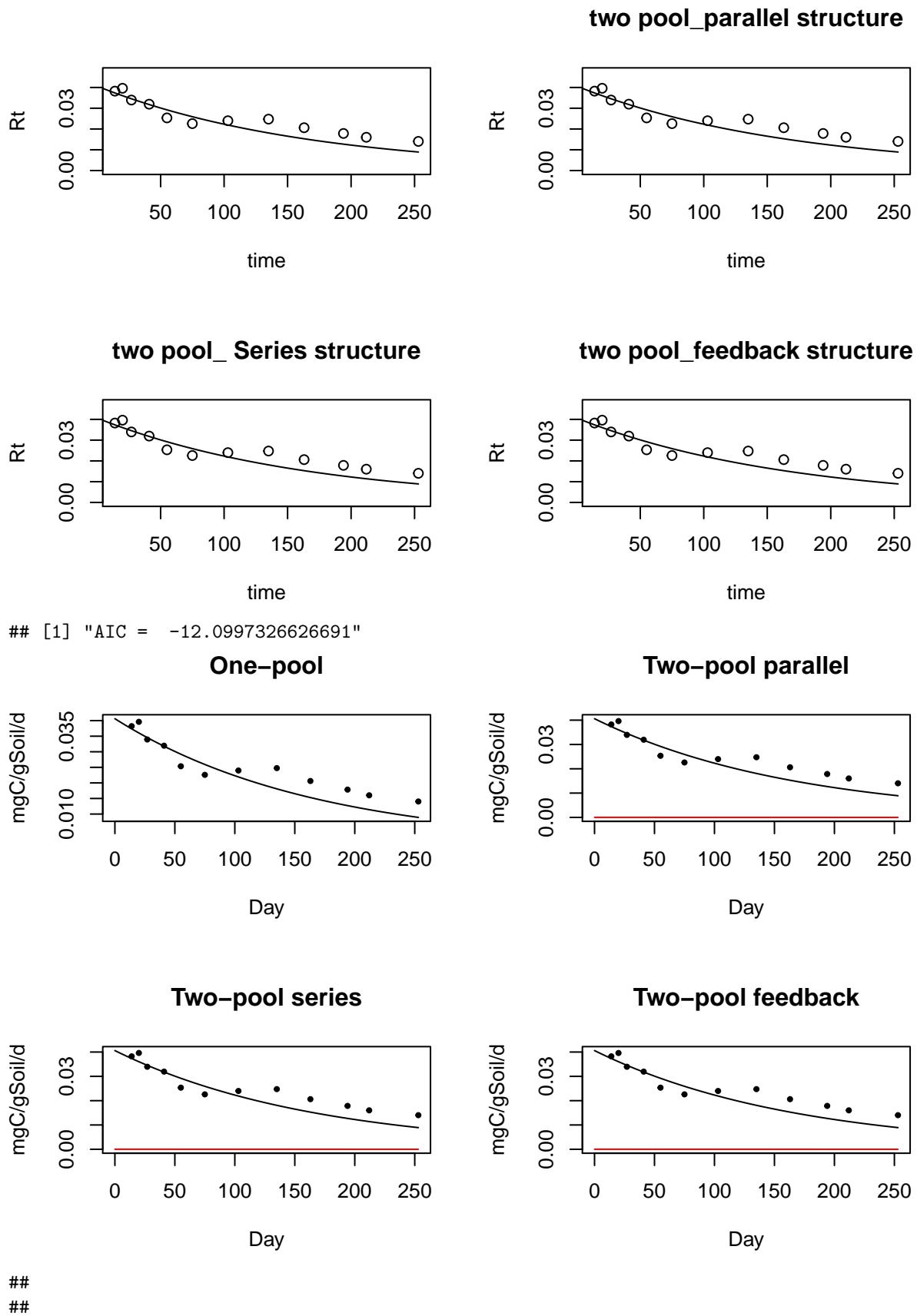
## [1] "Rey2008EJSS; variable: CMin_Hain_0_5"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00599201119844928"

## [1] "AIC = -20.0997321008122"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00599200643146245"
## [2] "k2= 0.00599199078900209"
## [3] "proportion of CO in pool 1= 0.999489788794494"

## [1] "AIC = -16.0997321008249"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0059920763278164"
## [2] "k2= 0.00614371304574222"
## [3] "a21= 2.37720884070369e-05"
## [4] "Proportion of CO in pool 1= 0.999516401829794"

## [1] "AIC = -14.0997329676528"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00599206515202245"
## [2] "k2= 0.0061116263978495"
## [3] "a21= 1.78671080623416e-05"
## [4] "a12= 9.35421194521724e-05"
## [5] "Proportion of CO in pool 1= 0.999579675886899"

```



```

## |model          |k1        |k2        |COInp1 |a21       |a12 |
## |:-----|:-----|:-----|:-----|:-----|:---|
## |One-pool      |0.00599 |NA        |NA      |NA        |NA   |
## |Two-pool parallel|0.00599 |0.00599 |0.999   |NA        |NA   |
## |Two-pool series    |0.00599 |0.00614 |1       |2.38e-05 |NA   |
## |Two-pool feedback  |0.00599 |0.00611 |1       |1.79e-05 |1    |
##
##
## |model          |AIC     |BIC     |AICn   |AICc    |wi     |MeanTrT |q05   |SSR    |MSR   |
## |:-----|:-----|:-----|:----|:-----|:-----|:-----|:---|:-----|:-----|
## |One-pool      |-20.1   |-18     |-639   |-20     |0.871  |6.78   |NA    |0.000191 |1.59e-05 |
## |Two-pool parallel|-16.1   |-9.92   |-635   |-15.7   |0.0979 |167   |116   |0.000191 |1.59e-05 |
## |Two-pool series    |-14.1   |-5.86   |-633   |-13.3   |0.0308 |167   |116   |0.000191 |1.59e-05 |
## |Two-pool feedback  |-12.1   |-1.8    |-631   |-10.9   |0.00929 |167   |116   |0.000191 |1.59e-05 |

```

Variable CMin_Hain_5_10;

Carbon mineralization rates for the 5–10 cm soil layer at the Hainich site

```

Rey_V3= modelFitTS_Markdown(db = db[[22]], ts.col = 3, ic.col = 2, unitConverter = 1,
                           inipars=list(oneP=0.01,
                                         parallel=c(0.1, 0.001, 0.01),
                                         series=c(0.1, 0.001, 0.01, 0.1),
                                         feedback=c(0.01, 0.0001, 0.1, 0.01, 0.01)))

```

```

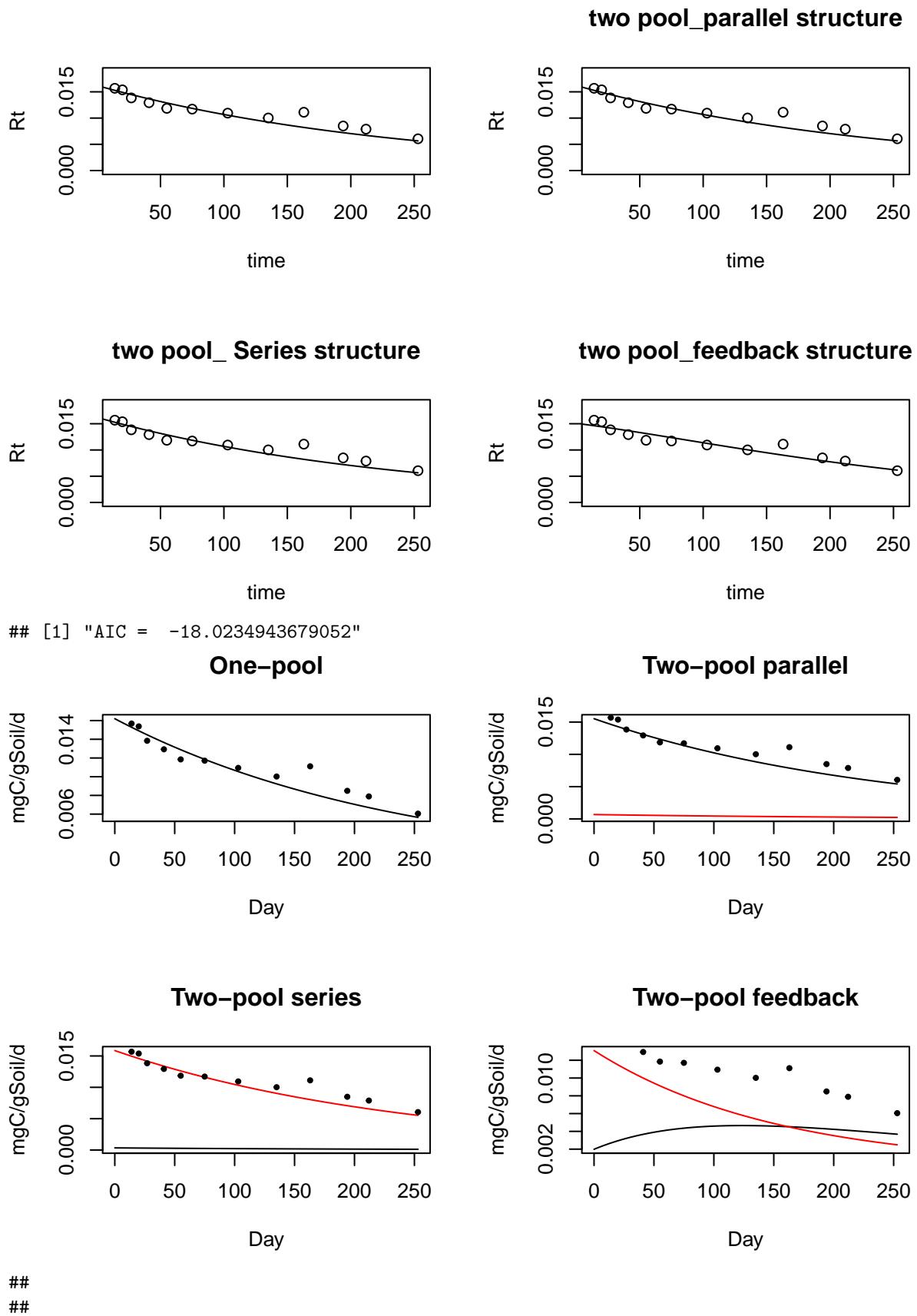
## [1] "Rey2008EJSS; variable: CMin_Hain_5_10"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00416489279799315"

## [1] "AIC = -25.2204614855343"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00416490251393256"
## [2] "k2= 0.00416483601436849"
## [3] "proportion of CO in pool 1= 0.958051214326367"

## [1] "AIC = -21.2204614842261"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00416566588142223"
## [2] "k2= 0.00416489377499742"
## [3] "a21= 0.00028937272119206"
## [4] "Proportion of CO in pool 1= 0.0211809551638743"

## [1] "AIC = -19.2204614882997"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00655947430854529"
## [2] "k2= 0.00656832323665791"
## [3] "a21= 0.000691777399018545"
## [4] "a12= 0.444422208886095"
## [5] "Proportion of CO in pool 1= 0.0777907441269782"

```



```

## |model          |k1      |k2      |COInp1 |a21      |a12      |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.00416 |NA      |NA      |NA      |NA      |
## |Two-pool parallel|0.00416 |0.00416 |0.958   |NA      |NA      |
## |Two-pool series    |0.00417 |0.00416 |0.0212  |0.000289 |NA      |
## |Two-pool feedback  |0.00656 |0.00657 |0.0778  |0.000692 |0.0212 |
##
##
## |model          |AIC     |BIC     |AICn    |AICc    |wi      |MeanTrT |q05    |SSR     |MSR    |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-25.2   |-23.2   |-787    |-25.1   |0.871   |3.89    |NA     |1.47e-05 |1.23e-06 |
## |Two-pool parallel|-21.2   |-15     |-783    |-20.8   |0.0979  |240     |166    |1.47e-05 |1.23e-06 |
## |Two-pool series    |-19.2   |-11     |-781    |-18.5   |0.0308  |240     |166    |1.47e-05 |1.23e-06 |
## |Two-pool feedback  |-18     |-7.72   |-803    |-16.9   |0.0139  |153     |106    |9.86e-06 |8.22e-07 |

```

Variable CMin_Hain_10_20;

Carbon mineralization rates for the 10–20 cm soil layer at the Hainich site

```

Rey_V4= modelFitTS_Markdown(db = db[[22]], ts.col = 4, ic.col = 3, unitConverter = 1,
                           inipars=list(oneP=0.01,
                                         parallel=c(0.01, 0.001, 0.01),
                                         series=c(0.01, 0.001, 0.001, 0.01),
                                         feedback=c(0.01, 0.001, 0.01, 0.01)))

```

```

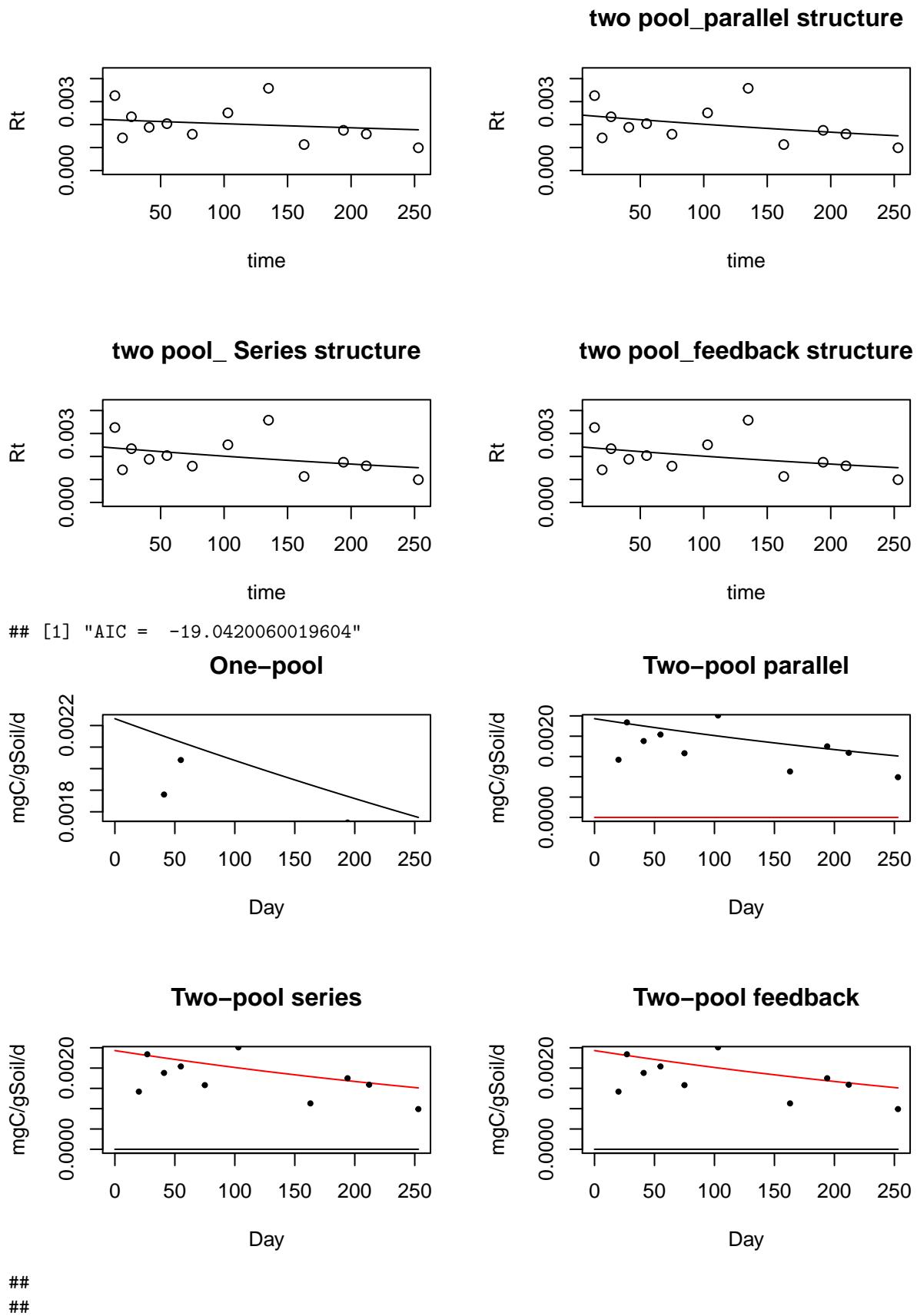
## [1] "Rey2008EJSS; variable: CMin_Hain_10_20"
## [1] "One pool model"
## [1] "Best fit parameter: -0.000907191183216582"

## [1] "AIC = -26.9508345677703"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00187740991095897"
## [2] "k2= 9.42099459555559e-10"
## [3] "proportion of CO in pool 1= 0.526394724442702"

## [1] "AIC = -23.0420059942164"
## [1] "Two pool model-Series structure"
## [1] "k1= 1.10237306770682e-13"
## [2] "k2= 0.00187740977085379"
## [3] "a21= 0.999996651951855"
## [4] "Proportion of CO in pool 1= 0.473605093163378"

## [1] "AIC = -21.0420060093531"
## [1] "Two pool model-feedback structure"
## [1] "k1= 8.50330390312578e-10"
## [2] "k2= 0.00187740344691326"
## [3] "a21= 0.998593095526145"
## [4] "a12= 0.468867878258444"
## [5] "Proportion of CO in pool 1= 0.00891893788803177"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.000907|NA|NA|NA|NA|
## |Two-pool parallel|0.00188|9.42e-10|0.526|NA|NA|
## |Two-pool series|1.1e-13|0.00188|0.474|1|NA|
## |Two-pool feedback|8.5e-10|0.00188|0.00892|0.999|0.474|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:-----|:----|:----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-27|-24.9|-838|-26.9|0.866|2.46|NA|6.2e-06|5.17e-07|
## |Two-pool parallel|-23|-16.9|-836|-22.6|0.102|1010|369|5.93e-06|4.94e-07|
## |Two-pool series|-21|-12.8|-834|-20.3|0.0321|9.07e+12|6.29e+12|5.93e-06|4.94e-07|
## |Two-pool feedback|-19|-8.74|-832|-17.9|0.00966|2.21e+09|1.53e+09|5.93e-06|4.94e-07|

```

Variable CMin_Coll_0_5;

Carbon mineralization rates for the 0-5 cm soil layer at the Collelongo site

```

Rey_V5= modelFitTS_Markdown(db = db[[22]], ts.col = 5, ic.col = 4, unitConverter = 1,
                           inipars=list(oneP=0.01,
                                         parallel=c(0.01, 0.001, 0.01),
                                         series=c(0.01, 0.0001, 0.01, 0.01),
                                         feedback=c(0.01, 0.0001, 0.01, 0.01, 0.1)))

```

```

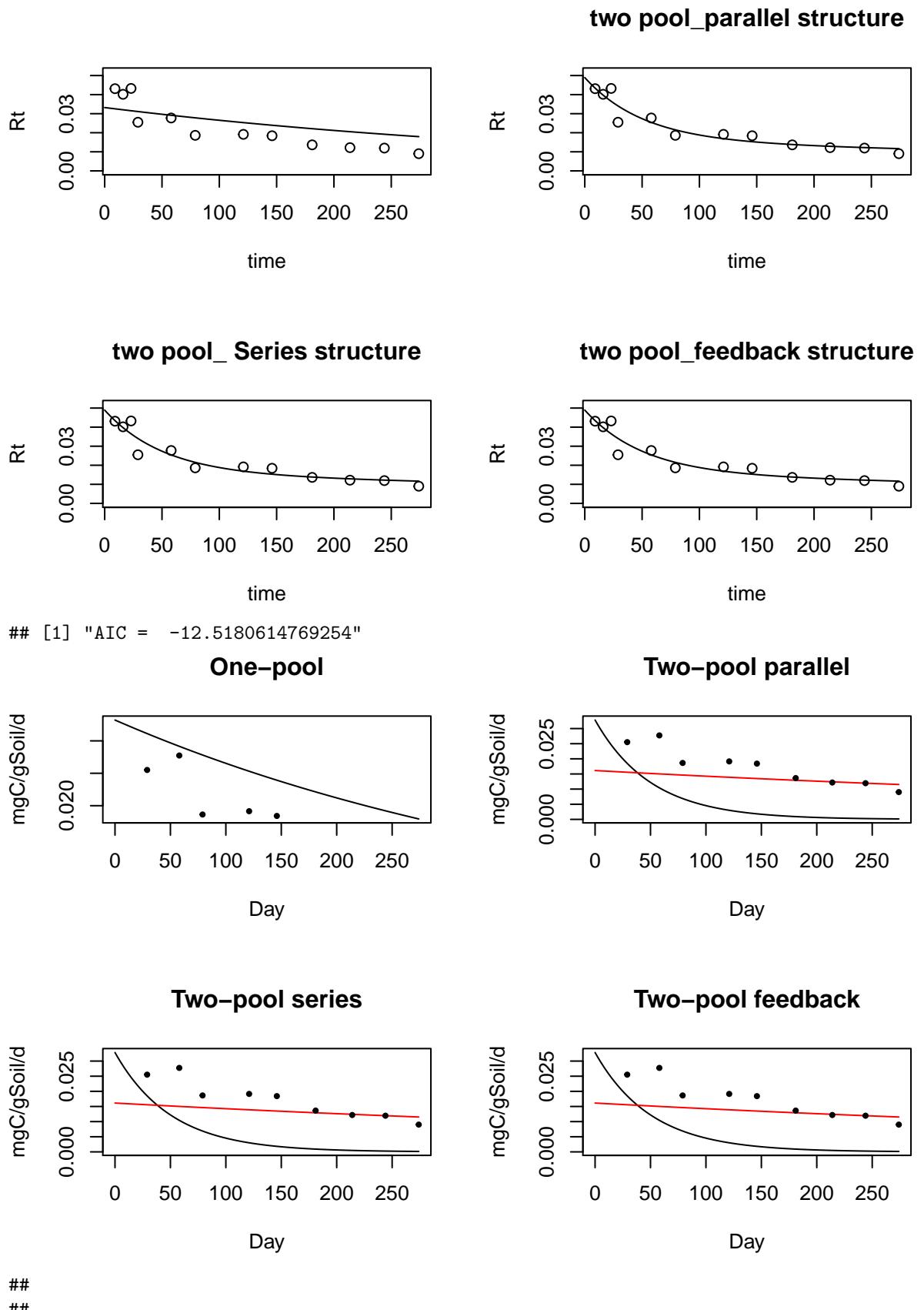
## [1] "Rey2008EJSS; variable: CMin_Coll_0_5"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00224409612889076"

## [1] "AIC = -17.2946253168033"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0197756350981442"
## [2] "k2= 0.00122753515026248"
## [3] "proportion of CO in pool 1= 0.112127886008492"

## [1] "AIC = -16.5180614774468"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0197752255027508"
## [2] "k2= 0.00122752576933307"
## [3] "a21= 3.32080680887081e-06"
## [4] "Proportion of CO in pool 1= 0.112130203735501"

## [1] "AIC = -14.5180614781381"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0197742707215175"
## [2] "k2= 0.00122750427222813"
## [3] "a21= 7.08600285861394e-05"
## [4] "a12= 7.25619012073575e-05"
## [5] "Proportion of CO in pool 1= 0.112147485581738"

```



```

## |model          |k1      |k2      |COInp1 |a21      |a12    |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.00224 |NA      |NA      |NA      |NA     |
## |Two-pool parallel|0.0198 |0.00123 |0.112   |NA      |NA     |
## |Two-pool series  |0.0198 |0.00123 |0.112   |3.32e-06|NA     |
## |Two-pool feedback |0.0198 |0.00123 |0.112   |7.09e-05|0.112  |
##
##
## |model          |AIC    |BIC    |AICn   |AICc    |wi     |MeanTrT |q05    |SSR     |MSR    |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-17.3  |-15.2  |-558   |-17.2   |0.575  |14.8   |NA     |0.000775 |6.46e-05 |
## |Two-pool parallel|-16.5  |-10.3  |-647   |-16.1   |0.323  |302    |162.5  |0.000155 |1.29e-05 |
## |Two-pool series  |-14.5  |-6.28  |-645   |-13.8   |0.102  |50.6   |135.1  |0.000155 |1.29e-05 |
## |Two-pool feedback |-12.5  |-2.22  |-643   |-11.4   |0.0307 |50.6   |135.1  |0.000155 |1.29e-05 |

```

Variable CMin_Coll_5_10;

Carbon mineralization rates for the 5-10 cm soil layer at the Collelongo site

```

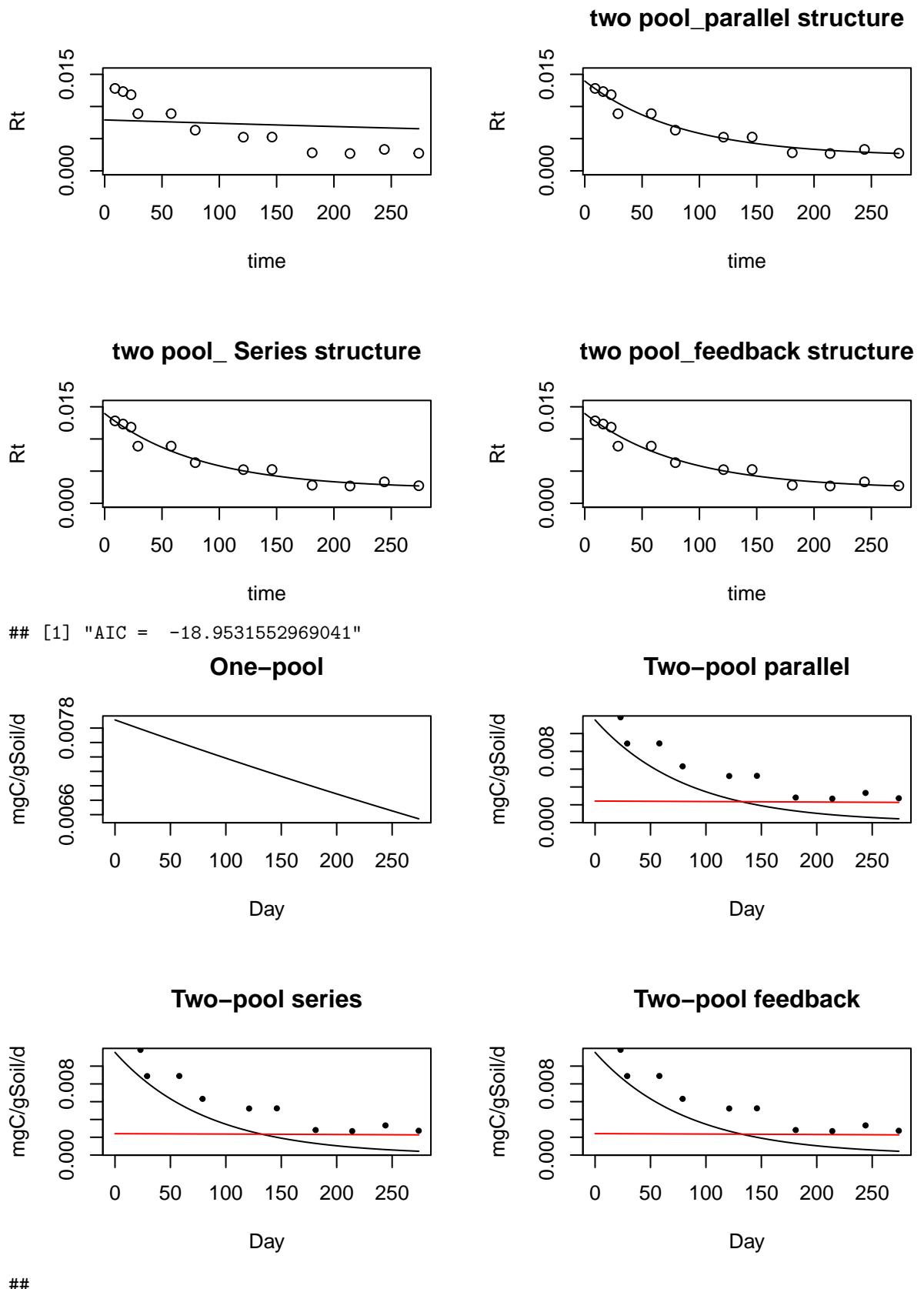
Rey_V6= modelFitTS_Markdown(db = db[[22]], ts.col = 6, ic.col = 5, unitConverter = 1,
                           inipars=list(oneP=0.01,
                                         parallel=c(0.01, 0.001, 0.01),
                                         series=c(0.01, 0.0001, 0.01, 0.1),
                                         feedback=c(0.01, 0.0001, 0.01, 0.01, 0.1)))

```

```

## [1] "Rey2008EJSS; variable: CMin_Coll_5_10"
## [1] "One pool model"
## [1] "Best fit parameter: -0.000694143175341111"
## [1] "AIC = -20.8156440263306"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0120373912420161"
## [2] "k2= 0.000231644283093826"
## [3] "proportion of CO in pool 1= 0.0840409504477862"
## [1] "AIC = -22.9531552970634"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0120373807021141"
## [2] "k2= 0.000231644030224667"
## [3] "a21= 0.0702473334879171"
## [4] "Proportion of CO in pool 1= 0.0905247099895606"
## [1] "AIC = -20.9531552962599"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0120373846344617"
## [2] "k2= 0.00023164656604323"
## [3] "a21= 0.0486347983233075"
## [4] "a12= 0.000207175877889931"
## [5] "Proportion of CO in pool 1= 0.0884295658238198"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.000694|NA|NA|NA|NA|
## |Two-pool parallel|0.012|0.000232|0.084|NA|NA|
## |Two-pool series|0.012|0.000232|0.0905|0.0702|NA|
## |Two-pool feedback|0.012|0.000232|0.0884|0.0486|0.0905|
## 
## 
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-20.8|-18.8|-660|-20.7|0.239|11.4|NA|0.000133|1.11e-05|
## |Two-pool parallel|-23|-16.8|-834|-22.5|0.578|817|176.4|6.2e-06|15.16e-07|
## |Two-pool series|-21|-12.7|-832|-20.2|0.182|386|164|6.2e-06|15.16e-07|
## |Two-pool feedback|-19|-8.65|-830|-17.8|0.0549|293|161.9|6.2e-06|15.16e-07|

```

Variable CMin_Coll_10_20;

Carbon mineralization rates for the 10-20 cm soil layer at the Collelongo site

```

Rey_V7= modelFitTS(db = db[[22]], ts.col = 7, ic.col = 6, unitConverter = 1,
                    inipars=list(oneP=0.01,
                                 parallel=c(0.1, 0.001, 0.01),
                                 series=c(0.01, 0.0001, 0.01, 0.1),
                                 feedback=c(0.01, 0.0001, 0.01, 0.01, 0.1)))

```

```
## Error in modelFitTS(db = db[[22]], ts.col = 7, ic.col = 6, unitConverter = 1, : could not find function
```

Variable CMin_Hess_0_5;

Carbon mineralization rates for the 0-5 cm soil layer at the Hesse site

```

Rey_V8= modelFitTS_Markdown(db = db[[22]], ts.col = 8, ic.col = 7, unitConverter = 1,
                             inipars=list(oneP=0.01,
                                         parallel=c(0.1, 0.001, 0.01),
                                         series=c(0.1, 0.001, 0.01, 0.01),
                                         feedback=c(0.1, 0.001, 0.1, 0.01, 0.1)))

```

```

## [1] "Rey2008EJSS; variable: CMin_Hess_0_5"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00798222227145651"

## [1] "AIC = -19.9652760072041"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00639877822874555"
## [2] "k2= 0.0607428116161617"
## [3] "proportion of CO in pool 1= 0.919737301796924"

## [1] "AIC = -16.61681843325"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00639889198724119"
## [2] "k2= 0.0607407517909104"
## [3] "a21= 4.63977542262128e-05"
## [4] "Proportion of CO in pool 1= 0.919737000729432"

## [1] "AIC = -14.6168184446373"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0607352061805527"

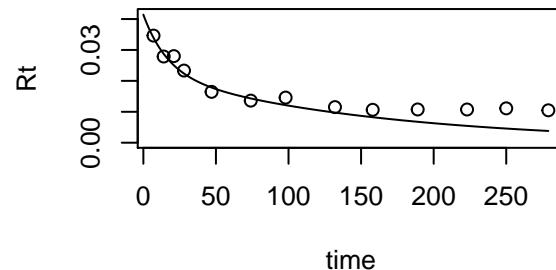
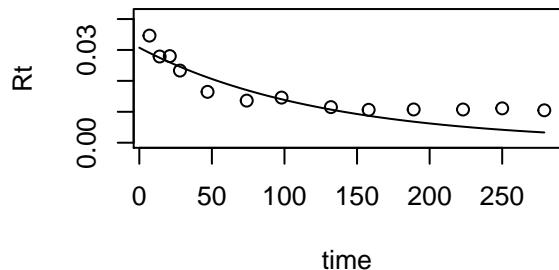
```

```

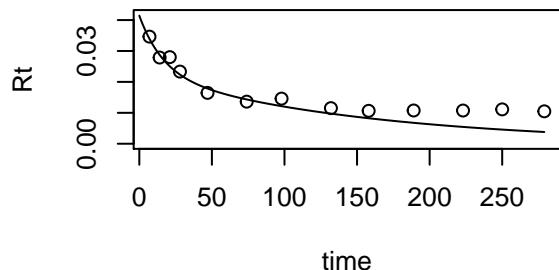
## [2] "k2= 0.00639891167994319"
## [3] "a21= 0.172523604457401"
## [4] "a12= 8.17258099363727e-05"
## [5] "Proportion of C0 in pool 1= 0.0994477460903646"

```

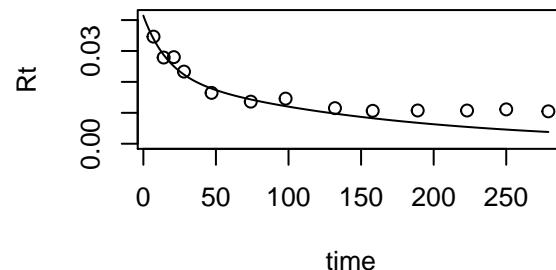
two pool_parallel structure



two pool_Series structure



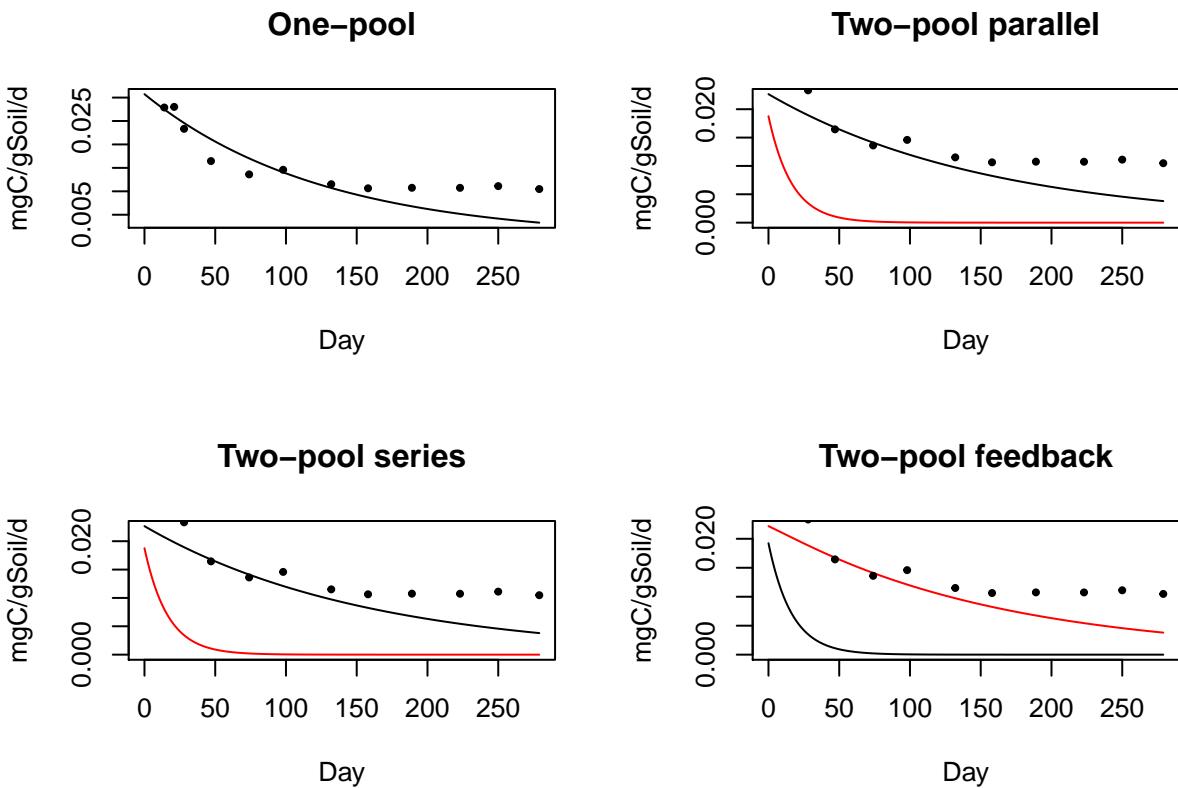
two pool_feedback structure



