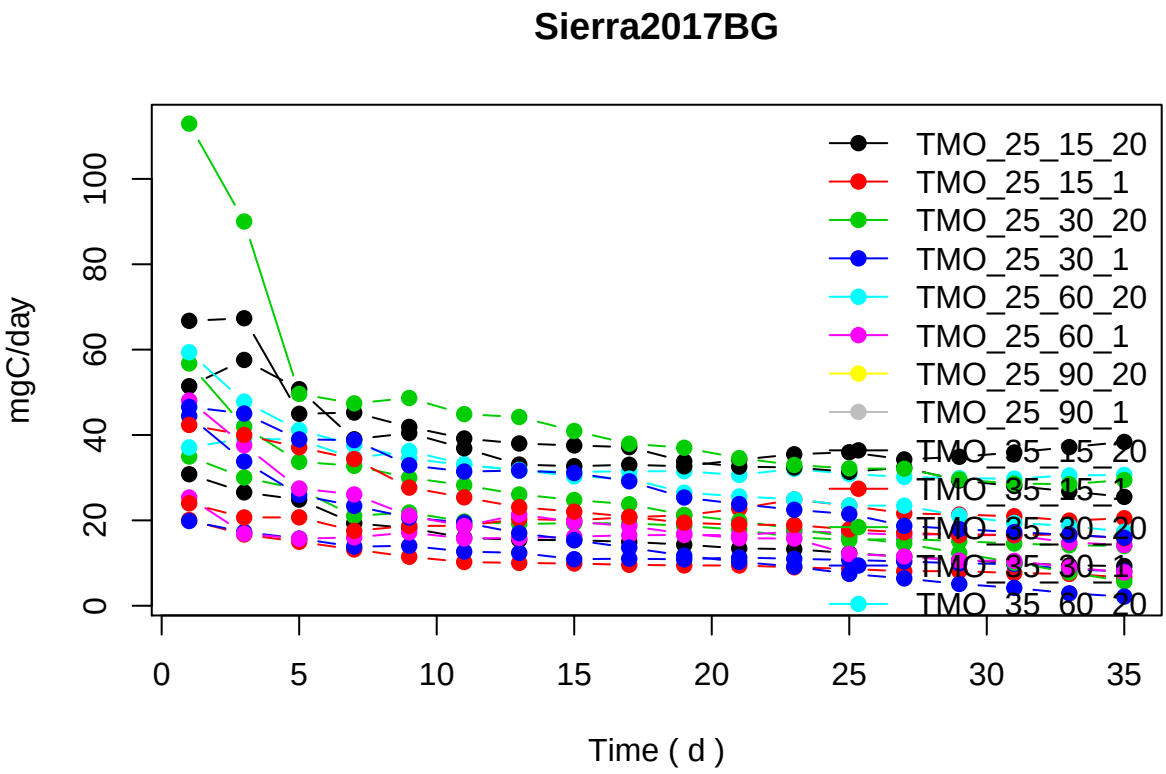
Fitting models to time series data Sierra2017

Mina Azizi-Rad

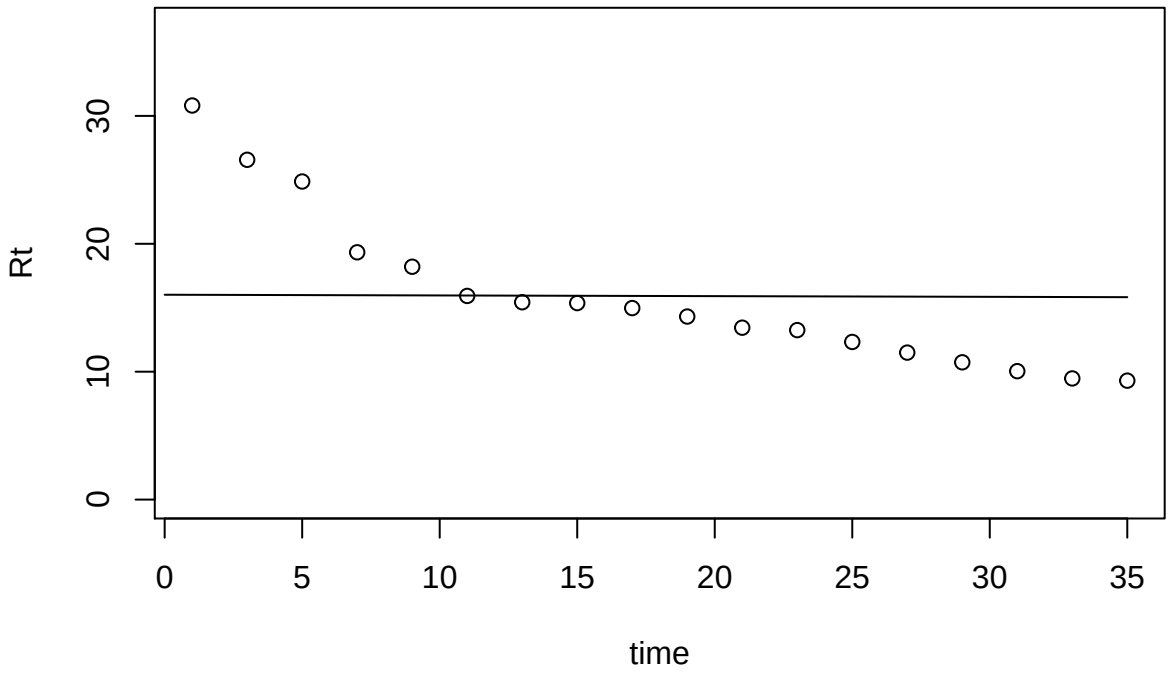


Dataset Sierra2017BG

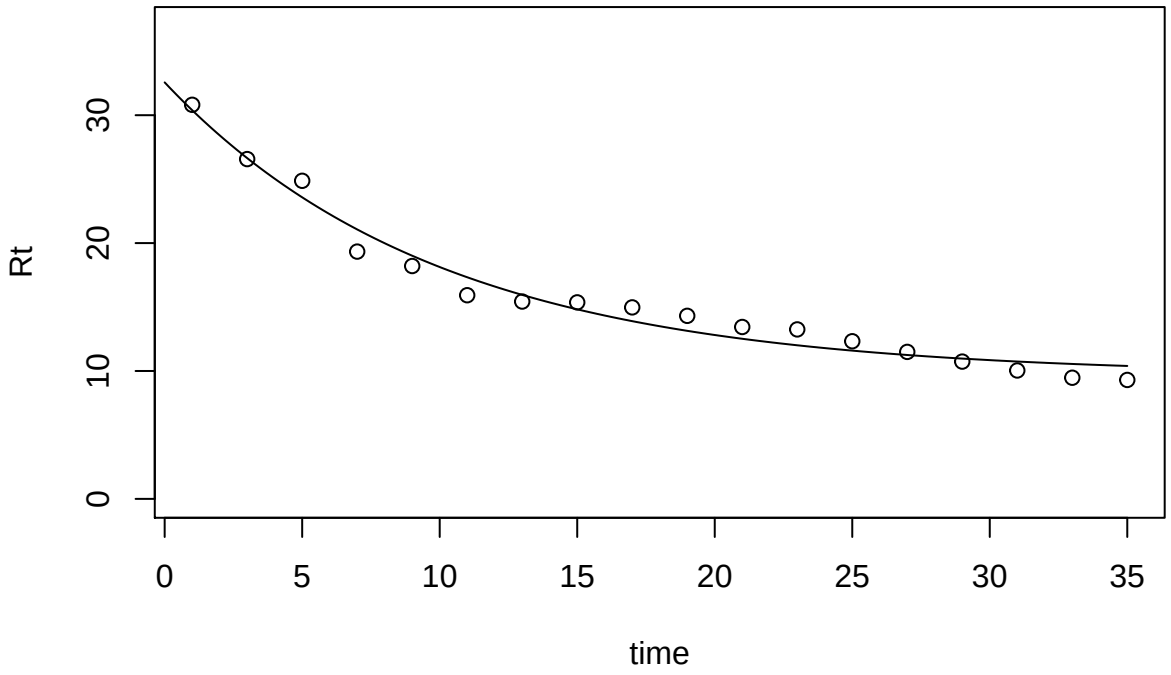
A dataset with 17 variables of Full factorial incubation experiment with the manipulated treatments being temperature (25, 35 C), soil water content (15, 30, 60 90% water-filled pore space), and oxygen concentration in the pore space (1 and 20%), with soils enclosed in PVC cylinders (10 cm diameter and 20 cm height) containing in about half of their volume 450 g of homogenized soil. The approximate bulk density within each cylinder was 0.6 g cm-3. Organic soil was collected from the A horizon of a boreal forest dominated by black spruce at the Caribou Poker watershed in central Alaska, USA, two levels of temperature, 4 levels of soil moisture and 2 levels of oxygen as treatments

gas measurement units in mgC/day and the initial carbon has been measured as mgC/mgSoil

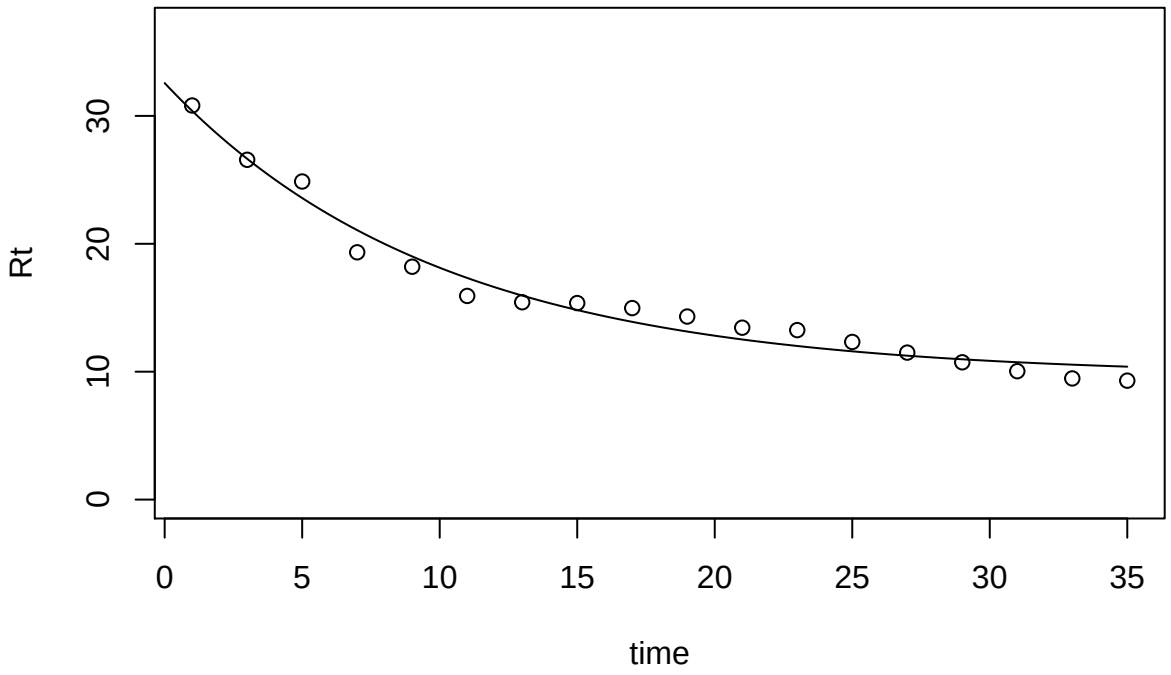
```
## [1] "Best fit parameter:  0.000341505855883846"
```



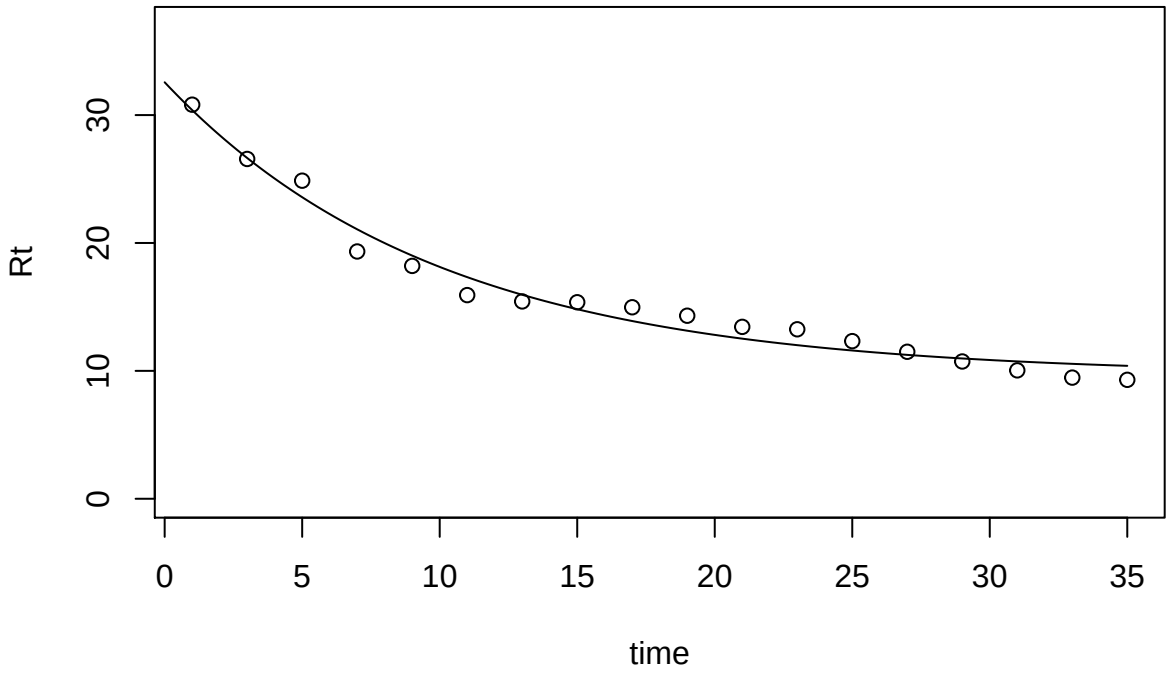

```
## [1] "AIC =  -5.07218427019148"
## [1] "k1= 0.100166994079175"
## [2] "k2= 0.000209567182144289"
## [3] "proportion of C0 in pool 1= 0.0048499322433615"
```




```
## [1] "AIC =  6.1780737193846"
## [1] "k1= 0.100167501790206"
## [2] "k2= 0.000209572775731229"
## [3] "a21= 0.509235035302902"
## [4] "a12= 4.70066213196785e-05"
## [5] "Proportion of C0 in pool 1= 0.00990399116752655"
```



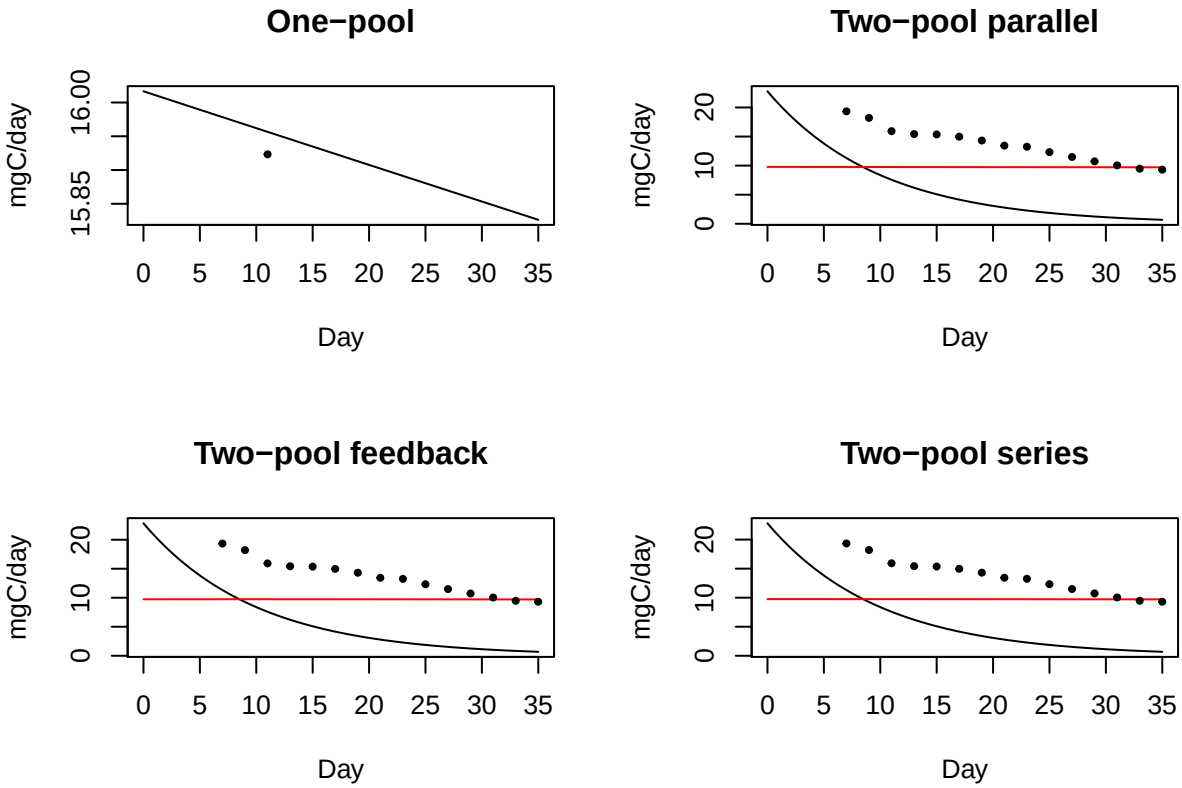

```
## [1] "AIC =  10.1780737195908"
## [1] "k1= 0.100165847703106"
## [2] "k2= 0.000209565905411074"
## [3] "a21= 0.355548559892032"
## [4] "Proportion of C0 in pool 1= 0.00753445755866"
```




```
## [1] "AIC =  8.17807371689879"
```