```

## [1] "AIC = -12.6168187429029"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:-----|:-----|:-----|:-----|  
## |One-pool |0.00798 |NA |NA |NA |NA |  
## |Two-pool parallel |0.0064 |0.0607 |0.92 |NA |NA |  
## |Two-pool series |0.0064 |0.0607 |0.92 |4.64e-05 |NA |  
## |Two-pool feedback |0.0607 |0.0064 |0.0994 |0.173 |0.92 |  
##  
##  
## |model |AIC |BIC |AICn |AICC |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|  
## |One-pool |-20 |-17.9 |-635 |-19.9 |0.83 |3.85 |NA |0.000221 |1.7e-05 |  
## |Two-pool parallel |-16.6 |-10.4 |-650 |-16.2 |0.129 |92.9 |133.6 |0.00016 |1.23e-05 |  
## |Two-pool series |-14.6 |-6.38 |-648 |-13.9 |0.0407 |156 |108 |0.00016 |1.23e-05 |  
## |Two-pool feedback |-12.6 |-2.31 |-646 |-11.5 |0.0123 |43.4 |15 |0.00016 |1.23e-05 |
```

Variable CMin_Hess_5_10;

Carbon mineralization rates for the 5-10 cm soil layer at the Hesse site

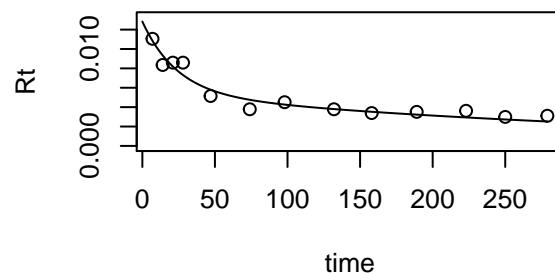
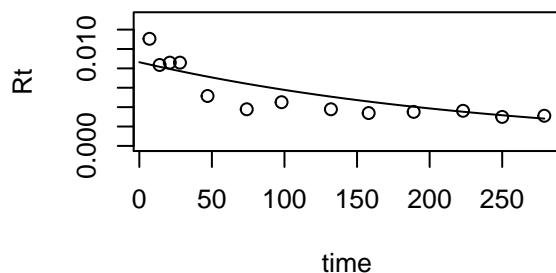
```
Rey_V9= modelFitTS_Markdown(db = db[[22]], ts.col = 9, ic.col = 8, unitConverter = 1,  
    inipars=list(oneP=0.01,  
                 parallel=c(0.1, 0.001, 0.1),  
                 series=c(0.1, 0.001, 0.1, 0.1),  
                 feedback=c(0.1, 0.001, 0.1, 0.01, 0.1)))  
  
## [1] "Rey2008EJSS; variable: CMin_Hess_5_10"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.00401669887825484"
```

```

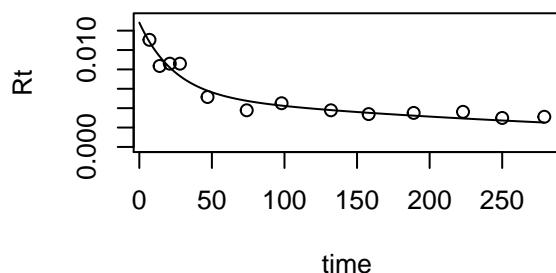
## [1] "AIC = -24.3671254321913"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0418524138795985"
## [2] "k2= 0.00274738519482259"
## [3] "proportion of C0 in pool 1= 0.0823389853673454"
## [1] "AIC = -23.4531649566329"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0418539746316553"
## [2] "k2= 0.00274740736225372"
## [3] "a21= 0.454019124990053"
## [4] "Proportion of C0 in pool 1= 0.160160597398161"
## [1] "AIC = -21.4531649580379"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0418527384503194"
## [2] "k2= 0.00274743461359252"
## [3] "a21= 0.131846519194495"
## [4] "a12= 0.000113990345432025"
## [5] "Proportion of C0 in pool 1= 0.0958733331229079"

```

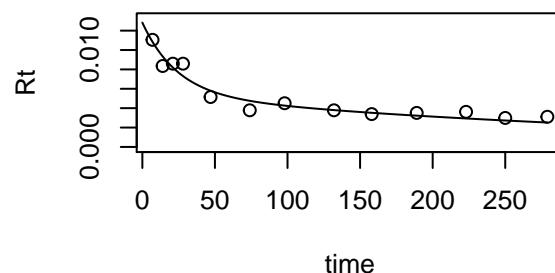
two pool_parallel structure



two pool_Series structure



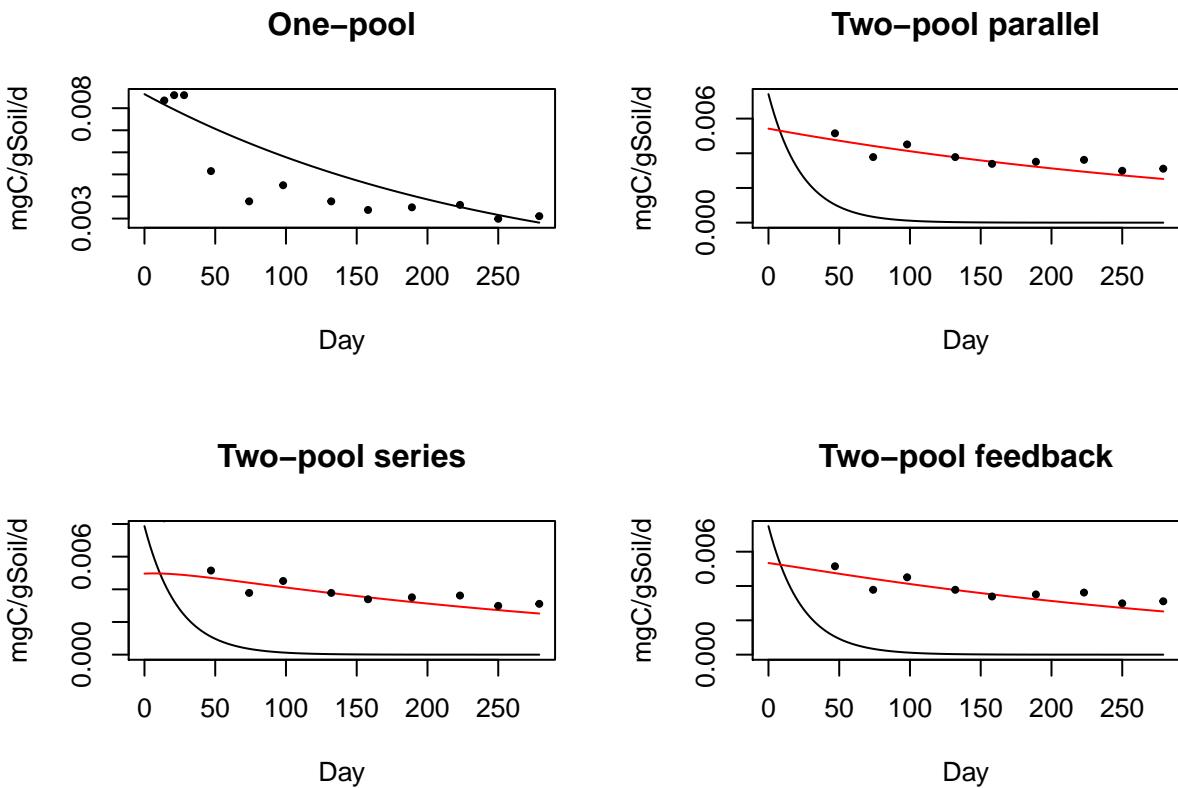
two pool_feedback structure



```

## [1] "AIC = -19.4531649577881"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:-----|:-----|:-----|:-----|  
## |One-pool |0.00402 |NA |NA |NA |NA |  
## |Two-pool parallel |0.0419 |0.00275 |0.0823 |NA |NA |  
## |Two-pool series |0.0419 |0.00275 |0.16 |0.454 |NA |  
## |Two-pool feedback |0.0419 |0.00275 |0.0959 |0.132 |0.16 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|  
## |One-pool |-24.4 |-22.3 |-763 |-24.3 |0.591 |2.15 |NA |2.45e-05 |1.88e-06 |  
## |Two-pool parallel |-23.5 |-17.3 |-848 |-23 |0.311 |168 |137.7 |5.23e-06 |4.02e-07 |  
## |Two-pool series |-21.5 |-13.2 |-846 |-20.7 |0.0979 |189 |146.8 |5.23e-06 |4.02e-07 |  
## |Two-pool feedback |-19.5 |-9.15 |-844 |-18.3 |0.0295 |71.9 |120.3 |5.23e-06 |4.02e-07 |
```

Variable CMin_Hess_10_20;

Carbon mineralization rates for the 10-20 cm soil layer at the Hesse site

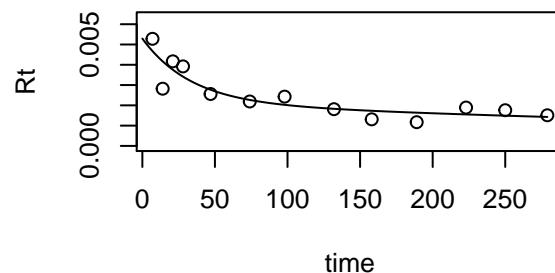
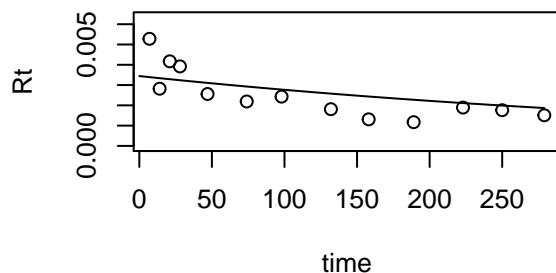
```
Rey_V10= modelFitTS_Markdown(db = db[[22]], ts.col = 10, ic.col = 9, unitConverter = 1,  
    inipars=list(oneP=0.1,  
                 parallel=c(0.1, 0.001, 0.1),  
                 series=c(0.01, 0.0001, 0.01, 0.1),  
                 feedback=c(0.01, 0.001, 0.1, 0.01, 0.1)))  
  
## [1] "Rey2008EJSS; variable: CMin_Hess_10_20"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.00219336809642812"
```

```

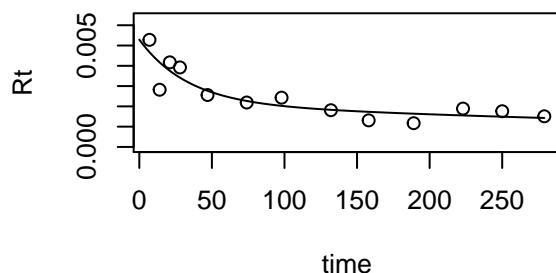
## [1] "AIC = -26.2904677473518"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0300764266800117"
## [2] "k2= 0.00146547802388957"
## [3] "proportion of C0 in pool 1= 0.0665976860067198"
## [1] "AIC = -24.3043041875216"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0300762133362918"
## [2] "k2= 0.0014654762168454"
## [3] "a21= 0.182974612797645"
## [4] "Proportion of C0 in pool 1= 0.0824586319043898"
## [1] "AIC = -22.3043041874305"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0300722679083828"
## [2] "k2= 0.00146886646342768"
## [3] "a21= 0.2571797318016"
## [4] "a12= 0.008554231296797"
## [5] "Proportion of C0 in pool 1= 0.091685543890726"

```

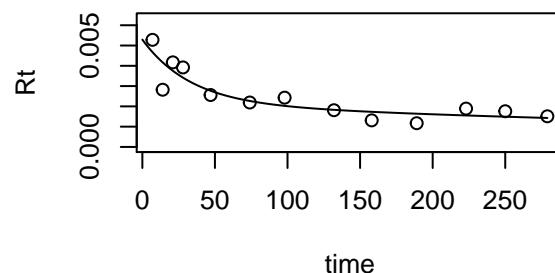
two pool_parallel structure



two pool_Series structure



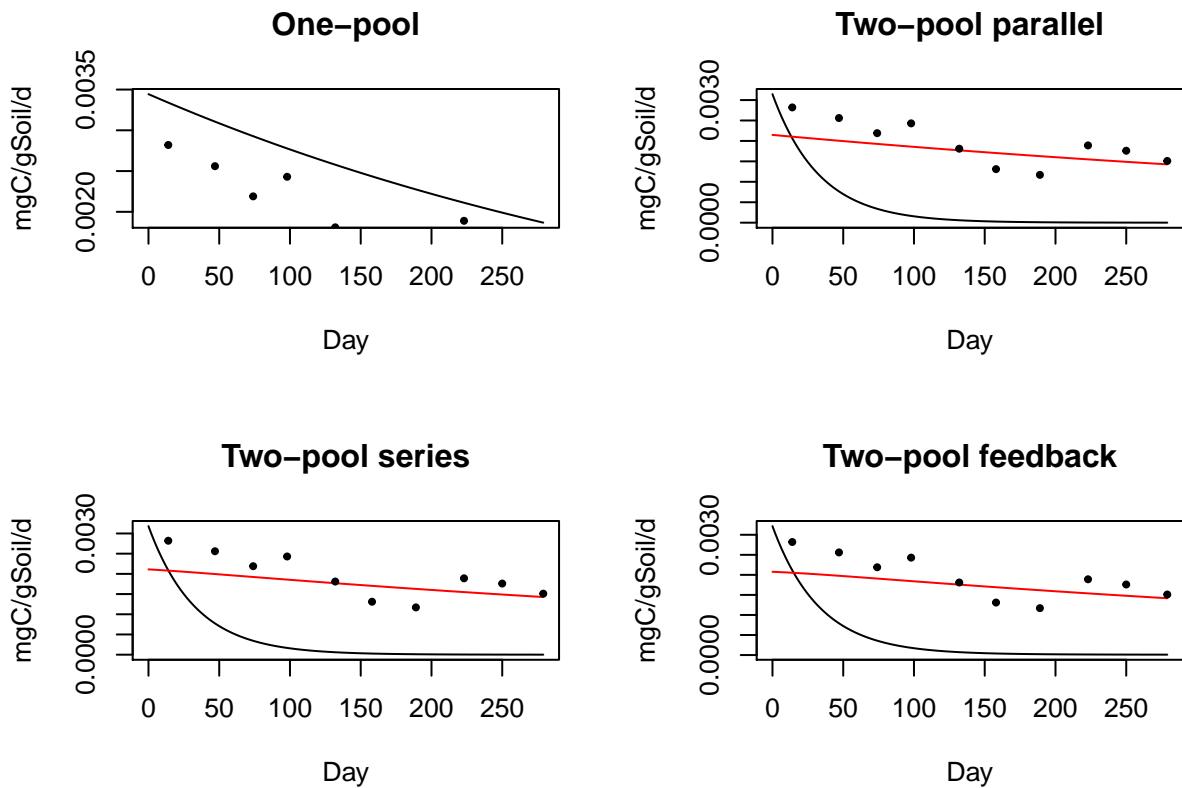
two pool_feedback structure



```

## [1] "AIC = -20.3043041871197"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:-----|:-----|:-----|:-----|  
## |One-pool |0.00219 |NA |NA |NA |NA |  
## |Two-pool parallel |0.0301 |0.00147 |0.0666 |NA |NA |  
## |Two-pool series |0.0301 |0.00147 |0.0825 |0.183 |NA |  
## |Two-pool feedback |0.0301 |0.00147 |0.0917 |0.257 |0.0825 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|  
## |One-pool |-26.3 |-24.2 |-818 |-26.2 |0.712 |1.57 |NA |9.35e-06 |1.19e-07 |  
## |Two-pool parallel |-24.3 |-18.1 |-873 |-23.9 |0.219 |297 |52.1 |3.42e-06 |1.263e-07 |  
## |Two-pool series |-22.3 |-14.1 |-871 |-21.5 |0.069 |158 |31.2 |3.42e-06 |1.263e-07 |  
## |Two-pool feedback |-20.3 |-10 |-869 |-19.2 |0.0208 |209 |36.5 |3.42e-06 |1.263e-07 |
```

Variable CMin_Rocc_0_5;

Carbon mineralization rates for the 0-5 cm soil layer at the Hesse site

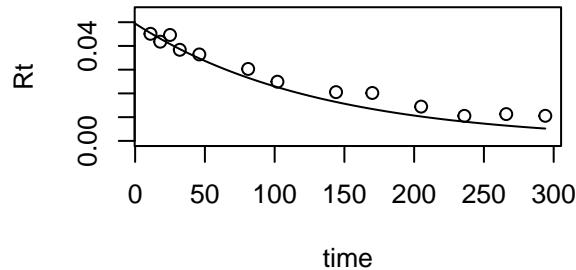
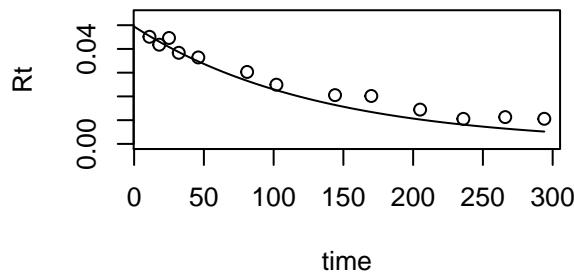
```
Rey_V11= modelFitTS_Markdown(db = db[[22]], ts.col = 11, ic.col = 10, unitConverter = 1,  
inipars=list(oneP=0.01,  
parallel=c(0.1, 0.001, 0.1),  
series=c(0.1, 0.001, 0.01, 0.1),  
feedback=c(0.1, 0.001, 0.1, 0.01, 0.1)))  
  
## [1] "Rey2008EJSS; variable: CMin_Rocc_0_5"  
## [1] "One pool model"  
## [1] "Best fit parameter: 0.0076640252165241"
```

```

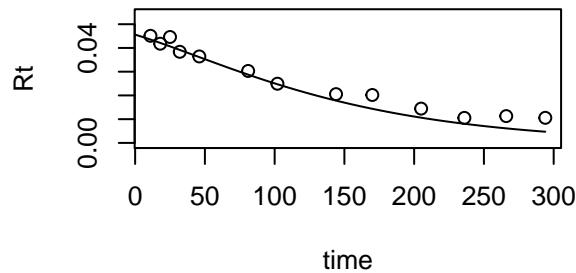
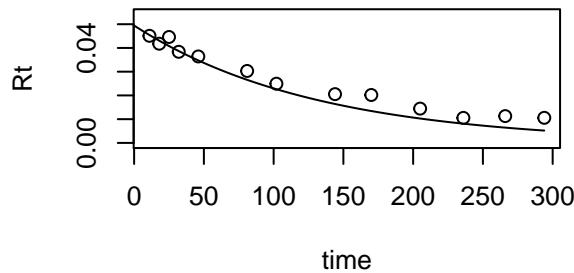
## [1] "AIC = -20.4097621152791"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00766459537011852"
## [2] "k2= 0.0076639322856976"
## [3] "proportion of C0 in pool 1= 0.145285336431667"
## [1] "AIC = -16.4097621113496"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00766743709200427"
## [2] "k2= 0.00766408038809593"
## [3] "a21= 0.000710353570204825"
## [4] "Proportion of C0 in pool 1= 0.0285585965270308"
## [1] "AIC = -14.4097621297447"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0118108444286954"
## [2] "k2= 0.0118102392813238"
## [3] "a21= 0.442912975968421"
## [4] "a12= 1.3341258949251e-05"
## [5] "Proportion of C0 in pool 1= 0.90629293634115"

```

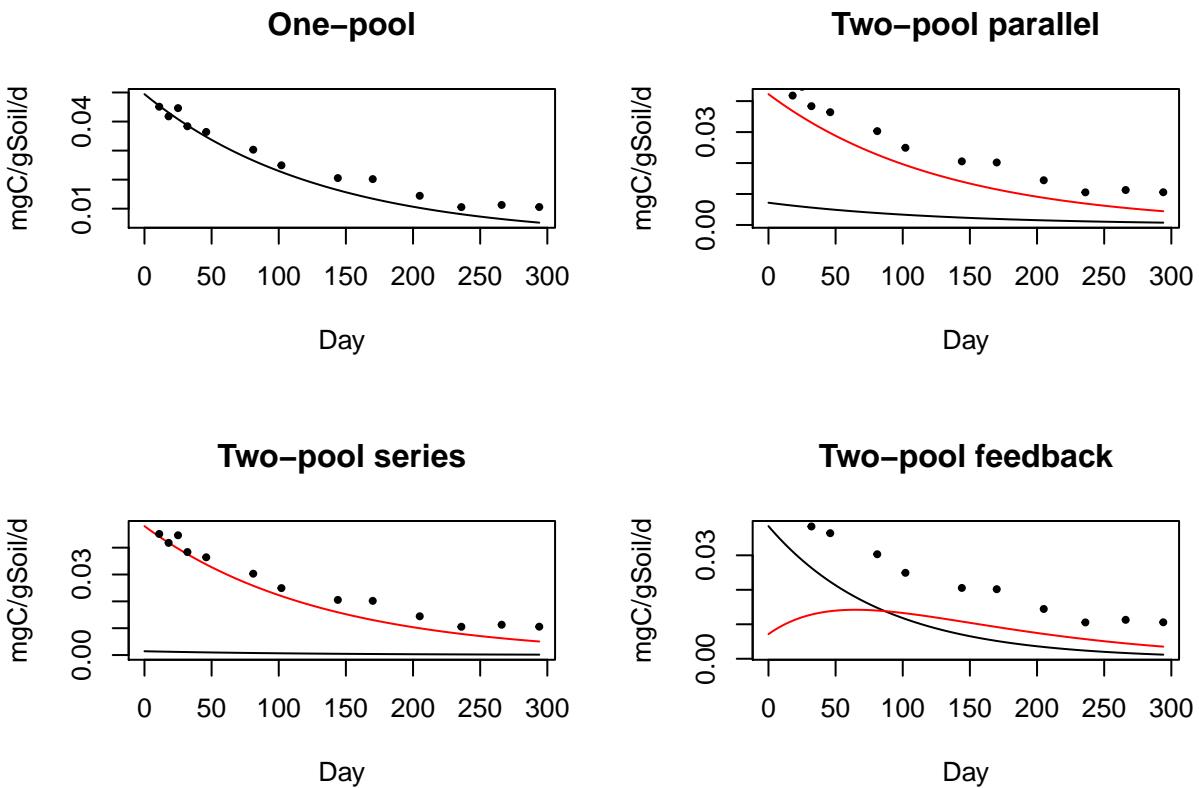
two pool_parallel structure



two pool_Series structure



```
## [1] "AIC = -12.816146870418"
```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:-----|:-----|:-----|:-----|  
## |One-pool |0.00766 |NA |NA |NA |NA |  
## |Two-pool parallel |0.00766 |0.00766 |0.145 |NA |NA |  
## |Two-pool series |0.00767 |0.00766 |0.0286 |0.00071 |NA |  
## |Two-pool feedback |0.0118 |0.0118 |0.906 |0.443 |0.0286 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|  
## |One-pool |-20.4 |-18.3 |-648 |-20.3 |0.871 |6.45 |NA |0.000177 |1.36e-05 |  
## |Two-pool parallel |-16.4 |-10.2 |-644 |-16 |0.0979 |130 |190.4 |0.000177 |1.36e-05 |  
## |Two-pool series |-14.4 |-6.17 |-642 |-13.7 |0.0308 |131 |190.5 |0.000177 |1.36e-05 |  
## |Two-pool feedback |-12.8 |-2.51 |-652 |-11.7 |0.0114 |122 |191.9 |0.000144 |1.11e-05 |
```

Variable CMin_Rocc_5_10;

Carbon mineralization rates for the 5-10 cm soil layer at the Hesse site

```
Rey_V12= modelFitTS(db = db[[22]], ts.col = 12, ic.col = 11, unitConverter = 1,  
inipars=list(oneP=0.01,  
parallel=c(0.01, 0.001, 0.1),  
series=c(0.01, 0.0001, 0.01, 0.1),  
feedback=c(0.01, 0.0001, 0.1, 0.01, 0.1)))
```

```
## Error in modelFitTS(db = db[[22]], ts.col = 12, ic.col = 11, unitConverter = 1, : could not find function
```

Variable CMin_Rocc_10_20;

Carbon mineralization rate for the 10-20 cm soil layer at the Hesse site

```
Rey_V13= modelFitTS(db = db[[22]], ts.col = 13, ic.col = 12, unitConverter = 1,
                     inipars=list(oneP=0.01,
                                  parallel=c(0.01, 0.001, 0.1),
                                  series=c(0.01, 0.0001, 0.01, 0.1),
                                  feedback=c(0.01, 0.0001, 0.1, 0.01, 0.1)))
```

```
## Error in modelFitTS(db = db[[22]], ts.col = 13, ic.col = 12, unitConverter = 1, : could not find function "modelFitTS"
```

Variable CMin_Thar_0_5;

Carbon mineralization rate for the 0-5 cm soil layer at the Tharandt site

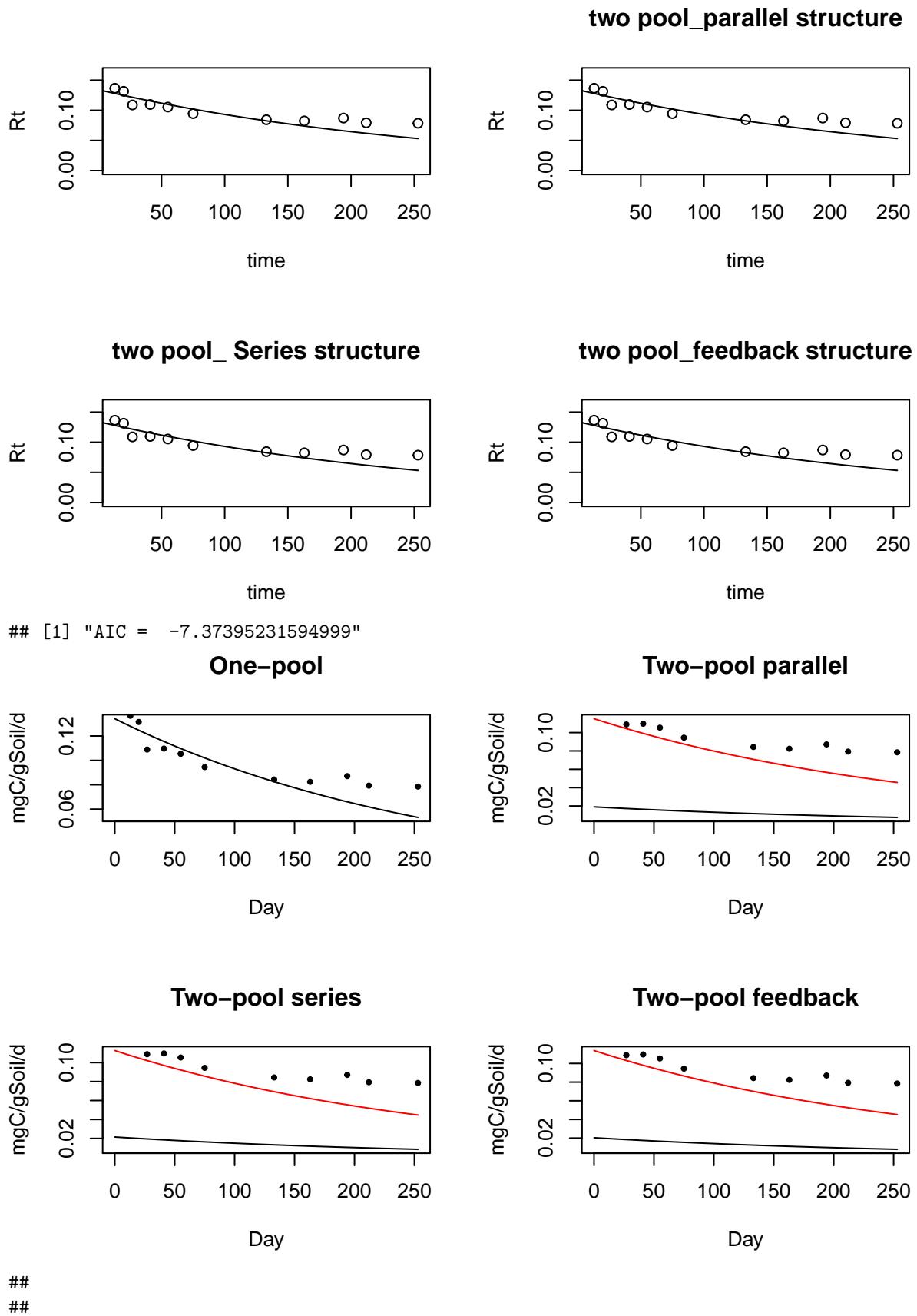
```
Rey_V14= modelFitTS_Markdown(db = db[[22]], ts.col = 14, ic.col = 13, unitConverter = 1,
                               inipars=list(oneP=0.01,
                                            parallel=c(0.01, 0.001, 0.1),
                                            series=c(0.01, 0.001, 0.01, 0.1),
                                            feedback=c(0.01, 0.001, 0.1, 0.01, 0.1)))
```

```
## [1] "Rey2008EJSS; variable: CMin_Thar_0_5"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00365694256523064"

## [1] "AIC = -15.373825767986"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00365691339436086"
## [2] "k2= 0.00365693452816643"
## [3] "proportion of C0 in pool 1= 0.14198773226237"

## [1] "AIC = -11.3738257687478"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00365729123017795"
## [2] "k2= 0.0036570023899794"
## [3] "a21= 0.000198754432879644"
## [4] "Proportion of C0 in pool 1= 0.160079034413211"

## [1] "AIC = -9.37382577580256"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00370875481130138"
## [2] "k2= 0.00366681510514345"
## [3] "a21= 0.0278667012949267"
## [4] "a12= 0.000155928215545165"
## [5] "Proportion of C0 in pool 1= 0.153867060510198"
```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|0.00366|NA|NA|NA|NA|
## |Two-pool parallel|0.00366|0.00366|0.142|NA|NA|
## |Two-pool series|0.00366|0.00366|0.16|0.000199|NA|
## |Two-pool feedback|0.00371|0.00367|0.154|0.0279|0.16|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-15.4|-13.3|-502|-15.3|0.871|36.7|NA|0.00186|0.000169|
## |Two-pool parallel|-11.4|-5.19|-498|-10.9|0.0979|273|190|0.00186|0.000169|
## |Two-pool series|-9.37|-1.13|-496|-8.62|0.0308|273|190|0.00186|0.000169|
## |Two-pool feedback|-7.37|2.93|-494|-6.22|0.00929|277|192|0.00186|0.000169|

```

Variable CMin_Thar_5_10;

Carbon mineralization rate for the 5-10 cm soil layer at the Tharandt site

```

Rey_V15= modelFitTS(db = db[[22]], ts.col = 15, ic.col = 14, unitConverter = 1,
                     inipars=list(oneP=0.01,
                                 parallel=c(0.01, 0.001, 0.1),
                                 series=c(0.01, 0.0001, 0.01, 0.1),
                                 feedback=c(0.01, 0.0001, 0.1, 0.01, 0.1)))

```

```
## Error in modelFitTS(db = db[[22]], ts.col = 15, ic.col = 14, unitConverter = 1, : could not find function
```

Variable CMin_Thar_10_20;

Carbon mineralization rate for the 10-20 cm soil layer at the Tharandt site

```

Rey_V16= modelFitTS_Markdown(db = db[[22]], ts.col = 16, ic.col = 15, unitConverter = 1,
                               inipars=list(oneP=0.01,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.01, 0.001, 0.01, 0.1),
                                             feedback=c(0.01, 0.001, 0.1, 0.01, 0.1)))

```

```

## [1] "Rey2008EJSS; variable: CMin_Thar_10_20"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00160199210604794"

## [1] "AIC = -22.9060150873769"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00160205361998759"
## [2] "k2= 0.001601991403537"
## [3] "proportion of CO in pool 1= 0.0741606783031207"

## [1] "AIC = -18.9060150873653"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00338111565468777"
## [2] "k2= 0.00503275175178553"
## [3] "a21= 0.969093467707109"
## [4] "Proportion of CO in pool 1= 0.793452243228595"

## [1] "AIC = -18.0360778962444"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00502204350019608"

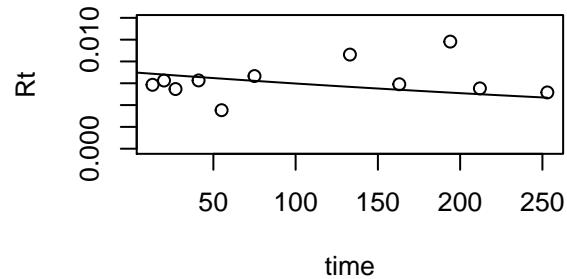
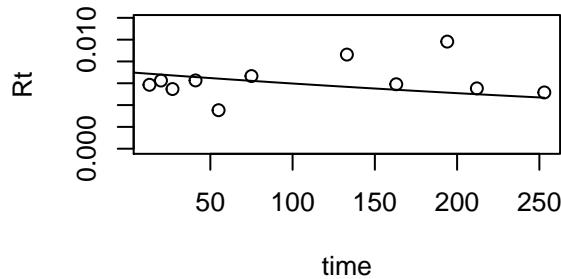
```

```

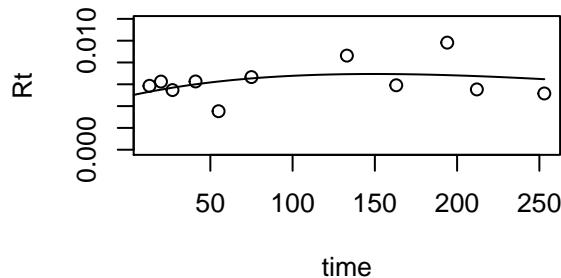
## [2] "k2= 0.00338986582525079"
## [3] "a21= 0.979025207769542"
## [4] "a12= 0.000685111893126811"
## [5] "Proportion of C0 in pool 1= 0.690109958427786"

```

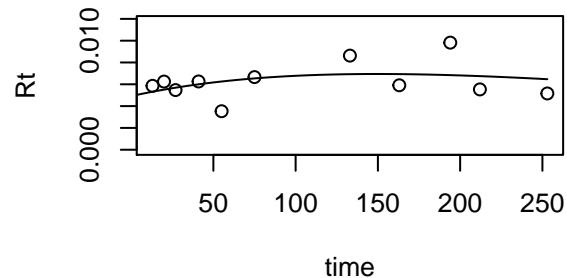
two pool_parallel structure



two pool_Series structure



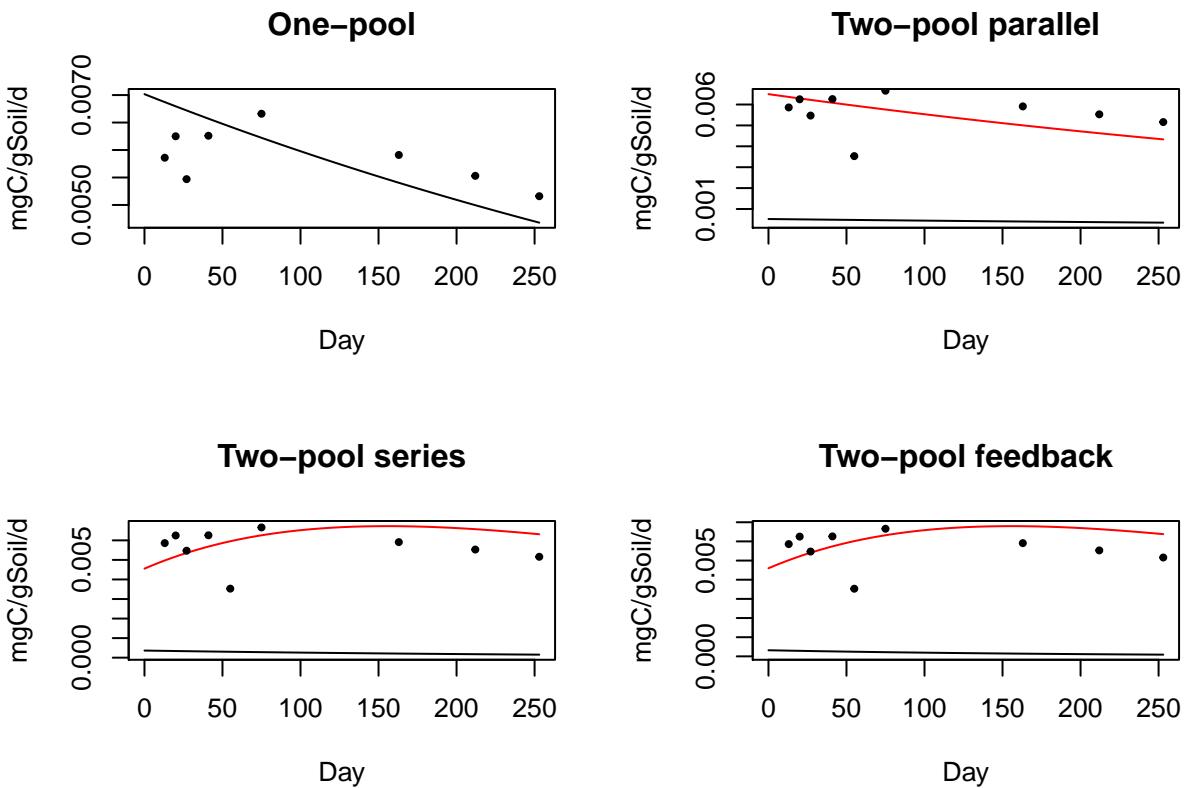
two pool_feedback structure



```

## [1] "AIC = -16.0360778838046"

```



```
##  
##  
## |model |k1 |k2 |COInp1 |a21 |a12 |  
## |:-----|:----|:----|:----|:----|:  
## |One-pool | -0.0016 |NA |NA |NA |NA |  
## |Two-pool parallel | 0.0016 | 0.0016 | 0.0742 |NA |NA |  
## |Two-pool series | 0.00338 | 0.00503 | 0.793 | 0.969 |NA |  
## |Two-pool feedback | 0.00502 | 0.00339 | 0.69 | 0.979 | 0.793 |  
##  
##  
## |model |AIC |BIC |AICn |AICc |wi |MeanTrT |q05 |SSR |MSR |  
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|  
## |One-pool | -22.9 | -20.8 | -720 | -22.8 | 0.851 | 4.38 |NA | 4.3e-05 | 3.91e-06 |  
## |Two-pool parallel | -18.9 | -12.7 | -716 | -18.5 | 0.0956 | 624 | 1433 | 4.3e-05 | 3.91e-06 |  
## |Two-pool series | -18 | -9.79 | -747 | -17.3 | 0.053 | 488 | 1405 | 2.44e-05 | 2.22e-06 |  
## |Two-pool feedback | -16 | -5.73 | -745 | -14.9 | 0.016 | 488 | 1405 | 2.44e-05 | 2.22e-06 |
```

Variable CMin_Harw_0_5;

Carbon mineralization rate for the 0-5 cm soil layer at the Harwood site

```
Rey_V17= modelFitTS(db = db[[22]], ts.col = 17, ic.col = 16, unitConverter = 1,  
inipars=list(oneP=0.01,  
parallel=c(0.01, 0.001, 0.1),  
series=c(0.01, 0.0001, 0.01, 0.1),  
feedback=c(0.01, 0.001, 0.01, 0.01, 0.1)))
```

```
## Error in modelFitTS(db = db[[22]], ts.col = 17, ic.col = 16, unitConverter = 1, : could not find function
```

Variable CMin_Harw_5_10;

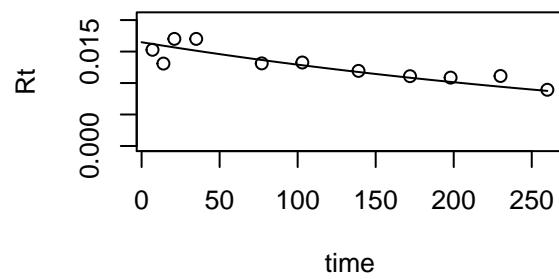
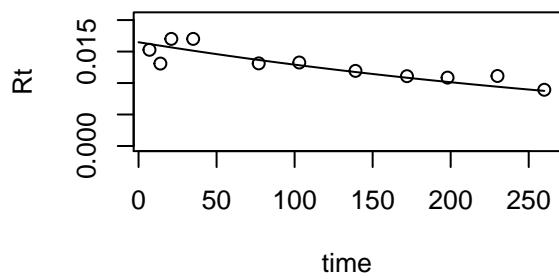
Carbon mineralization rate for the 5-10 cm soil layer at the Harwood site

```
Rey_V18= modelFitTS_Markdown(db = db[[22]], ts.col = 18, ic.col = 17, unitConverter = 1,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.01, 0.001, 0.01, 0.1),
                                             feedback=c(0.01, 0.001, 0.001, 0.01, 0.1)))
```

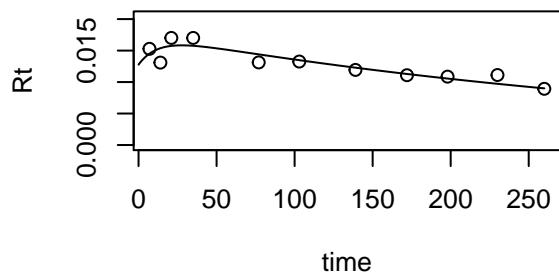


```
## [1] "Rey2008EJSS; variable: CMin_Harw_5_10"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00243439340622409"
## [1] "AIC = -24.6204653083711"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00243447130336399"
## [2] "k2= 0.00243438206579037"
## [3] "proportion of C0 in pool 1= 0.088462232656213"
## [1] "AIC = -20.6204653083984"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.079744723842811"
## [2] "k2= 0.00257176882917051"
## [3] "a21= 0.999944046344616"
## [4] "Proportion of C0 in pool 1= 0.267247385768679"
## [1] "AIC = -19.3151769206377"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.079748424955664"
## [2] "k2= 0.00257194222353812"
## [3] "a21= 0.999991481303087"
## [4] "a12= 6.46933349344736e-05"
## [5] "Proportion of C0 in pool 1= 0.266873710810401"
```

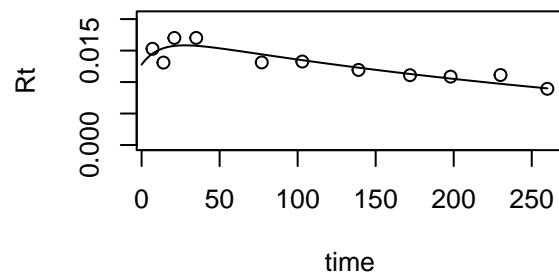
two pool_parallel structure



two pool_Series structure

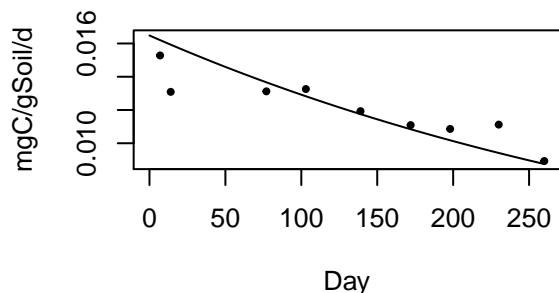


two pool_feedback structure

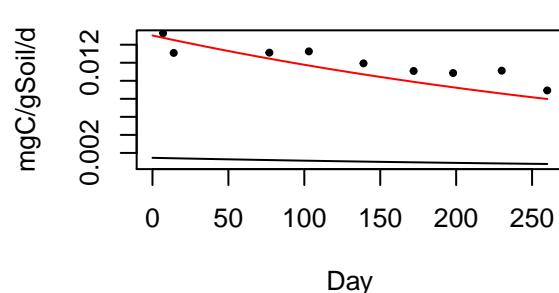


```
## [1] "AIC = -17.3151769169099"
```

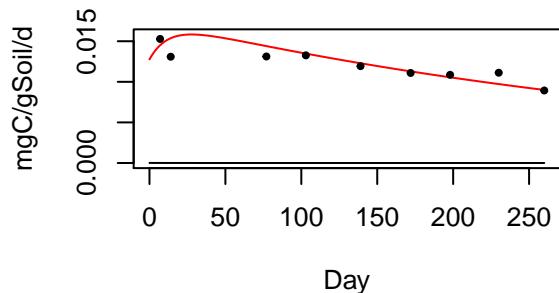
One-pool



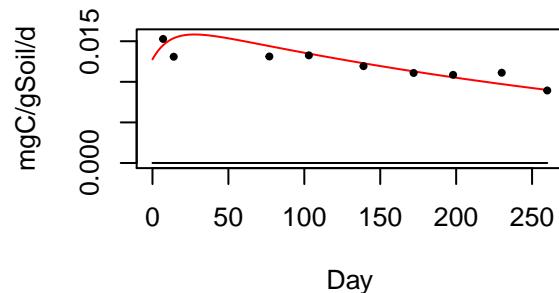
Two-pool parallel



Two-pool series



Two-pool feedback



```
##  
##
```

```

## |model          |k1      |k2      |COInp1 |a21   |a12   |
## |:-----|:-----|:-----|:-----|:---|:-----|
## |One-pool      |0.00243 |NA      |NA      |NA    |NA    |
## |Two-pool parallel |0.00243 |0.00243 |0.0885 |NA    |NA    |
## |Two-pool series    |0.0797  |0.00257 |0.267  |1     |NA    |
## |Two-pool feedback  |0.0797  |0.00257 |0.267  |1     |0.267 |
##
##
## |model          |AIC    |BIC    |AICn   |AICc   |wi    |MeanTrT |q05   |SSR    |MSR   |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-24.6  |-22.6  |-770   |-24.5  |0.86  |6.77   |NA    |1.82e-05 |1.66e-06 |
## |Two-pool parallel |-20.6  |-14.4  |-766   |-20.2  |0.0966 |411    |1285  |1.82e-05 |1.66e-06 |
## |Two-pool series    |-19.3  |-11.1  |-784   |-18.6  |0.0431 |401    |1282  |1.29e-05 |1.17e-06 |
## |Two-pool feedback  |-17.3  |-7.01  |-782   |-16.2  |0.013  |401    |1282  |1.29e-05 |1.17e-06 |

```

Variable CMin_Harw_10_20;

Carbon mineralization rate for the 10-20 cm soil layer at the Harwood site

```

Rey_V19= modelFitTS_Markdown(db = db[[22]], ts.col = 19, ic.col = 18, unitConverter = 1,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.01, 0.001, 0.01, 0.1),
                                             feedback=c(0.01, 0.001, 0.001, 0.01, 0.1)))

```

```

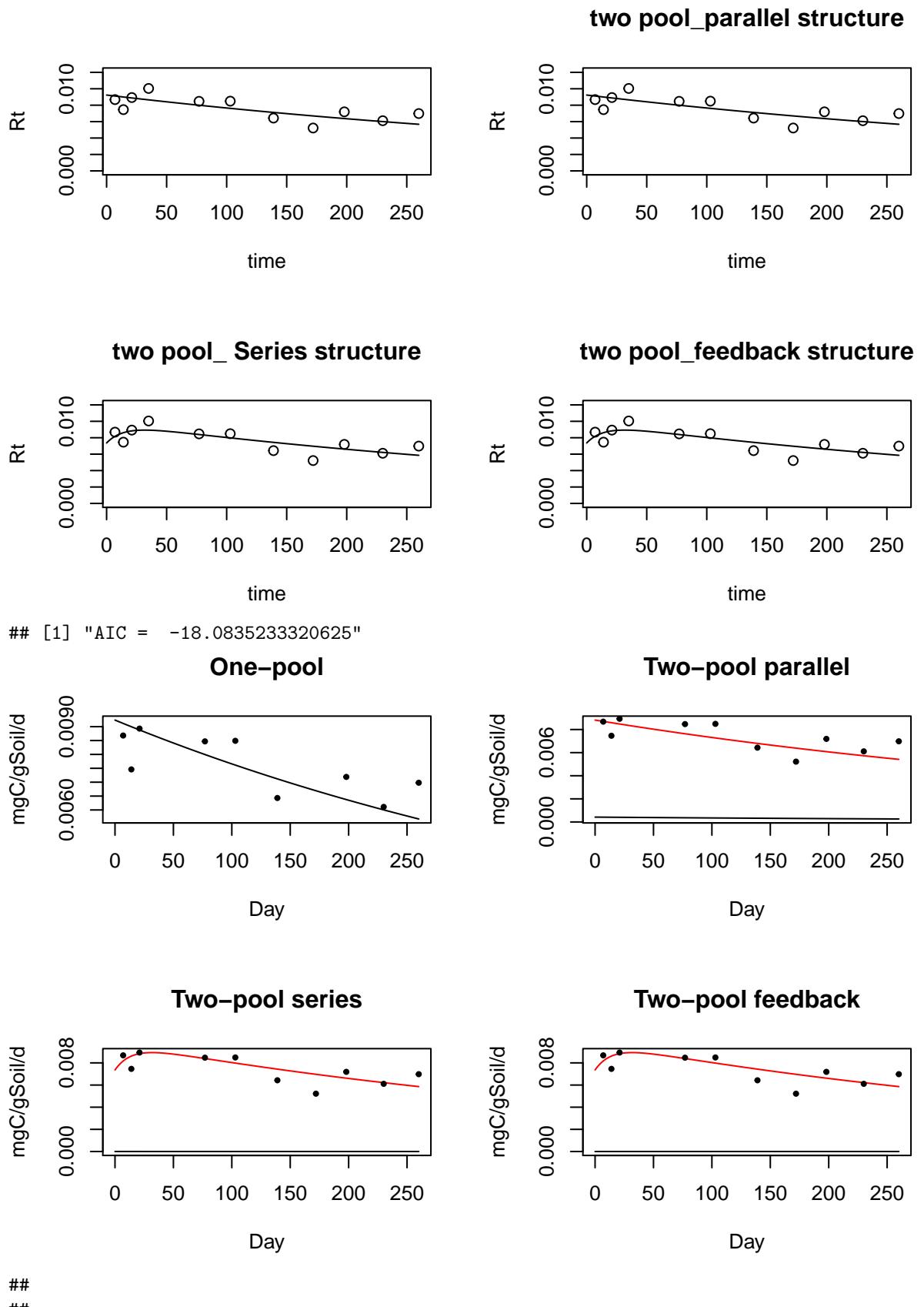
## [1] "Rey2008EJSS; variable: CMin_Harw_10_20"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00187360487497834"

## [1] "AIC = -25.7241391736271"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00187367841793035"
## [2] "k2= 0.00187359903273309"
## [3] "proportion of CO in pool 1= 0.0454164147794608"

## [1] "AIC = -21.7241391736562"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0705967276263966"
## [2] "k2= 0.00196981436202842"
## [3] "a21= 0.999971238199059"
## [4] "Proportion of CO in pool 1= 0.242260428037501"

## [1] "AIC = -20.0835233339483"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0706027795922913"
## [2] "k2= 0.00197020008721511"
## [3] "a21= 0.999999186269298"
## [4] "a12= 0.000191937919100715"
## [5] "Proportion of CO in pool 1= 0.242035275415387"

```



```

## |model          |k1      |k2      |COInp1 |a21   |a12   |
## |:-----|:-----|:-----|:-----|:---|:-----|
## |One-pool      |0.00187 |NA      |NA      |NA    |NA    |
## |Two-pool parallel|0.00187 |0.00187 |0.0454 |NA    |NA    |
## |Two-pool series  |0.0706  |0.00197 |0.242  |1     |NA    |
## |Two-pool feedback |0.0706  |0.00197 |0.242  |1     |0.242 |
##
##
## |model          |AIC    |BIC    |AICn   |AICc   |wi    |MeanTrT |q05   |SSR    |MSR   |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-25.7  |-23.7  |-802   |-25.7  |0.866 |4.93   |NA    |1.05e-05 |9.55e-07 |
## |Two-pool parallel|-21.7  |-15.5  |-798   |-21.3  |0.0973 |534    |1370  |1.05e-05 |9.55e-07 |
## |Two-pool series  |-20.1  |-11.8  |-806   |-19.3  |0.0367 |522    |1366  |8.77e-06 |7.98e-07 |
## |Two-pool feedback |-18.1  |-7.78  |-804   |-16.9  |0.0111 |522    |1366  |8.77e-06 |7.98e-07 |

```

Variable CMin_Wetz_0_5;

Carbon mineralization rate for the 0-5 cm soil layer at the Wetzstein site

```

Rey_V20= modelFitTS_Markdown(db = db[[22]], ts.col = 20, ic.col = 19, unitConverter = 1,
                           inipars=list(oneP=0.1,
                                         parallel=c(0.01, 0.001, 0.1),
                                         series=c(0.01, 0.0001, 0.01, 0.1),
                                         feedback=c(0.01, 0.0001, 0.01, 0.01, 0.1)))

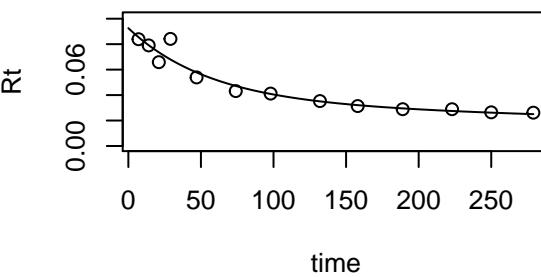
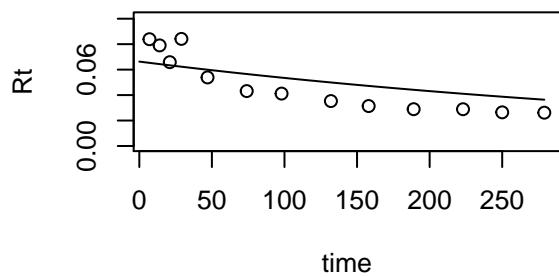
```

```

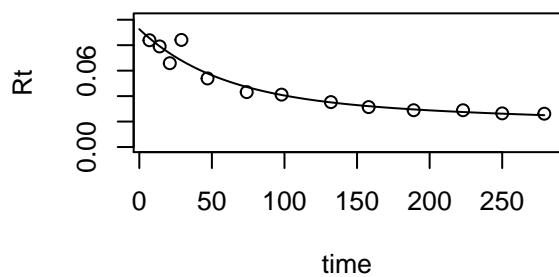
## [1] "Rey2008EJSS; variable: CMin_Wetz_0_5"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00215200185464681"
## [1] "AIC = -15.0999988069587"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0179473195404873"
## [2] "k2= 0.00127186527964327"
## [3] "proportion of CO in pool 1= 0.103905531885232"
## [1] "AIC = -14.9903837371113"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0179475519923864"
## [2] "k2= 0.00127187082935072"
## [3] "a21= 3.66519258772624e-05"
## [4] "Proportion of CO in pool 1= 0.103908181762003"
## [1] "AIC = -12.9903837374152"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0179475421452021"
## [2] "k2= 0.00127187061167374"
## [3] "a21= 0.000268245222333985"
## [4] "a12= 2.75564988760357e-05"
## [5] "Proportion of CO in pool 1= 0.103935885257379"

```

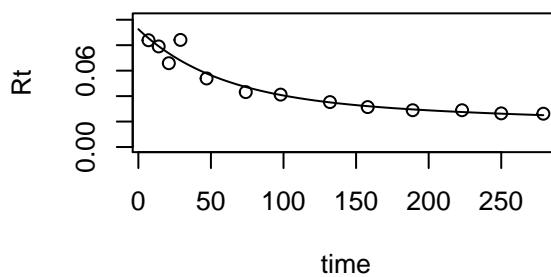
two pool_parallel structure



two pool_Series structure

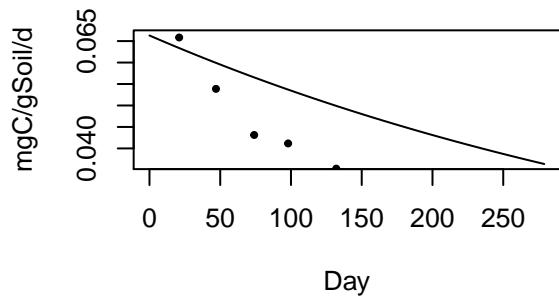


two pool_feedback structure

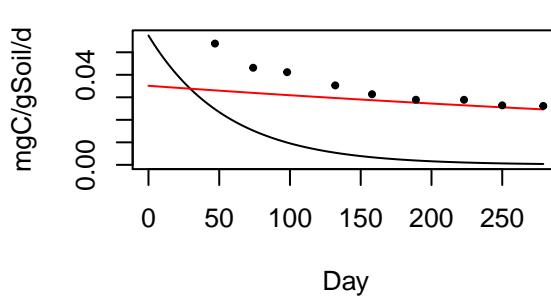


```
## [1] "AIC = -10.9903837372896"
```

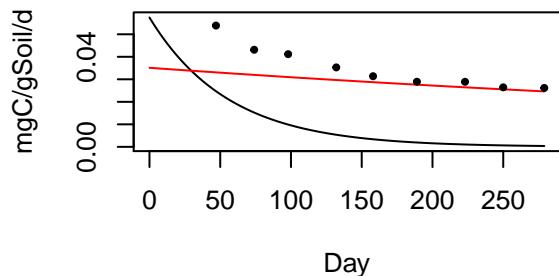
One-pool



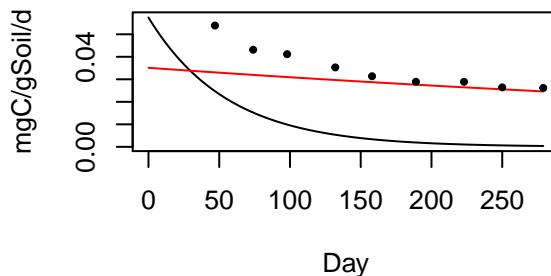
Two-pool parallel



Two-pool series



Two-pool feedback



```
##  
##
```

```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00215|NA|NA|NA|NA|
## |Two-pool parallel|0.0179|0.00127|0.104|NA|NA|
## |Two-pool series|0.0179|0.00127|0.104|3.67e-05|NA|
## |Two-pool feedback|0.0179|0.00127|0.104|0.000268|0.104|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-15.1|-13|-494|-15|0.492|30.8|NA|0.00252|0.000194|
## |Two-pool parallel|-15|-8.81|-603|-14.5|0.386|333|76.9|0.00036|1.277e-05|
## |Two-pool series|-13|-4.75|-601|-12.2|0.122|55.7|38.6|0.00036|1.277e-05|
## |Two-pool feedback|-11|-0.688|-599|-9.84|0.0367|55.9|38.6|0.00036|1.277e-05|

```

Variable CMin_Wetz_5_10;

Carbon mineralization rate for the 5-10 cm soil layer at the Wetztein site

```

Rey_V21= modelFitTS_Markdown(db = db[[22]], ts.col = 21, ic.col = 20, unitConverter = 1,
                           inipars=list(oneP=0.1,
                                         parallel=c(0.01, 0.001, 0.1),
                                         series=c(0.01, 0.0001, 0.01, 0.1),
                                         feedback=c(0.01, 0.0001, 0.01, 0.01, 0.1)))

```

```

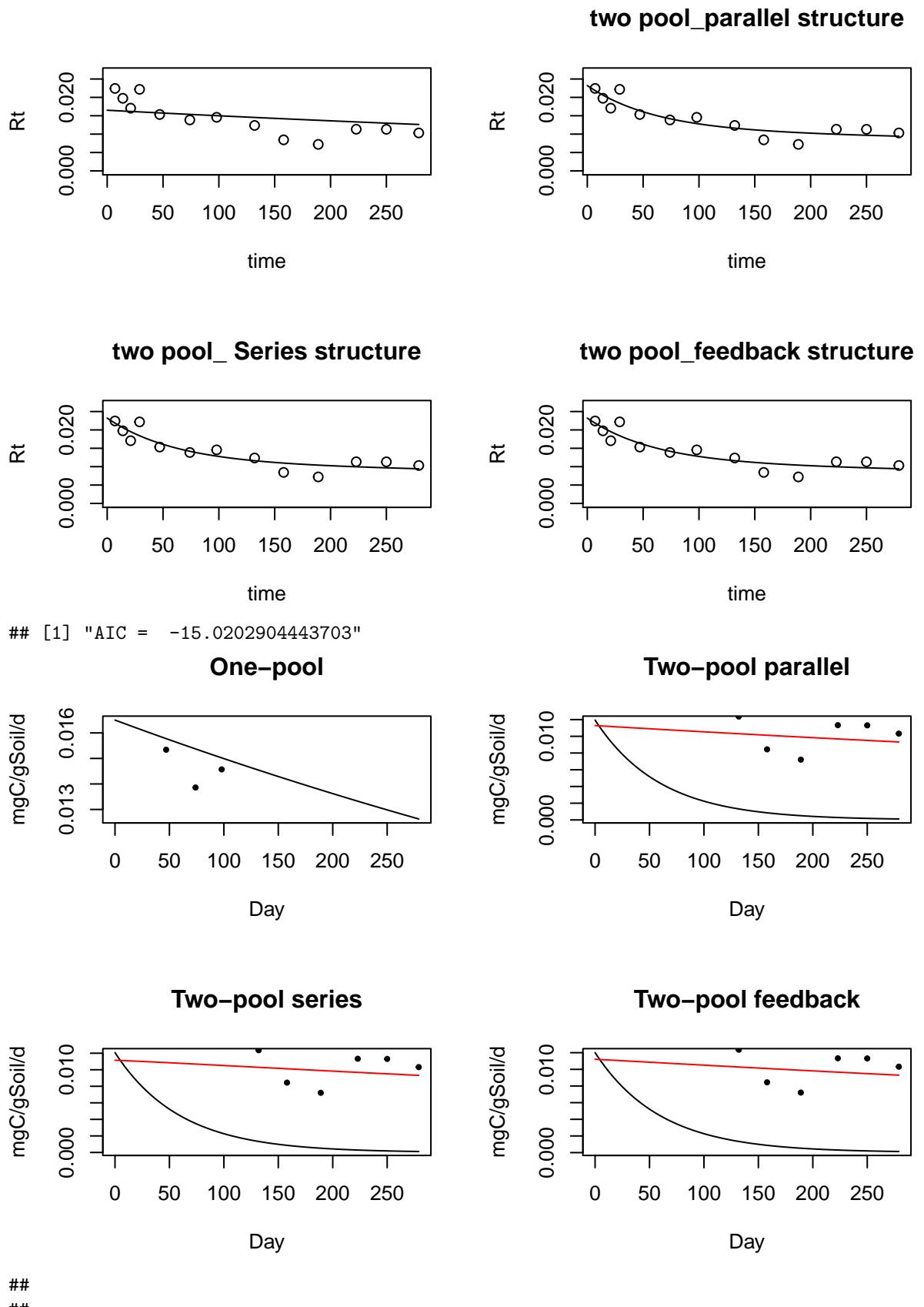
## [1] "Rey2008EJSS; variable: CMin_Wetz_5_10"
## [1] "One pool model"
## [1] "Best fit parameter: 0.000959475464012982"

## [1] "AIC = -20.3494912711312"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0167206994351073"
## [2] "k2= 0.000684384528950328"
## [3] "proportion of CO in pool 1= 0.0415182819194316"

## [1] "AIC = -19.0202904441982"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0167204510462161"
## [2] "k2= 0.000684382440030114"
## [3] "a21= 0.205610134785591"
## [4] "Proportion of CO in pool 1= 0.0528488491022207"

## [1] "AIC = -17.0202904443908"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.016720226273187"
## [2] "k2= 0.00068451844334772"
## [3] "a21= 0.0855740497558526"
## [4] "a12= 0.00223951061320615"
## [5] "Proportion of CO in pool 1= 0.0456781970546792"

```



```

## |model          |k1        |k2        |COInp1 |a21      |a12      |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.000959 |NA        |NA      |NA      |NA      |
## |Two-pool parallel |0.0167   |0.000684 |0.0415  |NA      |NA      |
## |Two-pool series    |0.0167   |0.000684 |0.0528  |0.206   |NA      |
## |Two-pool feedback  |0.0167   |0.000685 |0.0457  |0.0856  |0.0528  |
##
##
## |model          |AIC      |BIC      |AICn     |AICc     |wi      |MeanTrT |q05      |SSR      |MSR      |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-20.3    |-18.3    |-646     |-20.3    |0.64    |17.2    |NA       |0.000182 |1.4e-05  |
## |Two-pool parallel |-19     |-12.8    |-720     |-18.6    |0.273   |741     |132      |4.8e-05  |1.369e-06 |
## |Two-pool series    |-17     |-8.78    |-718     |-16.3    |0.0861  |360     |158.8    |4.8e-05  |1.369e-06 |
## |Two-pool feedback  |-15     |-4.72    |-716     |-13.9    |0.026   |185     |147.2    |4.8e-05  |1.369e-06 |

```

Variable CMin_Wetz_10_20;

Carbon mineralization rate for the 10-20 cm soil layer at the Wetzstein site

```

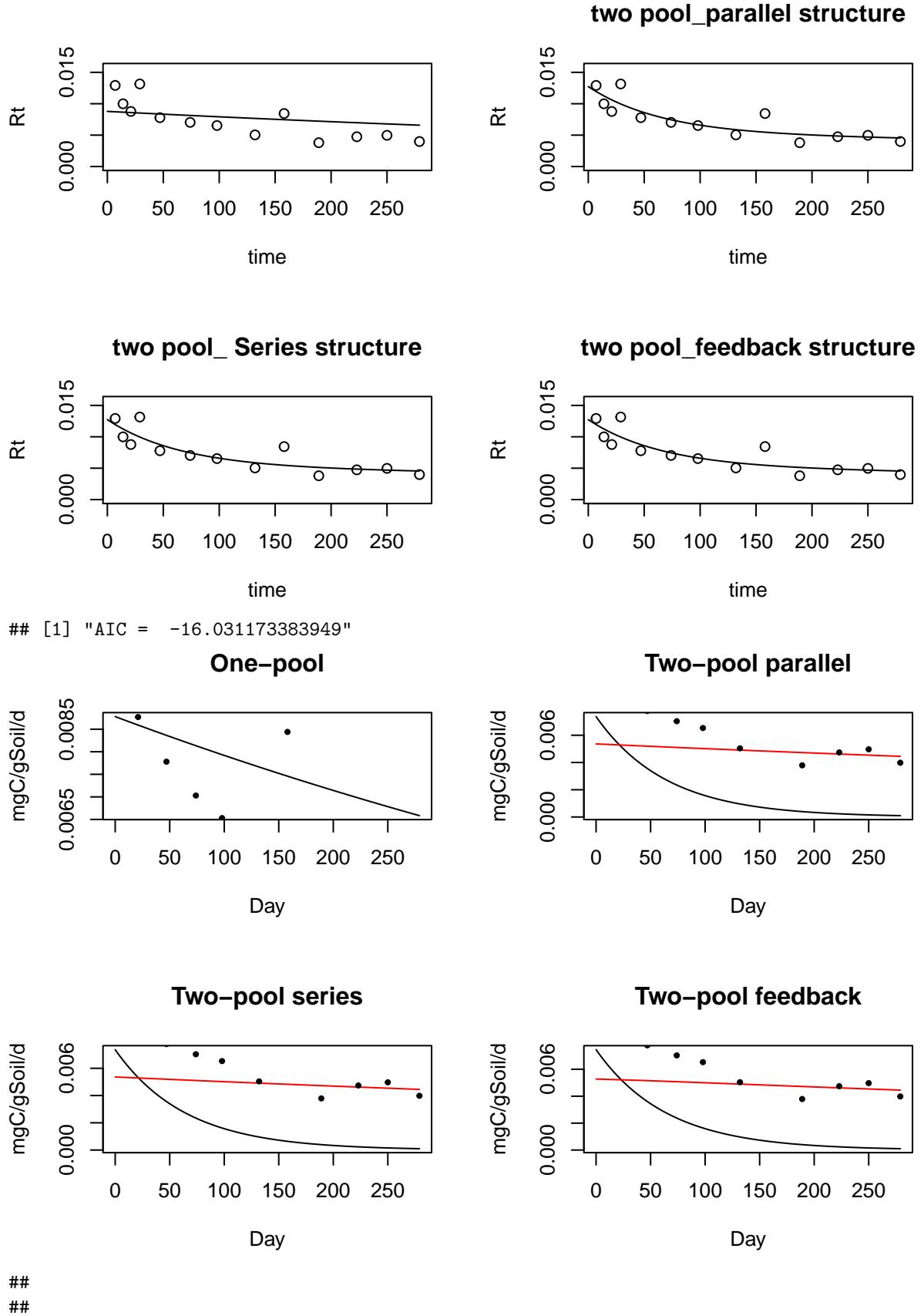
Rey_V22= modelFitTS_Markdown(db = db[[22]], ts.col = 22, ic.col = 21, unitConverter = 1,
                           inipars=list(oneP=0.1,
                                         parallel=c(0.01, 0.001, 0.1),
                                         series=c(0.01, 0.0001, 0.01, 0.1),
                                         feedback=c(0.01, 0.0001, 0.01, 0.01)))

```

```

## [1] "Rey2008EJSS; variable: CMin_Wetz_10_20"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0010317139618099"
## [1] "AIC = -22.0182974841439"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0154731228673834"
## [2] "k2= 0.000667618084369137"
## [3] "proportion of CO in pool 1= 0.0559682923910525"
## [1] "AIC = -20.031173401277"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0154731768785485"
## [2] "k2= 0.000667618775975008"
## [3] "a21= 0.000298905514174386"
## [4] "Proportion of CO in pool 1= 0.0559854423785616"
## [1] "AIC = -18.0311734012626"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0154698964916717"
## [2] "k2= 0.000667591576684462"
## [3] "a21= 0.209266410301978"
## [4] "a12= 9.87392217062233e-05"
## [5] "Proportion of CO in pool 1= 0.0716544157495264"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.00103|NA|NA|NA|NA|
## |Two-pool parallel|0.0155|0.000668|0.056|NA|NA|
## |Two-pool series|0.0155|0.000668|0.056|0.000299|NA|
## |Two-pool feedback|0.0155|0.000668|0.0717|0.209|0.056|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|-22|-20|-695|-21.9|0.712|8.51|NA|7.91e-05|6.09e-06|
## |Two-pool parallel|-20|-13.8|-749|-19.6|0.219|668|108|2.89e-05|2.23e-06|
## |Two-pool series|-18|-9.79|-747|-17.3|0.0689|65.1|44.8|2.89e-05|2.23e-06|
## |Two-pool feedback|-16|-5.73|-745|-14.9|0.0208|378|64|2.89e-05|2.23e-06|

```

Variable CMin_Loob_0_5;

Carbon mineralization rate for the 0-5 cm soil layer at the Loobos site