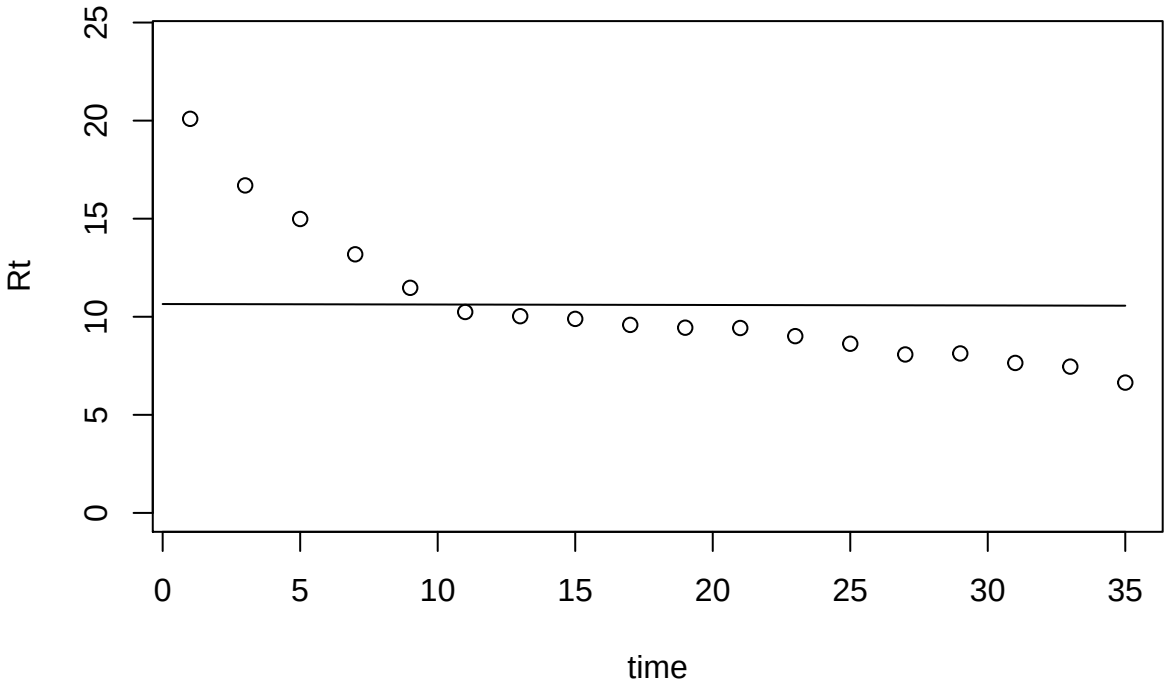
```
## Warning: `funs()` was deprecated in dplyr 0.8.0.
## Please use a list of either functions or lambdas:
##
##   # Simple named list:
```

```
##   list(mean = mean, median = median)
##
##   # Auto named with `tibble::lst()`:
##   tibble::lst(mean, median)
##
##   # Using lambdas
##   list(~ mean(., trim = .2), ~ median(., na.rm = TRUE))
```

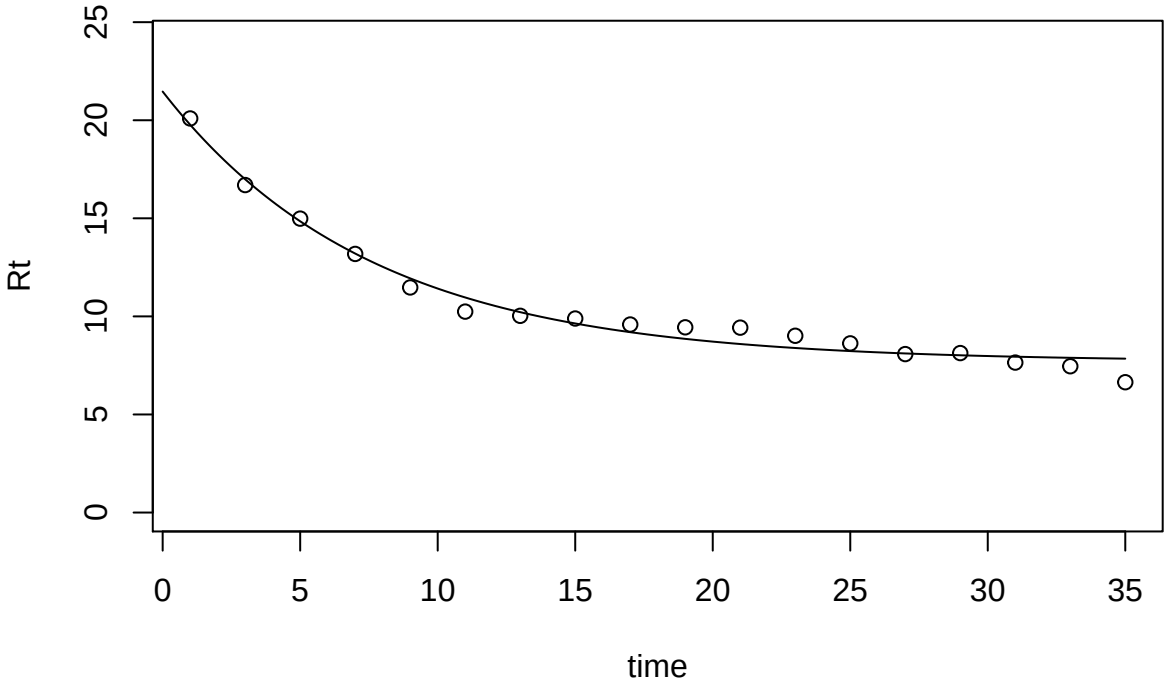


model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
One-pool	-5.07	0.000342	NA	NA	NA	NA	-4.82	0.998	NA	NA
Two-pool parallel	6.18	0.1	0.00021	0.00485	NA	NA	7.89	0.00173	4750	3280
Two-pool feedback	10.2	0.1	0.00021	0.0099	0.509	4.7e-05	15.2	4.53e-05	2440	97.6
Two-pool series	8.18	0.1	0.00021	0.00753	0.356	NA	11.3	0.000322	1710	14.9

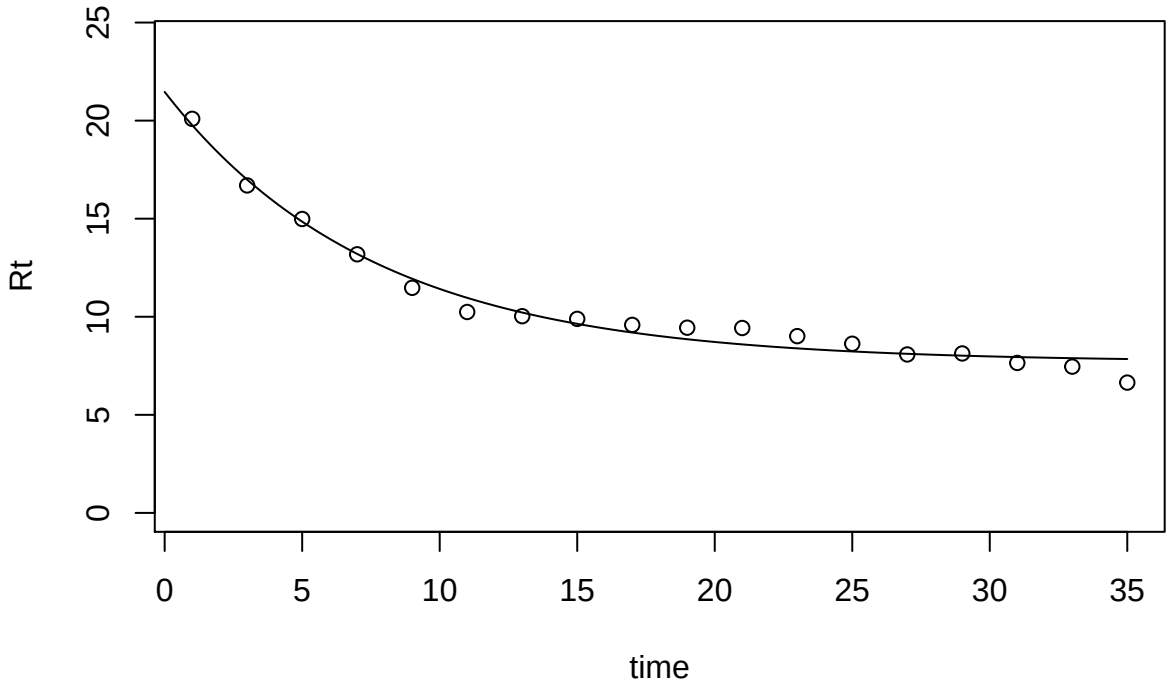
```
## [1] "Best fit parameter:  0.000227048957315348"
```



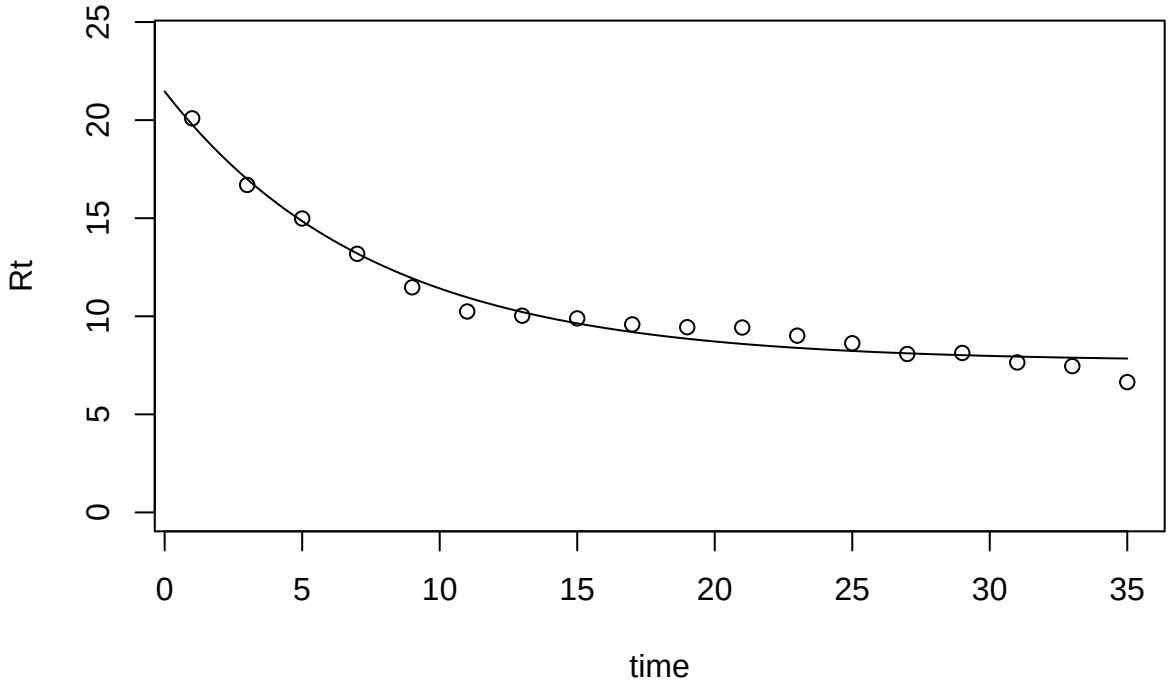

```
## [1] "AIC =  -2.90421213558984"
## [1] "k1= 0.131518578133874"
## [2] "k2= 0.000165661036617864"
## [3] "proportion of C0 in pool 1= 0.0022227555580549"
```



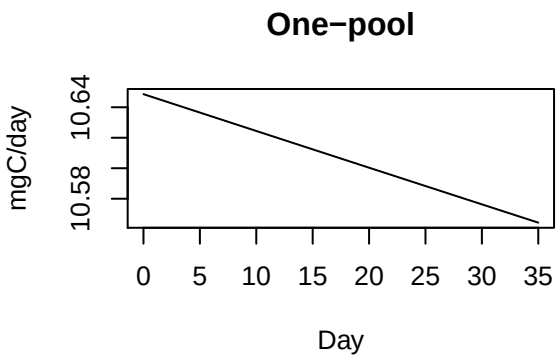

```
## [1] "AIC =  8.76955668023423"
## [1] "k1= 0.131365422046577"
## [2] "k2= 0.000319424490212006"
## [3] "a21= 0.480954201822688"
## [4] "a12= 0.999614455180818"
## [5] "Proportion of C0 in pool 1= 0.00670978734386768"
```

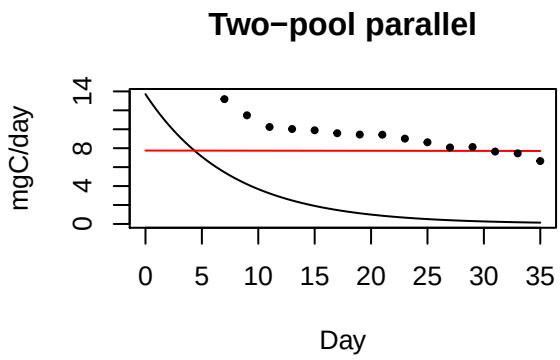


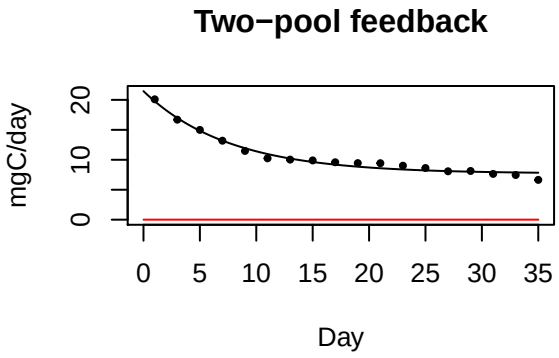

```
## [1] "AIC =  12.7695566805516"
## [1] "k1= 0.131520096064367"
## [2] "k2= 0.000165661587279465"
## [3] "a21= 0.629721029298328"
## [4] "Proportion of C0 in pool 1= 0.00601578461297747"
```

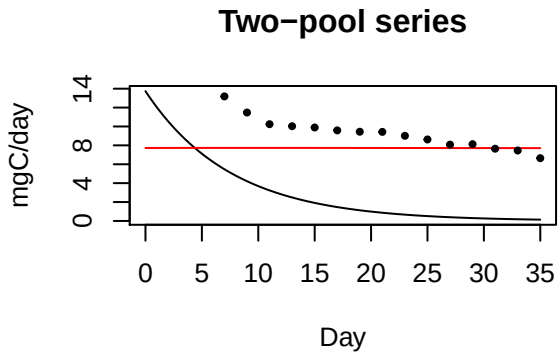



```
## [1] "AIC =  10.7695566788212"
```



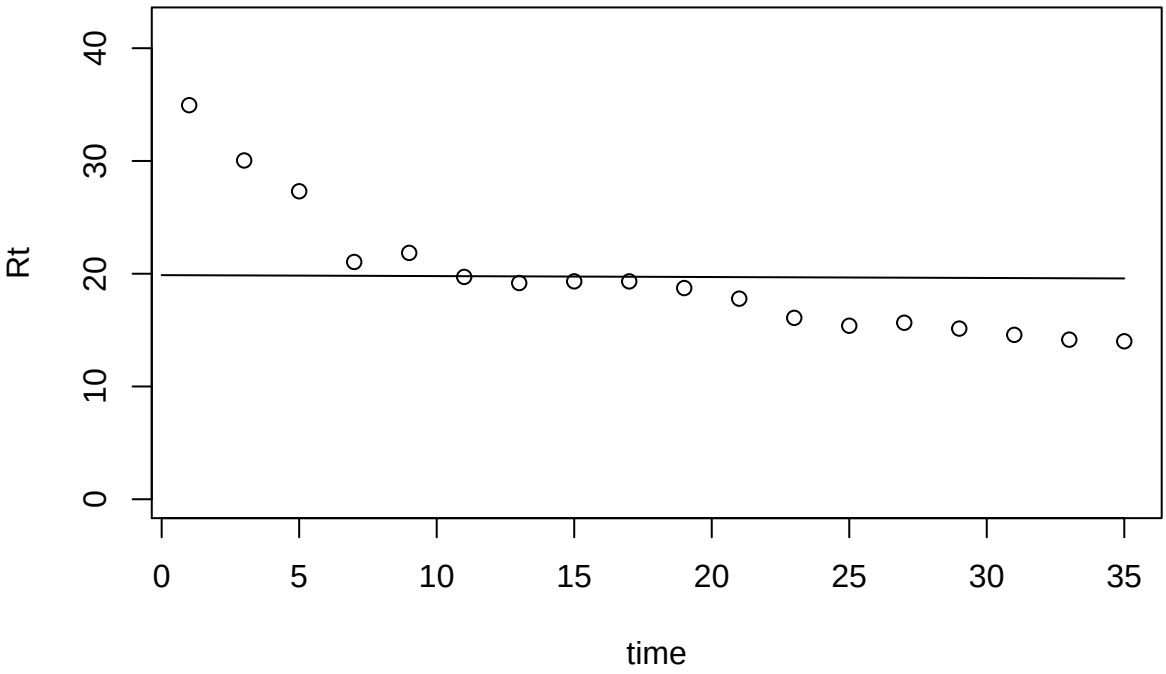




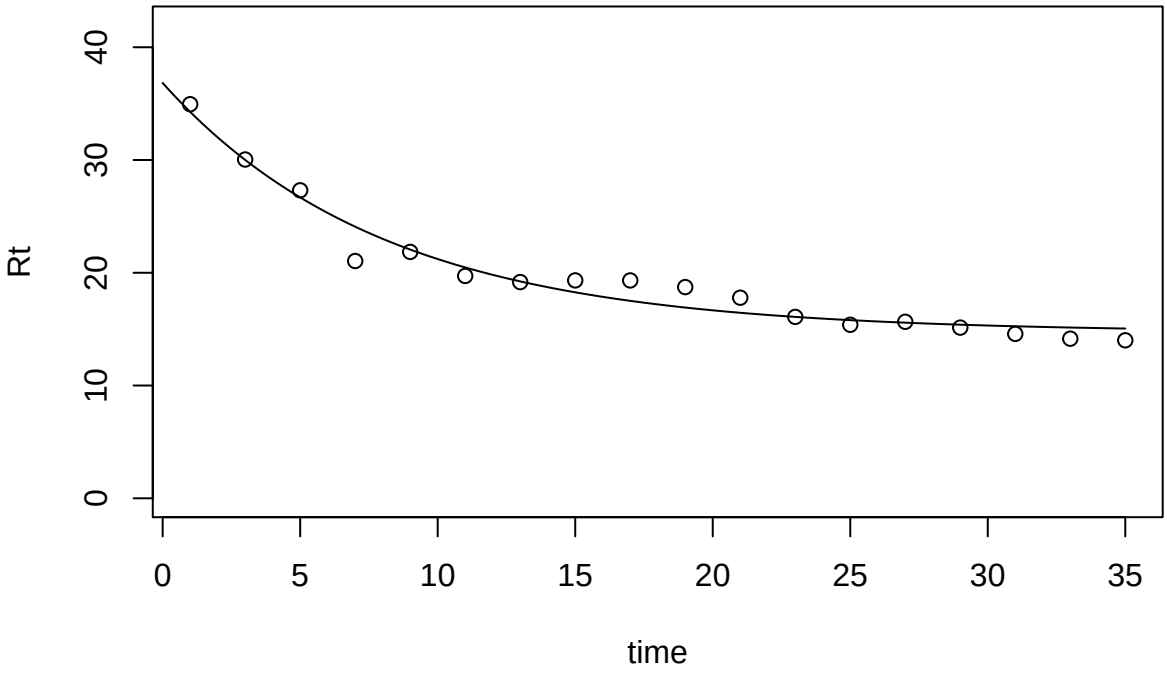


model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
One-pool	-2.9	0.000227	NA	NA	NA	NA	-2.65	0.999	NA	NA
Two-pool parallel	8.77	0.132	0.000166	0.00222	NA	NA	10.5	0.0014	6020	4170
Two-pool feedback	12.8	0.131	0.000319	0.00671	0.481	1	17.8	3.67e-05	2910	24.8
Two-pool series	10.8	0.132	0.000166	0.00602	0.63	NA	13.8	0.000261	3810	1400