```

Rey_V23= modelFitTS_Markdown(db = db[[22]], ts.col = 23, ic.col = 22, unitConverter = 1,
                                inipars=list(oneP=0.1,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.01, 0.0001, 0.001, 0.1),
                                             feedback=c(0.01, 0.0001, 0.01, 0.01, 0.1)))

```

```

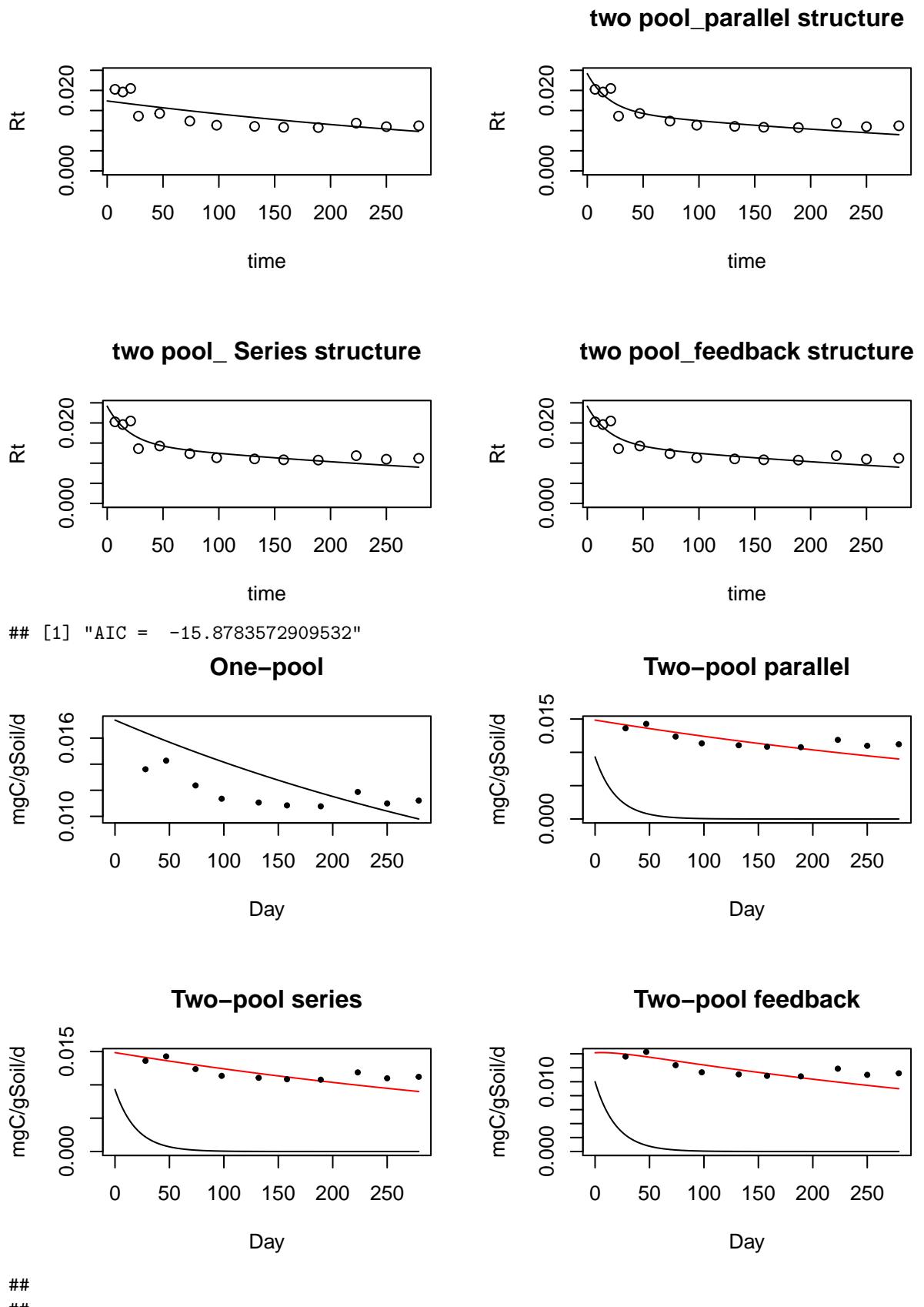
## [1] "Rey2008EJSS; variable: CMin_Loob_0_5"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00205459785955675"

## [1] "AIC = -22.2984638096724"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.051657403870677"
## [2] "k2= 0.00179258396530236"
## [3] "proportion of CO in pool 1= 0.0213135605326547"

## [1] "AIC = -19.8783571510111"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0516573796274855"
## [2] "k2= 0.00179258369869427"
## [3] "a21= 1.3798065121029e-06"
## [4] "Proportion of CO in pool 1= 0.0213136107870494"

## [1] "AIC = -17.8783571510905"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0516529732125001"
## [2] "k2= 0.00179311981106231"
## [3] "a21= 0.65687245918879"
## [4] "a12= 0.000446127988195599"
## [5] "Proportion of CO in pool 1= 0.0667251492889481"

```



```

## |model          |k1      |k2      |COInp1 |a21      |a12      |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.00205 |NA      |NA      |NA      |NA      |
## |Two-pool parallel |0.0517  |0.00179 |0.0213 |NA      |NA      |
## |Two-pool series   |0.0517  |0.00179 |0.0213 |1.38e-06 |NA      |
## |Two-pool feedback  |0.0517  |0.00179 |0.0667 |0.657    |0.0213  |
##
##
## |model          |AIC     |BIC     |AICn    |AICc     |wi      |MeanTrT |q05     |SSR      |MSR      |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-22.3   |-20.2   |-703    |-22.2    |0.754   |8.46    |NA      |6.88e-05 |5.29e-06 |
## |Two-pool parallel |-19.9   |-13.7   |-744    |-19.4    |0.187   |350     |116     |3.12e-05 |1.24e-06 |
## |Two-pool series    |-17.9   |-9.64   |-742    |-17.1    |0.0588  |19.4    |13.4    |3.12e-05 |1.24e-06 |
## |Two-pool feedback   |-15.9   |-5.58   |-740    |-14.7    |0.0177  |386     |172     |3.12e-05 |1.24e-06 |

```

Variable CMin_Loob_5_10;

Carbon mineralization rate for the 5-10 cm soil layer at the Loobos site

```

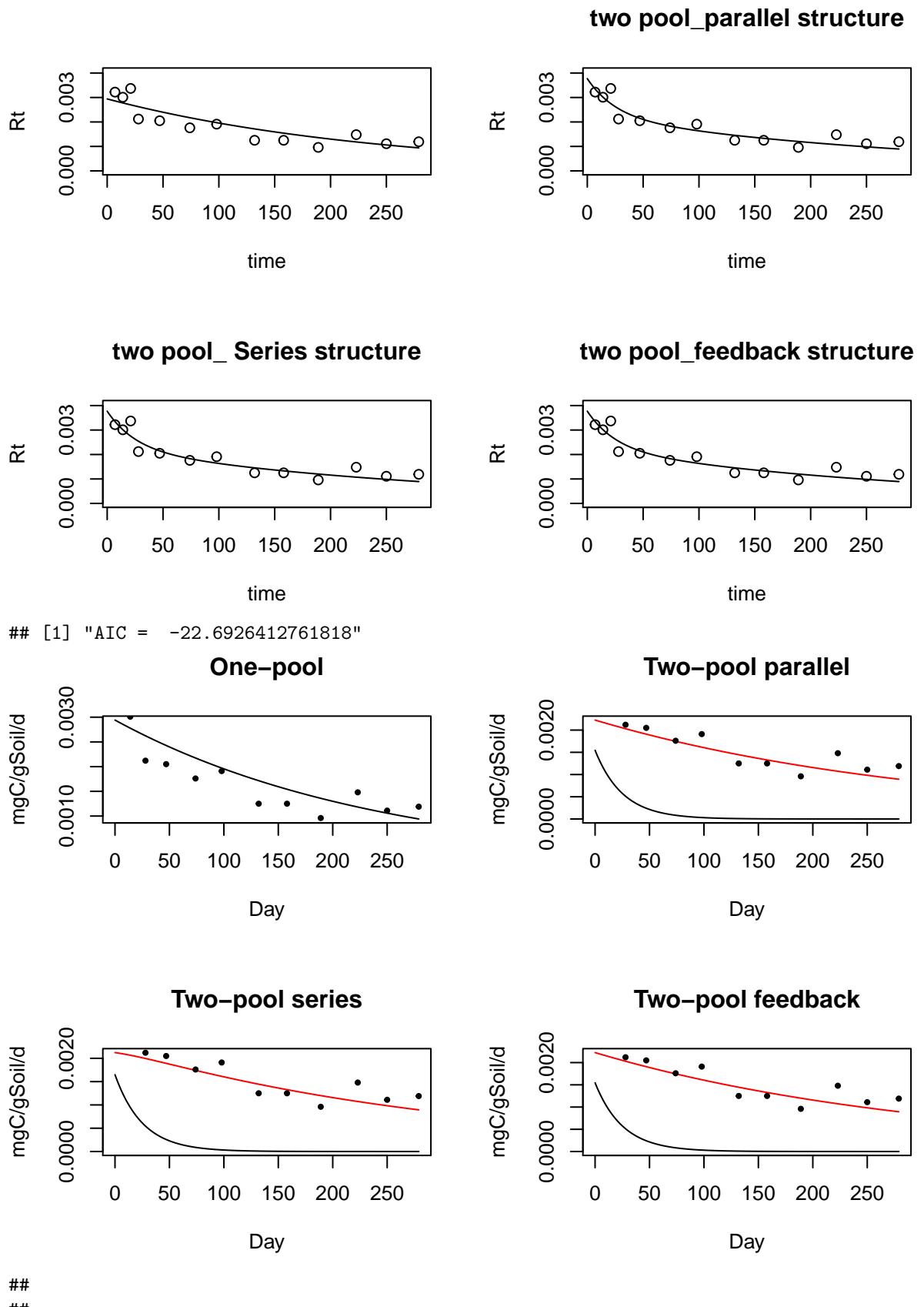
Rey_V24= modelFitTS_Markdown(db = db[[22]], ts.col = 24, ic.col = 23, unitConverter = 1,
                           inipars=list(oneP=0.1,
                                         parallel=c(0.01, 0.001, 0.1),
                                         series=c(0.01, 0.0001, 0.01, 0.1),
                                         feedback=c(0.01, 0.001, 0.01, 0.01, 0.1)))

```

```

## [1] "Rey2008EJSS; variable: CMin_Loob_5_10"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00408553558468938"
## [1] "AIC = -29.5637999141256"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0394817855551339"
## [2] "k2= 0.00326836929110455"
## [3] "proportion of CO in pool 1= 0.0543989903079291"
## [1] "AIC = -26.6926412723244"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0394763517211301"
## [2] "k2= 0.00326831225303179"
## [3] "a21= 0.407116072890037"
## [4] "Proportion of CO in pool 1= 0.0978259965795457"
## [1] "AIC = -24.6926412744566"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0394794764281946"
## [2] "k2= 0.00326834505037992"
## [3] "a21= 0.000376808951525365"
## [4] "a12= 5.89291780025425e-05"
## [5] "Proportion of CO in pool 1= 0.0544290867657969"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00409|NA|NA|NA|NA|
## |Two-pool parallel|0.0395|0.00327|0.0544|NA|NA|
## |Two-pool series|0.0395|0.00327|0.0978|0.407|NA|
## |Two-pool feedback|0.0395|0.00327|0.0544|0.000377|0.0978|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-29.6|-27.5|-913|-29.5|0.794|0.72|NA|1.82e-06|1.4e-07|
## |Two-pool parallel|-26.7|-20.5|-942|-26.2|0.157|191|168.1|1.03e-06|17.96e-08|
## |Two-pool series|-24.7|-16.5|-940|-23.9|0.0494|150|140.7|1.03e-06|17.96e-08|
## |Two-pool feedback|-22.7|-12.4|-938|-21.5|0.0149|25.4|17.6|1.03e-06|17.96e-08|

```

Variable CMin_Loob_10_20;

Carbon mineralization rate for the 10-20 cm soil layer at the Loobos site

```

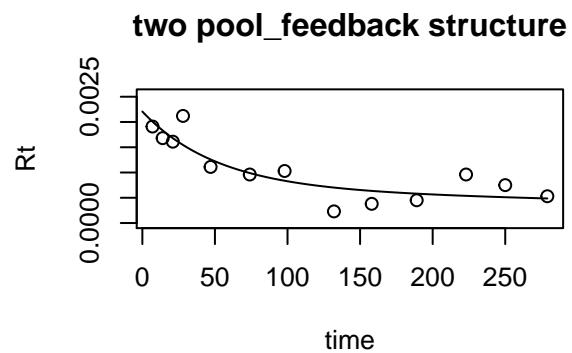
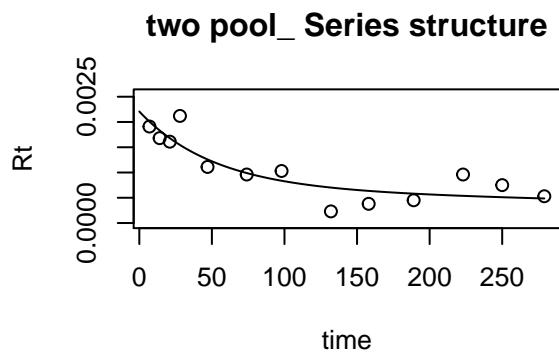
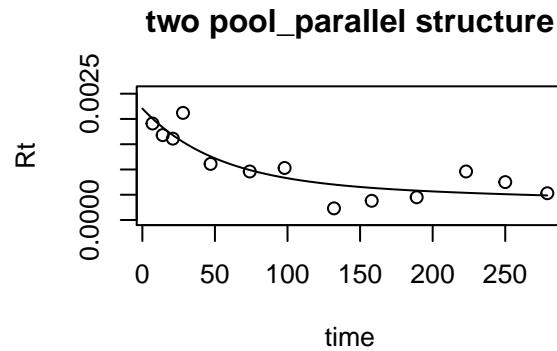
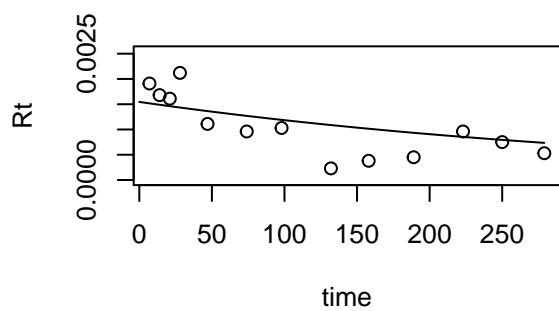
Rey_V25= modelFitTS_Markdown(db = db[[22]], ts.col = 25, ic.col = 24, unitConverter = 1,
                           inipars=list(oneP=0.1,
                                         parallel=c(0.01, 0.001, 0.1),
                                         series=c(0.01, 0.001, 0.001, 0.5),
                                         feedback=c(0.01, 0.0001, 0.01, 0.01, 0.1)))

```

```

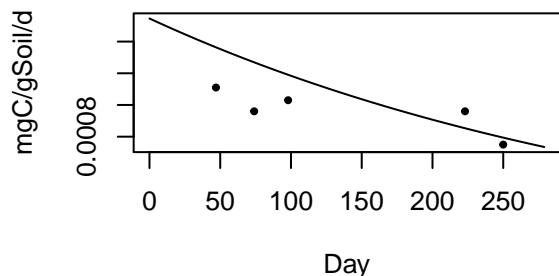
## [1] "Rey2008EJSS; variable: CMin_Loob_10_20"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00266504072471818"
## [1] "AIC = -29.0990354498405"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0197005082086124"
## [2] "k2= 0.00141191098166028"
## [3] "proportion of CO in pool 1= 0.130888648556385"
## [1] "AIC = -26.8209888779019"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0196968485073309"
## [2] "k2= 0.00141180449216173"
## [3] "a21= 0.670051652110726"
## [4] "Proportion of CO in pool 1= 0.470549803525138"
## [1] "AIC = -24.8209888732296"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0196984986052281"
## [2] "k2= 0.00141185373775661"
## [3] "a21= 0.000914933423719344"
## [4] "a12= 2.71288802861092e-06"
## [5] "Proportion of CO in pool 1= 0.131031312310194"

```

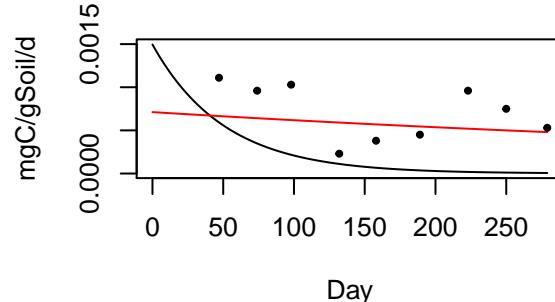


```
## [1] "AIC = -22.8209888828348"
```

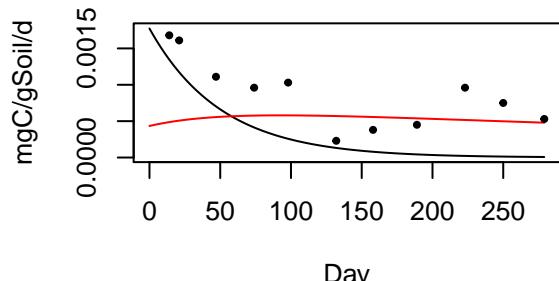
One-pool



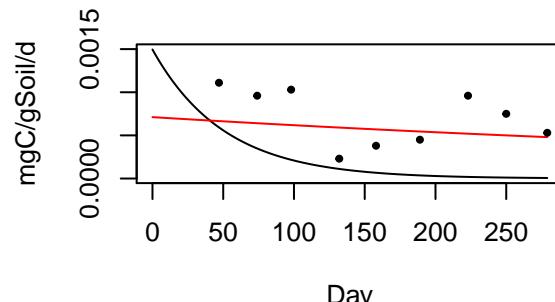
Two-pool parallel



Two-pool series



Two-pool feedback



```
##  
##
```

```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00267|NA|NA|NA|NA|
## |Two-pool parallel|0.0197|0.00141|0.131|NA|NA|
## |Two-pool series|0.0197|0.00141|0.471|0.67|NA|
## |Two-pool feedback|0.0197|0.00141|0.131|0.000915|0.471|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-29.1|-27|-900|-29|0.741|0.58|NA|2.3e-06|1.77e-07|
## |Two-pool parallel|-26.8|-20.6|-946|-26.4|0.197|263|160.9|9.7e-07|7.46e-08|
## |Two-pool series|-24.8|-16.6|-944|-24.1|0.062|525|1262|9.7e-07|7.46e-08|
## |Two-pool feedback|-22.8|-12.5|-942|-21.7|0.0187|51.4|135.2|9.7e-07|7.46e-08|

```

Dataset Sierra2017BG

Variable TMO_25_15_20;

Respiration rates

```

Sierra_V2=modelFitTS_Markdown(db = db[[24]], ts.col = 2, ic.col = 1, unitConverter = 0.01,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.5, 0.01, 0.5),
                                             series=c(0.5, 0.01, 0.01, 0.5),
                                             feedback=c(0.1, 0.01, 0.01, 0.1, 0.5)))

```

```

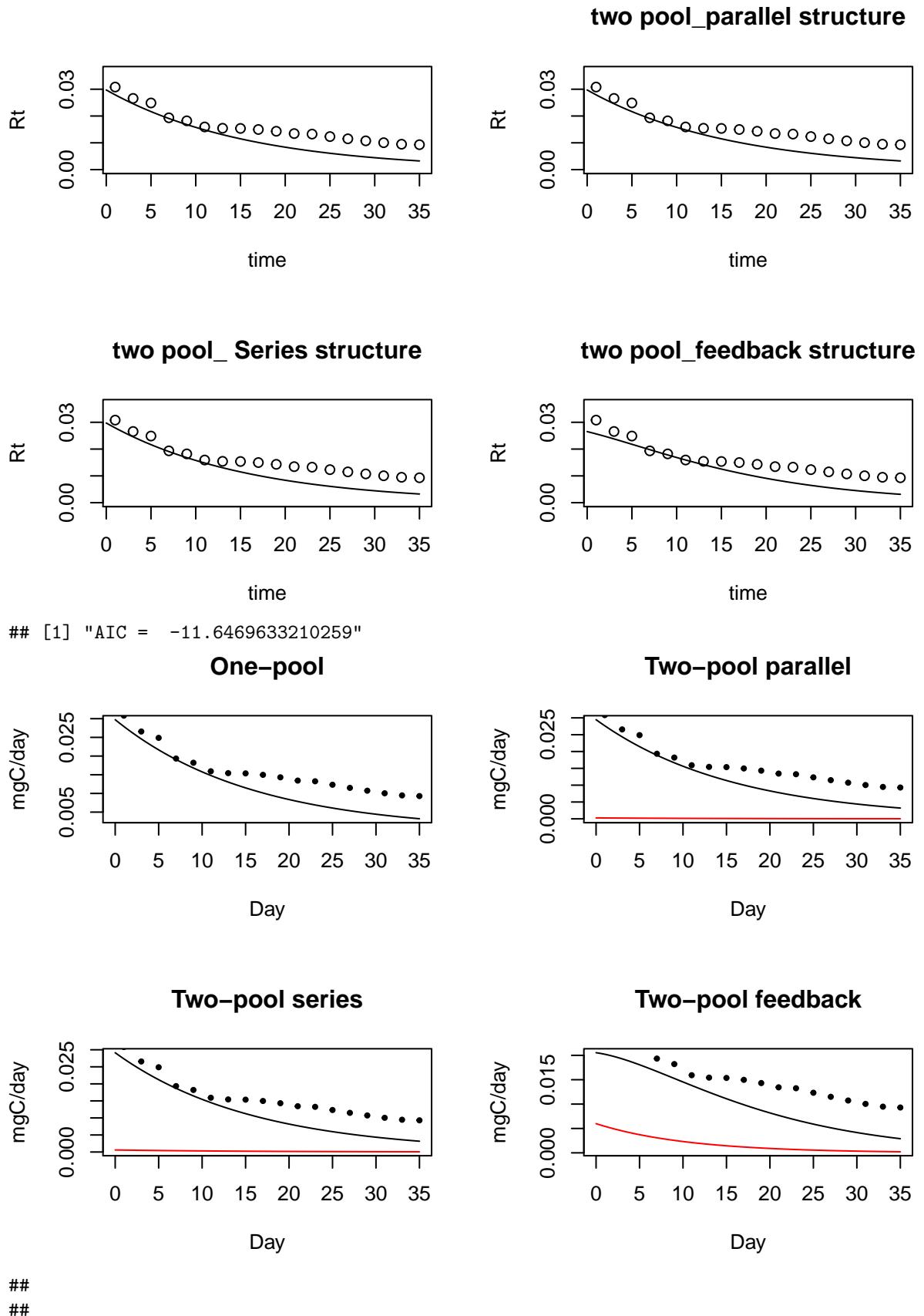
## [1] "Sierra2017BG; variable: TMO_25_15_20"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0634010138240182"

## [1] "AIC = -19.4894784146389"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0633997095834992"
## [2] "k2= 0.0634099515601571"
## [3] "proportion of CO in pool 1= 0.990902515856532"

## [1] "AIC = -15.4894784144744"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.063411807801869"
## [2] "k2= 0.0639618721106547"
## [3] "a21= 0.000360063665485466"
## [4] "Proportion of CO in pool 1= 0.980062699517281"

## [1] "AIC = -13.4894815238068"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0947504110410315"
## [2] "k2= 0.0947023648946911"
## [3] "a21= 0.000375345527407978"
## [4] "a12= 0.749321733139767"
## [5] "Proportion of CO in pool 1= 0.46235658075635"

```



```

## |model          |k1      |k2      |COInp1 |a21      |a12   |
## |:-----|:-----|:-----|:-----|:-----|:----|
## |One-pool      |0.0634 |NA      |NA      |NA      |NA    |
## |Two-pool parallel|0.0634 |0.0634 |0.991  |NA      |NA    |
## |Two-pool series  |0.0634 |0.064  |0.98   |0.00036 |NA    |
## |Two-pool feedback |0.0948 |0.0947 |0.462  |0.000375|0.98  |
##
##
## |model          |AIC     |BIC     |AICn   |AICc    |wi     |MeanTrT |q05    |SSR     |MSR    |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-19.5   |-18.6   |-191   |-19.2   |0.928  |0.469  |NA     |0.000388|2.16e-05 |
## |Two-pool parallel|-15.5   |-12.8   |-187   |-13.8   |0.0604 |15.8   |10.9   |0.000388|2.16e-05 |
## |Two-pool series  |-13.5   |-9.93   |-185   |-10.4   |0.0112 |15.8   |10.9   |0.000388|2.16e-05 |
## |Two-pool feedback |-11.6   |-7.2    |-185   |-6.65   |0.00171|10.6   |7.32   |0.000359|1.99e-05 |

```

Variable TMO_25_15_1;

Respiration rates

```

##
Sierra_V3=modelFitTS_Markdown(db = db[[24]], ts.col = 3, ic.col = 1, unitConverter = 0.01,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.5, 0.01, 0.5),
                                             series=c(0.5, 0.01, 0.01, 0.5),
                                             feedback=c(0.1, 0.01, 0.01, 0.1, 0.5)))

```

```

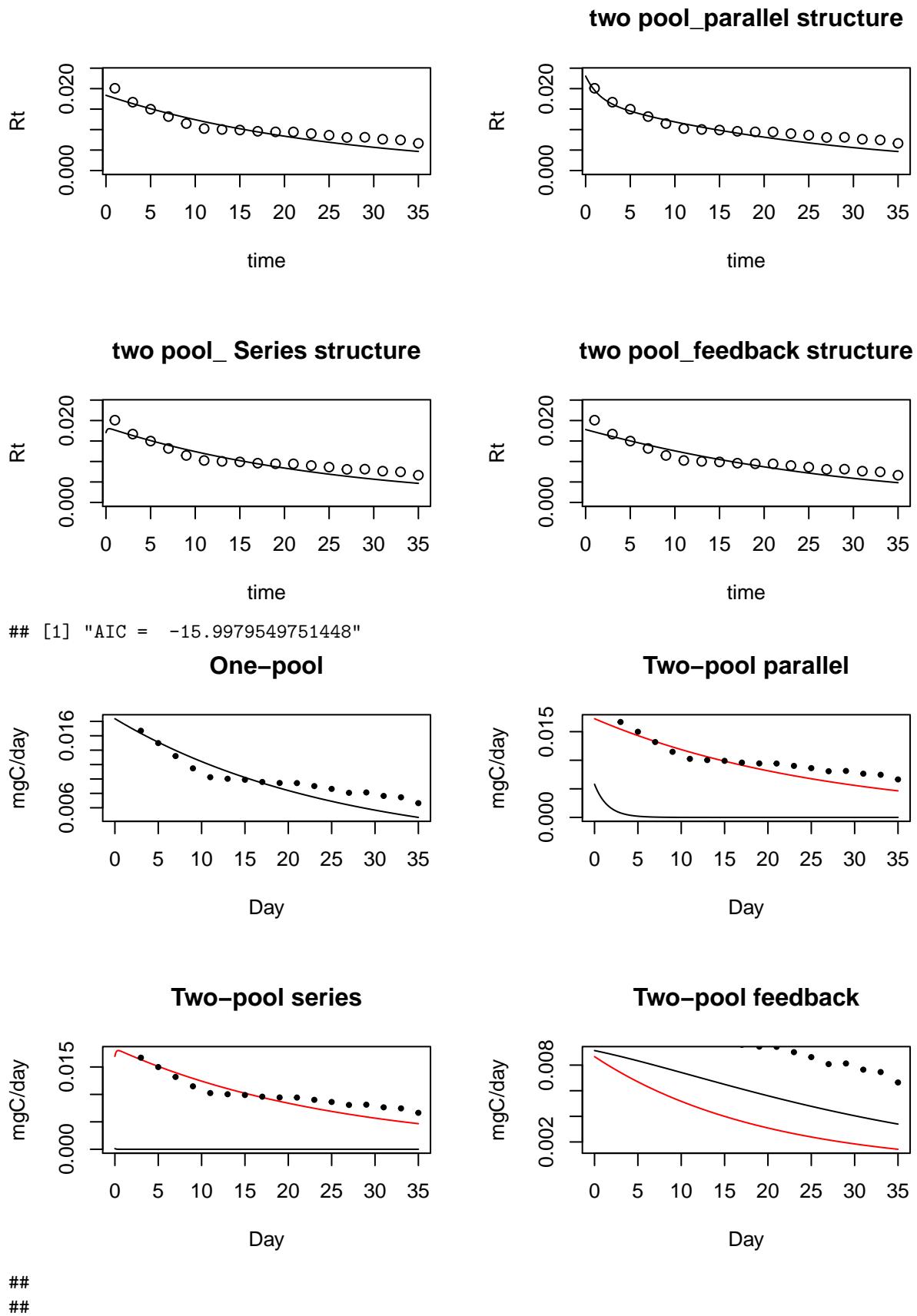
## [1] "Sierra2017BG; variable: TMO_25_15_1"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0391734998728843"

## [1] "AIC = -23.8962203013413"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.66643046564617"
## [2] "k2= 0.0375203715981409"
## [3] "proportion of CO in pool 1= 0.0185629045475175"

## [1] "AIC = -20.1936000988707"
## [1] "Two pool model-Series structure"
## [1] "k1= 6.7831893658569"
## [2] "k2= 0.0391560143543456"
## [3] "a21= 0.999494419281067"
## [4] "Proportion of CO in pool 1= 0.0781393937437794"

## [1] "AIC = -17.8990443052435"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0519016363760811"
## [2] "k2= 0.0517260160572143"
## [3] "a21= 0.00427826395190817"
## [4] "a12= 0.426832350448702"
## [5] "Proportion of CO in pool 1= 0.376922082385348"

```



```

## |model          |k1      |k2      |COInp1 |a21      |a12      |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.0392 |NA      |NA      |NA      |NA      |
## |Two-pool parallel |0.666  |0.0375 |0.0186 |NA      |NA      |
## |Two-pool series   |6.78    |0.0392 |0.0781 |0.999   |NA      |
## |Two-pool feedback  |0.0519 |0.0517 |0.377  |0.00428 |0.0781 |
##
##
## |model          |AIC     |BIC     |AICn   |AICc    |wi      |MeanTrT |q05    |SSR     |MSR     |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-23.9   |-23    |-231   |-23.6   |0.919   |0.469   |NA     |4.29e-05 |2.38e-06 |
## |Two-pool parallel |-20.2   |-17.5  |-230   |-18.5   |0.0694  |20.3    |10.8   |3.69e-05 |2.05e-06 |
## |Two-pool series    |-17.9   |-14.3  |-225   |-14.8   |0.0112  |25.7    |17.8   |4.28e-05 |2.38e-06 |
## |Two-pool feedback  |-16     |-11.5  |-224   |-11     |0.00165 |19.4    |13.4   |4.07e-05 |2.26e-06 |

```

Variable TMO_25_30_20;

Respiration rates

```

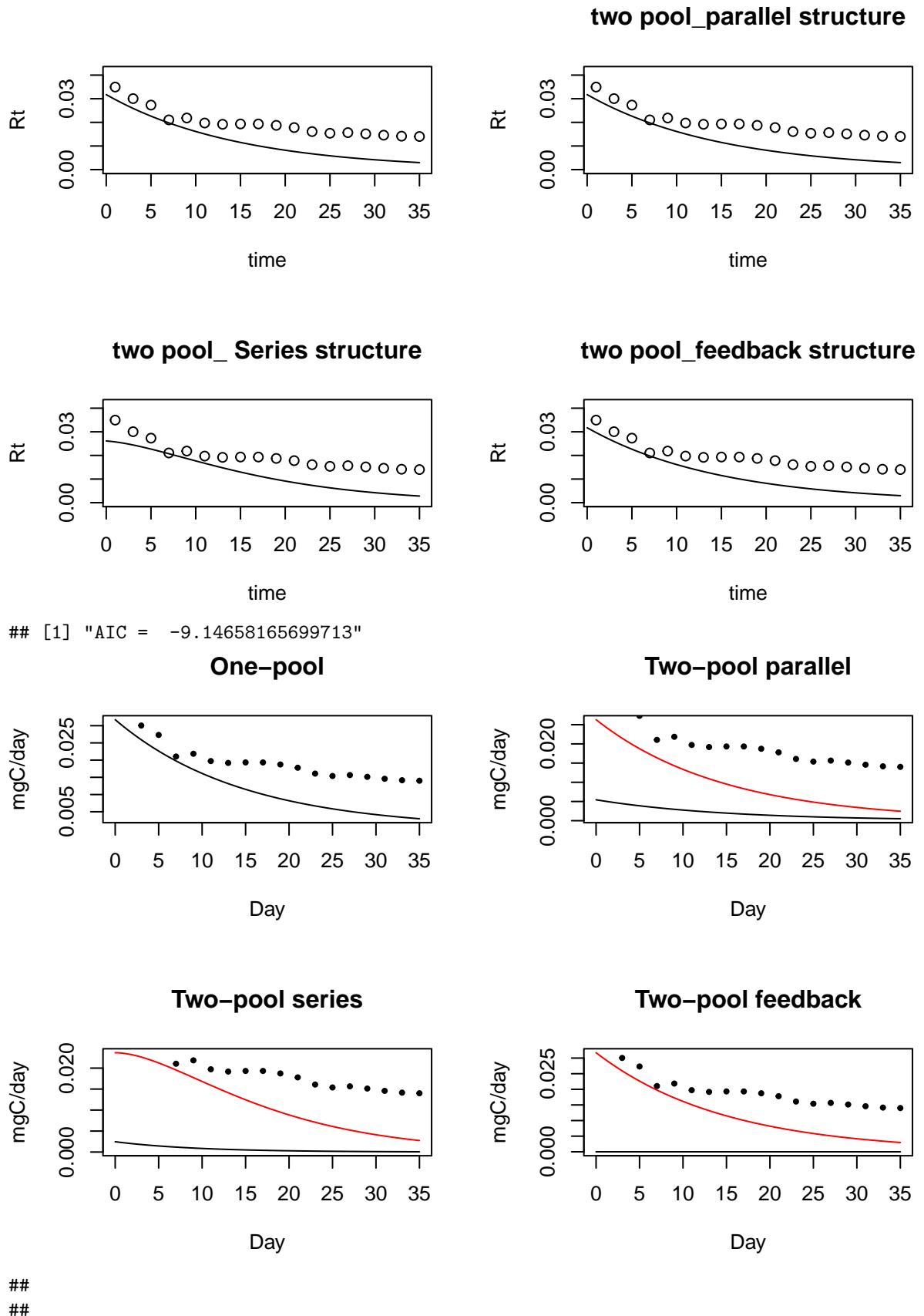
Sierra_V4=modelFitTS_Markdown(db = db[[24]], ts.col = 4, ic.col = 1, unitConverter = 0.01,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.5, 0.01, 0.5),
                                             series=c(0.5, 0.01, 0.01, 0.5),
                                             feedback=c(0.5, 0.01, 0.1, 0.01, 0.1)))

```

```

## [1] "Sierra2017BG; variable: TMO_25_30_20"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0676938737125798"
## [1] "AIC = -17.1465221031884"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0676986594644449"
## [2] "k2= 0.0676955850870589"
## [3] "proportion of CO in pool 1= 0.171462356919713"
## [1] "AIC = -13.1465221032178"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.105457801223113"
## [2] "k2= 0.105469422317892"
## [3] "a21= 0.904842053899052"
## [4] "Proportion of CO in pool 1= 0.521507303790924"
## [1] "AIC = -11.262269027528"
## [1] "Two pool model-feedback structure"
## [1] "k1= 1.95505383709971"
## [2] "k2= 0.0676974069608627"
## [3] "a21= 0.996396479980015"
## [4] "a12= 3.09337804027532e-06"
## [5] "Proportion of CO in pool 1= 0.000970286884844185"

```