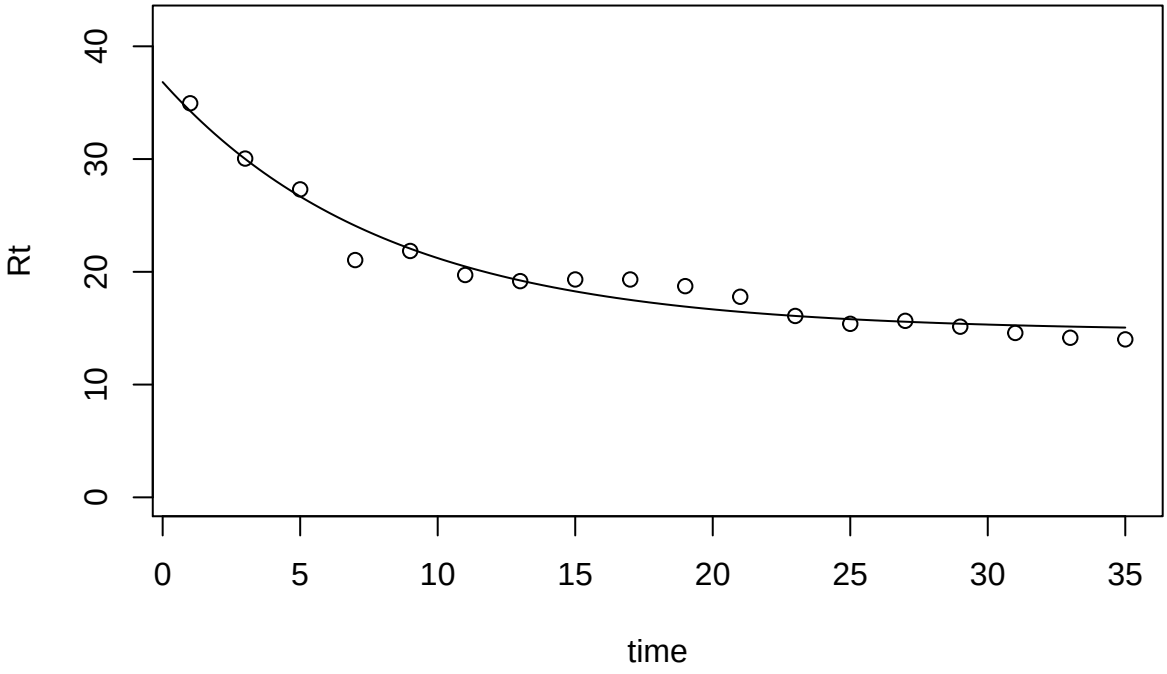
```
## [1] "Best fit parameter:  0.00042376716439098"
```



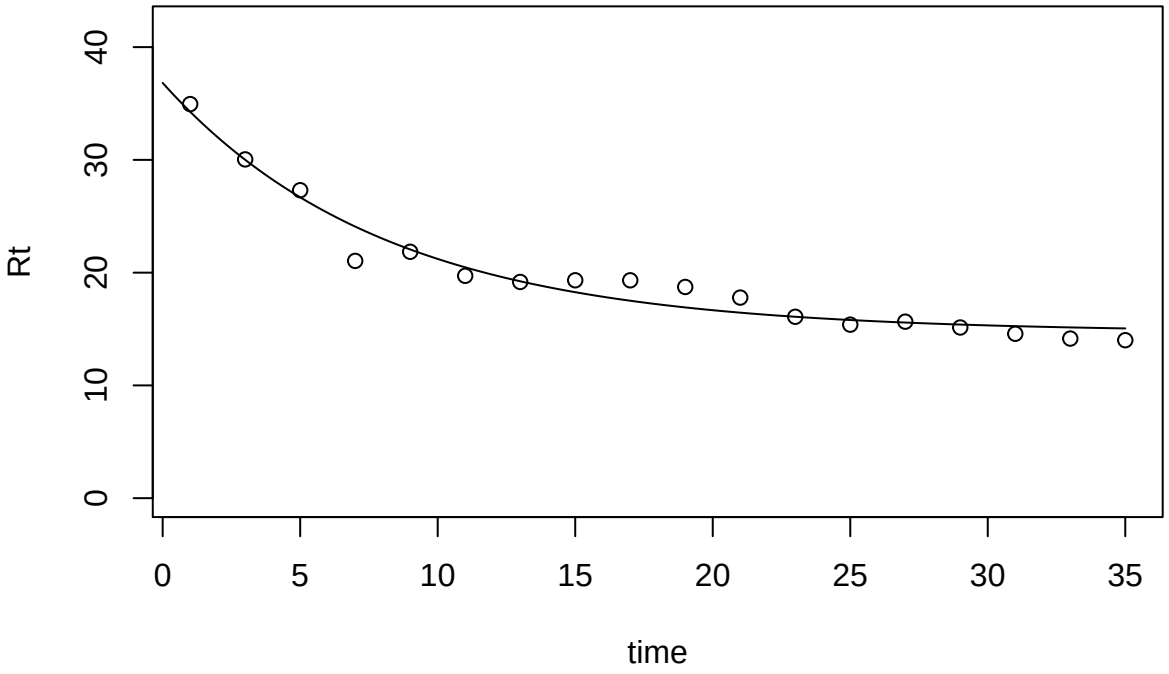
```
## [1] "AIC =  -4.8459771681614"
## [1] "k1= 0.124106324905656"
## [2] "k2= 0.000319655403651217"
## [3] "proportion of C0 in pool 1= 0.00376132144132629"
```



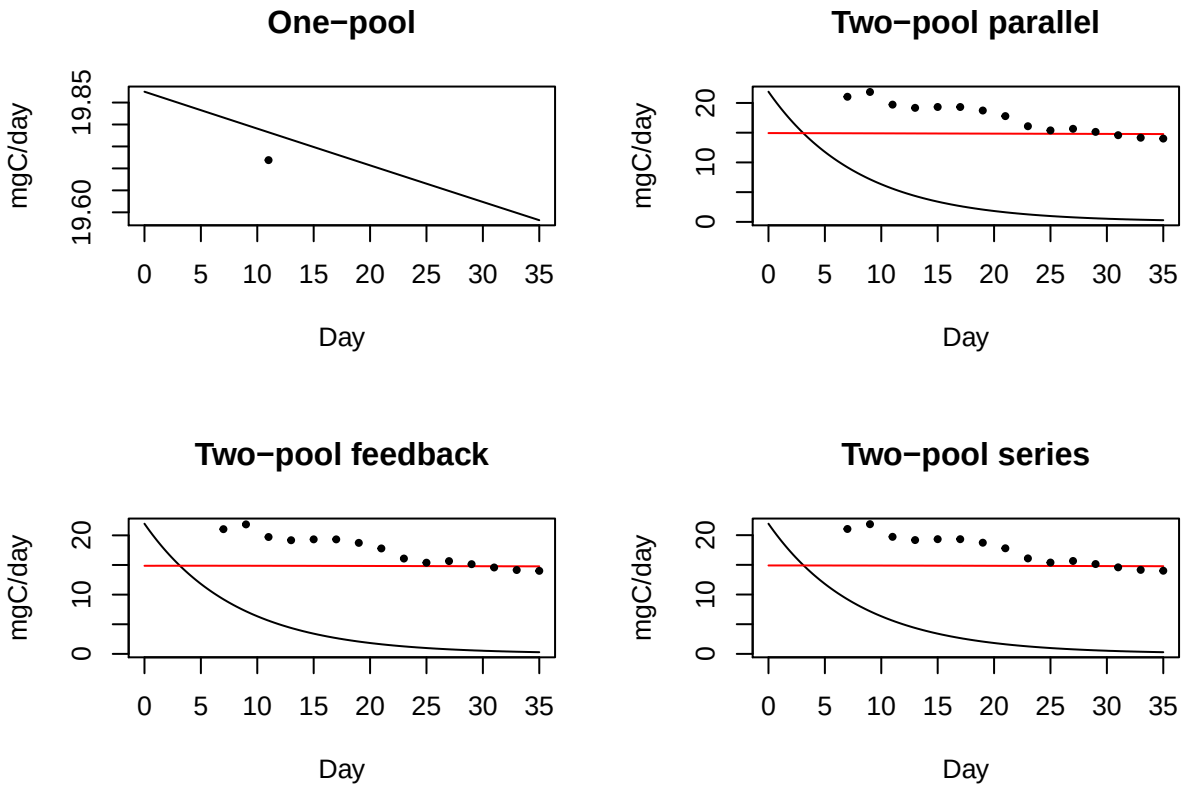

```
## [1] "AIC =  5.51106558953743"
## [1] "k1= 0.124107683498318"
## [2] "k2= 0.000319684638878199"
## [3] "a21= 0.552277350636145"
## [4] "a12= 0.000160183023139693"
## [5] "Proportion of C0 in pool 1= 0.0084281854602421"
```



```
## [1] "AIC =  9.51106559022884"
## [1] "k1= 0.124105773449657"
## [2] "k2= 0.00031965503784147"
## [3] "a21= 0.400432932633051"
## [4] "Proportion of C0 in pool 1= 0.00628424973440483"
```

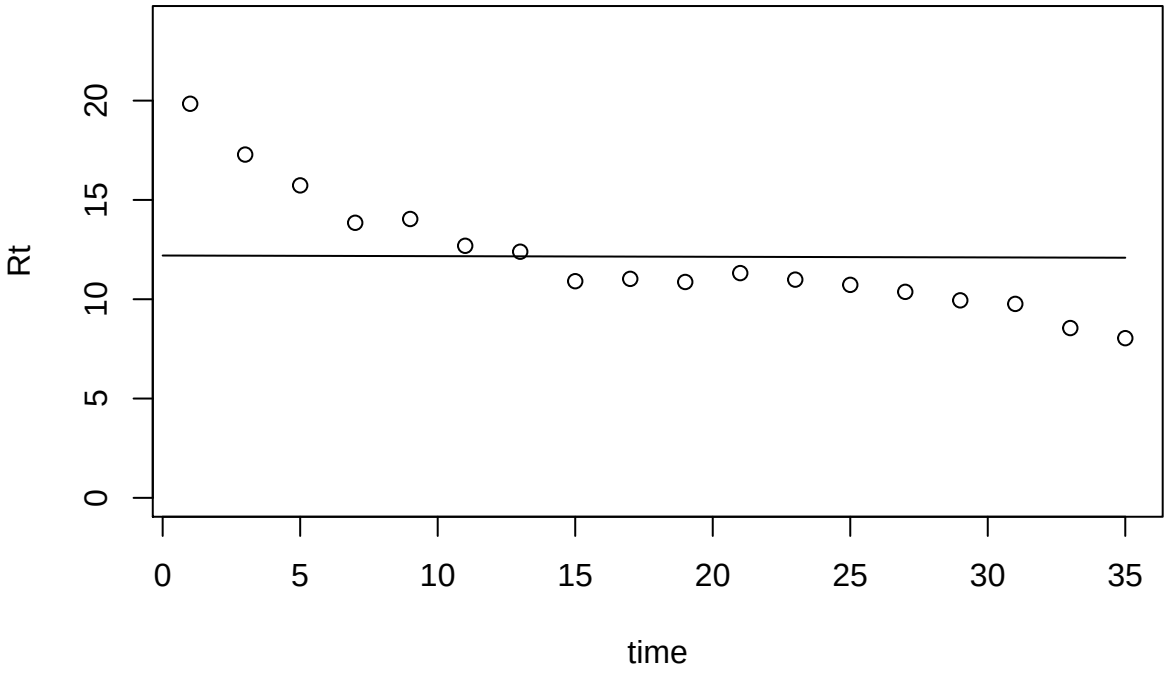



```
## [1] "AIC =  7.51106558875609"
```

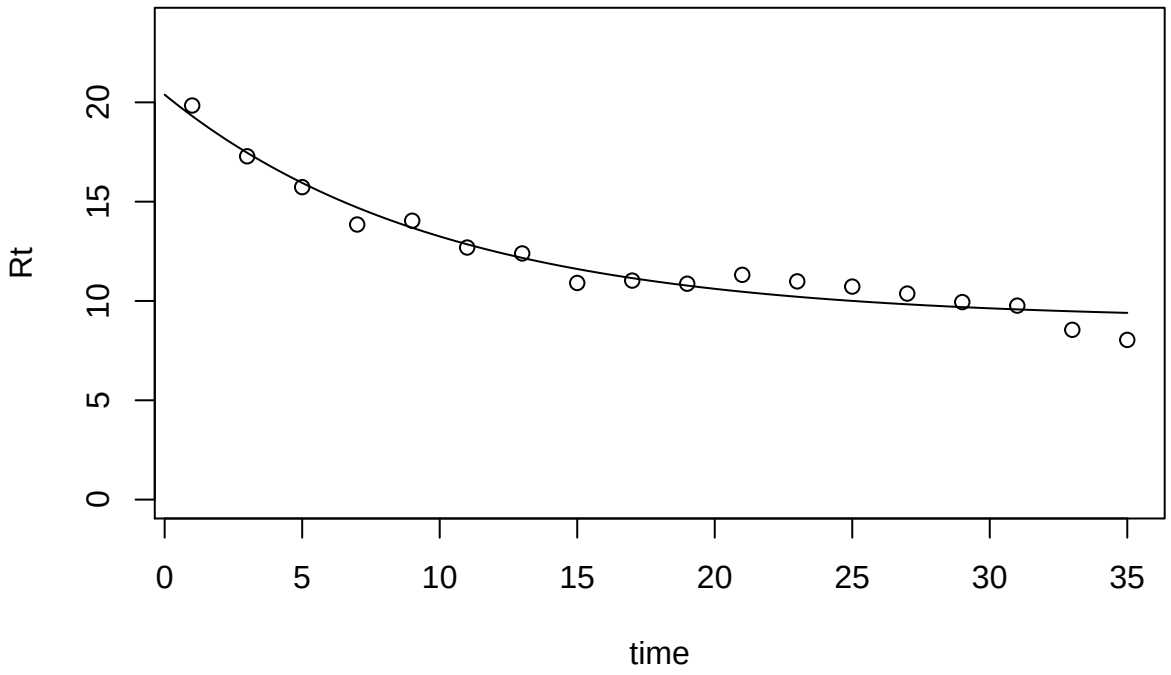


model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
One-pool	-4.85	0.000424	NA	NA	NA	NA	-4.6	0.997	NA	NA
Two-pool parallel	5.51	0.124	0.00032	0.00376	NA	NA	7.23	0.0027	3120	2160
Two-pool feedback	9.51	0.124	0.00032	0.00843	0.552	0.00016	14.5	7.08e-05	1740	319
Two-pool series	7.51	0.124	0.00032	0.00628	0.4	NA	10.6	0.000503	1260	14.4

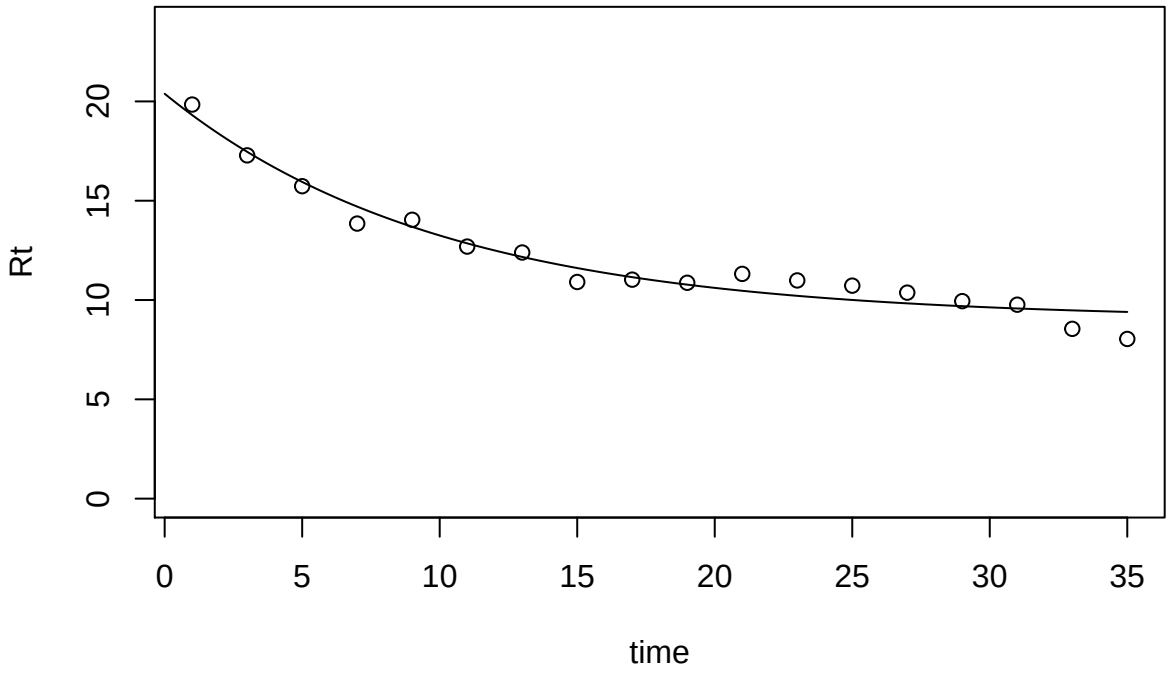
```
## [1] "Best fit parameter:  0.0002601459055605 71"
```




```
## [1] "AIC =  -2.29462535406194"
## [1] "k1= 0.0999583921642123"
## [2] "k2= 0.000194967432759695"
## [3] "proportion of C0 in pool 1= 0.00240278916079739"
```