```

## |model          |k1      |k2      |COInp1  |a21    |a12   |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.0677 |NA      |NA      |NA     |NA    |
## |Two-pool parallel|0.0677 |0.0677 |0.171   |NA     |NA    |
## |Two-pool series  |0.105   |0.105   |0.522   |0.905  |NA    |
## |Two-pool feedback |1.96    |0.0677 |0.00097 |0.996  |0.522 |
##
##
## |model          |AIC     |BIC     |AICn   |AICc   |wi     |MeanTrT |q05    |SSR    |MSR    |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-17.1   |-16.3   |-170   |-16.9  |0.928  |0.469   |NA     |0.00125 |6.96e-05 |
## |Two-pool parallel|-13.1   |-10.5   |-166   |-11.4  |0.0604 |14.8    |10.2   |0.00125 |6.96e-05 |
## |Two-pool series  |-11.3   |-7.7    |-165   |-8.19  |0.0119 |18.1    |15     |0.00118 |6.57e-05 |
## |Two-pool feedback |-9.15  |-4.69   |-162   |-4.15  |0.00158|15.2    |10.7   |0.00125 |6.96e-05 |

```

Variable TMO_25_30_1;

Respiration rates

```

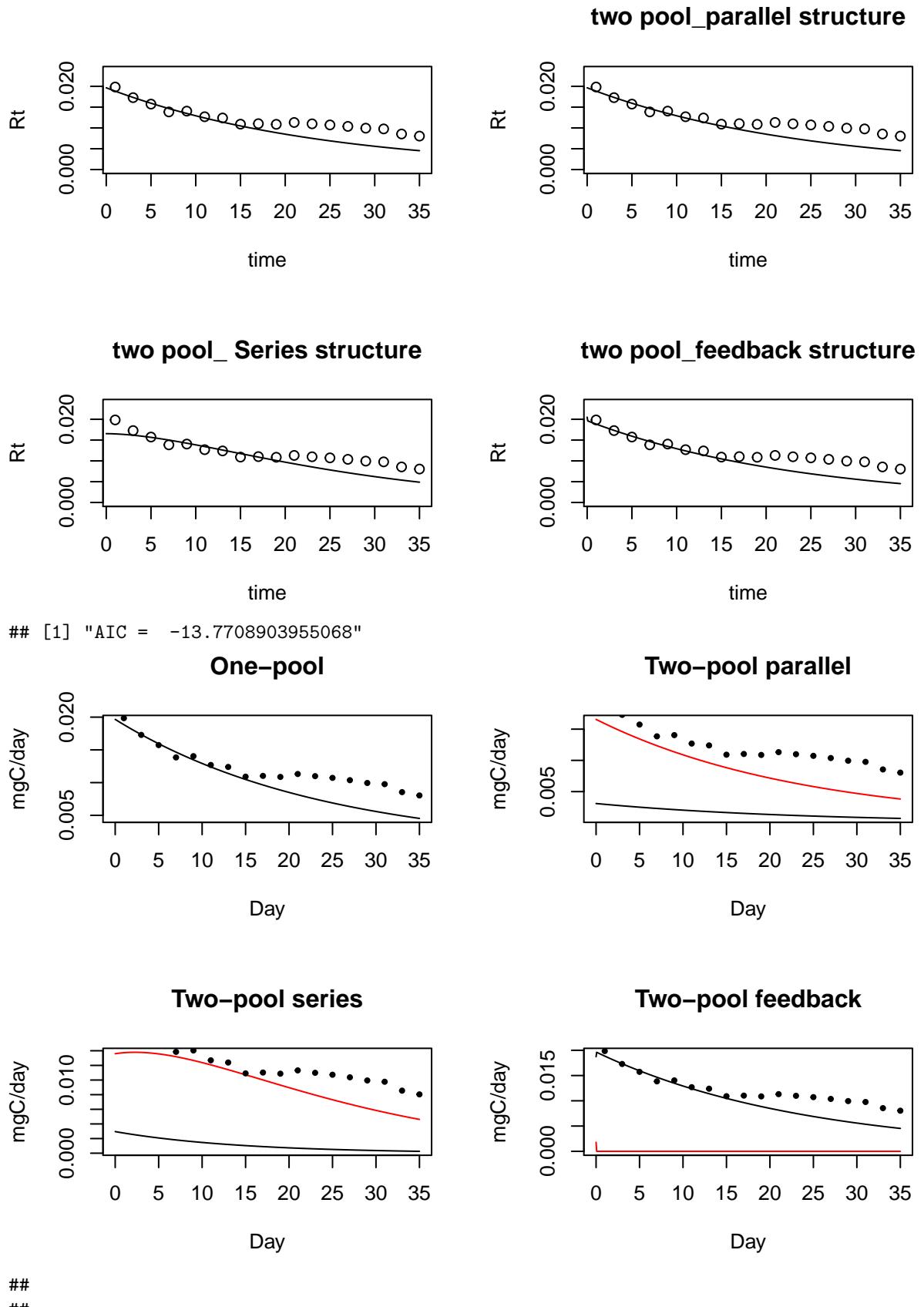
Sierra_V5=modelFitTS_Markdown(db = db[[24]], ts.col = 5, ic.col = 1, unitConverter = 0.01,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.1, 0.05, 0.5),
                                             series=c(0.1, 0.01, 0.01, 0.5),
                                             feedback=c(0.1, 0.01, 0.5, 0.01, 0.5)))

```

```

## [1] "Sierra2017BG; variable: TMO_25_30_1"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0419124981572594"
## [1] "AIC = -21.7708874124789"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0419126926613915"
## [2] "k2= 0.0419125148387614"
## [3] "proportion of CO in pool 1= 0.157529414219687"
## [1] "AIC = -17.7708874122907"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0697578120141554"
## [2] "k2= 0.0697624569759173"
## [3] "a21= 0.845614542056609"
## [4] "Proportion of CO in pool 1= 0.58445489254306"
## [1] "AIC = -16.3844743887716"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.055945545436614"
## [2] "k2= 19133.3054842101"
## [3] "a21= 0.250835439225442"
## [4] "a12= 0.999995802425993"
## [5] "Proportion of CO in pool 1= 0.952637261674645"

```



```

## |model          |k1      |k2      |COInp1 |a21     |a12    |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.0419 |NA      |NA      |NA      |NA     |
## |Two-pool parallel |0.0419 |0.0419 |0.158   |NA      |NA     |
## |Two-pool series   |0.0698 |0.0698 |0.584   |0.846   |NA     |
## |Two-pool feedback  |0.0559 |19100   |0.953   |0.251   |0.584  |
##
##
## |model          |AIC     |BIC     |AICn   |AICc    |wi      |MeanTrT |q05    |SSR     |MSR    |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-21.8   |-20.9   |-212   |-21.5   |0.925   |0.469   |NA     |0.000124 |6.89e-06 |
## |Two-pool parallel |-17.8   |-15.1   |-208   |-16.1   |0.0602  |123.9   |16.5   |0.000124 |6.89e-06 |
## |Two-pool series    |-16.4   |-12.8   |-211   |-13.3   |0.0152  |126.5   |21.8   |9.13e-05 |5.07e-06 |
## |Two-pool feedback   |-13.8   |-9.32   |-204   |-8.77   |0.00158 |123.9   |16.5   |0.000124 |6.89e-06 |

```

Variable TMO_25_60_20;

Respiration rates

```

Sierra_V6=modelFitTS_Markdown(db = db[[24]], ts.col = 6, ic.col = 1, unitConverter = 0.1,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.5, 0.01, 0.5),
                                             series=c(0.5, 0.01, 0.01, 0.5),
                                             feedback=c(0.5, 0.01, 0.1, 0.01, 0.1)))

```

```

## [1] "Sierra2017BG; variable: TMO_25_60_20"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00804040612543311"
## [1] "AIC = -24.0825247469671"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.199144741956716"
## [2] "k2= 0.00796511636394155"
## [3] "proportion of CO in pool 1= 0.0021650430617618"
## [1] "AIC = -20.2328662797862"
## [1] "Two pool model-Series structure"
## DLSODA- Warning.. Internal T (=R1) and H (=R2) are
##           such that in the machine, T + H = T on the next step
##           (H = step size). Solver will continue anyway.
## In above message, R1 = 0, R2 = 0
##
## DINTDY- T (=R1) illegal
## In above message, R1 = 0.0701403
##
##           T not in interval TCUR - HU (= R1) to TCUR (=R2)
## In above message, R1 = 0, R2 = 0
##
## DINTDY- T (=R1) illegal
## In above message, R1 = 0.140281
##
##           T not in interval TCUR - HU (= R1) to TCUR (=R2)
## In above message, R1 = 0, R2 = 0
##
## DLSODA- Trouble in DINTDY. ITASK = I1, TOUT = R1
## In above message, I1 = 1

```

```

##  

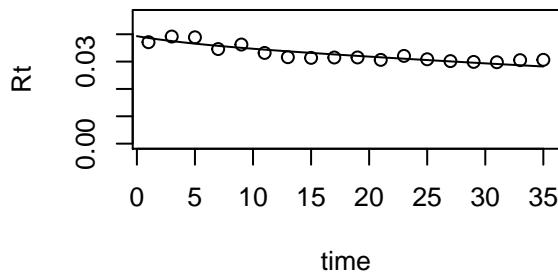
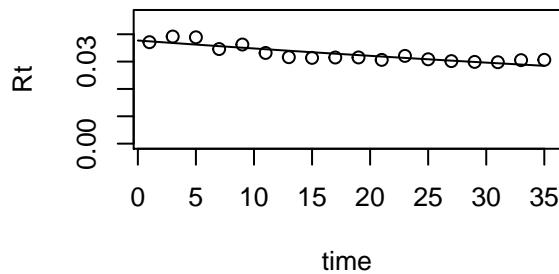
## In above message, R1 = 0.140281  

##  

## Error in lsoda(startValues, t, lsexamp): illegal input detected before taking any integration steps

```

two pool_parallel structure



Variable TMO_25_60_1;

Respiration rates

```

Sierra_V7=modelFitTS_Markdown(db = db[[24]], ts.col = 7, ic.col = 1, unitConverter = 0.1,
                                inipars=list(oneP=0.1,
                                             parallel=c(0.1, 0.01, 0.1),
                                             series=c(0.1, 0.001, 0.01, 0.1),
                                             feedback=c(0.1, 0.001, 0.01, 0.1, 0.1)))

```

```

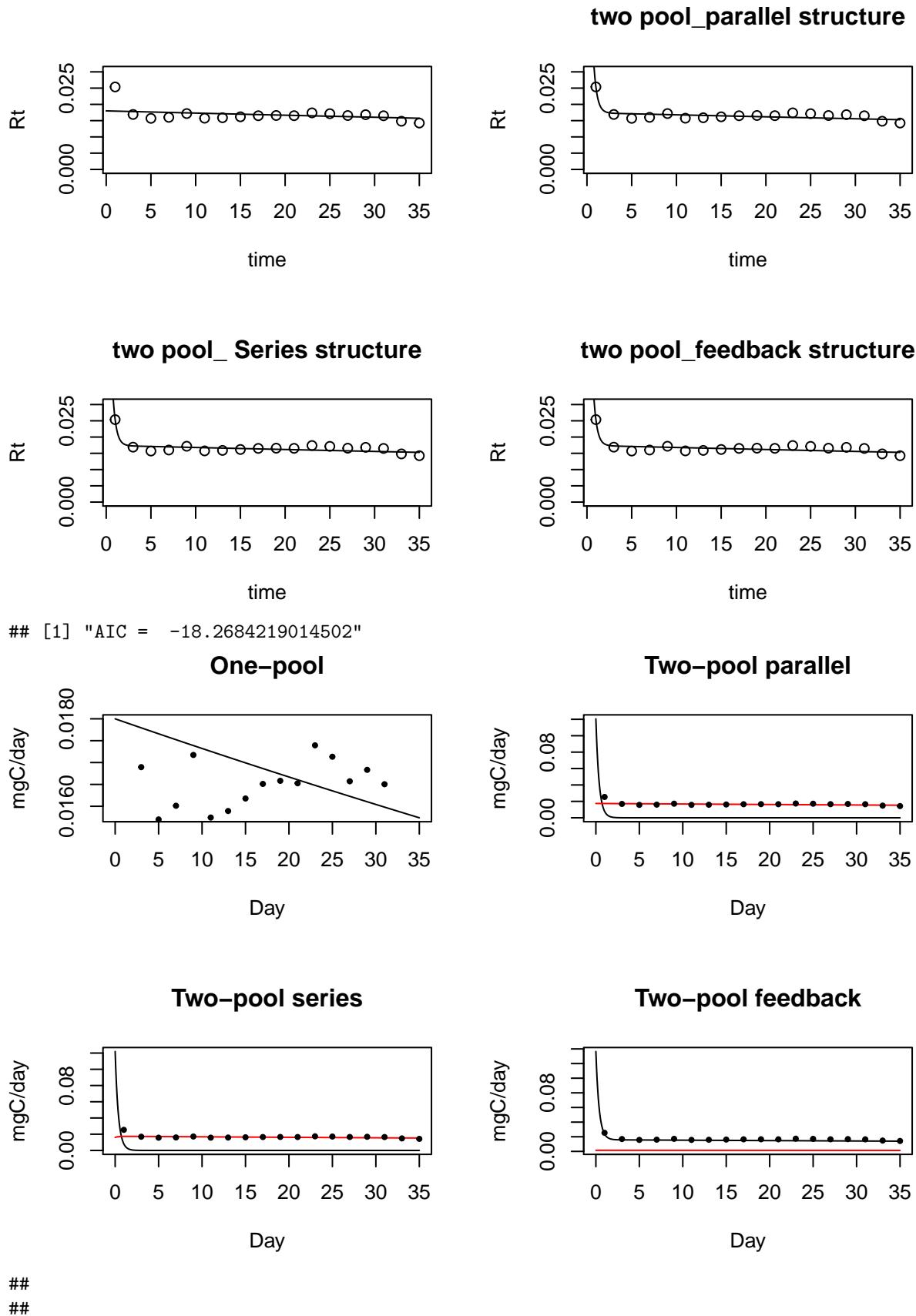
## [1] "Sierra2017BG; variable: TMO_25_60_1"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00383783084773448"

## [1] "AIC = -22.8451700431341"
## [1] "Two pool model-parallel structure"
## [1] "k1= 2.71774839884543"
## [2] "k2= 0.00375263816212352"
## [3] "proportion of CO in pool 1= 0.00946035610686302"

## [1] "AIC = -22.2684223170803"
## [1] "Two pool model-Series structure"
## [1] "k1= 2.71743529637375"
## [2] "k2= 0.00375263002750823"
## [3] "a21= 0.891894555312746"
## [4] "Proportion of CO in pool 1= 0.0885030162634368"

## [1] "AIC = -20.2684220950003"
## [1] "Two pool model-feedback structure"
## [1] "k1= 2.70560387626236"
## [2] "k2= 0.0154874724842391"
## [3] "a21= 0.772987632578469"
## [4] "a12= 0.978862049734523"
## [5] "Proportion of CO in pool 1= 0.0473873793619041"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00384|NA|NA|NA|NA|
## |Two-pool parallel|2.72|0.00375|0.00946|NA|NA|
## |Two-pool series|2.72|0.00375|0.0885|0.892|NA|
## |Two-pool feedback|2.71|0.0155|0.0474|0.773|0.0885|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-22.8|-22|-222|-22.6|0.701|4.69|NA|7.25e-05|4.03e-06|
## |Two-pool parallel|-22.3|-19.6|-248|-20.6|0.252|34|0.312|1.31e-05|7.27e-07|
## |Two-pool series|-20.3|-16.7|-246|-17.2|0.047|1238|155|1.31e-05|7.27e-07|
## |Two-pool feedback|-18.3|-13.8|-244|-13.3|0.00661|207|117|1.31e-05|7.27e-07|

```

Variable TMO_25_90_20;

Respiration rates

```

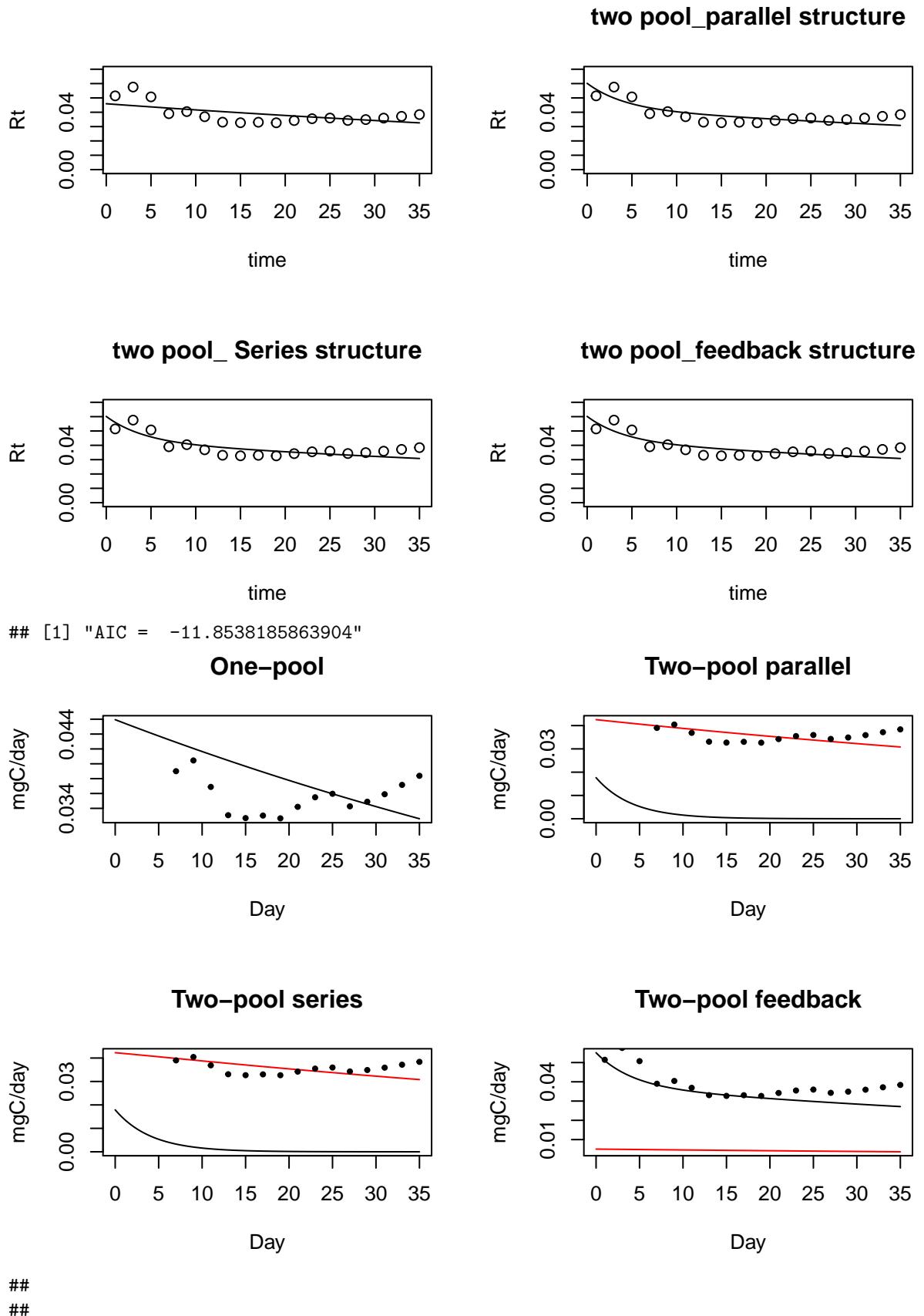
Sierra_V8=modelFitTS_Markdown(db = db[[24]], ts.col = 8, ic.col = 1, unitConverter = 0.1,
                                inipars=list(oneP=0.1,
                                             parallel=c(0.1, 0.001, 0.01),
                                             series=c(0.1, 0.001, 0.01, 0.1),
                                             feedback=c(0.1, 0.001, 0.01, 0.1, 0.1)))

```

```

## [1] "Sierra2017BG; variable: TMO_25_90_20"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00979439471187149"
## [1] "AIC = -18.8968419750451"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.242145207169139"
## [2] "k2= 0.00921438498101344"
## [3] "proportion of CO in pool 1= 0.0155299247069662"
## [1] "AIC = -15.853818583212"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.242133511391939"
## [2] "k2= 0.00921438908136032"
## [3] "a21= 0.276191407704774"
## [4] "Proportion of CO in pool 1= 0.021784619849034"
## [1] "AIC = -13.8538185865309"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.242125776425774"
## [2] "k2= 0.00922745287557585"
## [3] "a21= 0.00155250995309886"
## [4] "a12= 0.876811512879359"
## [5] "Proportion of CO in pool 1= 0.0486046310901709"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|0.00979|NA|NA|NA|NA|
## |Two-pool parallel|0.242|0.00921|0.0155|NA|NA|
## |Two-pool series|0.242|0.00921|0.0218|0.276|NA|
## |Two-pool feedback|0.242|0.00923|0.0486|0.00155|0.0218|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-18.9|-18|-186|-18.6|0.889|4.69|NA|0.000522|2.9e-05|
## |Two-pool parallel|-15.9|-13.2|-191|-14.1|0.0934|77.9|37.6|0.000323|1.8e-05|
## |Two-pool series|-13.9|-10.3|-189|-10.8|0.0174|34.1|4.76|0.000323|1.8e-05|
## |Two-pool feedback|-11.9|-7.4|-187|-6.85|0.00244|4.3|2.87|0.000323|1.8e-05|

```

Variable TMO_25_90_1;

Respiration rates

```

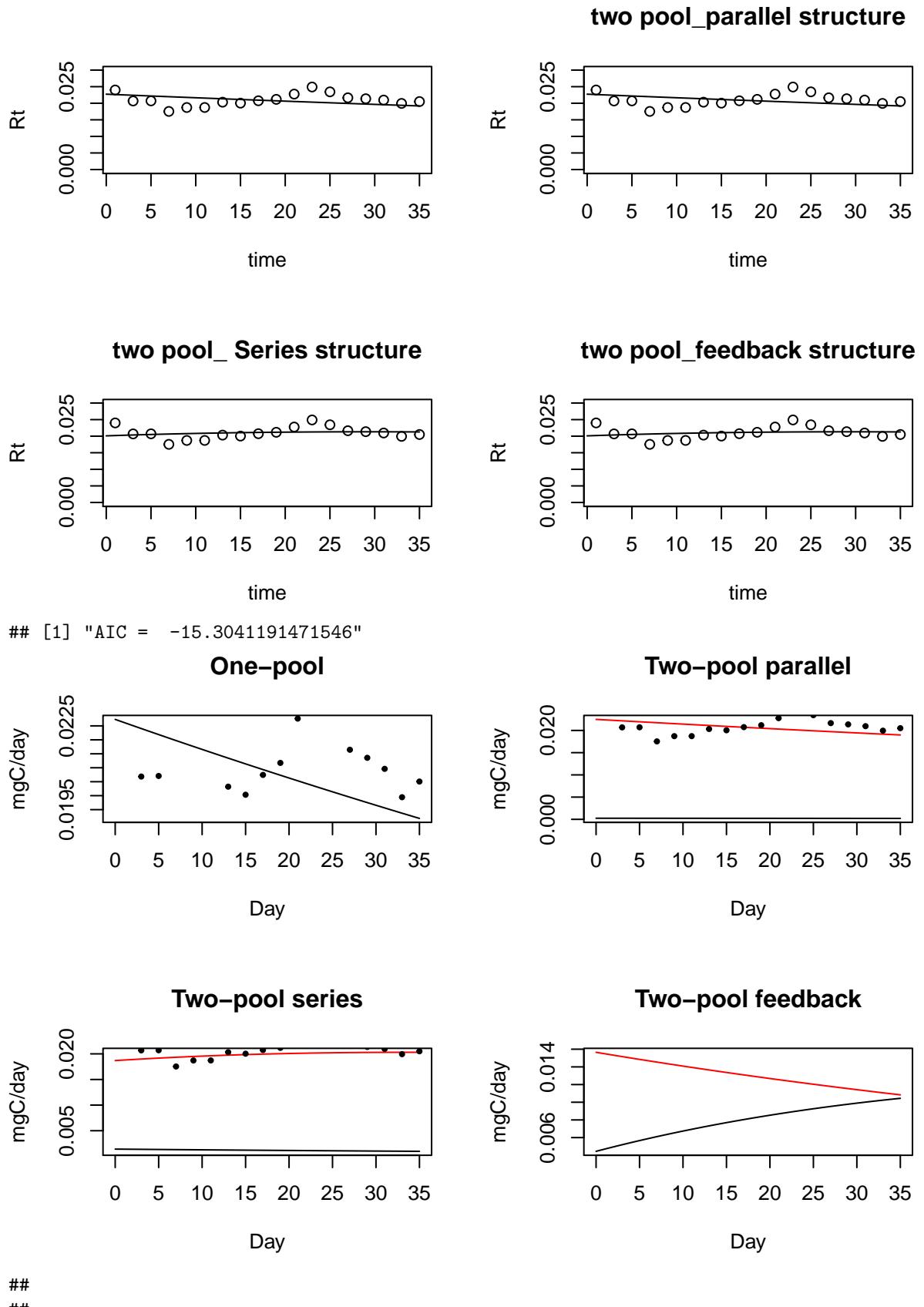
Sierra_V9=modelFitTS_Markdown(db = db[[24]], ts.col = 9, ic.col = 1, unitConverter = 0.1,
                                inipars=list(oneP=0.1,
                                             parallel=c(0.1, 0.001, 0.01),
                                             series=c(0.1, 0.001, 0.01, 0.1),
                                             feedback=c(0.1, 0.001, 0.01, 0.1, 0.1)))

```

```

## [1] "Sierra2017BG; variable: TMO_25_90_1"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00484707192136113"
## [1] "AIC = -22.3522612886269"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00484684773185837"
## [2] "k2= 0.00484707506791384"
## [3] "proportion of CO in pool 1= 0.0109027672852986"
## [1] "AIC = -18.3522612886077"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0104529080573136"
## [2] "k2= 0.0104567380828499"
## [3] "a21= 0.953552984502086"
## [4] "Proportion of CO in pool 1= 0.618916761076603"
## [1] "AIC = -17.3043435905911"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0104912936202699"
## [2] "k2= 0.0105146743738521"
## [3] "a21= 0.00759417883423119"
## [4] "a12= 0.650856755513648"
## [5] "Proportion of CO in pool 1= 0.0910968819450941"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00485|NA|NA|NA|NA|
## |Two-pool parallel|0.00485|0.00485|0.0109|NA|NA|
## |Two-pool series|0.0105|0.0105|0.619|0.954|NA|
## |Two-pool feedback|0.0105|0.0105|0.0911|0.00759|0.619|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-22.4|-21.5|-217|-22.1|0.922|4.69|NA|9.27e-05|5.15e-06|
## |Two-pool parallel|-18.4|-15.7|-213|-16.6|0.06|206|143|9.27e-05|5.15e-06|
## |Two-pool series|-17.3|-13.7|-220|-14.2|0.018|187|156|5.76e-05|3.2e-06|
## |Two-pool feedback|-15.3|-10.9|-218|-10.3|0.00253|96.5|66.7|5.76e-05|3.2e-06|

```

Variable TMO_35_15_20;

Respiration rates

```

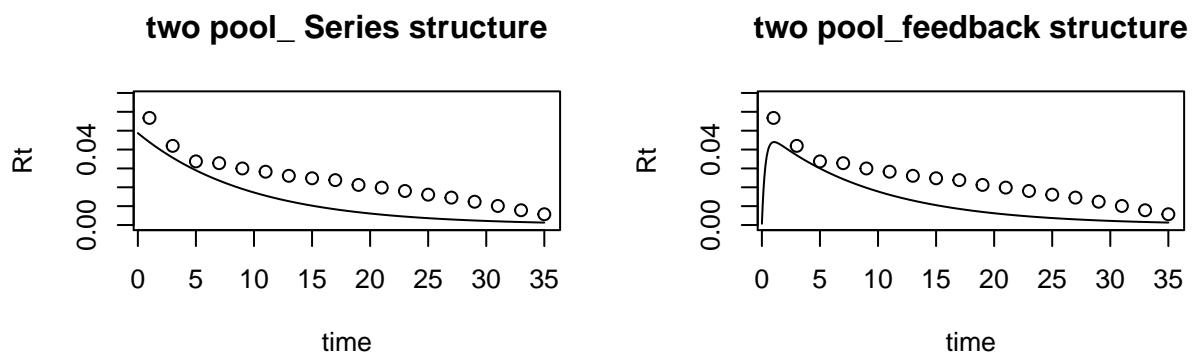
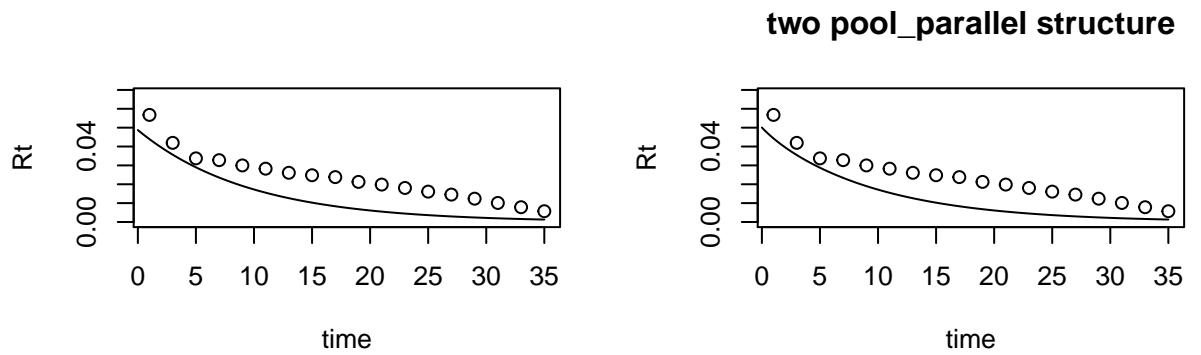
Sierra_V10=modelFitTS_Markdown(db = db[[24]], ts.col = 10, ic.col = 1, unitConverter = 0.01,
                                inipars=list(oneP=0.1,
                                             parallel=c(0.1, 0.01, 0.1),
                                             series=c(0.05, 0.005, 0.01, 0.1),
                                             feedback=c(0.05, 0.005, 0.01, 0.01, 0.1)))

```

```

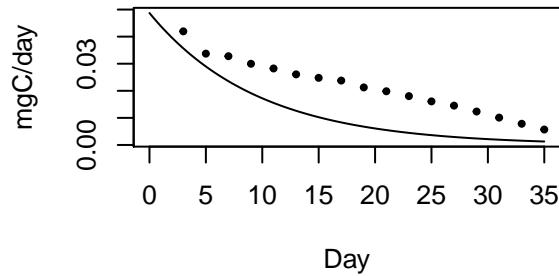
## [1] "Sierra2017BG; variable: TMO_35_15_20"
## [1] "One pool model"
## [1] "Best fit parameter: 0.103896242996102"
## [1] "AIC = -15.900276606293"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.103116609877834"
## [2] "k2= 0.746976559798496"
## [3] "proportion of CO in pool 1= 0.994399534715289"
## [1] "AIC = -11.9005923305351"
## [1] "Two pool model-Series structure"
## [1] "k1= 0"
## [2] "k2= 0.103898531921234"
## [3] "a21= 1.63235380490345e-07"
## [4] "Proportion of CO in pool 1= 2.42402188876945e-08"
## [1] "AIC = -9.90027650944934"
## [1] "Two pool model-feedback structure"
## [1] "k1= 3.41517162505302"
## [2] "k2= 0.104683039058698"
## [3] "a21= 3.20272850129477e-07"
## [4] "a12= 0.999999061550661"
## [5] "Proportion of CO in pool 1= 0.000425063376878587"

```

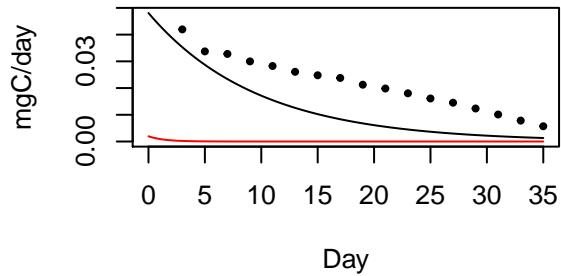


```
## [1] "AIC = -7.9886747281586"
## Error in solve.default(A): Lapack routine dgesv: system is exactly singular: U[1,1] = 0
```

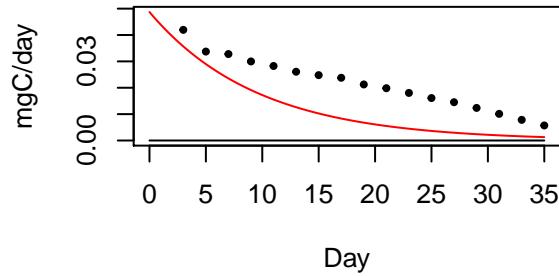
One-pool



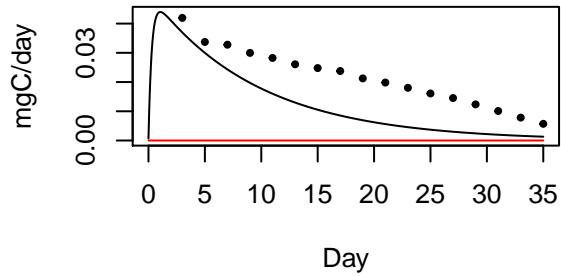
Two-pool parallel



Two-pool series



Two-pool feedback

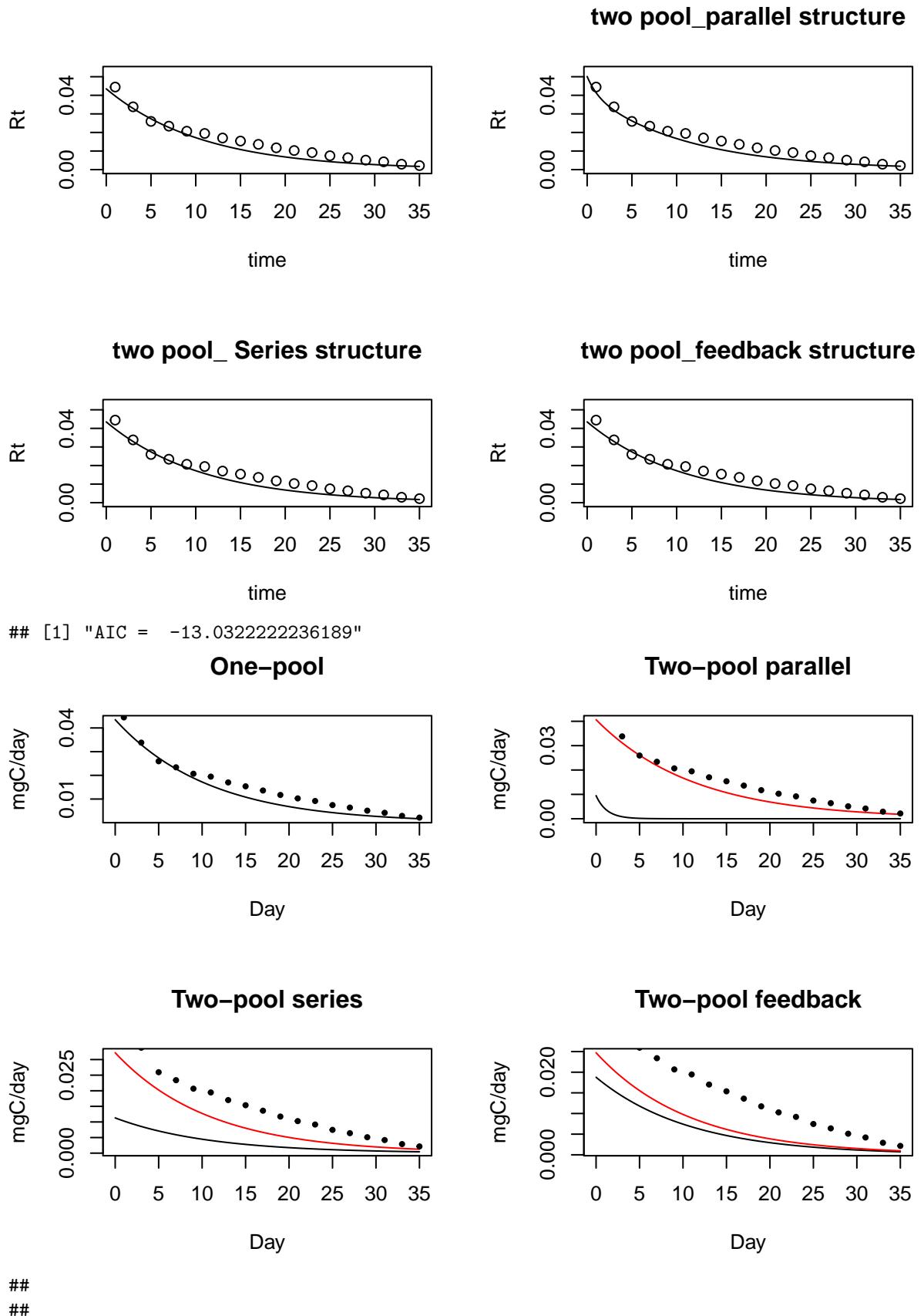


Variable TMO_35_15_1;

Respiration rates

```
Sierra_V11=modelFitTS_Markdown(db = db[[24]], ts.col = 11, ic.col = 1, unitConverter = 0.01,
                                inipars=list(oneP=0.1,
                                             parallel=c(0.1, 0.001, 0.01),
                                             series=c(0.05, 0.0005, 0.01, 0.1),
                                             feedback=c(0.05, 0.0005, 0.01, 0.01, 0.1)))
```

```
## [1] "Sierra2017BG; variable: TMO_35_15_1"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0927380893610756"
## [1] "AIC = -21.0322221919536"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.811478630606962"
## [2] "k2= 0.0889153078458389"
## [3] "proportion of C0 in pool 1= 0.0248930042948379"
## [1] "AIC = -17.1146187162203"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0927458411858057"
## [2] "k2= 0.0927413354432247"
## [3] "a21= 0.000179432102169585"
## [4] "Proportion of C0 in pool 1= 0.259759247747212"
## [1] "AIC = -15.032222198201"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0927555775714601"
## [2] "k2= 0.0927496322172021"
## [3] "a21= 0.000313457744463508"
## [4] "a12= 2.9685739491192e-05"
## [5] "Proportion of C0 in pool 1= 0.431729546551614"
```



```

## |model          |k1      |k2      |COInp1 |a21      |a12   |
## |:-----|:-----|:-----|:-----|:-----|:----|
## |One-pool      |0.0927 |NA      |NA      |NA      |NA    |
## |Two-pool parallel |0.811  |0.0889 |0.0249 |NA      |NA    |
## |Two-pool series    |0.0927 |0.0927 |0.26   |0.000179 |NA    |
## |Two-pool feedback  |0.0928 |0.0927 |0.432  |0.000313 |0.26  |
##
##
## |model          |AIC     |BIC     |AICn   |AICc    |wi     |MeanTrT |q05    |SSR     |MSR    |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-21    |-20.1   |-205   |-20.8  |0.926  |0.469  |NA     |0.000179 |9.97e-06 |
## |Two-pool parallel |-17.1  |-14.4   |-202   |-15.4  |0.0628 |9.35   |5.49   |0.000172 |9.57e-06 |
## |Two-pool series    |-15    |-11.5   |-199   |-12    |0.0112 |10.8   |7.47   |0.000179 |9.97e-06 |
## |Two-pool feedback  |-13    |-8.58   |-197   |-8.03  |0.00158 |10.8   |7.48   |0.000179 |9.97e-06 |

```

Variable TMO_35_30_20;

Respiration rates

```

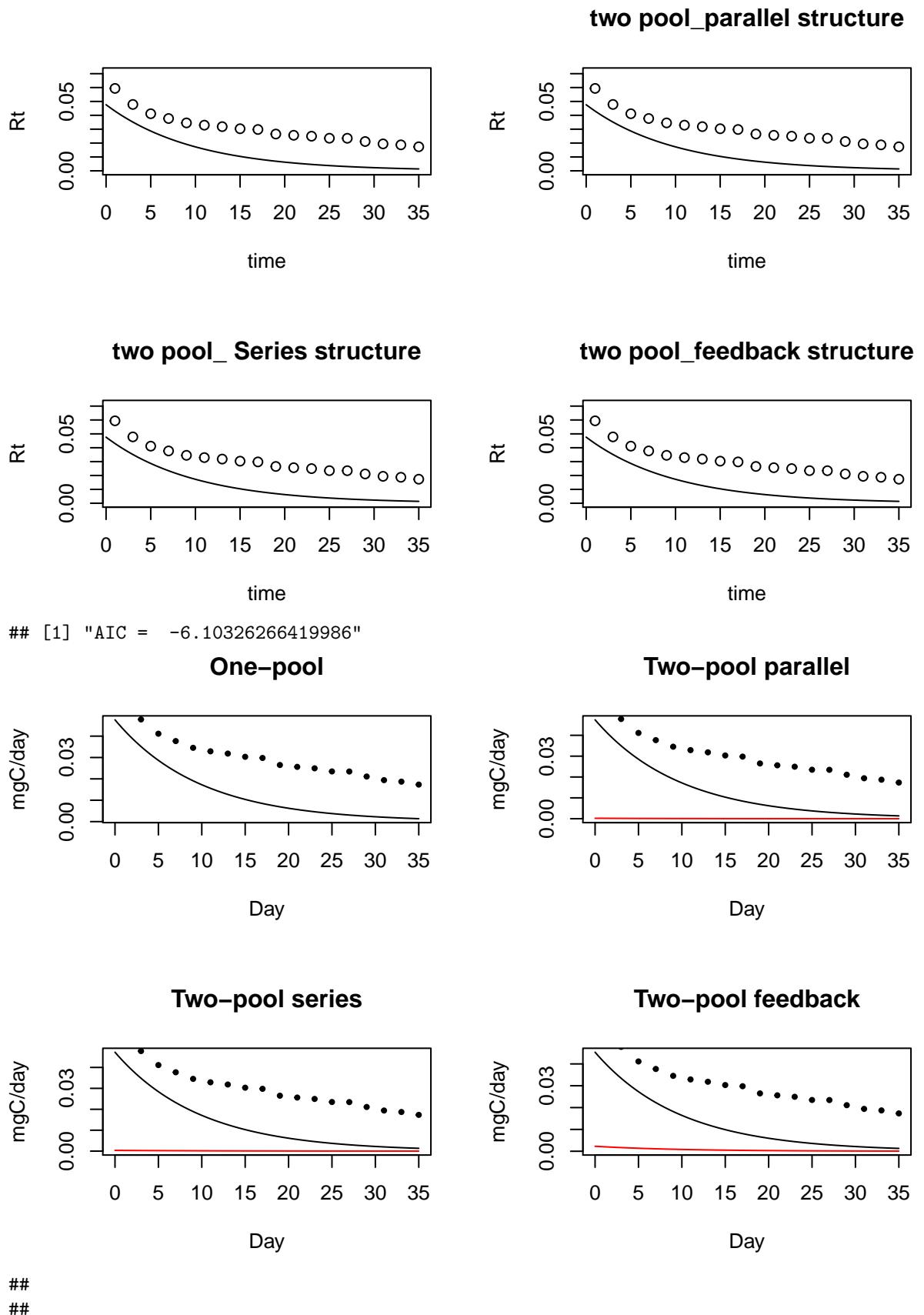
Sierra_V12=modelFitTS_Markdown(db = db[[24]], ts.col = 12, ic.col = 1, unitConverter = 0.01,
                                 inipars=list(oneP=0.01,
                                              parallel=c(0.5, 0.005, 0.5),
                                              series=c(0.05, 0.005, 0.05, 0.5),
                                              feedback=c(0.05, 0.005, 0.005, 0.05, 0.5)))

```

```

## [1] "Sierra2017BG; variable: TMO_35_30_20"
## [1] "One pool model"
## [1] "Best fit parameter: 0.101570671926165"
## [1] "AIC = -14.1032626614821"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.10156546232431"
## [2] "k2= 0.101585410104657"
## [3] "proportion of CO in pool 1= 0.995618373573876"
## [1] "AIC = -10.1032626634066"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.101711303932509"
## [2] "k2= 0.118416483065139"
## [3] "a21= 0.00264176276327543"
## [4] "Proportion of CO in pool 1= 0.993563670511161"
## [1] "AIC = -8.1033422331886"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.101569864416043"
## [2] "k2= 0.101617599080784"
## [3] "a21= 3.57158216744424e-05"
## [4] "a12= 0.000356367609371688"
## [5] "Proportion of CO in pool 1= 0.952241242924385"

```



```

## |model          |k1      |k2      |COInp1 |a21       |a12    |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.102   |NA      |NA      |NA      |NA     |
## |Two-pool parallel|0.102   |0.102   |0.996   |NA      |NA     |
## |Two-pool series  |0.102   |0.118   |0.994   |0.00264  |NA     |
## |Two-pool feedback |0.102   |0.102   |0.952   |3.57e-05 |0.994  |
##
##
## |model          |AIC     |BIC     |AICn   |AICc    |wi     |MeanTrT |q05    |SSR     |MSR    |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-14.1   |-13.2   |-143   |-13.9   |0.928  |0.469   |NA     |0.00573 |0.000319 |
## |Two-pool parallel|-10.1   |-7.43   |-139   |-8.39   |0.0604 |9.85    |6.82   |0.00573 |0.000319 |
## |Two-pool series  |-8.1    |-4.54   |-137   |-5.03   |0.0112 |9.85    |6.83   |0.00573 |0.000319 |
## |Two-pool feedback |-6.1    |-1.65   |-135   |-1.1    |0.00158|9.85    |6.82   |0.00573 |0.000319 |

```

Variable TMO_35_30_1;

Respiration rates

```

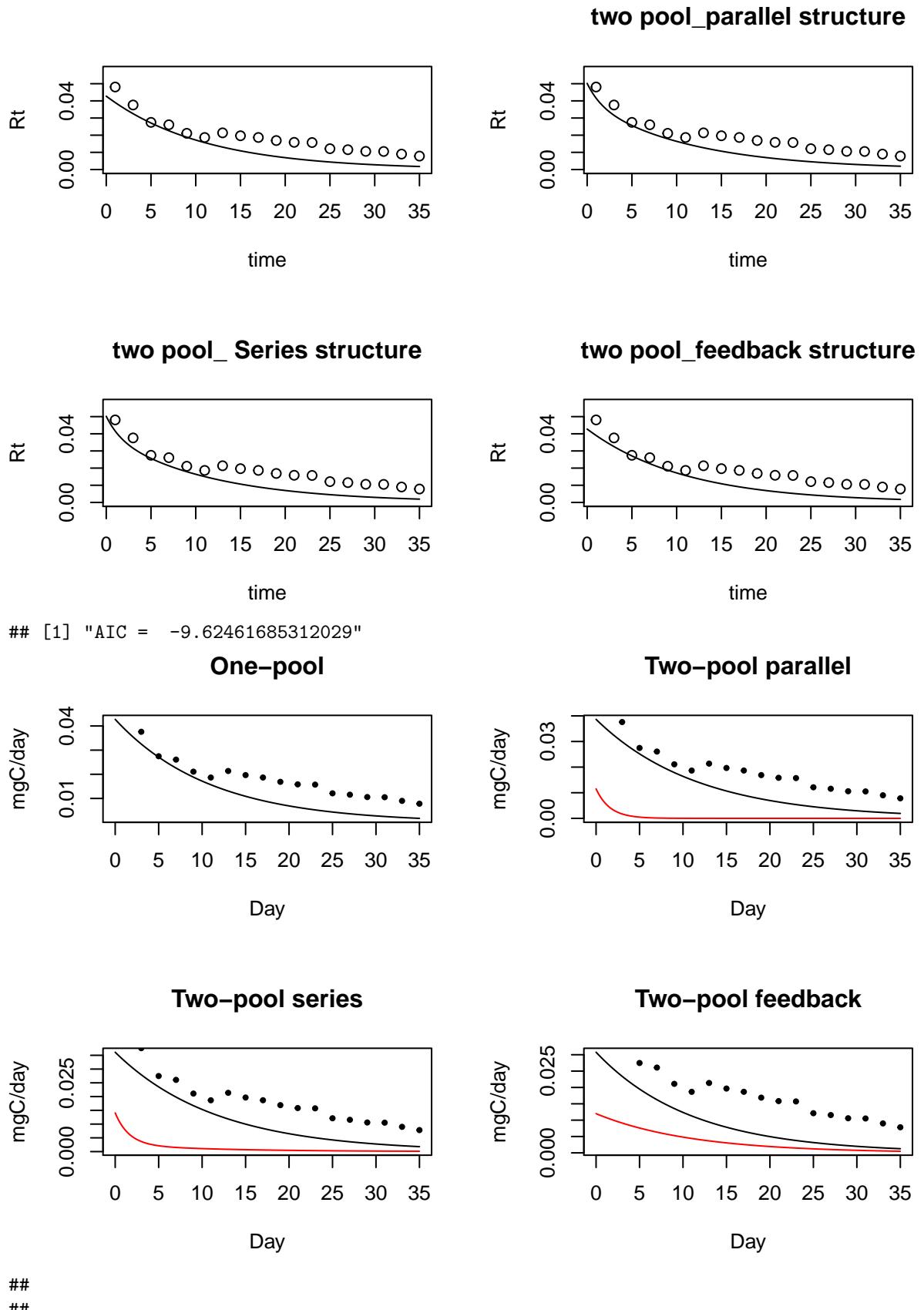
Sierra_V13=modelFitTS_Markdown(db = db[[24]], ts.col = 13, ic.col = 1, unitConverter = 0.01,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.5, 0.005, 0.5),
                                             series=c(0.05, 0.005, 0.05, 0.5),
                                             feedback=c(0.05, 0.005, 0.005, 0.05, 0.5)))

```

```

## [1] "Sierra2017BG; variable: TMO_35_30_1"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0911515160910099"
## [1] "AIC = -17.6246168427478"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0857289825140905"
## [2] "k2= 0.634324560190079"
## [3] "proportion of CO in pool 1= 0.961231728936691"
## [1] "AIC = -13.6545662901398"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0857171406405631"
## [2] "k2= 0.633977930710207"
## [3] "a21= 0.0568261781350035"
## [4] "Proportion of CO in pool 1= 0.952670381642104"
## [1] "AIC = -11.6545664583159"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0911629374605839"
## [2] "k2= 0.091181521990308"
## [3] "a21= 5.21354701417676e-05"
## [4] "a12= 0.000517209627125592"
## [5] "Proportion of CO in pool 1= 0.719600204411137"

```



```

## |model          |k1      |k2      |COInp1 |a21      |a12    |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.0912 |NA      |NA      |NA      |NA     |
## |Two-pool parallel|0.0857 |0.634   |0.961   |NA      |NA     |
## |Two-pool series  |0.0857 |0.634   |0.953   |0.0568  |NA     |
## |Two-pool feedback |0.0912 |0.0912  |0.72    |5.21e-05 |0.953  |
##
##
## |model          |AIC     |BIC     |AICn   |AICc    |wi      |MeanTrT |q05    |SSR     |MSR    |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-17.6   |-16.7   |-175   |-17.4   |0.927   |0.469   |NA     |0.000986 |5.48e-05 |
## |Two-pool parallel|-13.7   |-11     |-171   |-11.9   |0.0613  |19.35   |5.23   |0.000971 |5.4e-05  |
## |Two-pool series  |-11.7   |-8.09   |-169   |-8.58   |0.0114  |111.8   |8.19   |0.000971 |5.4e-05  |
## |Two-pool feedback |-9.62   |-5.17   |-167   |-4.62   |0.00158 |11       |7.6    |0.000986 |5.48e-05 |

```

Variable TMO_35_60_20;

Respiration rates

```

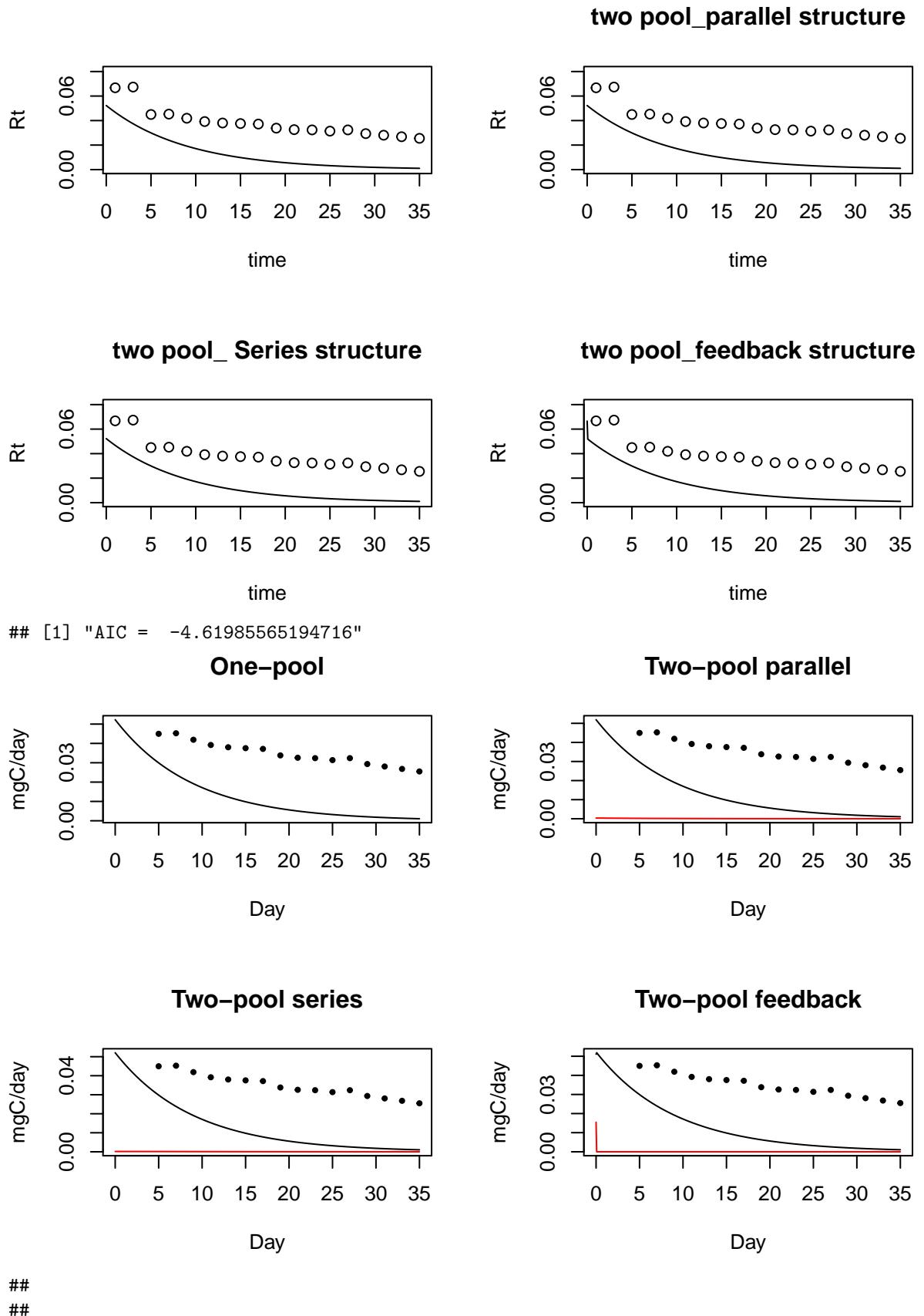
Sierra_V14=modelFitTS_Markdown(db = db[[24]], ts.col = 14, ic.col = 1, unitConverter = 0.01,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.5, 0.005, 0.5),
                                             series=c(0.05, 0.005, 0.05, 0.5),
                                             feedback=c(0.05, 0.005, 0.005, 0.05, 0.5)))

```

```

## [1] "Sierra2017BG; variable: TMO_35_60_20"
## [1] "One pool model"
## [1] "Best fit parameter: 0.111472633133213"
## [1] "AIC = -12.6198529914779"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.111464200938747"
## [2] "k2= 0.111653562823049"
## [3] "proportion of CO in pool 1= 0.993037185527919"
## [1] "AIC = -8.61985298970423"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.111648616981119"
## [2] "k2= 0.145567464388313"
## [3] "a21= 0.00273730349762402"
## [4] "Proportion of CO in pool 1= 0.997539924771378"
## [1] "AIC = -6.61993266213984"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.111421017274407"
## [2] "k2= 13545.0220267096"
## [3] "a21= 9.37626521063661e-06"
## [4] "a12= 0.999890725479839"
## [5] "Proportion of CO in pool 1= 0.977700796246615"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.111|NA|NA|NA|NA|
## |Two-pool parallel|0.111|0.112|0.993|NA|NA|
## |Two-pool series|0.112|0.146|0.998|0.00274|NA|
## |Two-pool feedback|0.111|13500|0.978|9.38e-06|0.998|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|-12.6|-11.7|-130|-12.4|0.928|0.469|NA|0.012|0.000669|
## |Two-pool parallel|-8.62|-5.95|-126|-6.91|0.0604|8.97|6.22|0.012|0.000669|
## |Two-pool series|-6.62|-3.06|-124|-3.54|0.0112|8.98|6.22|0.012|0.000669|
## |Two-pool feedback|-4.62|-0.168|-122|0.38|0.00158|8.98|6.22|0.012|0.000669|

```

Variable TMO_35_60_1;

Respiration rates

```

Sierra_V15=modelFitTS(db = db[[24]], ts.col = 15, ic.col = 1, unitConverter = 0.01,
                      inipars=list(oneP=0.01,
                                   parallel=c(0.5, 0.005, 0.5),
                                   series=c(0.05, 0.005, 0.05, 0.5),
                                   feedback=c(0.05, 0.005, 0.05, 0.05, 0.5)))

```

```

## Error in modelFitTS(db = db[[24]], ts.col = 15, ic.col = 1, unitConverter = 0.01, : could not find f

```

Variable TMO_35_90_20;

Respiration rates

```

Sierra_V16=modelFitTS_Markdown(db = db[[24]], ts.col = 16, ic.col = 1, unitConverter = 0.01,
                                 inipars=list(oneP=0.01,
                                   parallel=c(0.5, 0.005, 0.5),
                                   series=c(0.05, 0.005, 0.05, 0.5),
                                   feedback=c(0.05, 0.005, 0.005, 0.05, 0.5)))

```

```

## [1] "Sierra2017BG; variable: TMO_35_90_20"
## [1] "One pool model"
## [1] "Best fit parameter: 0.209861804787913"

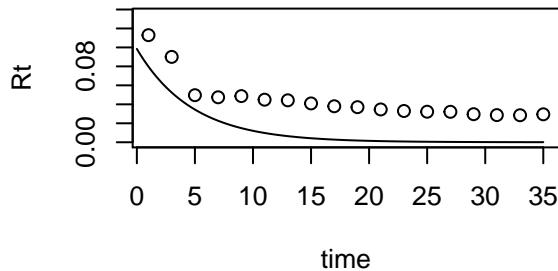
## [1] "AIC = -11.7625305692785"
## [1] "Two pool model-parallel structure"
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##           such that in the machine, T + H = T on the next step
##           (H = step size). Solver will continue anyway.
## In above message, R1 = 0, R2 = 0
##
## DINTDY- T (=R1) illegal
## In above message, R1 = 0.0701403
##
##           T not in interval TCUR - HU (= R1) to TCUR (=R2)
## In above message, R1 = 0, R2 = 0
##
## DINTDY- T (=R1) illegal
## In above message, R1 = 0.140281

```

```

##          T not in interval TCUR - HU (= R1) to TCUR (=R2)
## In above message, R1 = 0, R2 = 0
##
## DLSODA- Trouble in DINTDY. ITASK = I1, TOUT = R1
## In above message, I1 = 1
##
## In above message, R1 = 0.140281
##
## Error in lsoda(startValues, t, lsexamp): illegal input detected before taking any integration steps -

```



Variable TMO_35_90_1;

Respiration rates

```

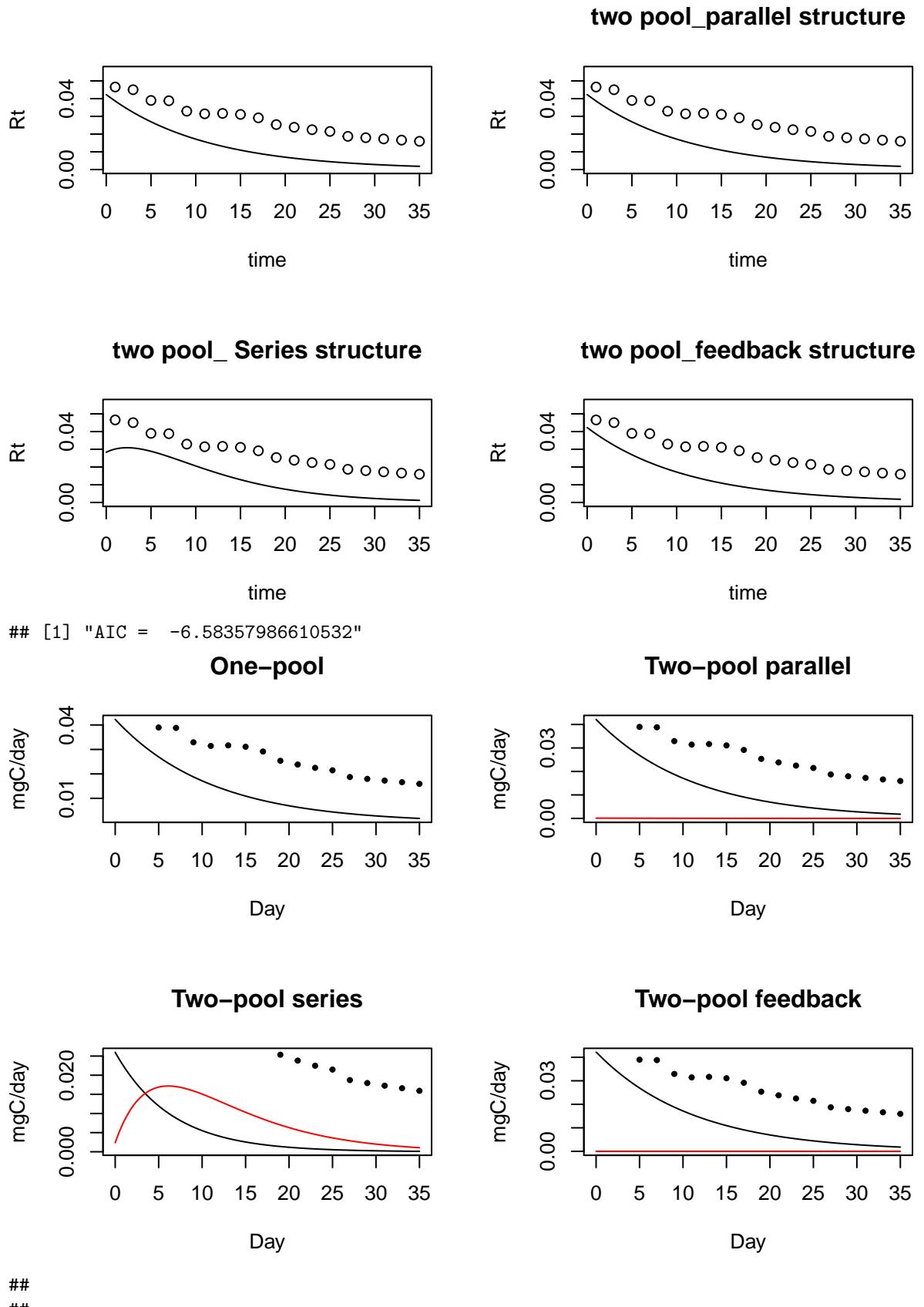
Sierra_V17=modelFitTS_Markdown(db = db[[24]], ts.col = 17, ic.col = 1, unitConverter = 0.01,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.5, 0.005, 0.5),
                                             series=c(0.05, 0.005, 0.05, 0.5),
                                             feedback=c(0.05, 0.005, 0.005, 0.05, 0.5)))

```

```

## [1] "Sierra2017BG; variable: TMO_35_90_1"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0901659306465952"
## [1] "AIC = -14.5835699416659"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0901655993445609"
## [2] "k2= 0.0902041838596388"
## [3] "proportion of C0 in pool 1= 0.997160576514246"
## [1] "AIC = -10.5835699416962"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.154796564049314"
## [2] "k2= 0.154819730813484"
## [3] "a21= 0.630087488929504"
## [4] "Proportion of C0 in pool 1= 0.96764356857254"
## [1] "AIC = -8.68647598027081"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0901478947376146"
## [2] "k2= 14480.6589016955"
## [3] "a21= 5.13098665833045e-07"
## [4] "a12= 0.99999738981686"
## [5] "Proportion of C0 in pool 1= 0.99626929791891"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.0902|NA|NA|NA|NA|
## |Two-pool parallel|0.0902|0.0902|0.997|NA|NA|
## |Two-pool series|0.155|0.155|0.968|0.63|NA|
## |Two-pool feedback|0.0901|14500|0.996|5.13e-07|0.968|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|-14.6|-13.7|-147|-14.3|0.928|0.469|NA|0.00451|0.000251|
## |Two-pool parallel|-10.6|-7.91|-143|-8.87|0.0604|11.1|7.69|0.00451|0.000251|
## |Two-pool series|-8.69|-5.12|-142|-5.61|0.0118|10.5|8.31|0.00428|0.000238|
## |Two-pool feedback|-6.58|-2.13|-139|-1.58|0.00158|11.1|7.69|0.00451|0.000251|

```

Dataset Winkler1996

Variable CO2_22_A;

Mean rate of CO₂ evolution for A-horizon soils at 22 degrees during the incubation.

```

Winkler_V5=modelFitTS_Markdown(db = db[[30]], ts.col = 5, ic.col = 1, unitConverter = 1,
                                inipars=list(oneP=0.1,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.01, 0.0001, 0.01, 0.5),
                                             feedback=c(0.01, 0.0001, 0.01, 0.01, 0.5)))

```

```

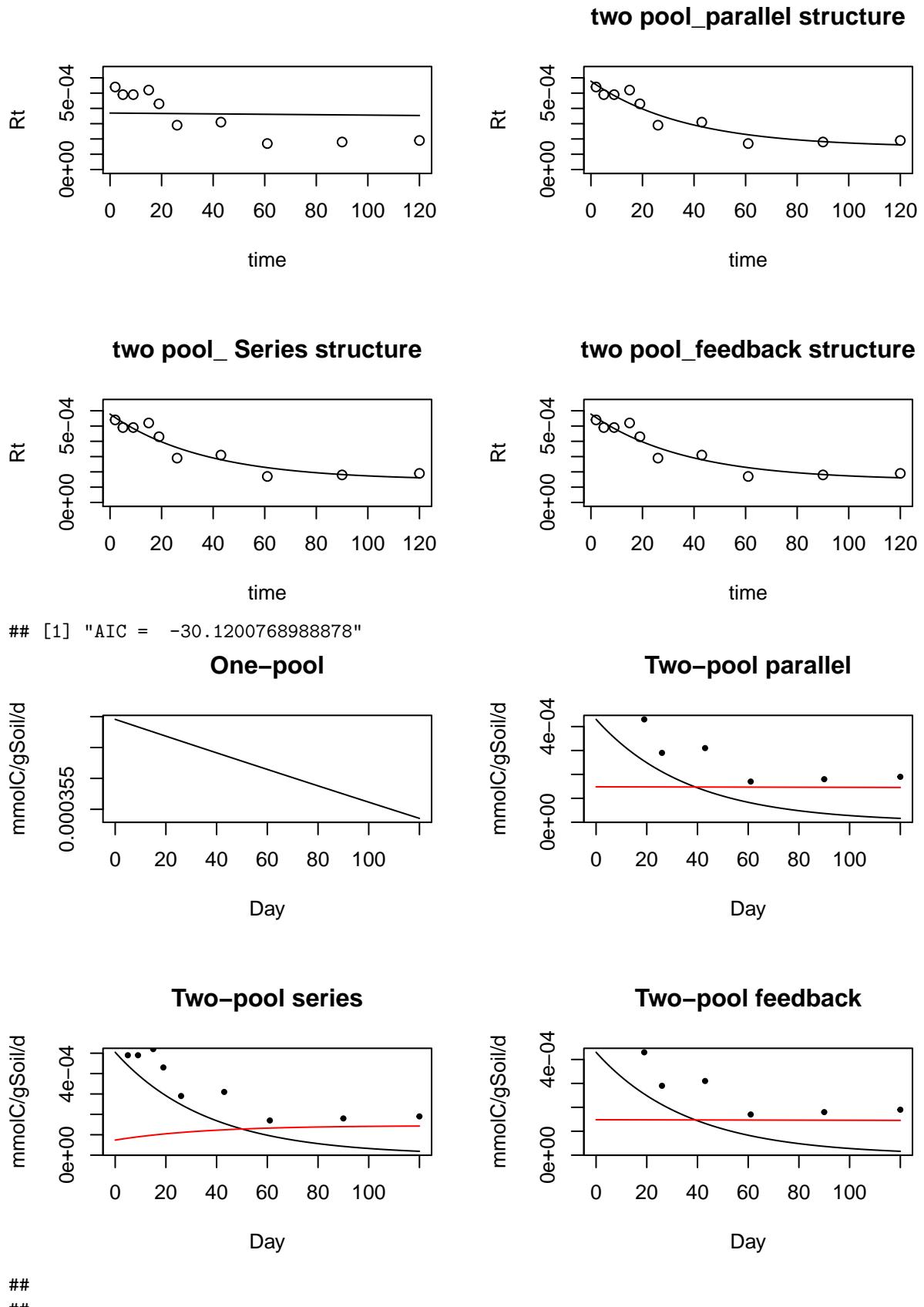
## [1] "Winkler1996; variable: CO2_22_A"
## [1] "One pool model"
## [1] "Best fit parameter: 0.000369560889375009"

## [1] "AIC = -33.5645210852189"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0273761154836114"
## [2] "k2= 0.000150453249936418"
## [3] "proportion of CO in pool 1= 0.0157170790219642"

## [1] "AIC = -34.1200768989542"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0273764226608711"
## [2] "k2= 0.00015045468105189"
## [3] "a21= 0.963840600553574"
## [4] "Proportion of CO in pool 1= 0.509739787030696"

## [1] "AIC = -32.1200768981167"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0273759436254808"
## [2] "k2= 0.000150452449384554"
## [3] "a21= 4.41079151203283e-07"
## [4] "a12= 1.60808154237024e-07"
## [5] "Proportion of CO in pool 1= 0.0157171982132354"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.00037|NA|NA|NA|NA|
## |Two-pool parallel|0.0274|0.00015|0.0157|NA|NA|
## |Two-pool series|0.0274|0.00015|0.51|0.964|NA|
## |Two-pool feedback|0.0274|0.00015|0.0157|4.41e-07|0.51|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|-33.6|-32.9|-265|-33.3|0.627|1|NA|1.89e-07|1.89e-08|
## |Two-pool parallel|-34.1|-32|-295|-31.9|0.325|1730|40.5|1.94e-08|1.94e-09|
## |Two-pool series|-32.1|-29.3|-293|-28.1|0.0481|6440|4400|1.94e-08|1.94e-09|
## |Two-pool feedback|-30.1|-26.6|-291|-23.5|0.00466|36.5|25.3|1.94e-08|1.94e-09|

```

Variable CO2_22_B;

Mean rate of CO₂ evolution for B-horizon soils at 22 degrees during the incubation.