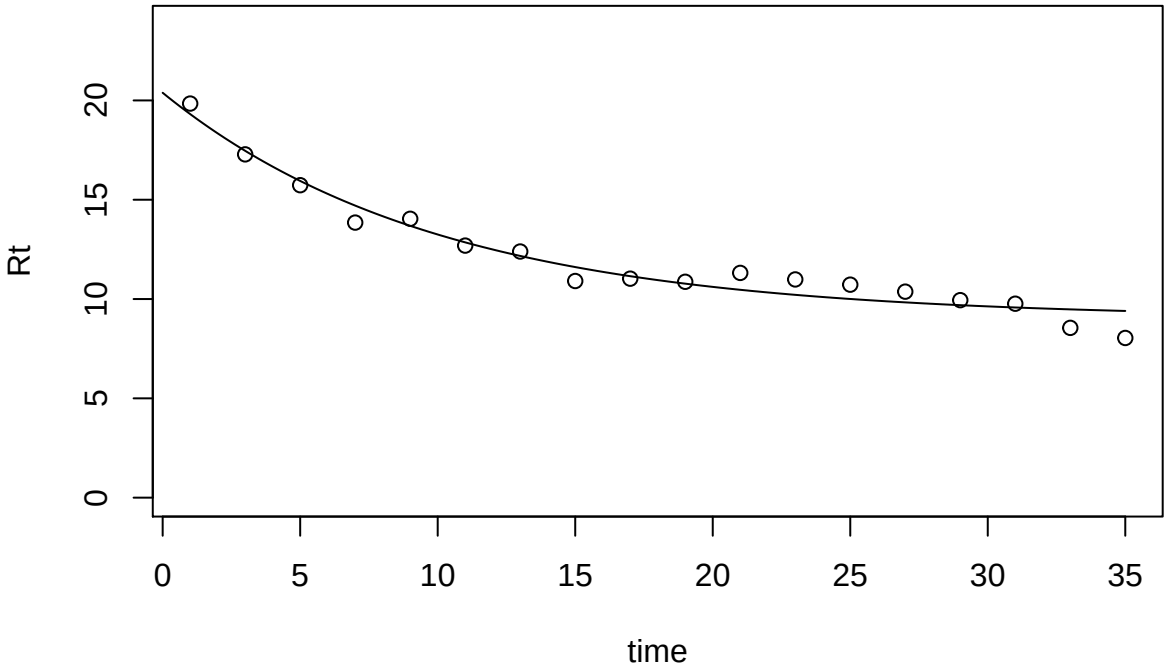



```
## [1] "AIC =  7.9571167848616"
## [1] "k1= 0.0998639927794721"
## [2] "k2= 0.000289062219987654"
## [3] "a21= 0.324896544341353"
## [4] "a12= 0.99995744679346"
## [5] "Proportion of C0 in pool 1= 0.00644726895251024"
```

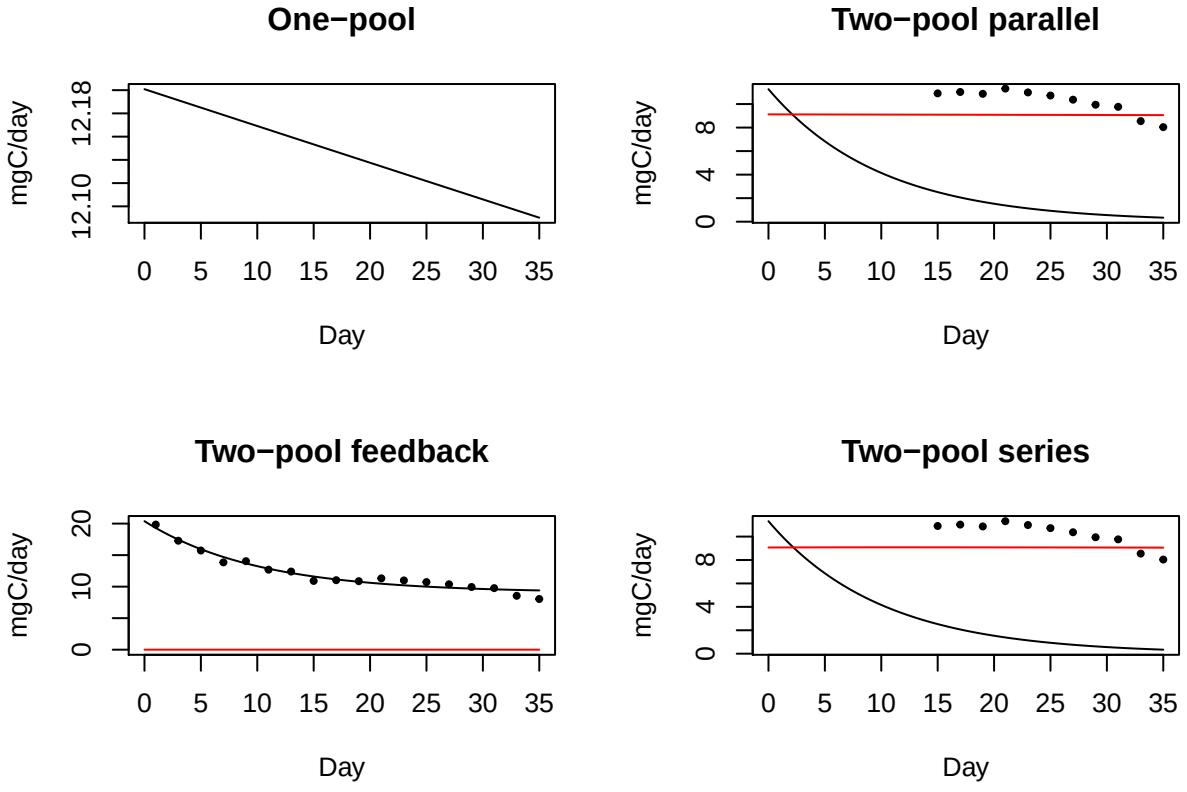



```
## [1] "AIC =  11.9571167846095"
## [1] "k1= 0.0999584208088301"
## [2] "k2= 0.000194967448733135"
## [3] "a21= 0.705362118533788"
```

```
## [4] "Proportion of C0 in pool 1= 0.00819339494019478"
```



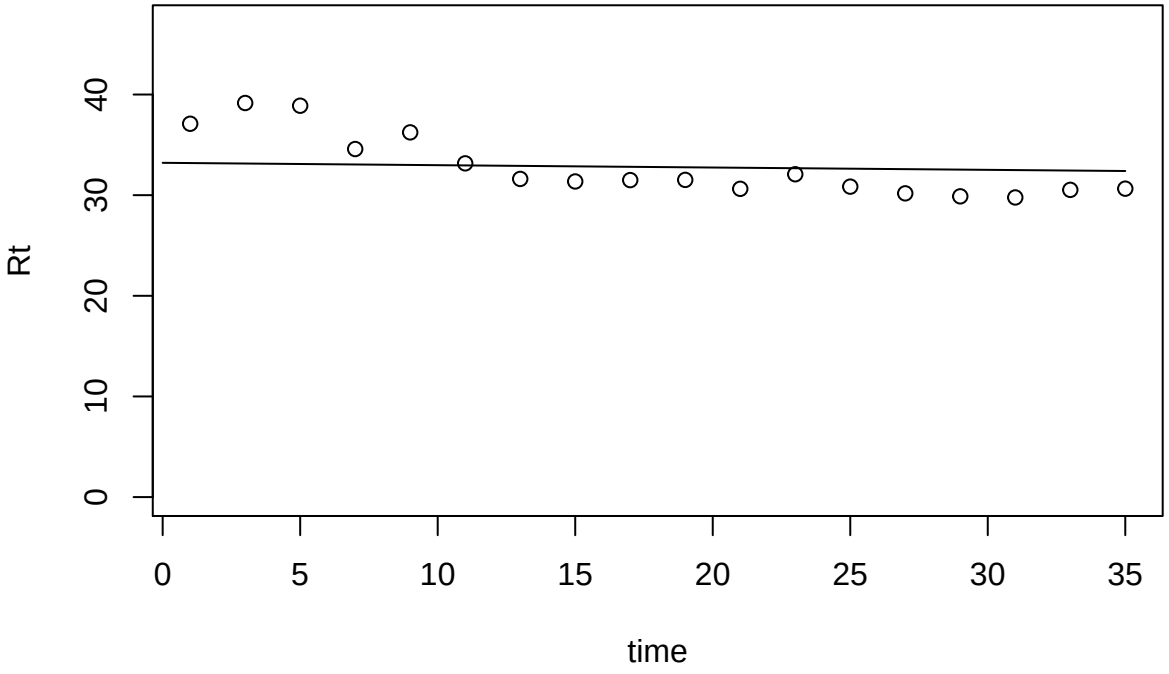

```
## [1] "AIC =  9.95711678483659"
```



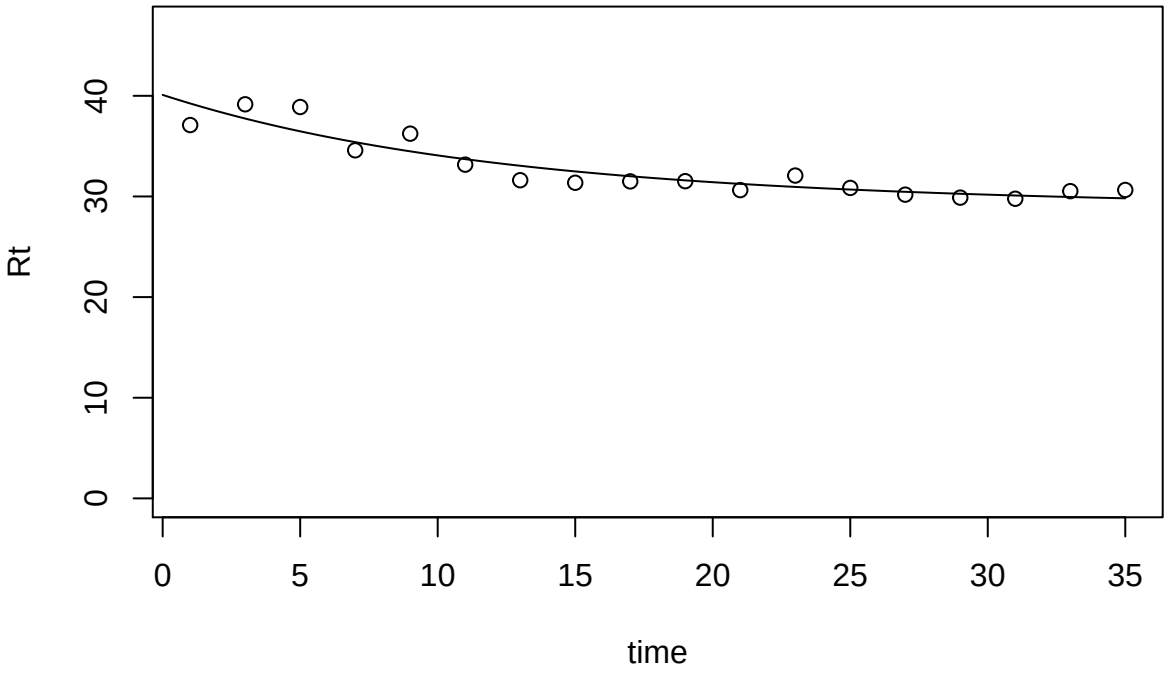
model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
One-pool	-2.29	0.00026	NA	NA	NA	NA	-2.04	0.997	NA	NA
Two-pool parallel	7.96	0.1	0.000195	0.0024	NA	NA	9.67	0.00285	5120	3540

model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
Two-pool feedback	12	0.0999	0.000289	0.00645	0.325	1	17	7.46e-05	1680	13.5
Two-pool series	9.96	0.1	0.000195	0.00819	0.705	NA	13	0.00053	3630	1770

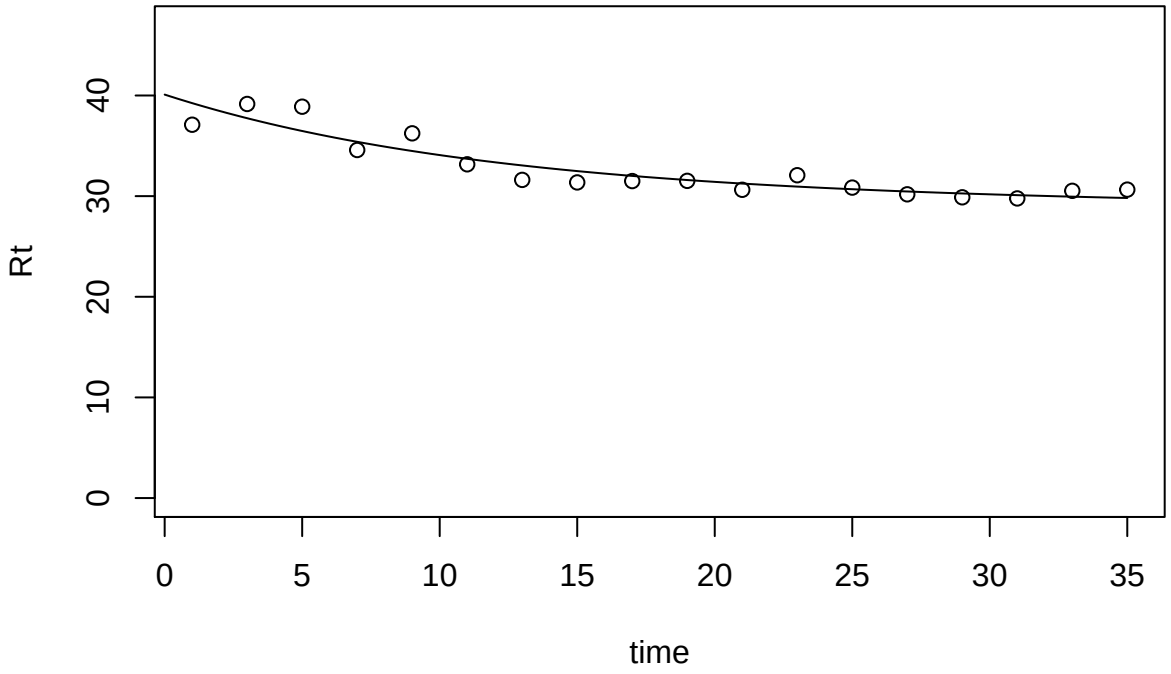
```
## [1] "Best fit parameter:  0.0007082016596700 04"
```



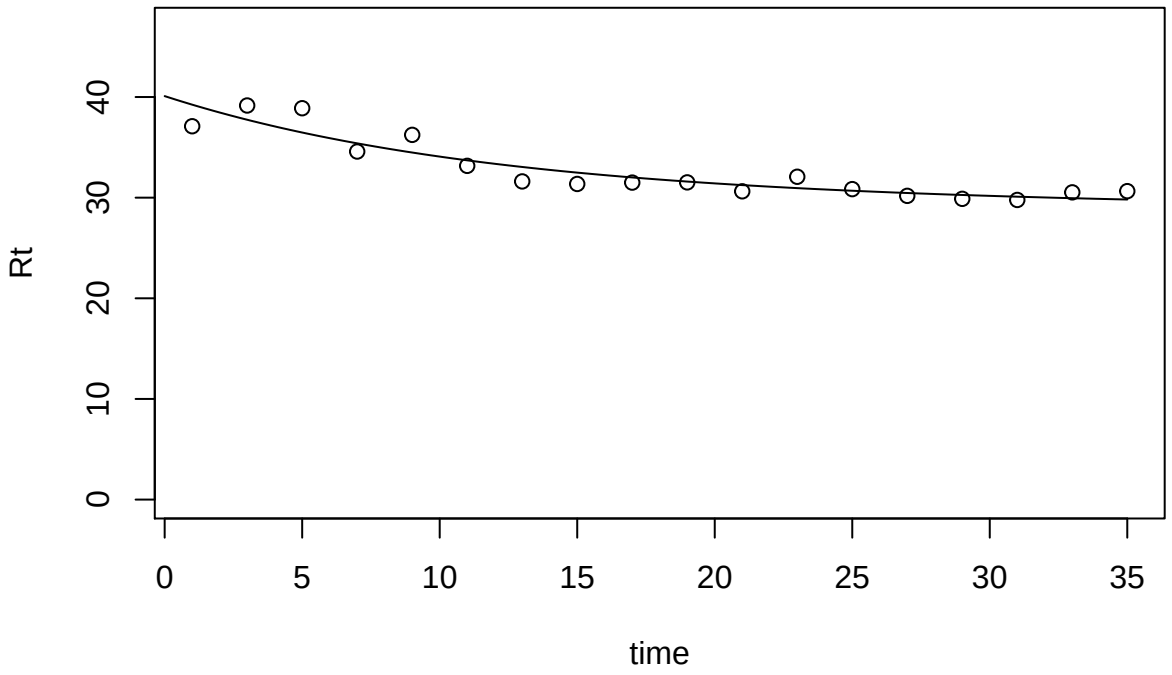

```
## [1] "AIC =  -2.10276904084161"
## [1] "k1= 0.0856073483009966"
## [2] "k2= 0.000640728973776667"
## [3] "proportion of C0 in pool 1= 0.00251976329529724"
```