```

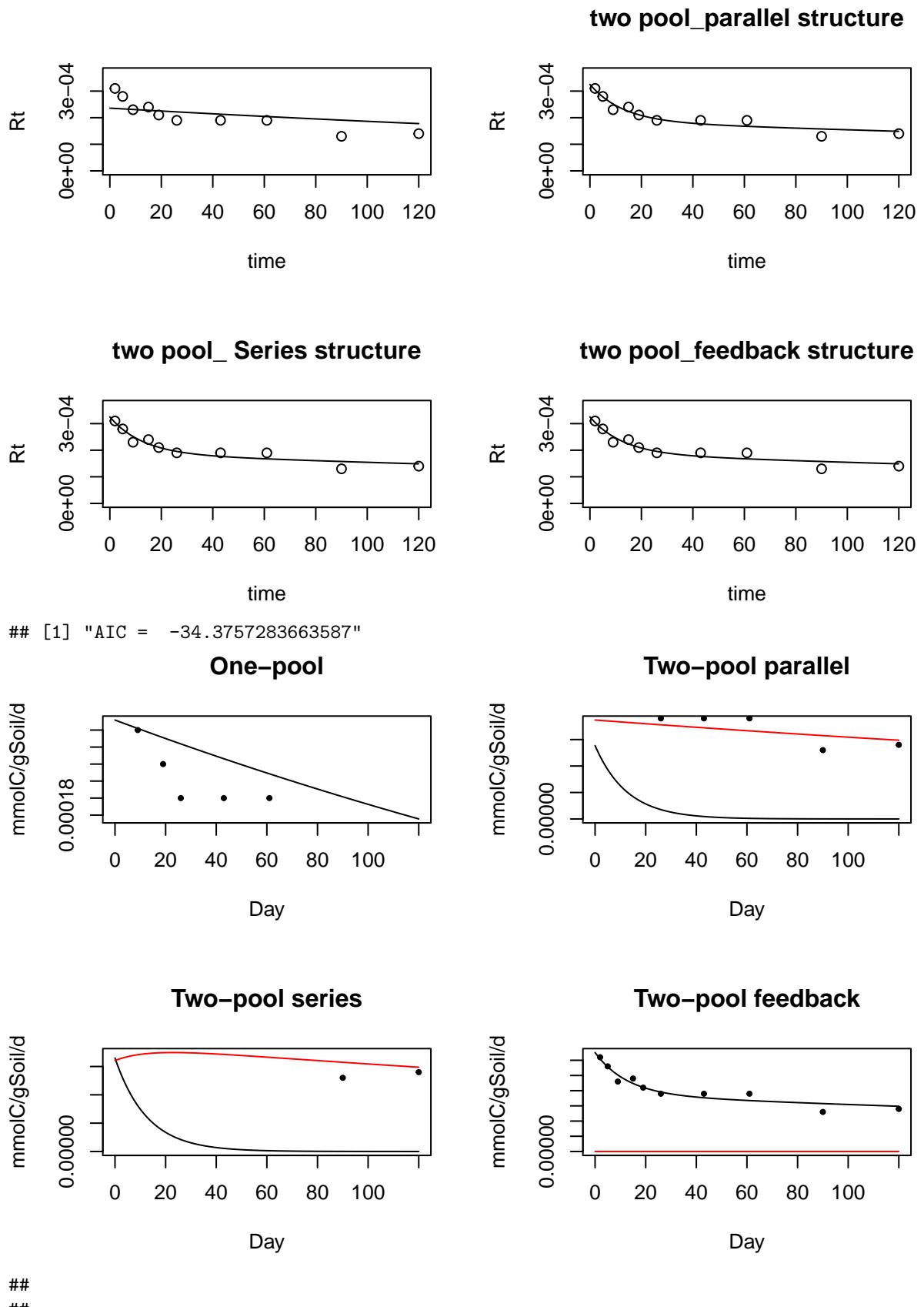
Winkler_V6=modelFitTS_Markdown(db = db[[30]], ts.col = 6, ic.col = 3, unitConverter = 1,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.5, 0.05, 0.5),
                                             series=c(0.05, 0.0005, 0.01, 0.5),
                                             feedback=c(0.01, 0.001, 0.1, 0.01, 0.5)))

```

```

## [1] "Winkler1996; variable: CO2_22_B"
## [1] "One pool model"
## [1] "Best fit parameter: 0.00235899067358147"
## [1] "AIC = -38.6195896332671"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0792426642628606"
## [2] "k2= 0.00190194786914736"
## [3] "proportion of CO in pool 1= 0.0174819544506131"
## [1] "AIC = -38.3757283620397"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0792357758051094"
## [2] "k2= 0.00190192767782511"
## [3] "a21= 0.86686614867059"
## [4] "Proportion of CO in pool 1= 0.156360164965116"
## [1] "AIC = -36.375728963786"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0792348146193545"
## [2] "k2= 0.00190340246383332"
## [3] "a21= 0.000756160723017207"
## [4] "a12= 0.999999499699191"
## [5] "Proportion of CO in pool 1= 0.0410985871753264"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.00236|NA|NA|NA|NA|
## |Two-pool parallel|0.0792|0.0019|0.0175|NA|NA|
## |Two-pool series|0.0792|0.0019|0.156|0.867|NA|
## |Two-pool feedback|0.0792|0.0019|0.0411|0.000756|0.156|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|-38.6|-37.9|-303|-38.3|0.715|0.1|NA|1.51e-08|1.51e-09|
## |Two-pool parallel|-38.4|-36.3|-327|-36.2|0.248|307|74.1|2.31e-09|2.31e-10|
## |Two-pool series|-36.4|-33.5|-325|-32.4|0.0368|468|302|2.31e-09|2.31e-10|
## |Two-pool feedback|-34.4|-30.8|-323|-27.7|0.00356|13|8.76|2.31e-09|2.31e-10|

```

Variable CO2_22_E;

Mean rate of CO₂ evolution for E-horizon soils at 22 degrees during the incubation.

```

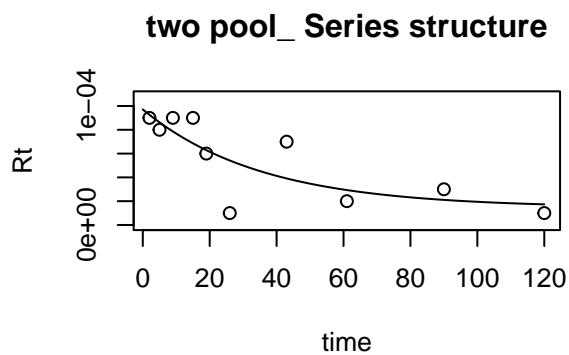
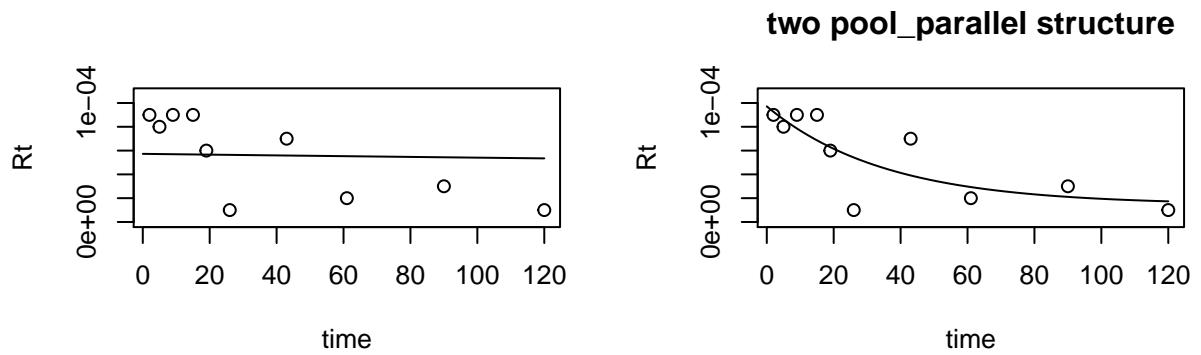
Winkler_V7=modelFitTS_Markdown(db = db[[30]], ts.col = 7, ic.col = 2, unitConverter = 1,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.01, 0.0001, 0.01, 0.1),
                                             feedback=c(0.01, 0.0001, 0.01, 0.01, 0.1)))

```

```

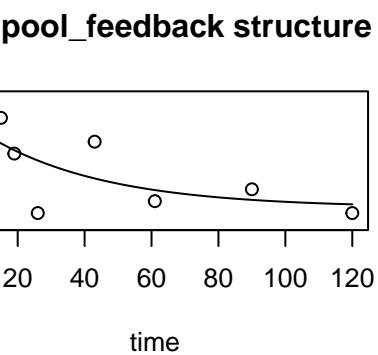
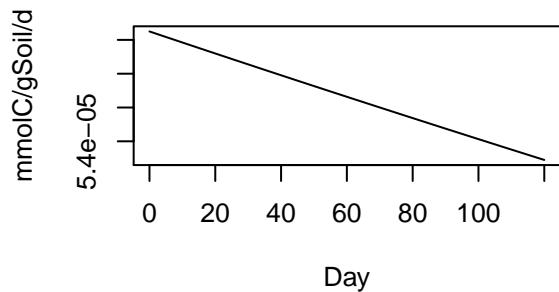
## [1] "Winkler1996; variable: CO2_22_E"
## [1] "One pool model"
## [1] "Best fit parameter: -0.000572501140927884"
## [1] "AIC = -39.468578258378"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0283222070656399"
## [2] "k2= 0.000153035393155407"
## [3] "proportion of CO in pool 1= 0.0290525410214272"
## [1] "AIC = -37.397829892106"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0283214444781189"
## [2] "k2= 0.000153028939176087"
## [3] "a21= 0.463908003783965"
## [4] "Proportion of CO in pool 1= 0.0544506711988189"
## [1] "AIC = -35.3978298921902"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0281851849625416"
## [2] "k2= 0.000289589122443097"
## [3] "a21= 0.469057072345573"
## [4] "a12= 0.999880095390798"
## [5] "Proportion of CO in pool 1= 0.064911632718845"

```

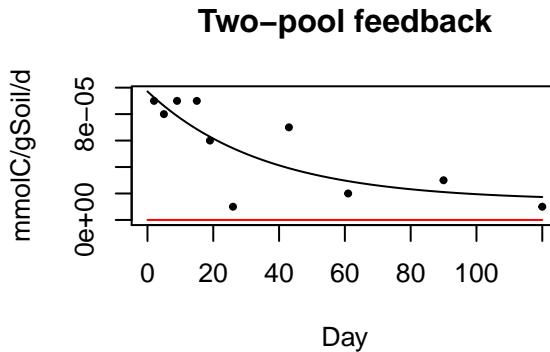
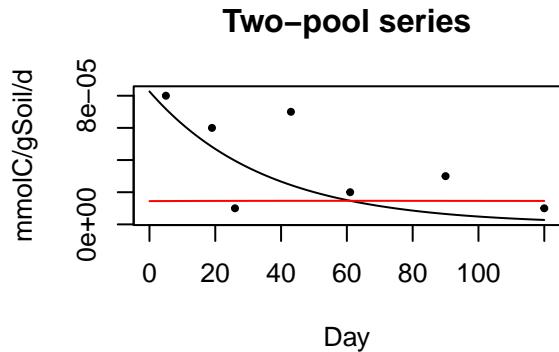
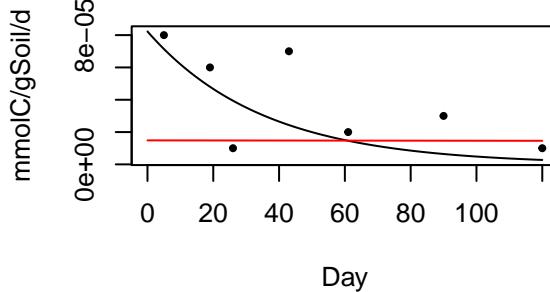


```
## [1] "AIC = -33.3978298921919"
```

One-pool



Two-pool parallel



```
##  
##
```

```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.000573|NA|NA|NA|NA|
## |Two-pool parallel|0.0283|0.000153|0.0291|NA|NA|
## |Two-pool series|0.0283|0.000153|0.0545|0.464|NA|
## |Two-pool feedback|0.0282|0.00029|0.0649|0.469|0.0545|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-39.5|-38.8|-309|-39.2|0.862|0.1|NA|9.89e-09|9.89e-10|
## |Two-pool parallel|-37.4|-35.3|-319|-35.2|0.12|1030|31.4|3.77e-09|3.77e-10|
## |Two-pool series|-35.4|-32.6|-317|-31.4|0.0178|3070|91.4|3.77e-09|3.77e-10|
## |Two-pool feedback|-33.4|-29.9|-315|-26.7|0.00172|3120|97.9|3.77e-09|3.77e-10|

```

Variable CO2_15_A;

Mean rate of CO₂ evolution for A-horizon soils at 15 degrees during the incubation.

```

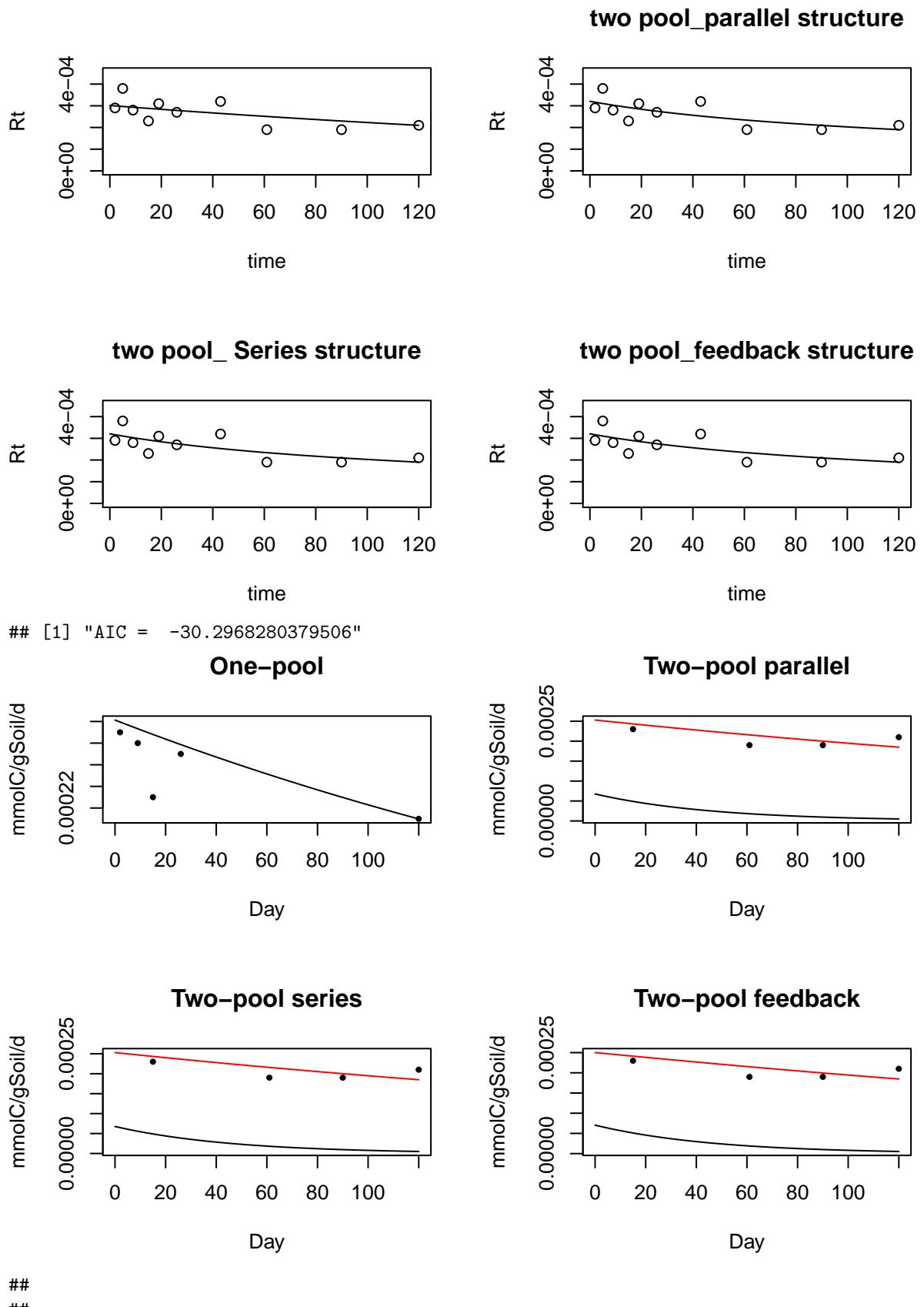
Winkler_V8=modelFitTS_Markdown(db = db[[30]], ts.col = 8, ic.col = 1, unitConverter = 0.1,
                                inipars=list(oneP=0.05,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.01, 0.0001, 0.01, 0.1),
                                             feedback=c(0.01, 0.0001, 0.01, 0.01, 0.1)))

```

```

## [1] "Winkler1996; variable: CO2_15_A"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00301340673082251"
## [1] "AIC = -38.1008536668322"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0216122059662621"
## [2] "k2= 0.00261140597329116"
## [3] "proportion of CO in pool 1= 0.0313372959655876"
## [1] "AIC = -34.2968280371486"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0216219353076615"
## [2] "k2= 0.00261153945095664"
## [3] "a21= 0.000274222475125596"
## [4] "Proportion of CO in pool 1= 0.031325554841114"
## [1] "AIC = -32.296828035751"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0216156058895733"
## [2] "k2= 0.0026115141831617"
## [3] "a21= 0.223060856529292"
## [4] "a12= 9.16022077231959e-05"
## [5] "Proportion of CO in pool 1= 0.0419928409261071"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00301|NA|NA|NA|NA|
## |Two-pool parallel|0.0216|0.00261|0.0313|NA|NA|
## |Two-pool series|0.0216|0.00261|0.0313|0.000274|NA|
## |Two-pool feedback|0.0216|0.00261|0.042|0.223|0.0313|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-38.1|-37.4|-299|-37.8|0.937|0.1|NA|1.96e-08|1.96e-09|
## |Two-pool parallel|-34.3|-32.2|-296|-32.1|0.0548|312|178|1.78e-08|1.78e-09|
## |Two-pool series|-32.3|-29.5|-294|-28.3|0.00812|46.4|32.1|1.78e-08|1.78e-09|
## |Two-pool feedback|-30.3|-26.8|-292|-23.6|0.000788|132|46.2|1.78e-08|1.78e-09|

```

Variable CO2_15_B;

Mean rate of CO₂ evolution for B-horizon soils at 15 degrees during the incubation.

```

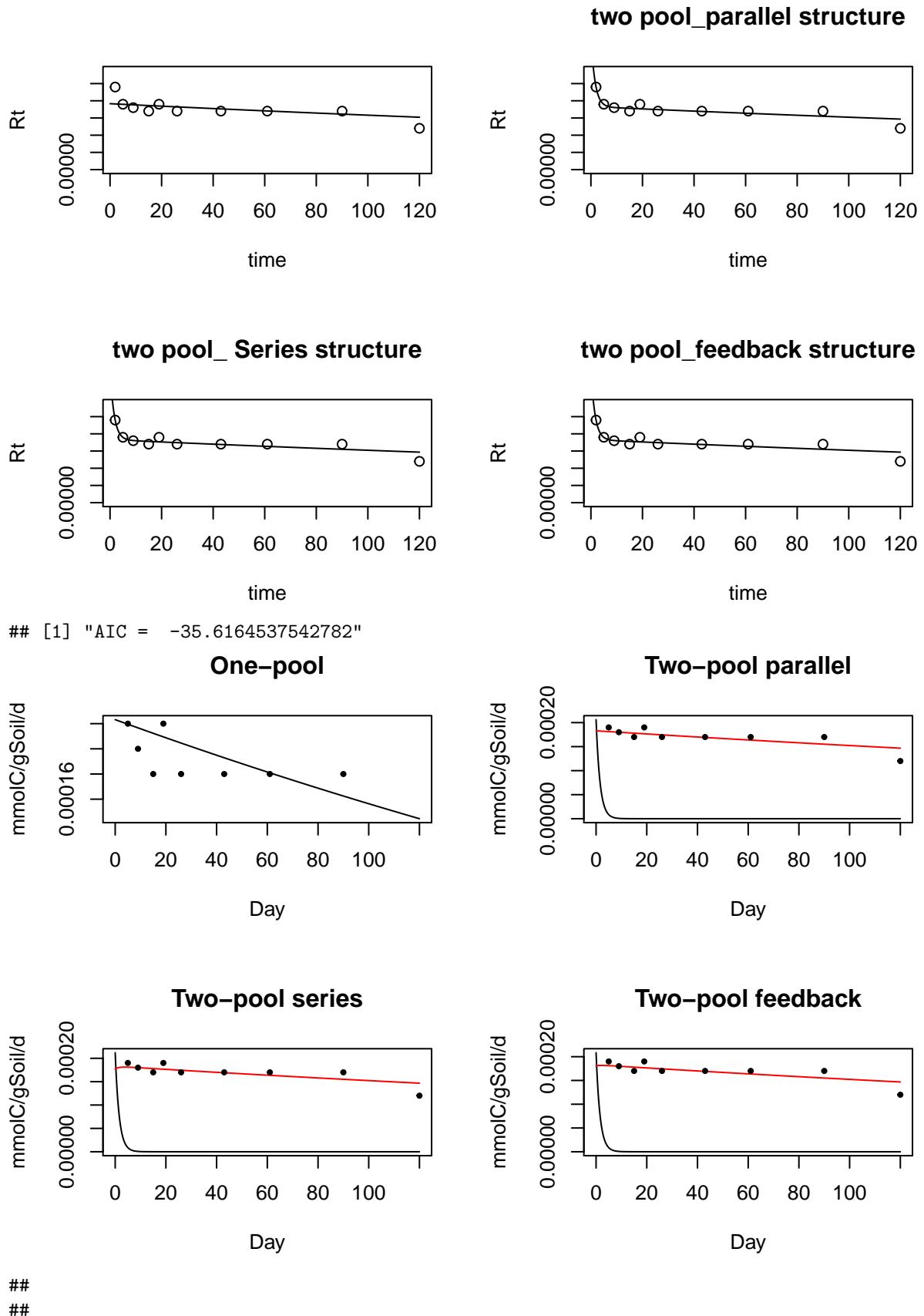
Winkler_V9=modelFitTS_Markdown(db = db[[30]], ts.col = 9, ic.col = 3, unitConverter = 1,
                                inipars=list(oneP=0.05,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.01, 0.0001, 0.01, 0.1),
                                             feedback=c(0.01, 0.0001, 0.01, 0.01, 0.1)))

```

```

## [1] "Winkler1996; variable: CO2_15_B"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00191599071091986"
## [1] "AIC = -41.2387624237038"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.637332171316983"
## [2] "k2= 0.00183555978410273"
## [3] "proportion of CO in pool 1= 0.00323506239392257"
## [1] "AIC = -39.6164582080787"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.637378938797546"
## [2] "k2= 0.0018355522857806"
## [3] "a21= 0.906489917168363"
## [4] "Proportion of CO in pool 1= 0.0355785518781209"
## [1] "AIC = -37.6164500712906"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.637469648659605"
## [2] "k2= 0.00183557098375322"
## [3] "a21= 0.789115873075394"
## [4] "a12= 9.08031930069164e-06"
## [5] "Proportion of CO in pool 1= 0.0155065320195011"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-0.00192|NA|NA|NA|NA|
## |Two-pool parallel|0.637|0.00184|0.00324|NA|NA|
## |Two-pool series|0.637|0.00184|0.0356|0.906|NA|
## |Two-pool feedback|0.637|0.00184|0.0155|0.789|0.0356|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-41.2|-40.5|-322|-40.9|0.833|0.1|NA|4.08e-09|4.08e-10|
## |Two-pool parallel|-39.6|-37.5|-336|-37.4|0.145|257|4.33|1.24e-09|1.24e-10|
## |Two-pool series|-37.6|-34.8|-334|-33.6|0.0215|495|326|1.24e-09|1.24e-10|
## |Two-pool feedback|-35.6|-32.1|-332|-28.9|0.00209|431|250|1.24e-09|1.24e-10|

```

Variable CO2_15_E;

Mean rate of CO₂ evolution for E-horizon soils at 15 degrees during the incubation.

```

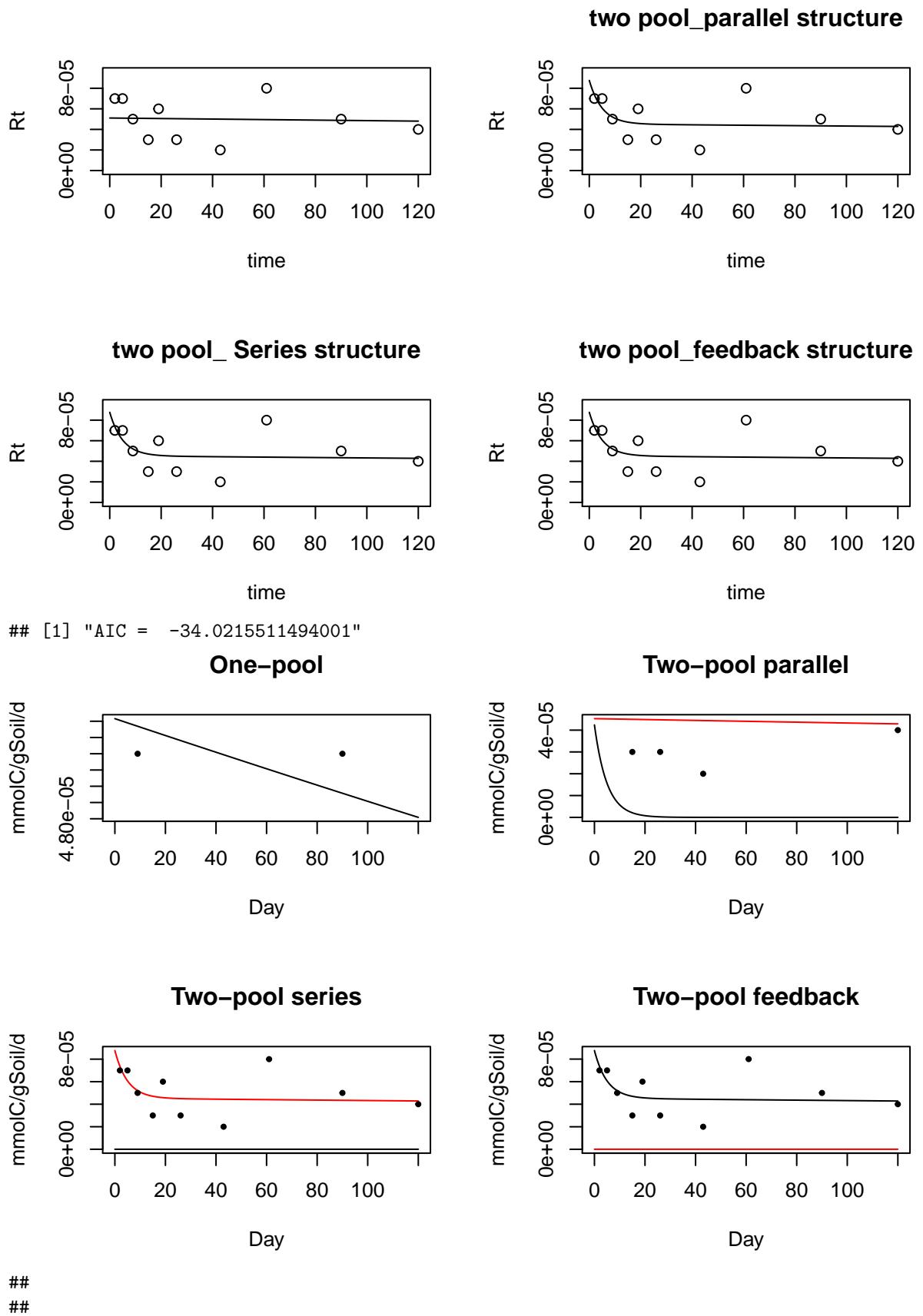
Winkler_V10=modelFitTS_Markdown(db = db[[30]], ts.col = 10, ic.col = 2, unitConverter = 1,
                                inipars=list(oneP=0.05,
                                             parallel=c(0.01, 0.001, 0.1),
                                             series=c(0.01, 0.0005, 0.01, 0.1),
                                             feedback=c(0.01, 0.0001, 0.01, 0.01, 0.1)))

```

```

## [1] "Winkler1996; variable: CO2_15_E"
## [1] "One pool model"
## [1] "Best fit parameter: 0.000510797541679153"
## [1] "AIC = -41.5175148382874"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.200175633341896"
## [2] "k2= 0.000453640256404535"
## [3] "proportion of CO in pool 1= 0.00211767905981969"
## [1] "AIC = -38.021556685336"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.000453641477050314"
## [2] "k2= 0.200176602759477"
## [3] "a21= 0.999982963639014"
## [4] "Proportion of CO in pool 1= 0.995620974046784"
## [1] "AIC = -36.0215566852585"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.195867587143965"
## [2] "k2= 0.00474005647896768"
## [3] "a21= 0.902321435228735"
## [4] "a12= 0.999868180028192"
## [5] "Proportion of CO in pool 1= 0.045784858232886"

```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|0.000511|NA|NA|NA|NA|
## |Two-pool parallel|0.2|0.000454|0.00212|NA|NA|
## |Two-pool series|0.000454|0.2|0.996|1|NA|
## |Two-pool feedback|0.196|0.00474|0.0458|0.902|0.996|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool|-41.5|-40.8|-324|-41.2|0.927|0.1|NA|3.55e-09|3.55e-10|
## |Two-pool parallel|-38|-35.9|-324|-35.8|0.0633|1140|71.2|2.76e-09|2.76e-10|
## |Two-pool series|-36|-33.2|-322|-32|0.00938|2210|1530|2.76e-09|2.76e-10|
## |Two-pool feedback|-34|-30.5|-320|-27.4|0.000909|2000|1310|2.76e-09|2.76e-10|

```

Variable CO2_4_B;

Mean rate of CO₂ evolution for B-horizon soils at 4 degrees during the incubation.

```

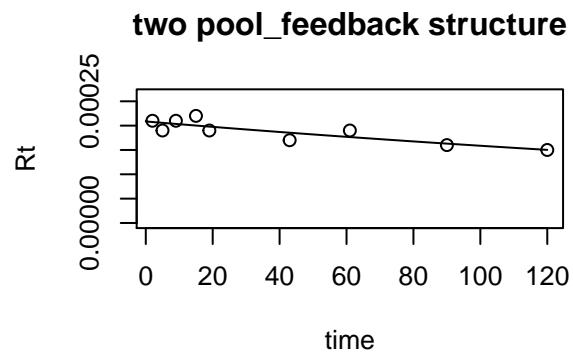
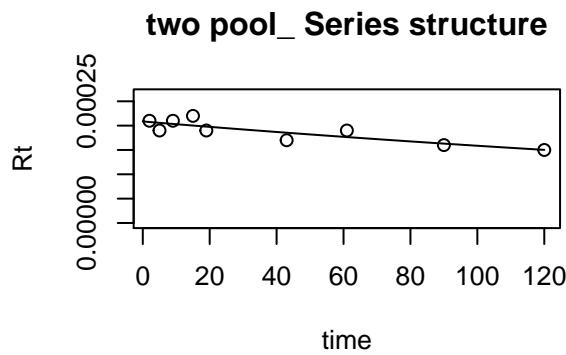
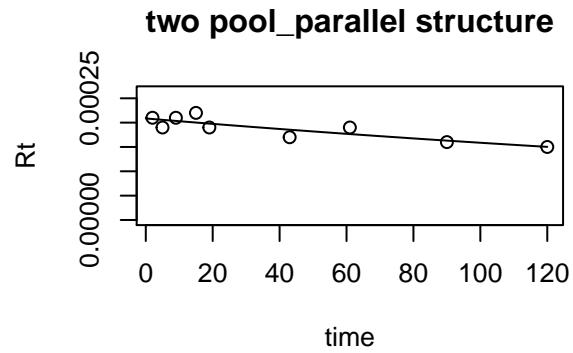
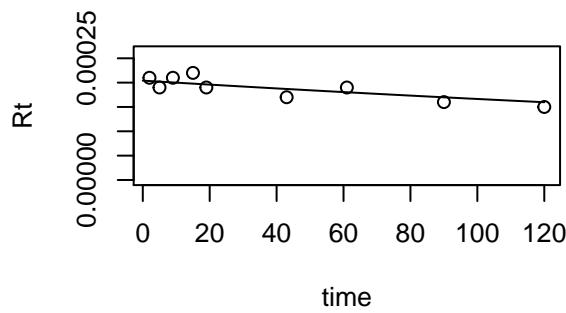
Winkler_V12=modelFitTS_Markdown(db = db[[30]], ts.col = 12, ic.col = 3, unitConverter = 1,
                                 inipars=list(oneP=0.05,
                                              parallel=c(0.01, 0.001, 0.1),
                                              series=c(0.01, 0.0001, 0.01, 0.1),
                                              feedback=c(0.01, 0.0001, 0.01, 0.01, 0.1)))

```

```

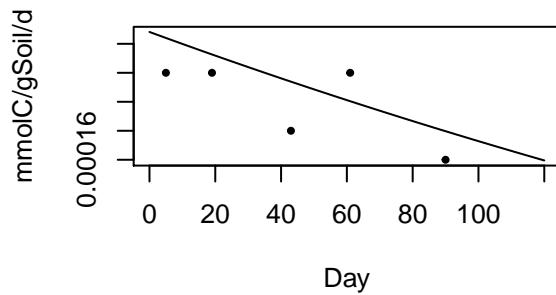
## [1] "Winkler1996; variable: CO2_4_B"
## [1] "One pool model"
## [1] "Best fit parameter: -0.00204096604061199"
## [1] "AIC = -43.1902566227718"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.00273516683300598"
## [2] "k2= 4.58209243700562e-09"
## [3] "proportion of CO in pool 1= 0.762519097234029"
## [1] "AIC = -39.5059418045806"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.00273619395682277"
## [2] "k2= 2.82869217560914e-06"
## [3] "a21= 0.0005877101774307"
## [4] "Proportion of CO in pool 1= 0.762435600173826"
## [1] "AIC = -37.5059391205743"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.00273516923945223"
## [2] "k2= 0"
## [3] "a21= 6.97627713208693e-07"
## [4] "a12= 0.999999974446043"
## [5] "Proportion of CO in pool 1= 0.762518781792948"

```

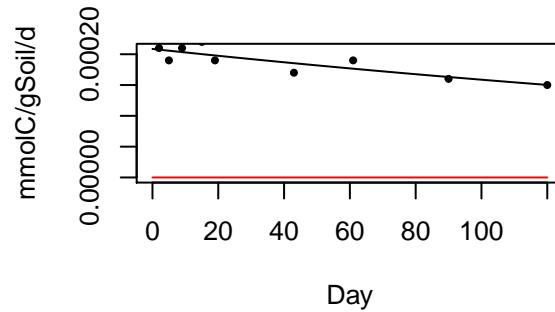


```
## [1] "AIC = -35.5059418093633"
## Error in solve.default(A): Lapack routine dgesv: system is exactly singular: U[2,2] = 0
```