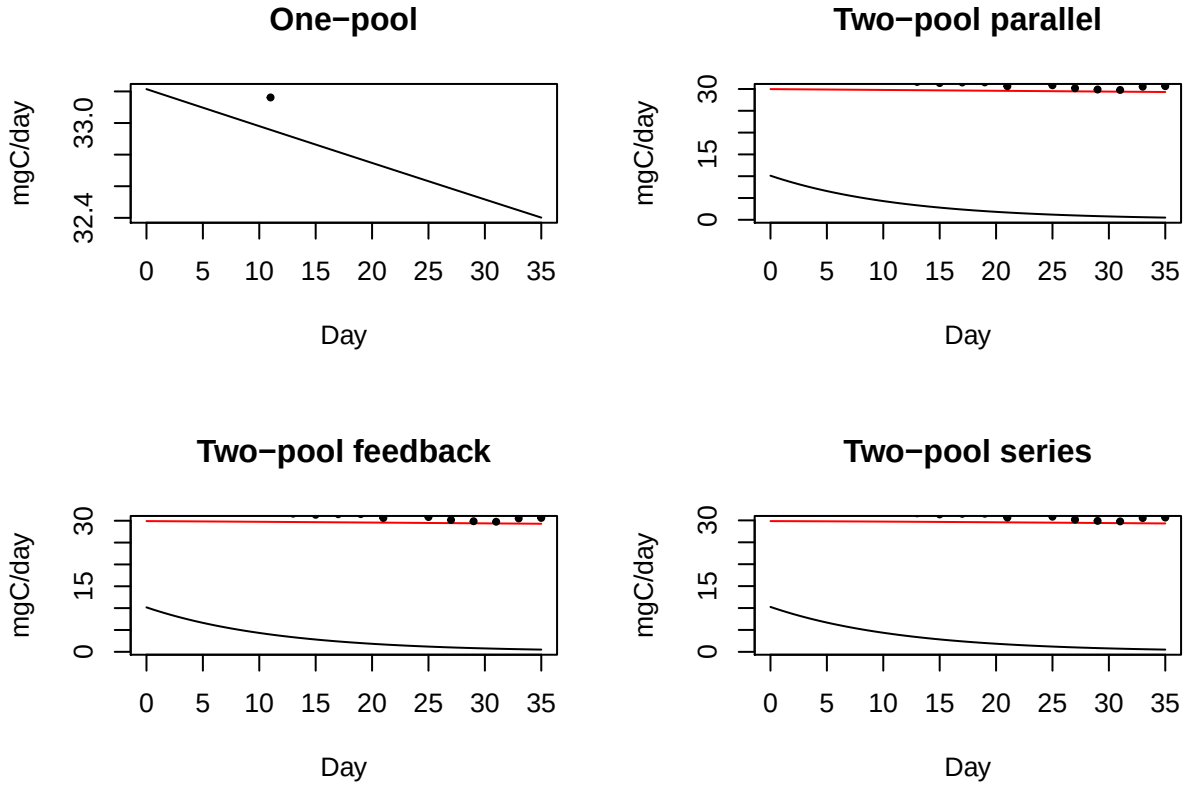
```
## [1] "AIC =  5.49853751085721"
## [1] "k1= 0.0856052329711836"
## [2] "k2= 0.000640731975813778"
## [3] "a21= 0.440323303964312"
## [4] "a12= 1.56472661797524e-05"
## [5] "Proportion of C0 in pool 1= 0.00452923857535142"
```




```
## [1] "AIC =  9.49853750940976"
## [1] "k1= 0.0856074450527252"
## [2] "k2= 0.000640729054440264"
## [3] "a21= 0.64149225830584"
## [4] "Proportion of C0 in pool 1= 0.00712466609891949"
```



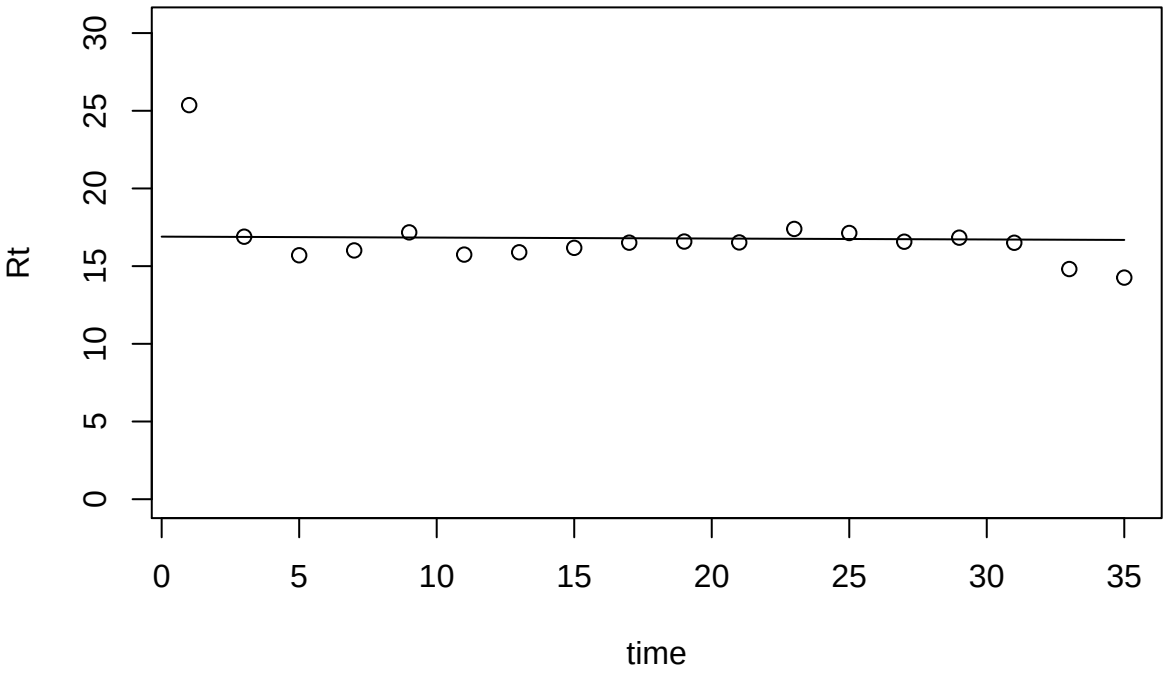

```
## [1] "AIC =  7.49853750876327"
```



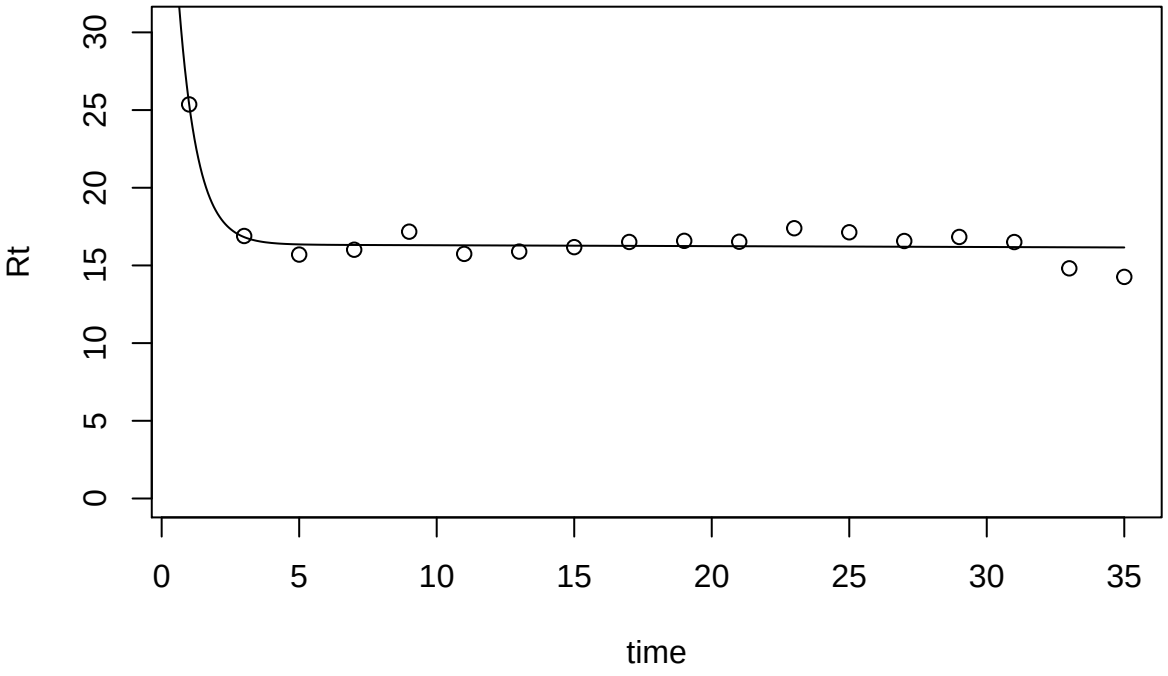
model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
One-pool	-2.1	0.000708	NA	NA	NA	NA	-1.85	0.989	NA	NA
Two-pool parallel	5.5	0.0856	0.000641	0.00252	NA	NA	7.21	0.0106	1560	1080
Two-pool feedback	9.5	0.0856	0.000641	0.00453	0.44	1.56e-05	14.5	0.000278	699	25.4

model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
Two-pool series	7.5	0.0856	0.000641	0.00712	0.641	NA	10.6	0.00198	1010	401

```
## [1] "Best fit parameter:  0.000360311582320136"
```

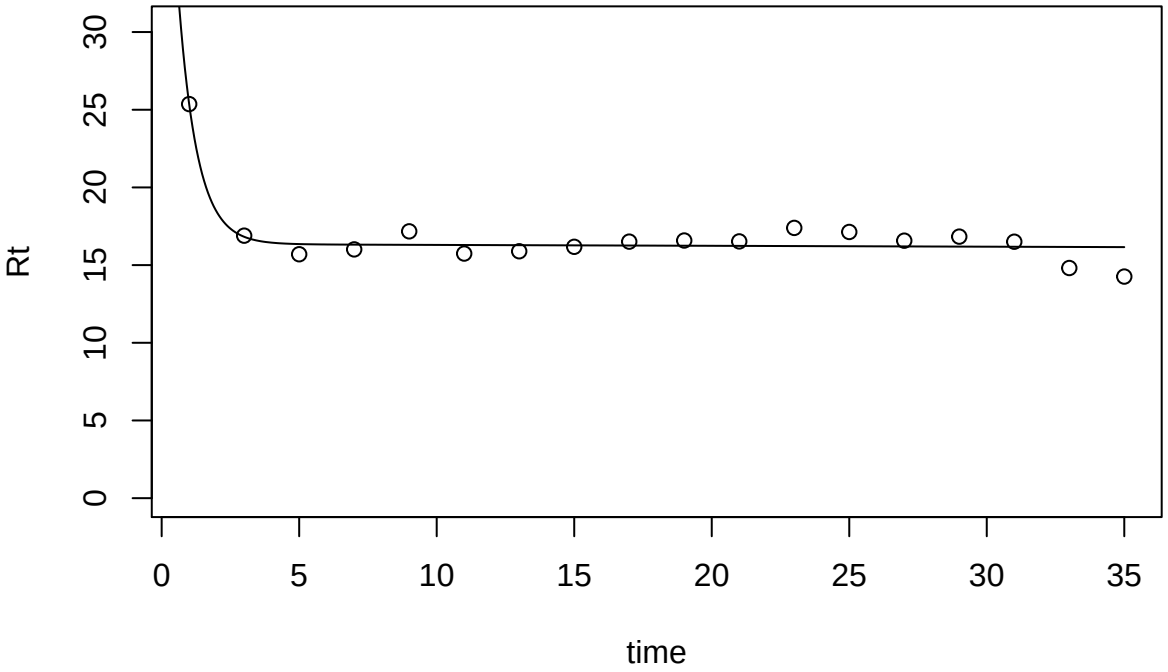



```
## [1] "AIC =  -1.14275446320448"
## [1] "k1= 1.46269909345127"
## [2] "k2= 0.000348942033943445"
## [3] "proportion of C0 in pool 1= 0.000566821354919311"
```

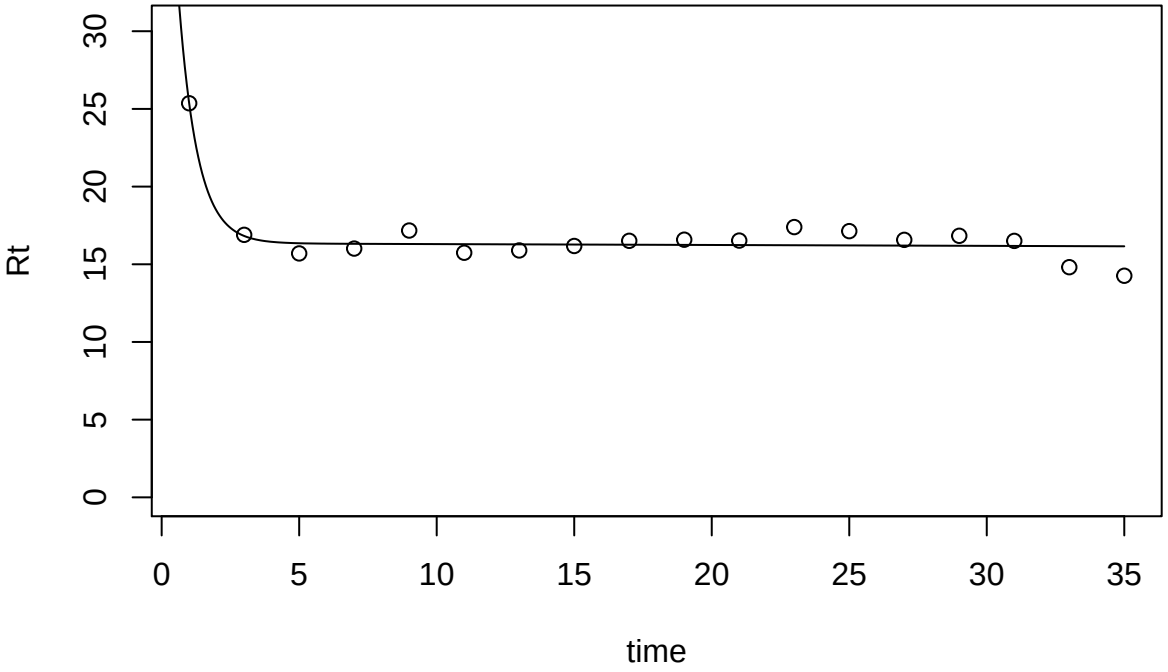



```
## [1] "AIC =  7.1168332940981"
```

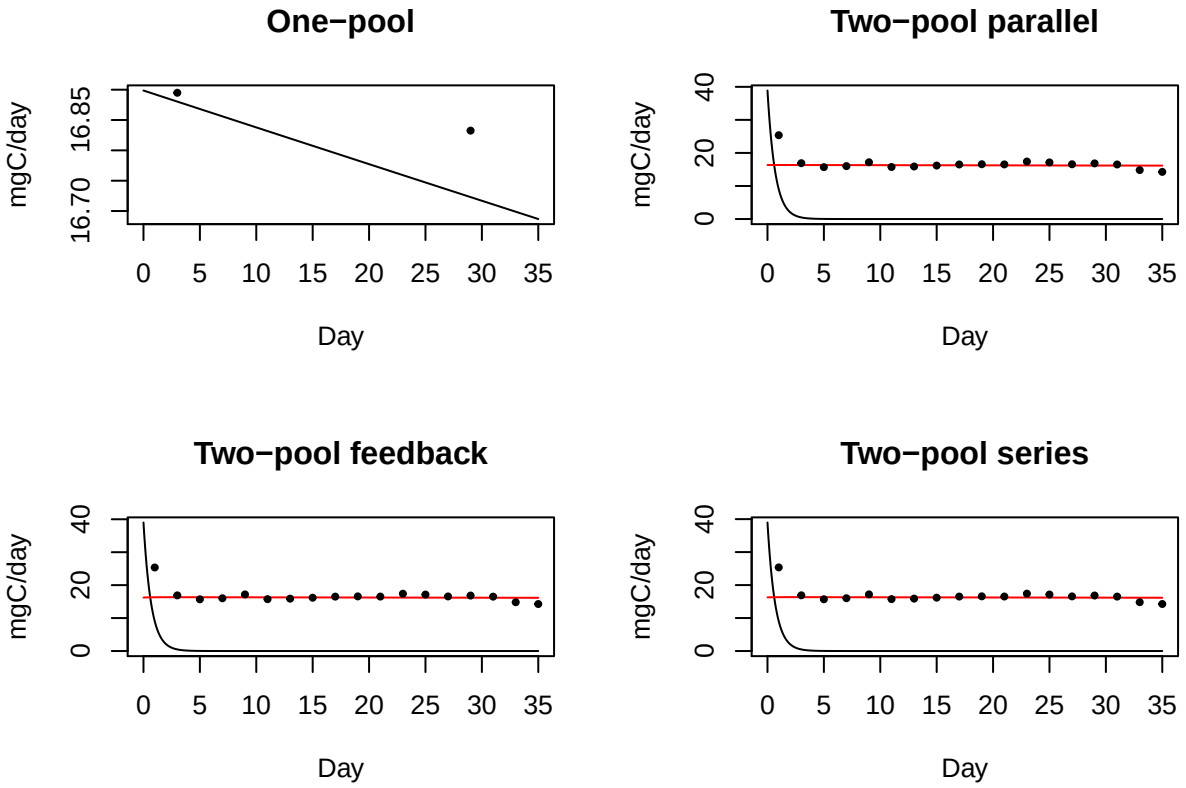
```
## [1] "k1= 1.46269278676461"
## [2] "k2= 0.000348944025070775"
## [3] "a21= 0.930633999245174"
## [4] "a12= 6.1569241804893e-06"
## [5] "Proportion of C0 in pool 1= 0.0081977606834141"
```




```
## [1] "AIC =  11.1168332922437"
## [1] "k1= 1.4627758372269"
## [2] "k2= 0.000348942141153745"
## [3] "a21= 0.900507139605921"
## [4] "Proportion of C0 in pool 1= 0.00570959085612782"
```

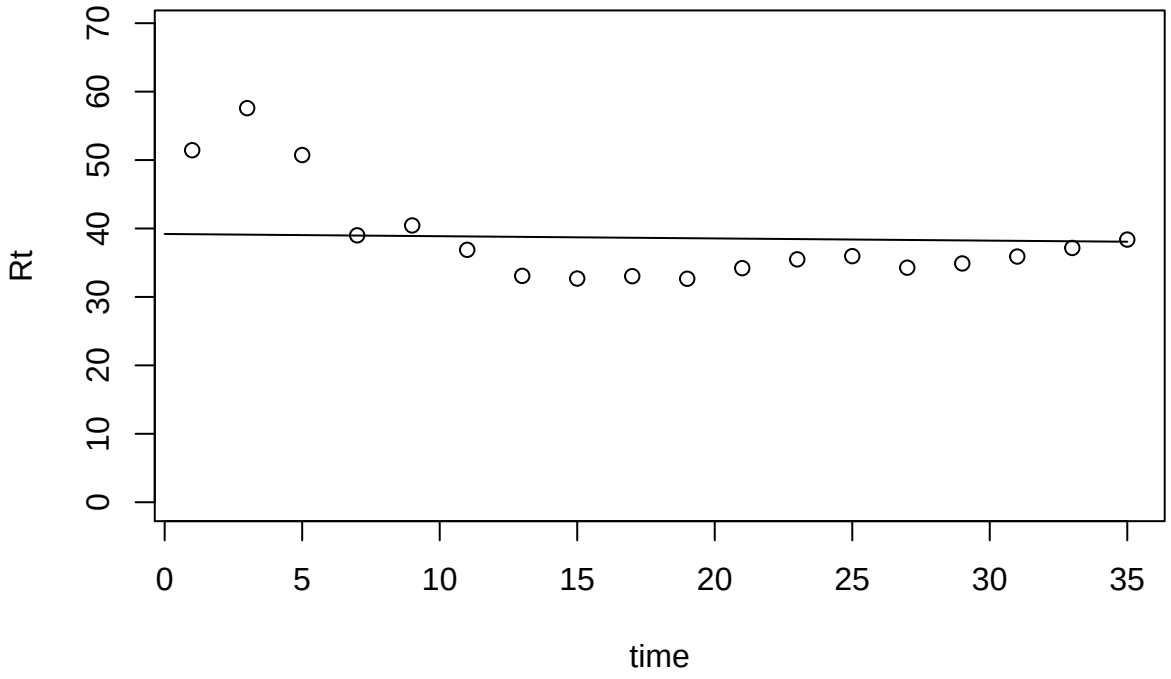


```
## [1] "AIC =  9.11683329214835"
```

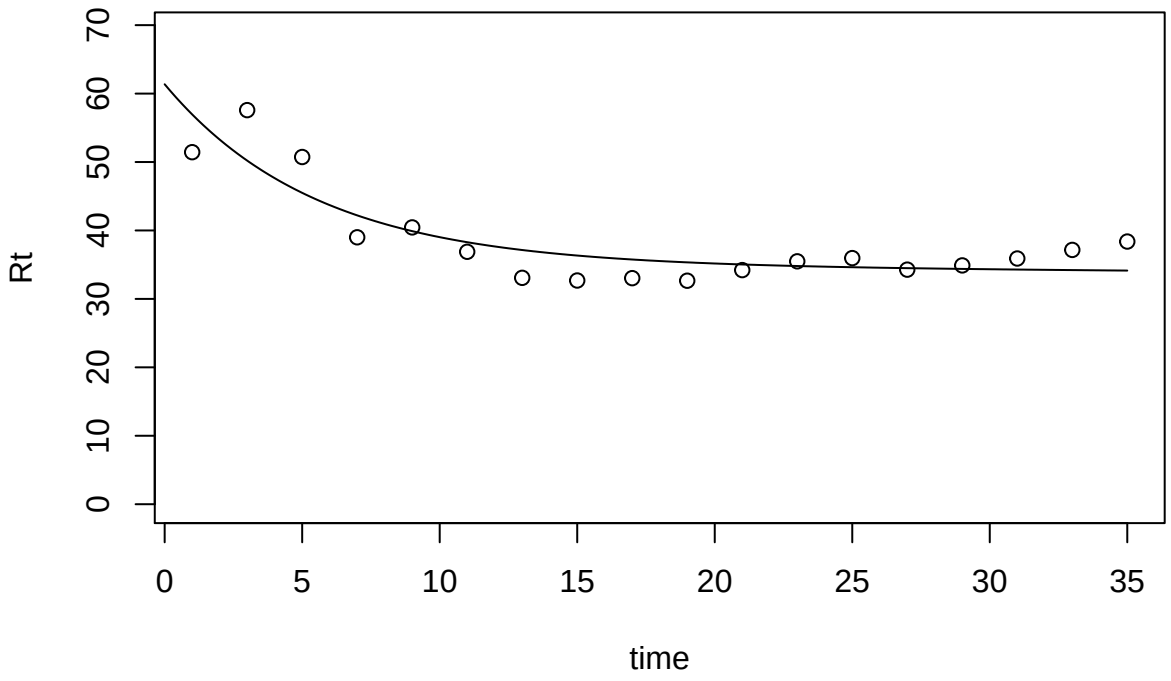


model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
One-pool	-1.14	0.00036	NA	NA	NA	NA	-0.893	0.992	NA	NA
Two-pool parallel	7.12	1.46	0.000349	0.000567	NA	NA	8.83	0.00767	2860	1980
Two-pool feedback	11.1	1.46	0.000349	0.0082	0.931	6.16e-06	16.1	0.000201	2670	1780
Two-pool series	9.12	1.46	0.000349	0.00571	0.901	NA	12.2	0.00143	2580	1690

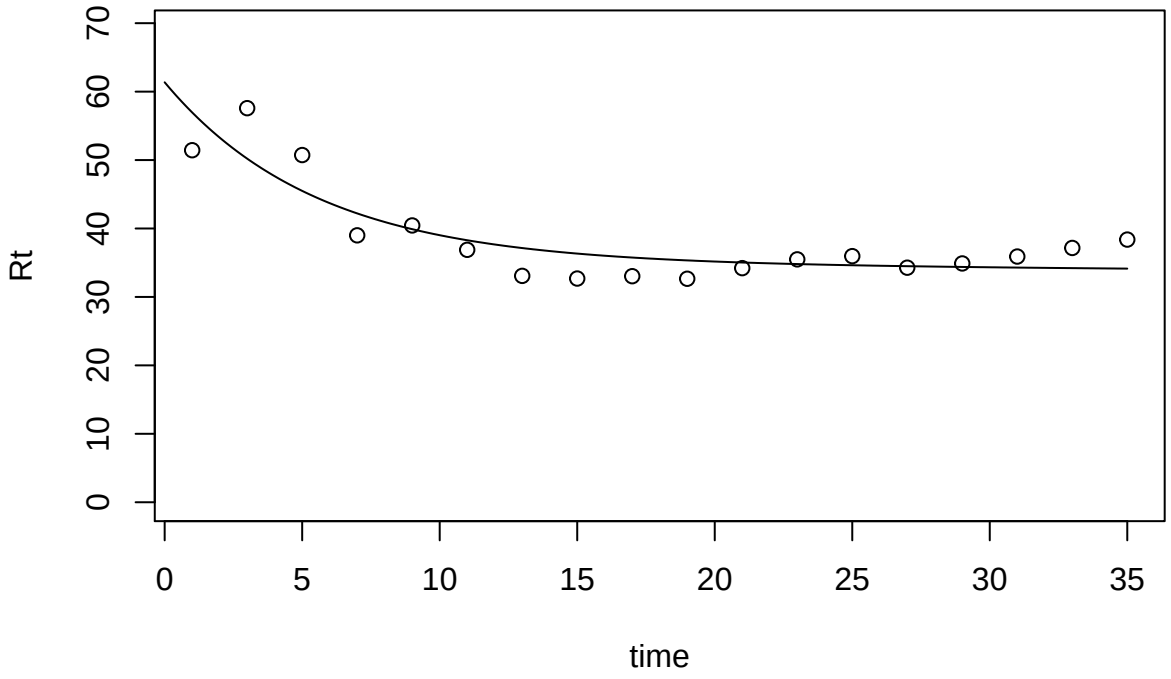
```
## [1] "Best fit parameter:  0.000835803916234307"
```



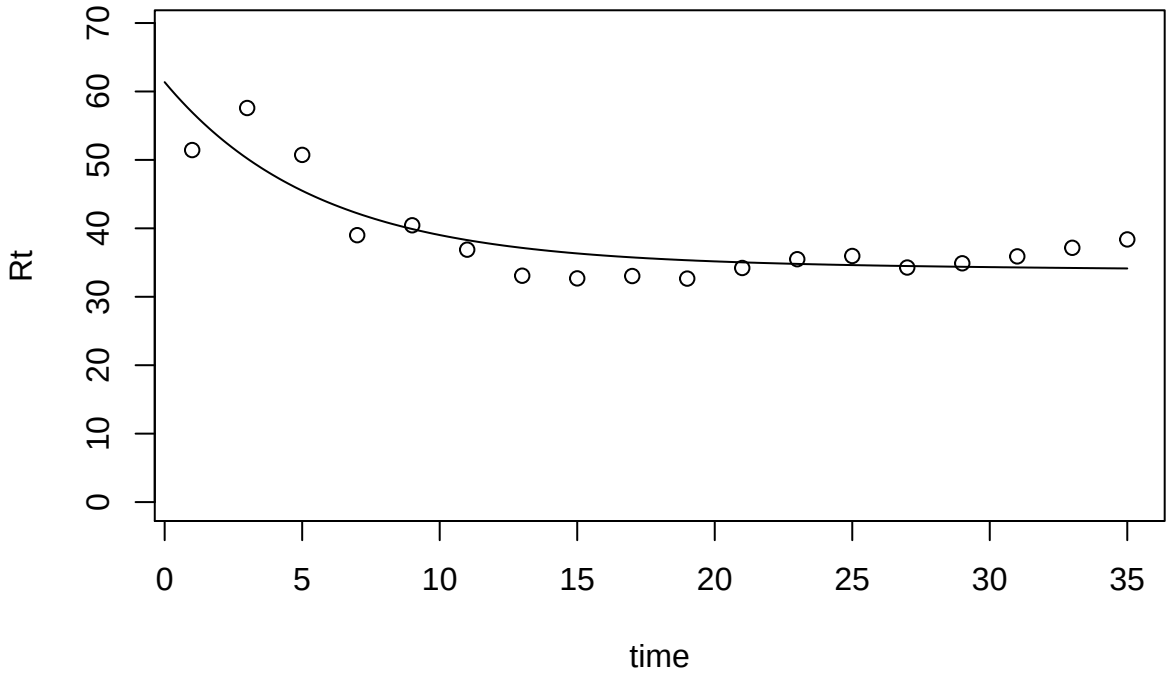

```
## [1] "AIC =  -5.68094802204621"
## [1] "k1= 0.181689994069885"
## [2] "k2= 0.000748530459648774"
## [3] "proportion of C0 in pool 1= 0.00309416491420311"
```



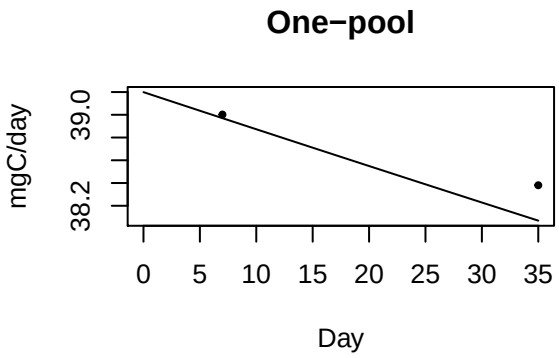

```
## [1] "AIC =  1.16625473930377"
## [1] "k1= 0.000748530812793465"
## [2] "k2= 0.181690349538402"
## [3] "a21= 0.99952490741596"
## [4] "a12= 3.14581021121363e-07"
## [5] "Proportion of C0 in pool 1= 0.992800712799101"
```

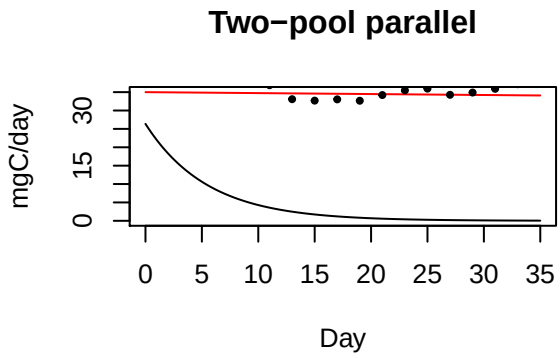


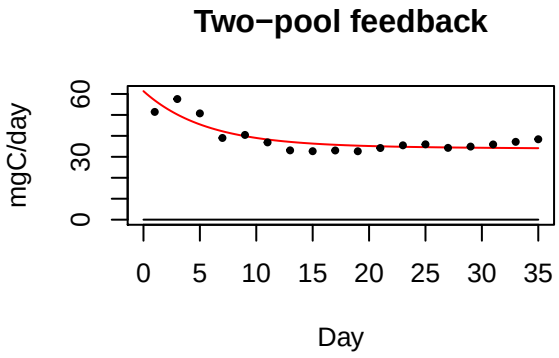

```
## [1] "AIC =  5.16625473888823"
## [1] "k1= 0.181690131433559"
## [2] "k2= 0.000748530507257278"
## [3] "a21= 0.709766370814045"
## [4] "Proportion of C0 in pool 1= 0.0107698954850787"
```

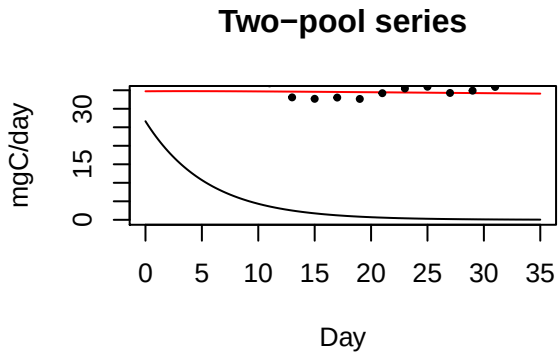



```
## [1] "AIC =  3.16625473914574"
```



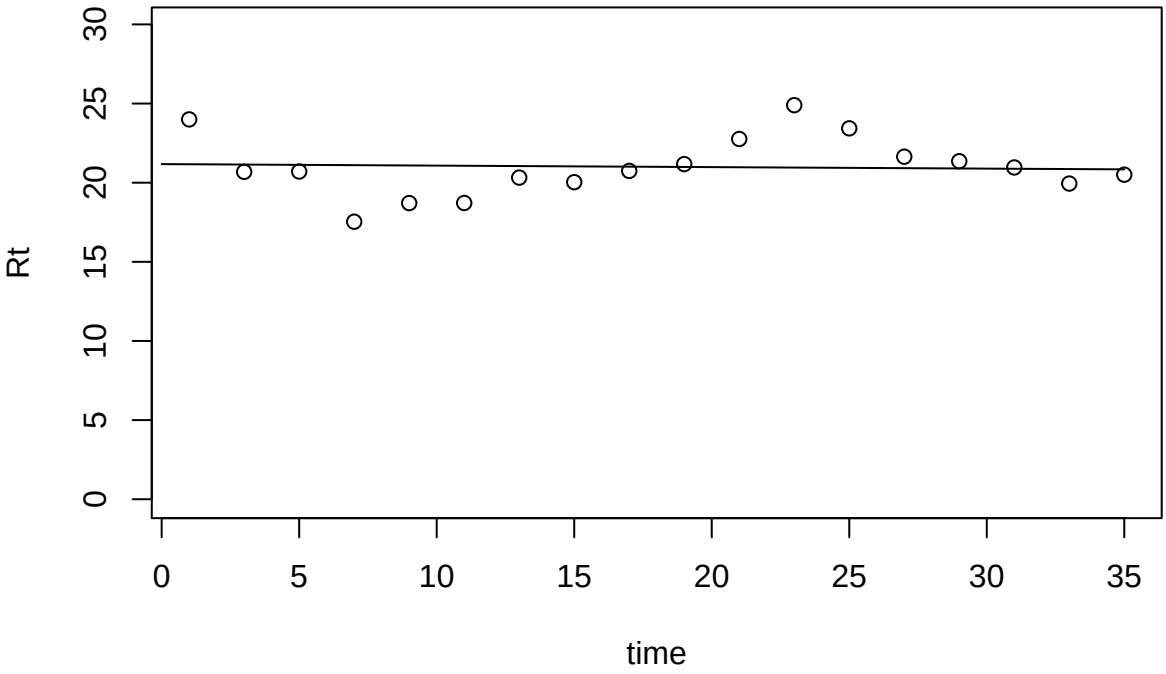




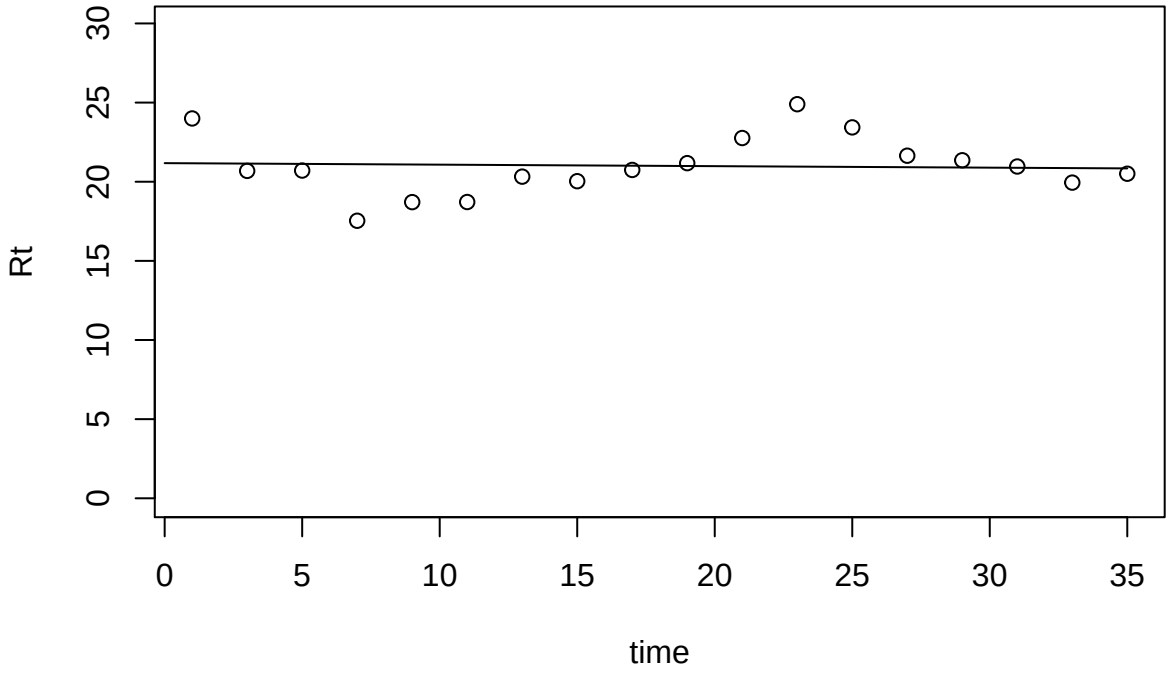


model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
One-pool	-5.68	0.000836	NA	NA	NA	NA	-5.43	0.984	NA	NA
Two-pool parallel	1.17	0.182	0.000749	0.00309	NA	NA	2.88	0.0154	1330	922
Two-pool feedback	5.17	0.000749	0.182	0.993	1	3.15e-07	10.2	0.000404	1340	932
Two-pool series	3.17	0.182	0.000749	0.0108	0.71	NA	6.24	0.00287	954	474