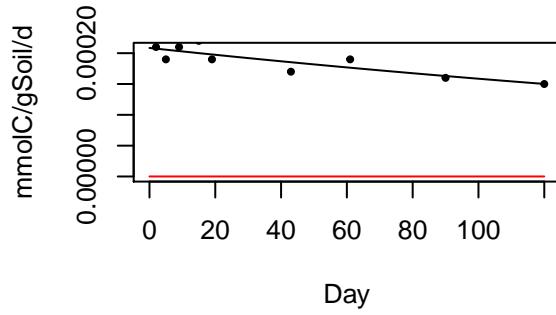
One-pool



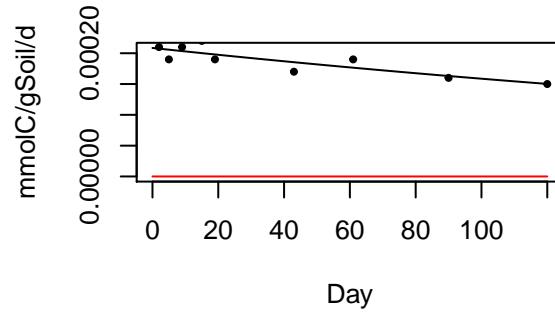
Two-pool parallel



Two-pool series



Two-pool feedback



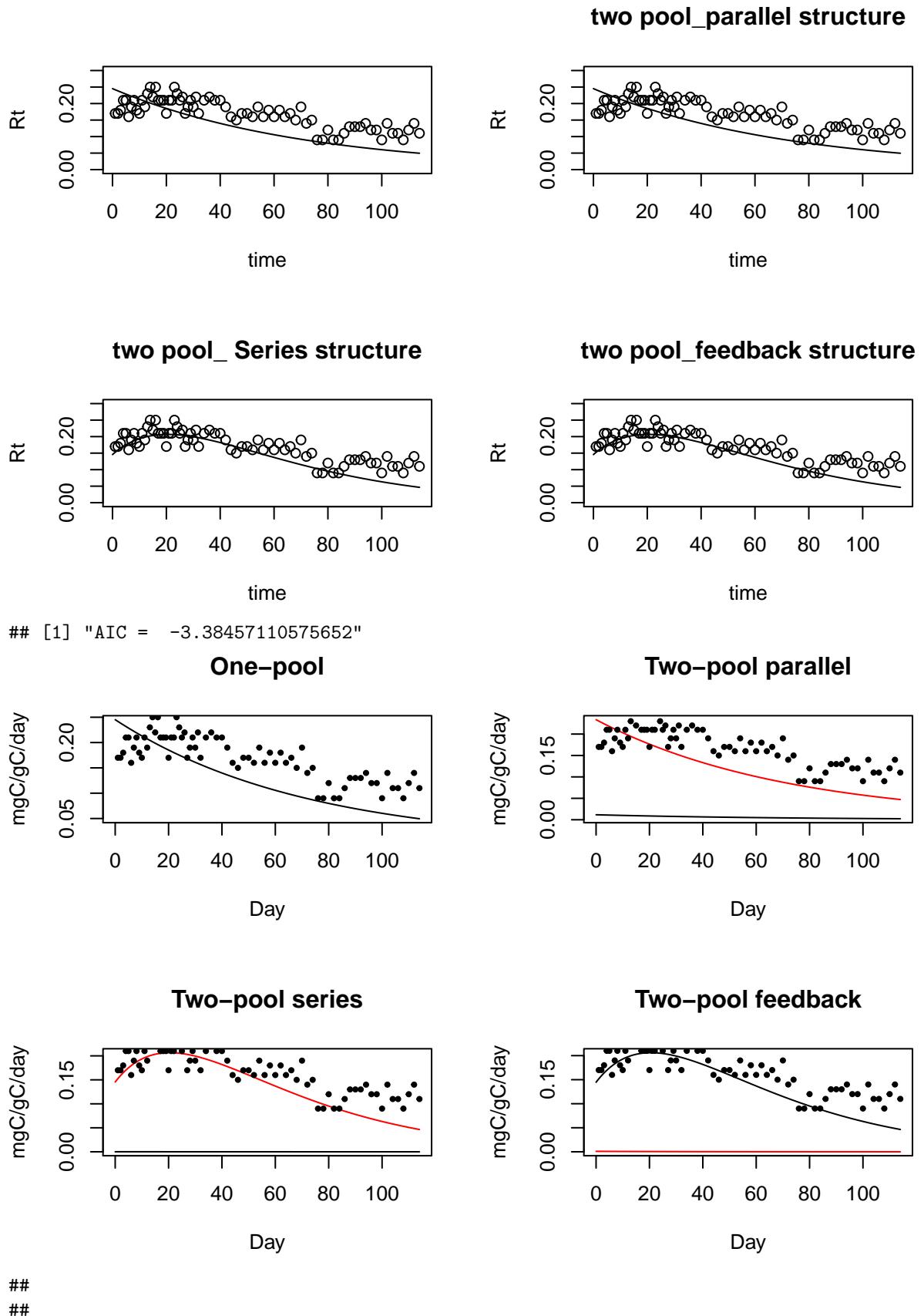
Dataset Zhang2007

Variable CO2_u20_PP;

Dynamics of C mineralization as CO₂ evolution during the incubation under 20 degrees for soil sample PP

```
Zhang_V2=modelFitTS_Markdown(db = db[[31]], ts.col = 2, ic.col = 1, unitConverter = 10,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.1, 0.01, 0.1),
                                             series=c(0.1, 0.01, 0.01, 0.1),
                                             feedback=c(0.1, 0.01, 0.01, 0.1, 0.1)))

## [1] "Zhang2007; variable: CO2_u20_PP"
## [1] "One pool model"
## [1] "Best fit parameter: -0.0140272264861068"
## [1] "AIC = -9.93295163733557"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0140273120030108"
## [2] "k2= 0.014027306387606"
## [3] "proportion of C0 in pool 1= 0.0474046542208587"
## [1] "AIC = -5.93295163773028"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0303333179246488"
## [2] "k2= 0.030333318140341"
## [3] "a21= 0.999743443221028"
## [4] "Proportion of C0 in pool 1= 0.725631620168249"
## [1] "AIC = -5.38458123062772"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0303354450771037"
## [2] "k2= 0.0303320857697031"
## [3] "a21= 1.04376875818546e-05"
## [4] "a12= 0.997506002781085"
## [5] "Proportion of C0 in pool 1= 0.272721140750275"
```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|-0.014|NA|NA|NA|NA|
## |Two-pool parallel|0.014|0.014|0.0474|NA|NA|
## |Two-pool series|0.0303|0.0303|0.726|1|NA|
## |Two-pool feedback|0.0303|0.0303|0.273|1.04e-05|0.726|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|-9.93|-7.64|-434|-9.88|0.836|17.5|NA|0.187|0.00256|
## |Two-pool parallel|-5.93|0.938|-430|-5.59|0.0978|71.3|49.4|0.187|0.00256|
## |Two-pool series|-5.38|3.78|-481|-4.8|0.0659|65.9|55.3|0.0906|0.00124|
## |Two-pool feedback|-3.38|8.07|-479|-2.49|0.0208|33|22.8|0.0906|0.00124|

```

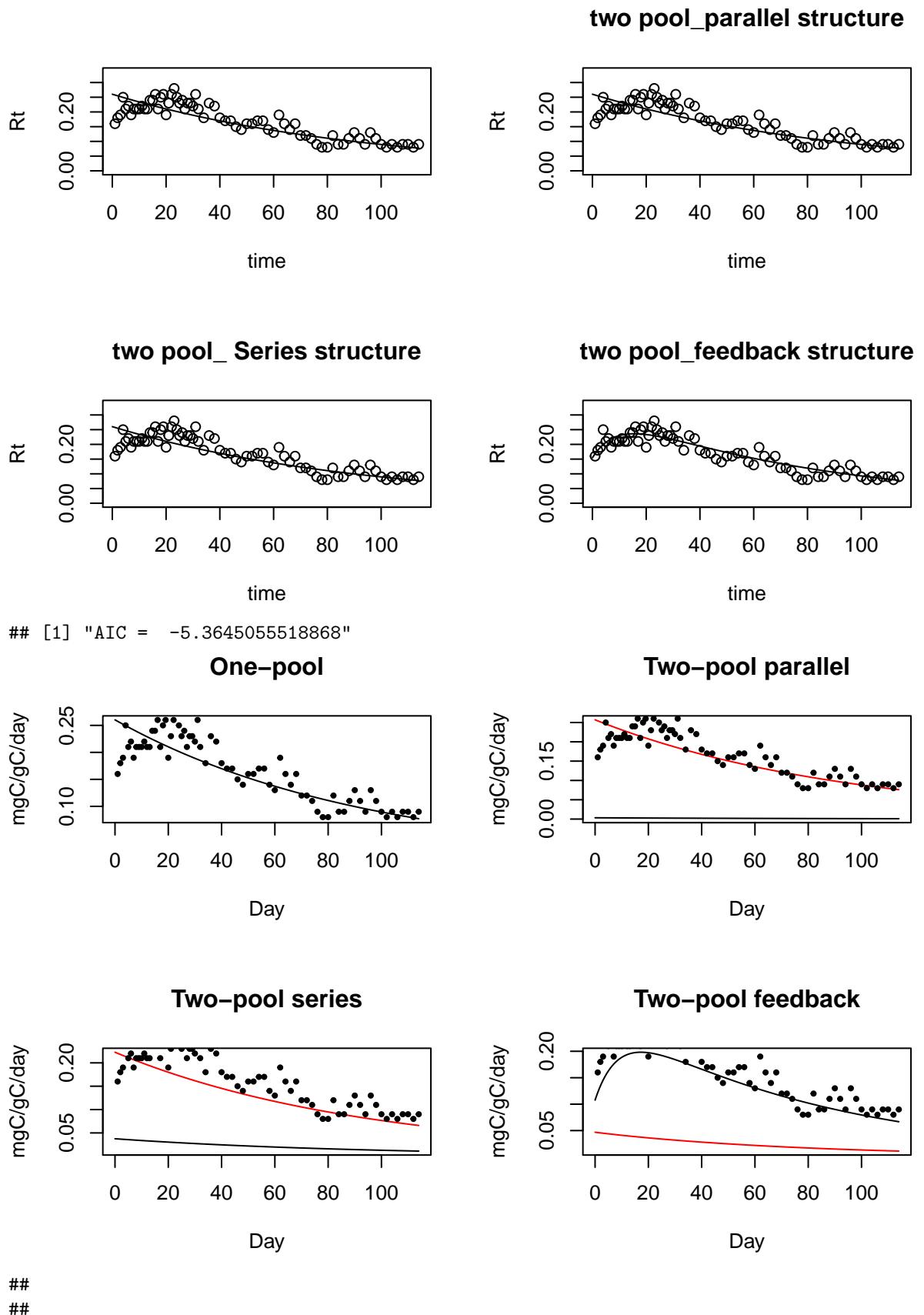
Variable CO2_u20_RP;

Dynamics of C mineralization as CO₂ evolution during the incubation under 20 degrees for soil sample RP

```
Zhang_V3=modelFitTS_Markdown(db = db[[31]], ts.col = 3, ic.col = 2, unitConverter = 10,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.1, 0.01, 0.1),
                                             series=c(0.1, 0.001, 0.01, 0.1),
                                             feedback=c(0.1, 0.01, 0.01, 0.01, 0.1)))
```

```

## [1] "Zhang2007; variable: CO2_u20_RP"
## [1] "One pool model"
## [1] "Best fit parameter: -0.0106716516375442"
## [1] "AIC = -11.7396354537799"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0106716209821603"
## [2] "k2= 0.010671663425873"
## [3] "proportion of CO in pool 1= 0.0128360481254196"
## [1] "AIC = -7.7396354538503"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0106791306945341"
## [2] "k2= 0.0106728225374116"
## [3] "a21= 0.00133737386553578"
## [4] "Proportion of CO in pool 1= 0.144389401223363"
## [1] "AIC = -5.73963560351646"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.109247691460875"
## [2] "k2= 0.0141185034097038"
## [3] "a21= 0.120473274039591"
## [4] "a12= 0.857334899124581"
## [5] "Proportion of CO in pool 1= 0.0459115911275149"
```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|-0.0107|NA|NA|NA|NA|
## |Two-pool parallel|0.0107|0.0107|0.0128|NA|NA|
## |Two-pool series|0.0107|0.0107|0.144|0.00134|NA|
## |Two-pool feedback|0.109|0.0141|0.0459|0.12|0.144|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|-11.7|-9.45|-499|-11.7|0.866|24.4|NA|0.0758|0.00104|
## |Two-pool parallel|-7.74|-0.868|-495|-7.39|0.101|93.7|65|0.0758|0.00104|
## |Two-pool series|-5.74|3.42|-493|-5.15|0.033|93.8|65|0.0758|0.00104|
## |Two-pool feedback|-5.36|6.09|-551|-4.47|0.0235|19.7|7.66|0.0336|0.000461|

```

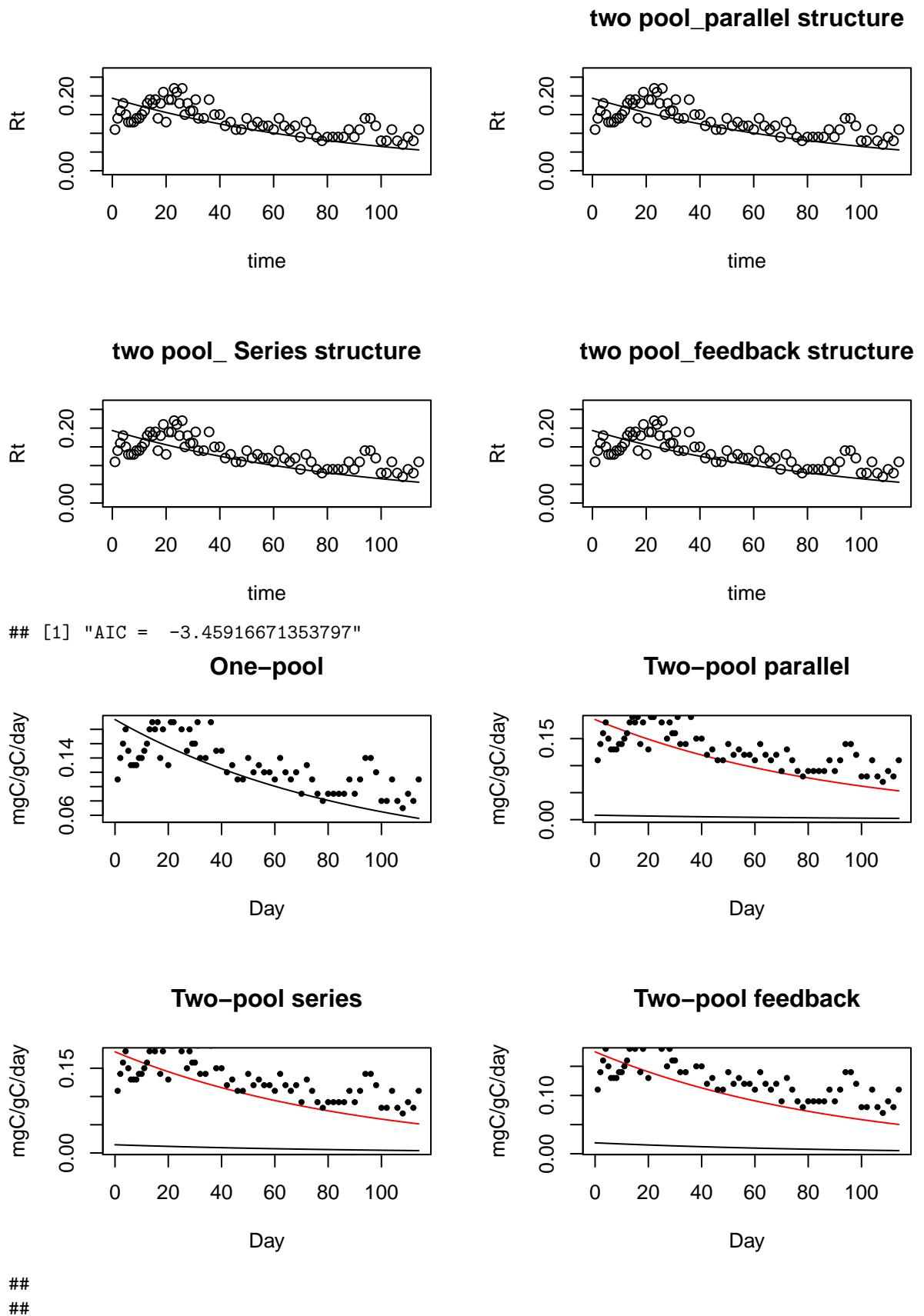
Variable CO2_u20_EP;

Dynamics of C mineralization as CO₂ evolution during the incubation under 20 degrees for soil sample EP

```
Zhang_V4=modelFitTS_Markdown(db = db[[31]], ts.col = 4, ic.col = 3, unitConverter = 10,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.1, 0.01, 0.1),
                                             series=c(0.1, 0.001, 0.01, 0.1),
                                             feedback=c(0.1, 0.001, 0.01, 0.01))))
```

```

## [1] "Zhang2007; variable: CO2_u20_EP"
## [1] "One pool model"
## [1] "Best fit parameter: -0.0109370136568661"
## [1] "AIC = -11.459166707735"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0109369724907247"
## [2] "k2= 0.0109369578486384"
## [3] "proportion of CO in pool 1= 0.0430573872103394"
## [1] "AIC = -7.45916670788057"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0109417963753061"
## [2] "k2= 0.0109375406386679"
## [3] "a21= 0.00103537714443713"
## [4] "Proportion of CO in pool 1= 0.0754582553972337"
## [1] "AIC = -5.45916675546942"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0109647772150373"
## [2] "k2= 0.0109399592646807"
## [3] "a21= 0.00268854466461804"
## [4] "a12= 0.00025642627792638"
## [5] "Proportion of CO in pool 1= 0.0969500442207764"
```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|-0.0109|NA|NA|NA|NA|
## |Two-pool parallel|0.0109|0.0109|0.0431|NA|NA|
## |Two-pool series|0.0109|0.0109|0.0755|0.00104|NA|
## |Two-pool feedback|0.011|0.0109|0.097|0.00269|0.0755|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|-11.5|-9.17|-489|-11.4|0.866|17.7|NA|0.0872|0.0012|
## |Two-pool parallel|-7.46|-0.588|-485|-7.11|0.101|91.4|63.4|0.0872|0.0012|
## |Two-pool series|-5.46|3.7|-483|-4.87|0.033|91.5|63.4|0.0872|0.0012|
## |Two-pool feedback|-3.46|7.99|-481|-2.56|0.0104|91.4|63.4|0.0872|0.0012|

```

Variable CO2_u25_PP;

Dynamics of C mineralization as CO₂ evolution during the incubation under 25 degrees for soil sample PP

```
Zhang_V5=modelFitTS_Markdown(db = db[[31]], ts.col = 5, ic.col = 1, unitConverter = 10,
                                inipars=list(oneP=0.5,
                                             parallel=c(0.1, 0.01, 0.1),
                                             series=c(0.1, 0.01, 0.01, 0.1),
                                             feedback=c(0.1, 0.01, 0.01, 0.1, 0.1)))
```

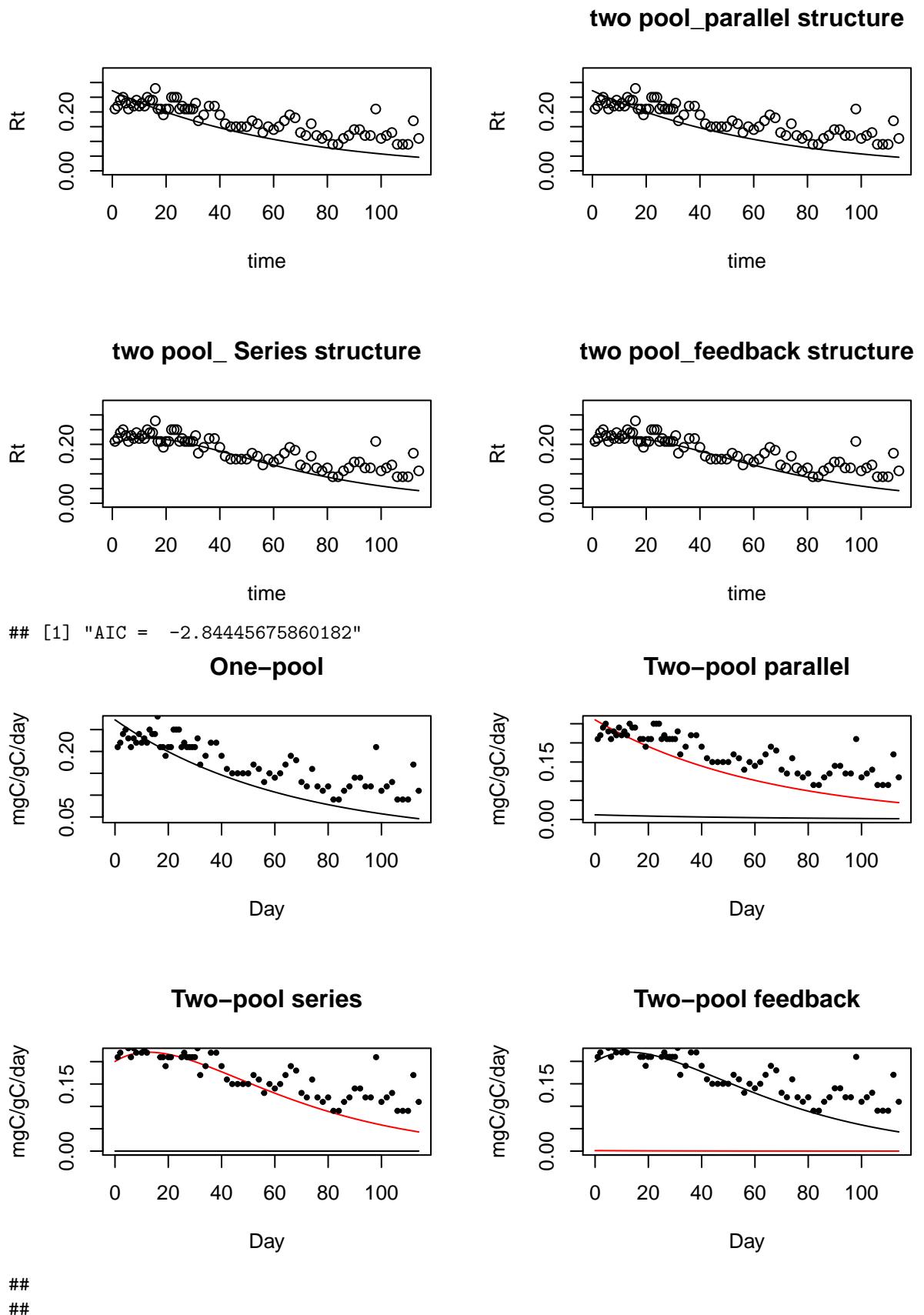
```

## [1] "Zhang2007; variable: CO2_u25_PP"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0155849235268679"

## [1] "AIC = -10.0776994105693"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0155845924539174"
## [2] "k2= 0.0155849800951874"
## [3] "proportion of CO in pool 1= 0.0448093678075369"

## [1] "AIC = -6.07769941010793"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0299649282235931"
## [2] "k2= 0.0299617232176383"
## [3] "a21= 0.999787339967037"
## [4] "Proportion of CO in pool 1= 0.61739878660574"

## [1] "AIC = -4.84446668130323"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0299634732016305"
## [2] "k2= 0.0299631722843068"
## [3] "a21= 1.47531946407264e-05"
## [4] "a12= 0.996646415051976"
## [5] "Proportion of CO in pool 1= 0.380645766799381"
```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.0156|NA|NA|NA|NA|
## |Two-pool parallel|0.0156|0.0156|0.0448|NA|NA|
## |Two-pool series|0.03|0.03|0.617|1|NA|
## |Two-pool feedback|0.03|0.03|0.381|1.48e-05|0.617|
##
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|-10.1|-7.79|-439|-10|0.853|17.5|NA|0.174|0.00238|
## |Two-pool parallel|-6.08|0.794|-435|-5.73|0.0997|64.2|44.5|0.174|0.00238|
## |Two-pool series|-4.84|4.32|-461|-4.26|0.0477|66.7|56|0.119|0.00163|
## |Two-pool feedback|-2.84|8.61|-459|-1.95|0.0151|33.4|23.1|0.119|0.00163|

```

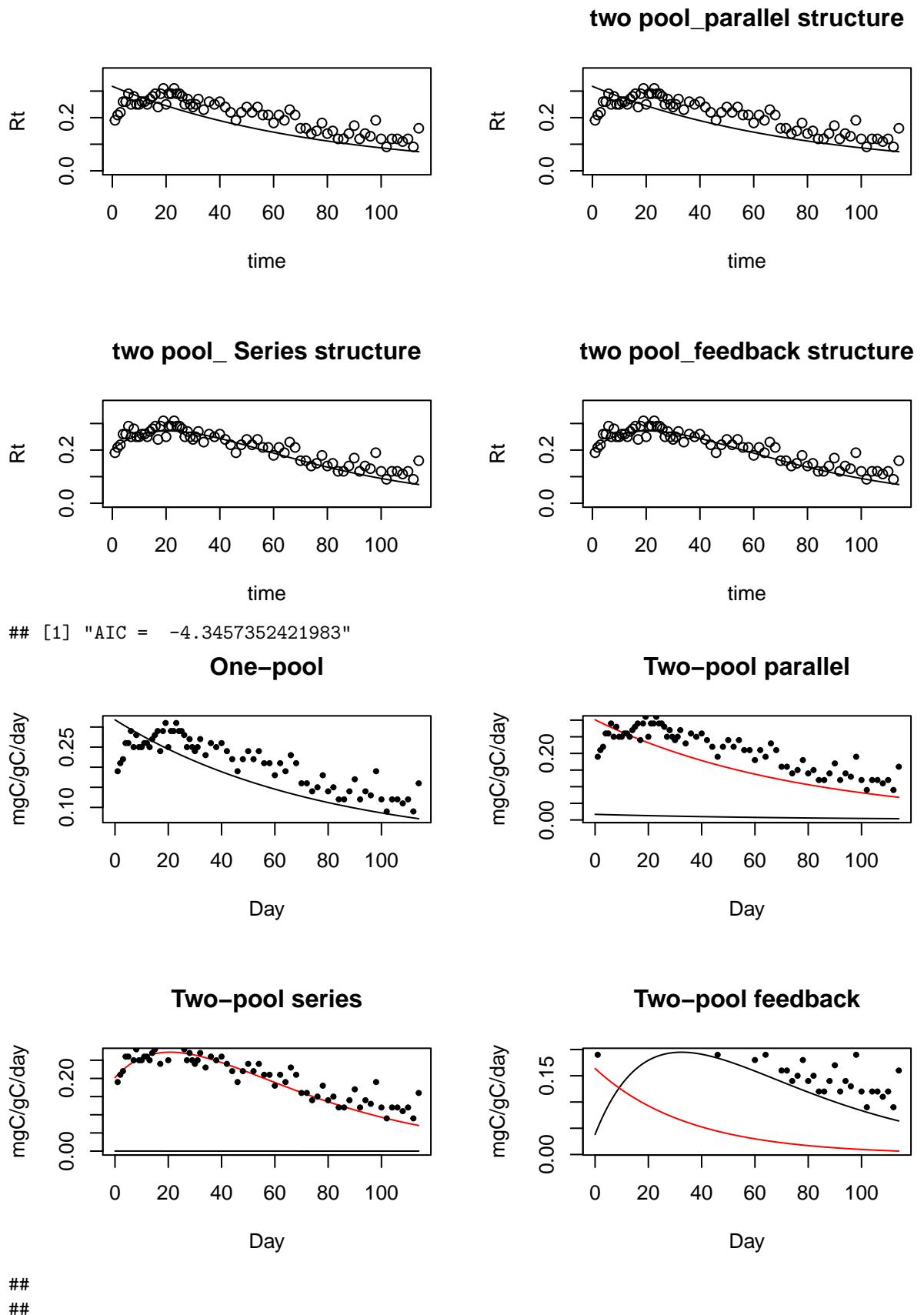
Variable CO2_u25_RP;

Dynamics of C mineralization as CO₂ evolution during the incubation under 25 degrees for soil sample RP

```
Zhang_V6=modelFitTS_Markdown(db = db[[31]], ts.col = 6, ic.col = 2, unitConverter = 10,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.1, 0.01, 0.1),
                                             series=c(0.1, 0.01, 0.01, 0.1),
                                             feedback=c(0.1, 0.01, 0.01, 0.1, 0.1)))
```

```

## [1] "Zhang2007; variable: CO2_u25_RP"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0130341382607462"
## [1] "AIC = -9.8882765230313"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0130354162681822"
## [2] "k2= 0.013034000972658"
## [3] "proportion of CO in pool 1= 0.053127896215498"
## [1] "AIC = -5.8882765214107"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0283535570952899"
## [2] "k2= 0.0283553329005997"
## [3] "a21= 0.999738962639891"
## [4] "Proportion of CO in pool 1= 0.707782345913561"
## [1] "AIC = -6.3500441704926"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0284029282344168"
## [2] "k2= 0.0285049325284346"
## [3] "a21= 0.00485017783852176"
## [4] "a12= 0.750423290066158"
## [5] "Proportion of CO in pool 1= 0.0553326105628333"
```



```

## |model|k1|k2|COInp1|a21|a12|
## |:-----|:---|:---|:---|:---|:---|
## |One-pool|0.013|NA|NA|NA|NA|
## |Two-pool parallel|0.013|0.013|0.0531|NA|NA|
## |Two-pool series|0.0284|0.0284|0.708|1|NA|
## |Two-pool feedback|0.0284|0.0285|0.0553|0.00485|0.708|
##
## |model|AIC|BIC|AICn|AICc|wi|MeanTrT|q05|SSR|MSR|
## |:-----|:---|:---|:---|:---|:---|:---|:---|:---|:---|
## |One-pool|-9.89|-7.6|-432|-9.83|0.802|24.4|NA|0.191|0.00262|
## |Two-pool parallel|-5.89|0.983|-428|-5.54|0.0938|76.7|153.2|0.191|0.00262|
## |Two-pool series|-6.35|2.81|-516|-5.76|0.105|70.5|159.2|0.0559|0.000765|
## |Two-pool feedback|-4.35|7.11|-514|-3.45|0.033|35.5|124.6|0.056|0.000767|

```

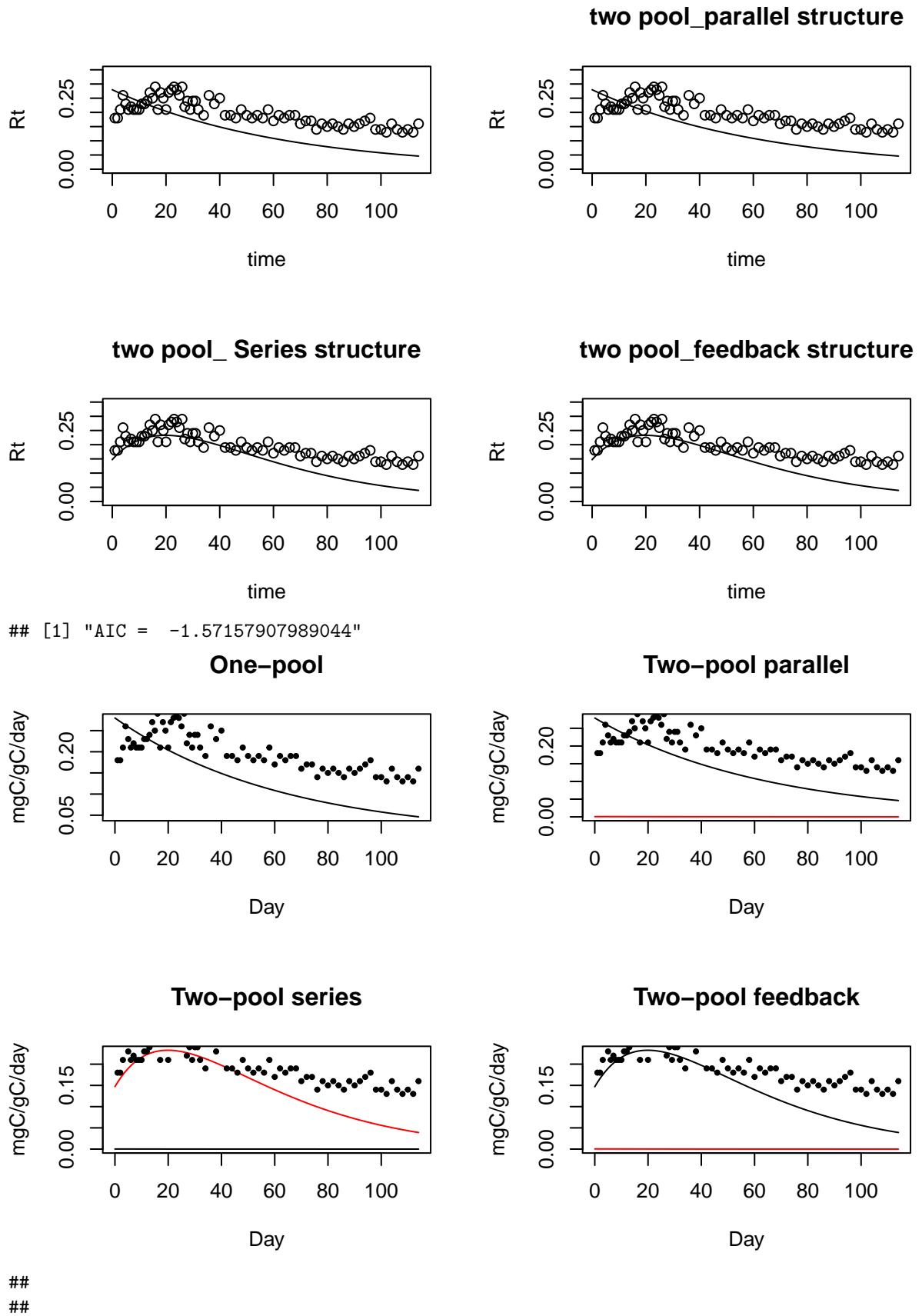
Variable CO2_u25_EP;

Dynamics of C mineralization as CO₂ evolution during the incubation under 25 degrees for soil sample PP

```
Zhang_V7=modelFitTS_Markdown(db = db[[31]], ts.col = 7, ic.col = 3, unitConverter = 10,
                                inipars=list(oneP=0.01,
                                             parallel=c(0.1, 0.05, 0.1),
                                             series=c(0.1, 0.01, 0.01, 0.1),
                                             feedback=c(0.1, 0.01, 0.01, 0.1, 0.1)))
```

```

## [1] "Zhang2007; variable: CO2_u25_EP"
## [1] "One pool model"
## [1] "Best fit parameter: 0.0158017315815755"
## [1] "AIC = -8.54807204096702"
## [1] "Two pool model-parallel structure"
## [1] "k1= 0.0158016397573127"
## [2] "k2= 0.0157974080117701"
## [3] "proportion of CO in pool 1= 0.997452527618144"
## [1] "AIC = -4.54807203991437"
## [1] "Two pool model-Series structure"
## [1] "k1= 0.0342648892926461"
## [2] "k2= 0.0342665932890576"
## [3] "a21= 0.999547975459067"
## [4] "Proportion of CO in pool 1= 0.757806984032394"
## [1] "AIC = -3.57158303349365"
## [1] "Two pool model-feedback structure"
## [1] "k1= 0.0342669933794757"
## [2] "k2= 0.0342659970098714"
## [3] "a21= 6.1933339436937e-06"
## [4] "a12= 0.99906610908327"
## [5] "Proportion of CO in pool 1= 0.241832427358005"
```



```

## |model          |k1      |k2      |COInp1 |a21      |a12      |
## |:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |0.0158 |NA      |NA      |NA      |NA      |
## |Two-pool parallel |0.0158 |0.0158 |0.997  |NA      |NA      |
## |Two-pool series   |0.0343 |0.0343 |0.758  |1       |NA      |
## |Two-pool feedback  |0.0343 |0.0343 |0.242  |6.19e-06 |0.758  |
##
##
## |model          |AIC    |BIC    |AICn   |AICc    |wi     |MeanTrT |q05    |SSR    |MSR    |
## |:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|:-----|
## |One-pool      |-8.55  |-6.26  |-383   |-8.49   |0.847  |17.7   |NA     |0.374  |0.00512 |
## |Two-pool parallel |-4.55  |2.32   |-379   |-4.2    |0.0991 |63.3   |43.9   |0.374  |0.00512 |
## |Two-pool series    |-3.57  |5.59   |-414   |-2.98   |0.0539 |58.4   |49     |0.224  |0.00307 |
## |Two-pool feedback   |-1.57  |9.88   |-412   |-0.676  |0.017  |29.2   |20.2   |0.224  |0.00307 |

```

End