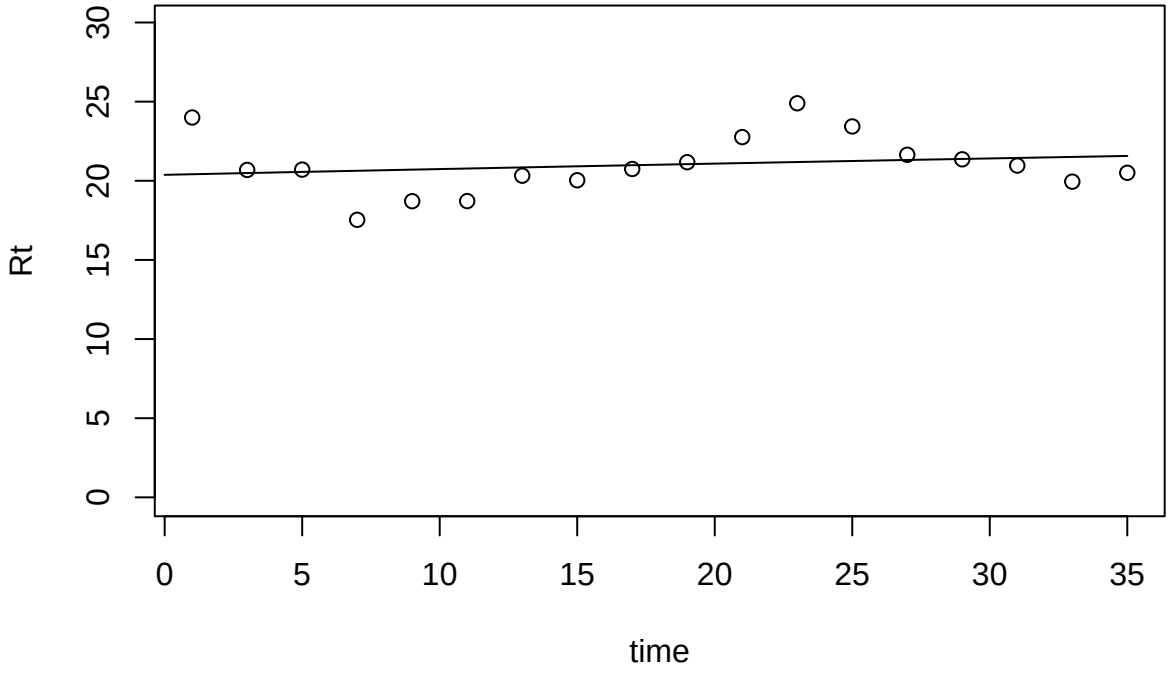
```
## [1] "Best fit parameter:  0.0004514737188829976"
```



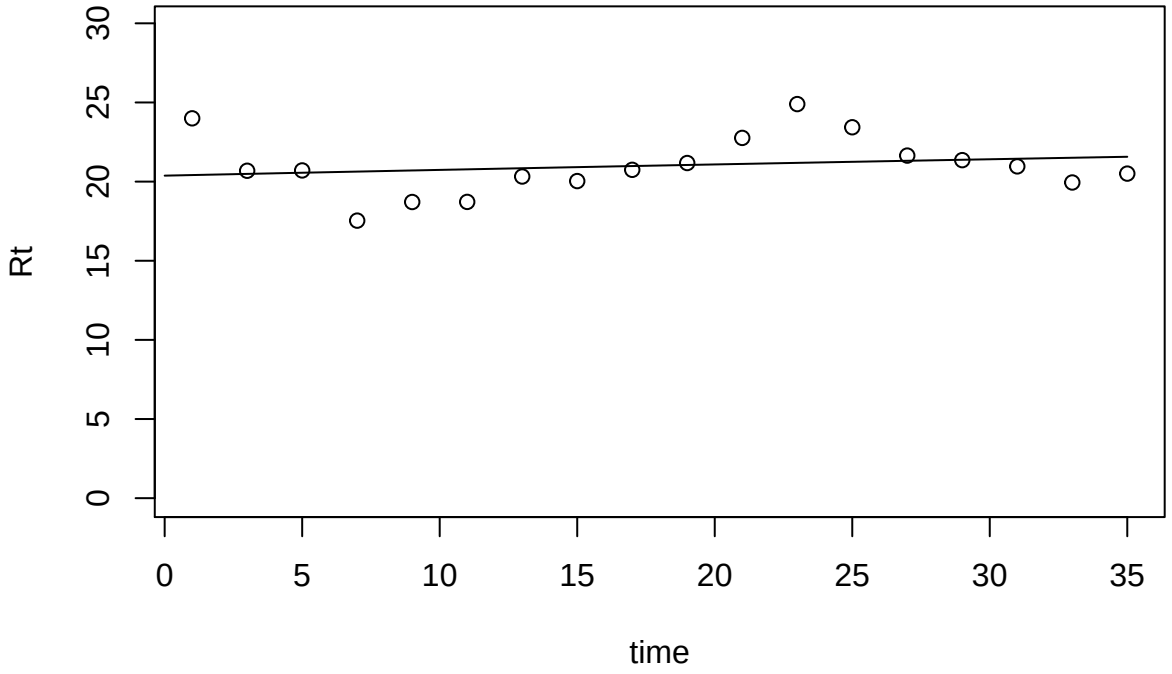
```
## [1] "AIC =  -0.429671159276183"
## [1] "k1= 0.000451385853562282"
## [2] "k2= 0.000451473767716923"
## [3] "proportion of C0 in pool 1= 0.000510145095554693"
```



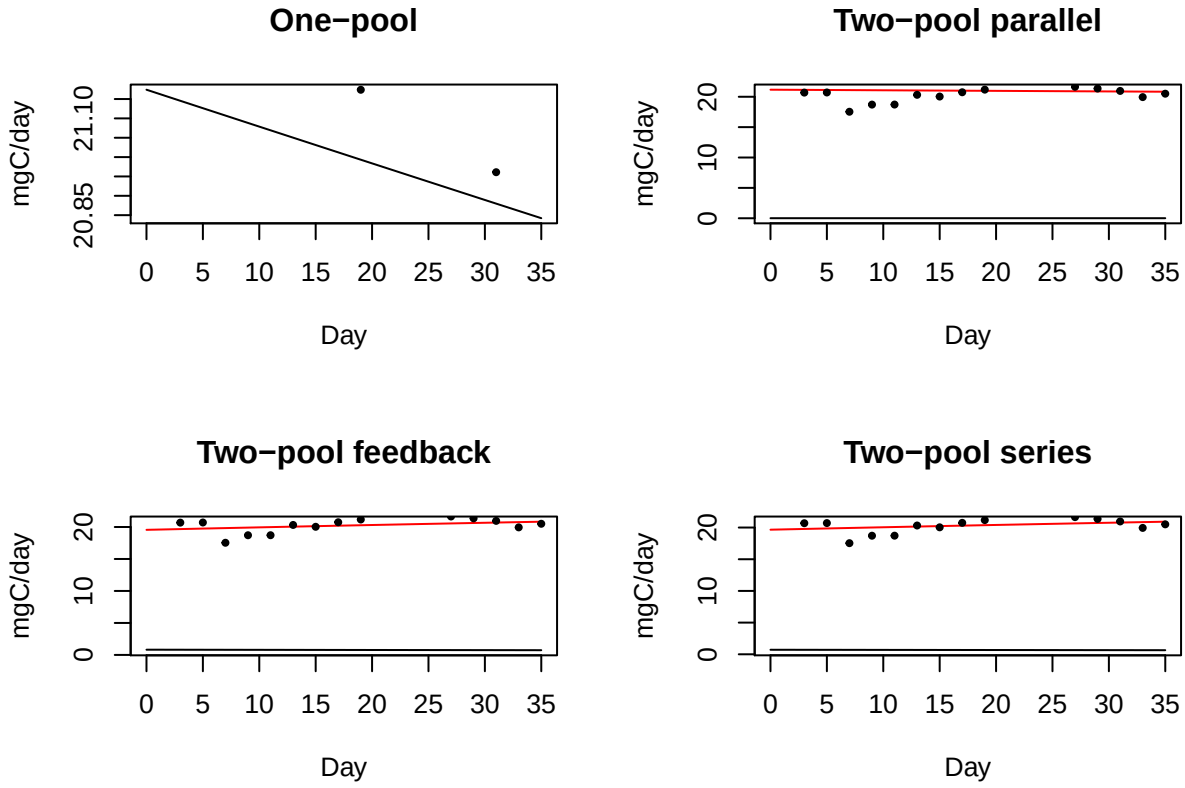

```
## [1] "AIC =  3.57032884072279"
## [1] "k1= 0.00293096086723337"
## [2] "k2= 0.000828393818679611"
## [3] "a21= 0.988011928908044"
## [4] "a12= 0.000102286987399336"
## [5] "Proportion of C0 in pool 1= 0.496548698612058"
```



```
## [1] "AIC =  7.69483444878998"
## [1] "k1= 0.00288485220722004"
## [2] "k2= 0.000835493585158915"
## [3] "a21= 0.989400885223933"
## [4] "Proportion of C0 in pool 1= 0.498226194845244"
```

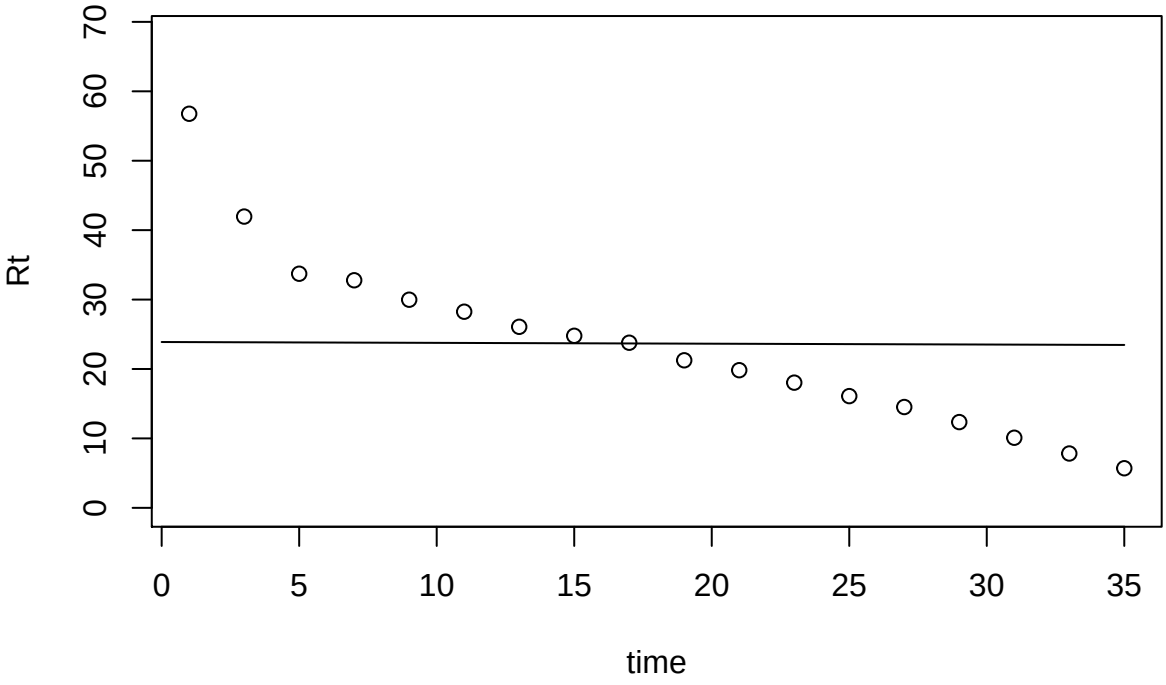



```
## [1] "AIC =  5.69483452198128"
```

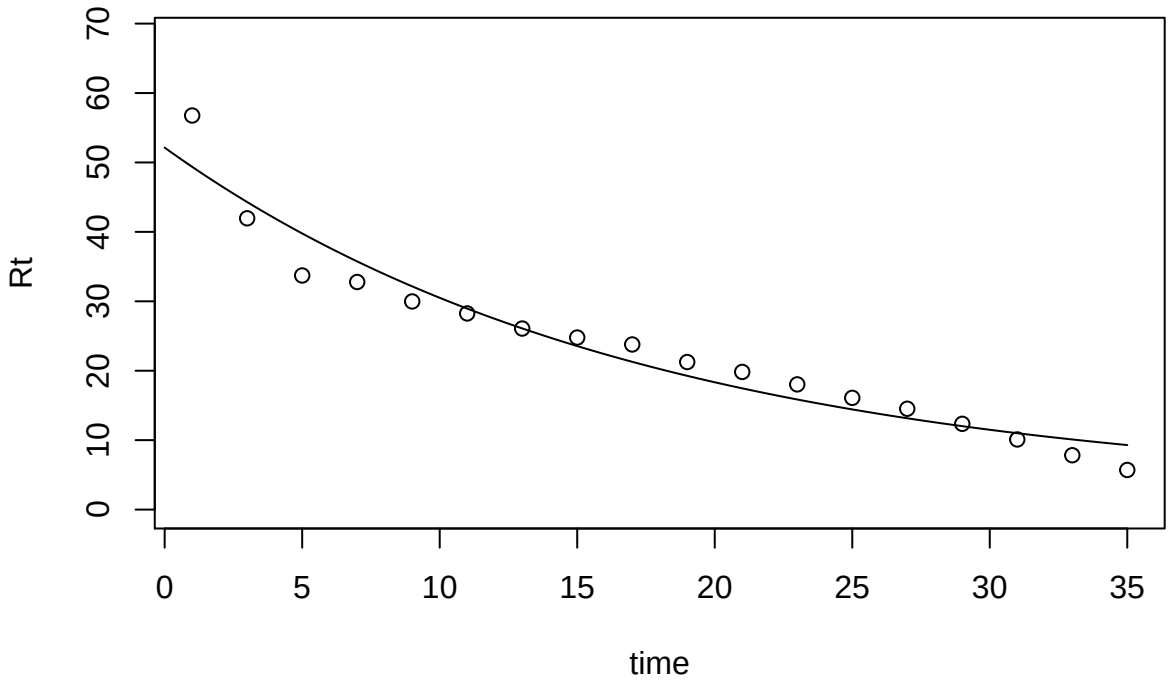


model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
One-pool	-0.43	0.000451	NA	NA	NA	NA	-0.18	0.937	NA	NA
Two-pool parallel	3.57	0.000451	0.000451	0.00051	NA	NA	5.28	0.061	2210	1540
Two-pool feedback	7.69	0.00293	0.000828	0.497	0.988	0.000102	12.7	0.0015	1530	1200
Two-pool series	5.69	0.00288	0.000835	0.498	0.989	NA	8.77	0.0107	1530	1200

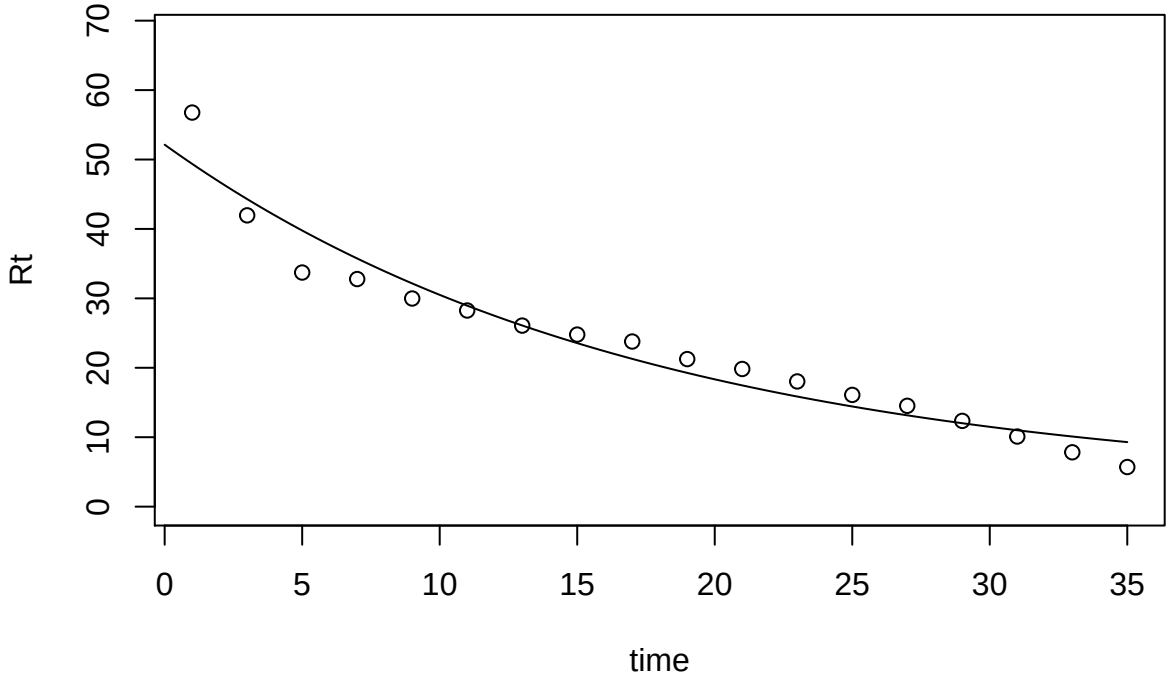
```
## [1] "Best fit parameter:  0.000509290921485372"
```




```
## [1] "AIC =  -8.02759312644155"
## [1] "k1= 0.0575462684007006"
## [2] "k2= 5.87462966166417e-05"
## [3] "proportion of C0 in pool 1= 0.0183148546319184"
```

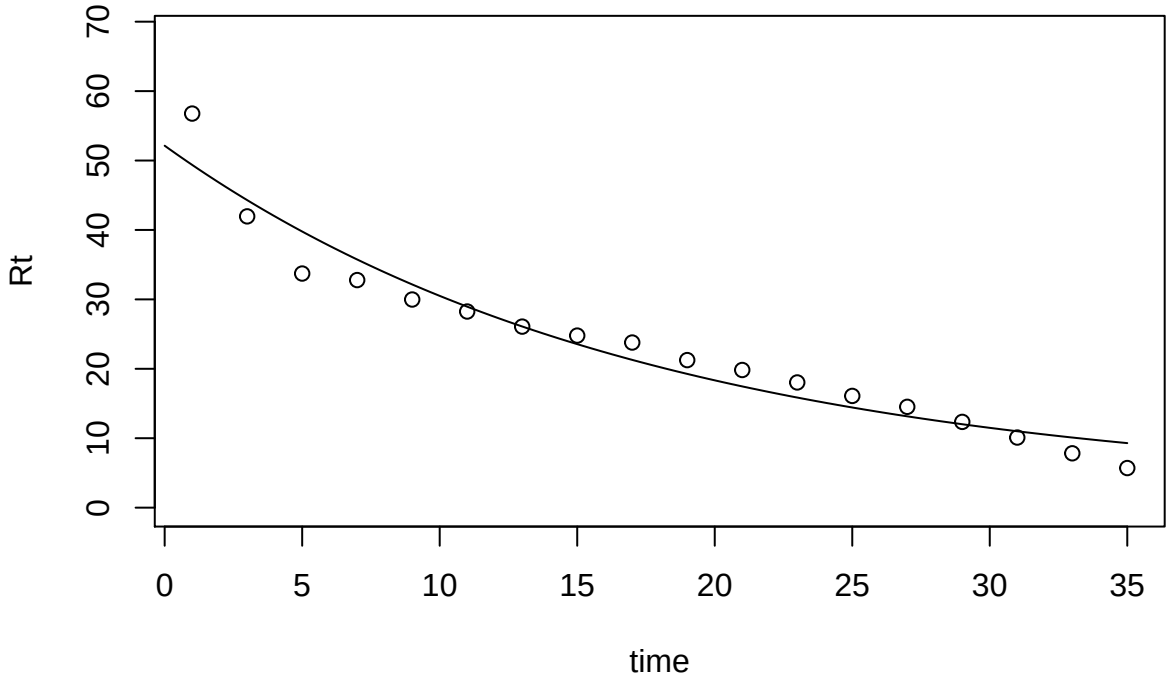



```
## [1] "AIC =  1.67481313039619"
## [1] "k1= 0.0575498246697512"
## [2] "k2= 5.87725422154781e-05"
## [3] "a21= 0.0167303054401144"
## [4] "a12= 1.42877863480995e-05"
## [5] "Proportion of C0 in pool 1= 0.0186253871197455"
```

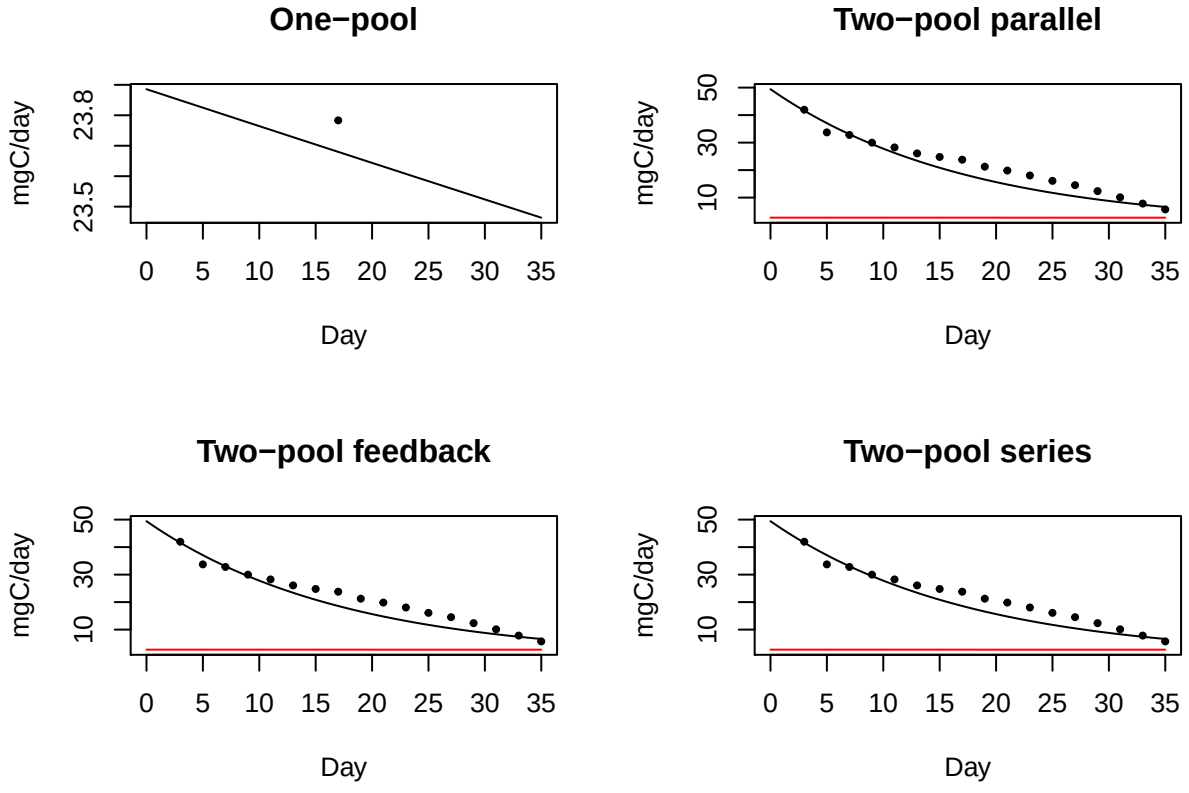



```
## [1] "AIC =  5.67481312852018"
## [1] "k1= 0.057548932879317"
## [2] "k2= 5.87659415148573e-05"
## [3] "a21= 0.0347687577787708"
```

```
## [4] "Proportion of C0 in pool 1= 0.0189740881156568"
```



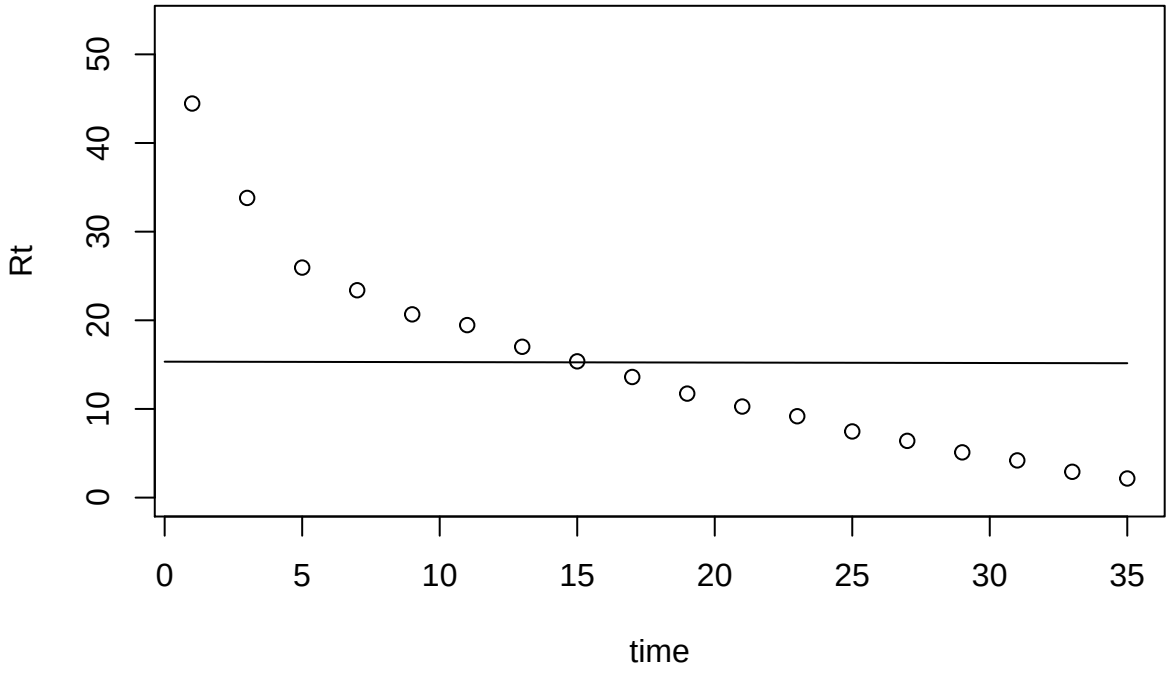

```
## [1] "AIC =  3.67481312613674"
```



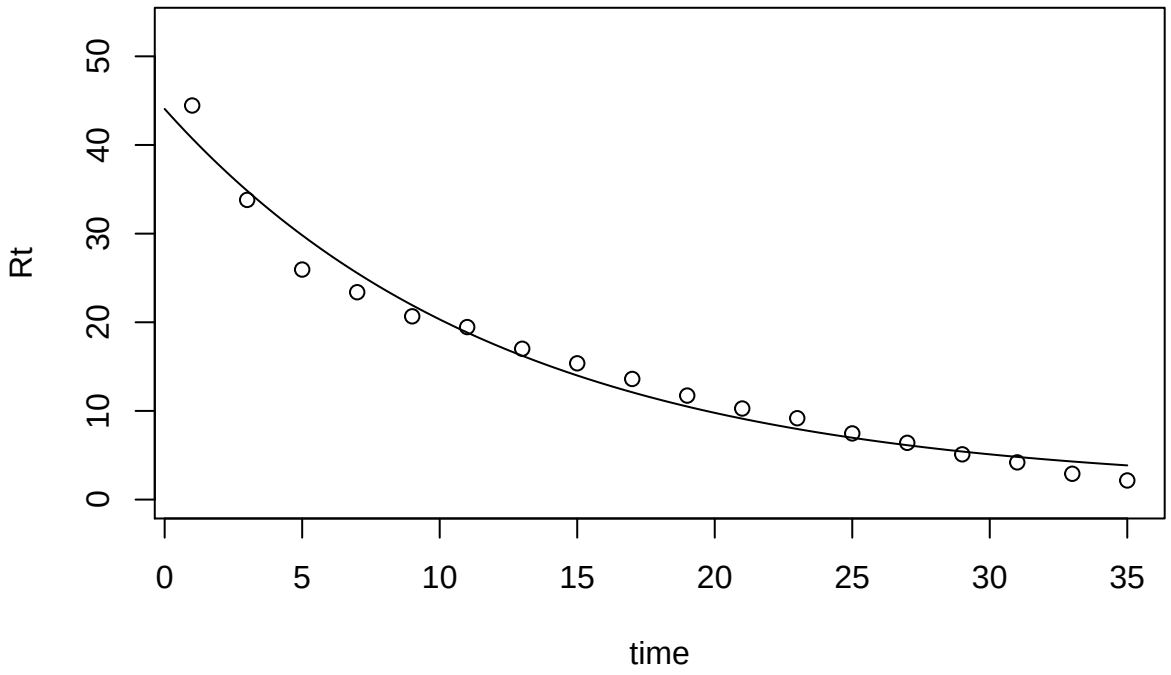
model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
One-pool	-8.03	0.000509	NA	NA	NA	NA	-7.78	0.996	NA	NA

model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
Two-pool parallel	1.67	0.0575	5.87e-05	0.0183	NA	NA	3.39	0.00375	16700	11500
Two-pool feedback	5.67	0.0575	5.88e-05	0.0186	0.0167	1.43e-05	10.7	9.8e-05	302	12.3
Two-pool series	3.67	0.0575	5.88e-05	0.019	0.0348	NA	6.75	0.000697	609	12.7

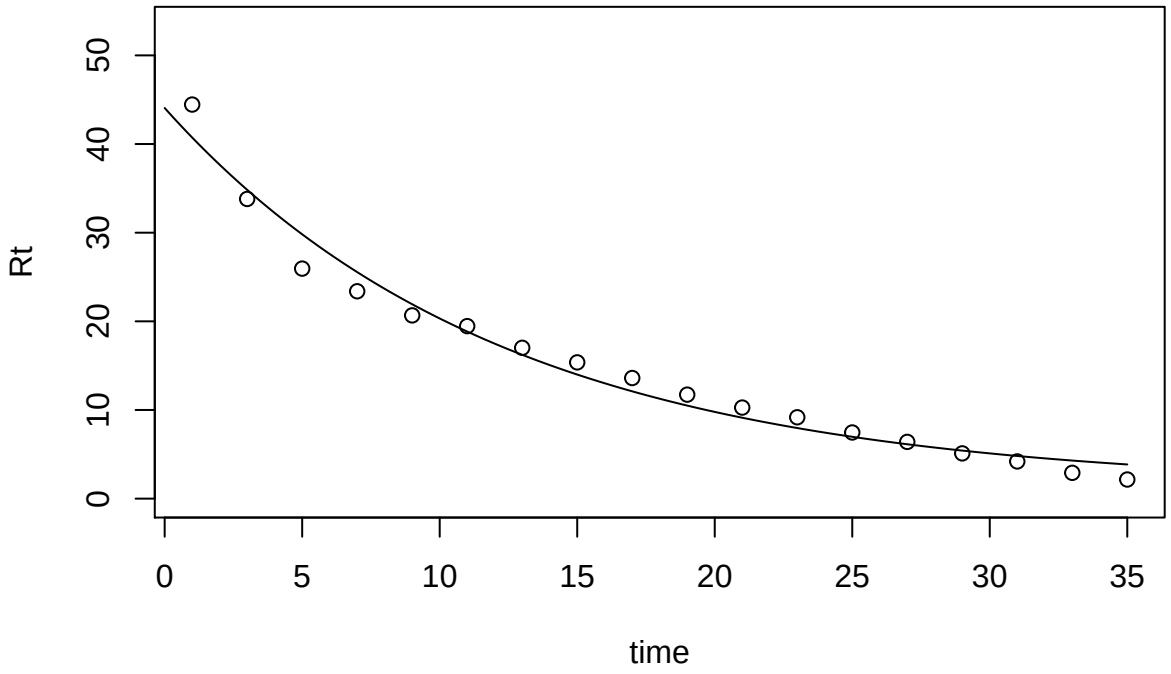
```
## [1] "Best fit parameter:  0.000326932229467817"
```




```
## [1] "AIC =  -7.58734917647962"
## [1] "k1= 0.0812043294022002"
## [2] "k2= 2.95158044337807e-05"
## [3] "proportion of C0 in pool 1= 0.0112108803540807"
```

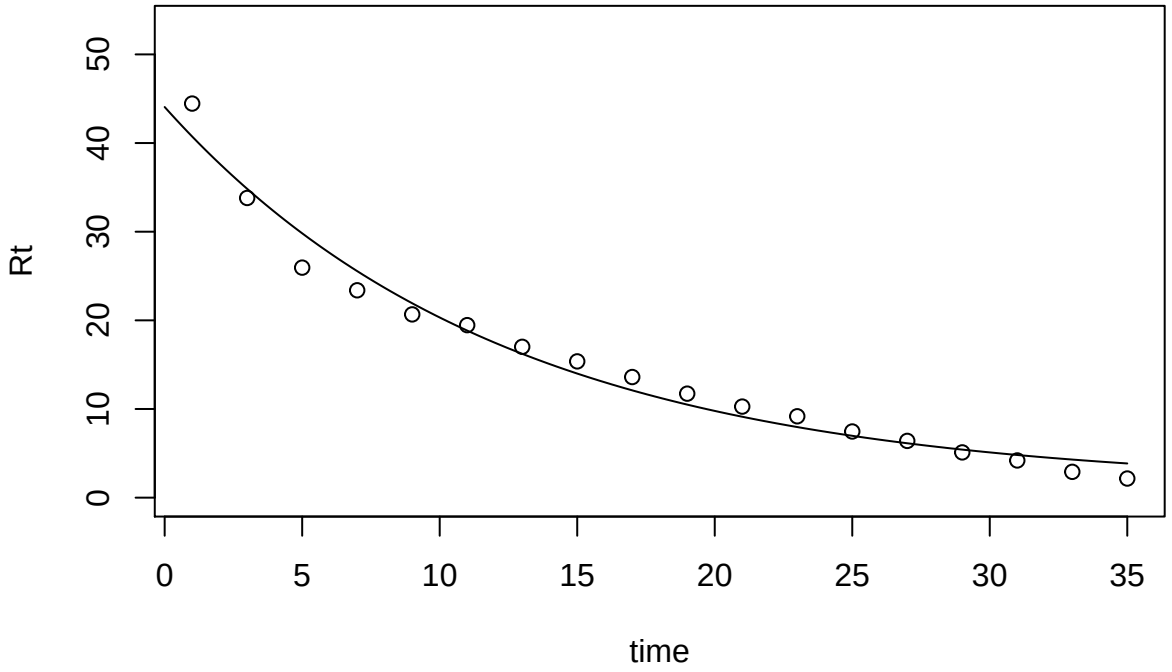



```
## [1] "AIC =  3.91044661860961"
## [1] "k1= 0.081202447576754"
## [2] "k2= 3.19100850437212e-05"
## [3] "a21= 0.0749572030642396"
## [4] "a12= 0.999979045022662"
## [5] "Proportion of C0 in pool 1= 0.0125080948969086"
```

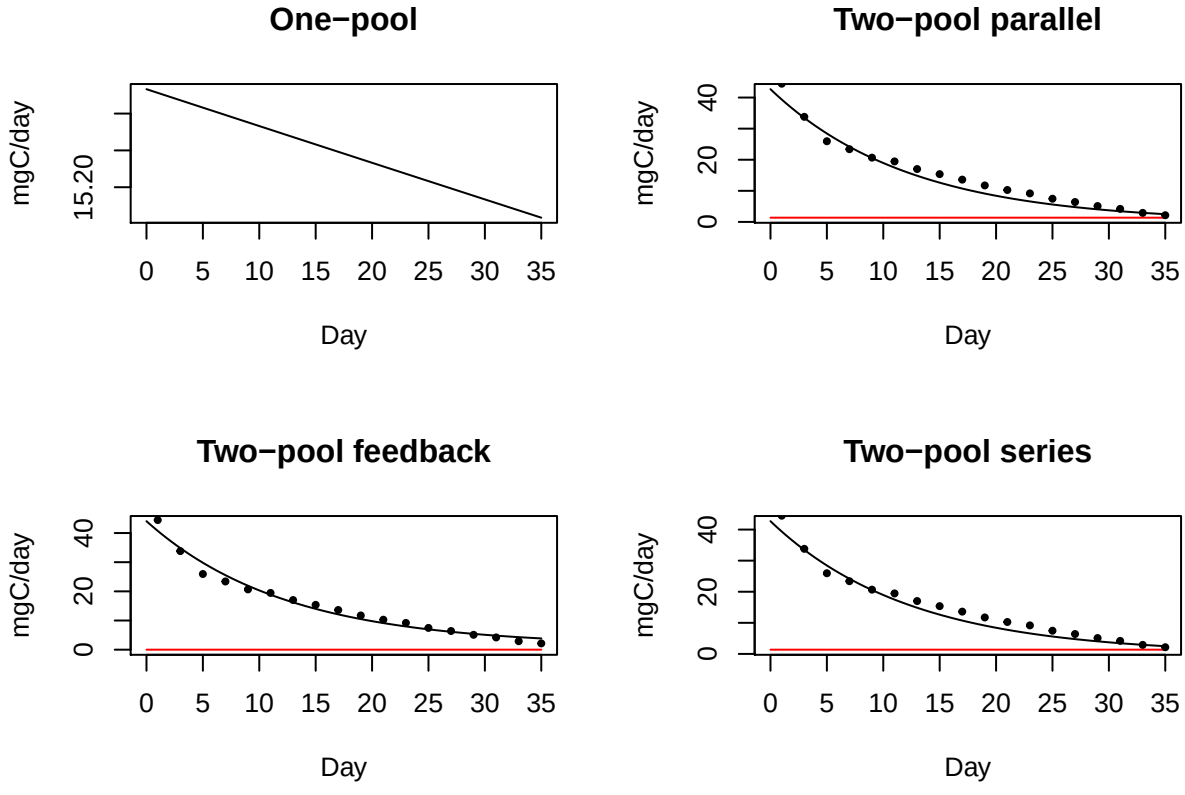



```
## [1] "AIC =  7.91044661703676"
## [1] "k1= 0.0812057088621395"
## [2] "k2= 2.95202867119898e-05"
## [3] "a21= 0.0571734807524255"
```

```
## [4] "Proportion of C0 in pool 1= 0.0118907192899323"
```



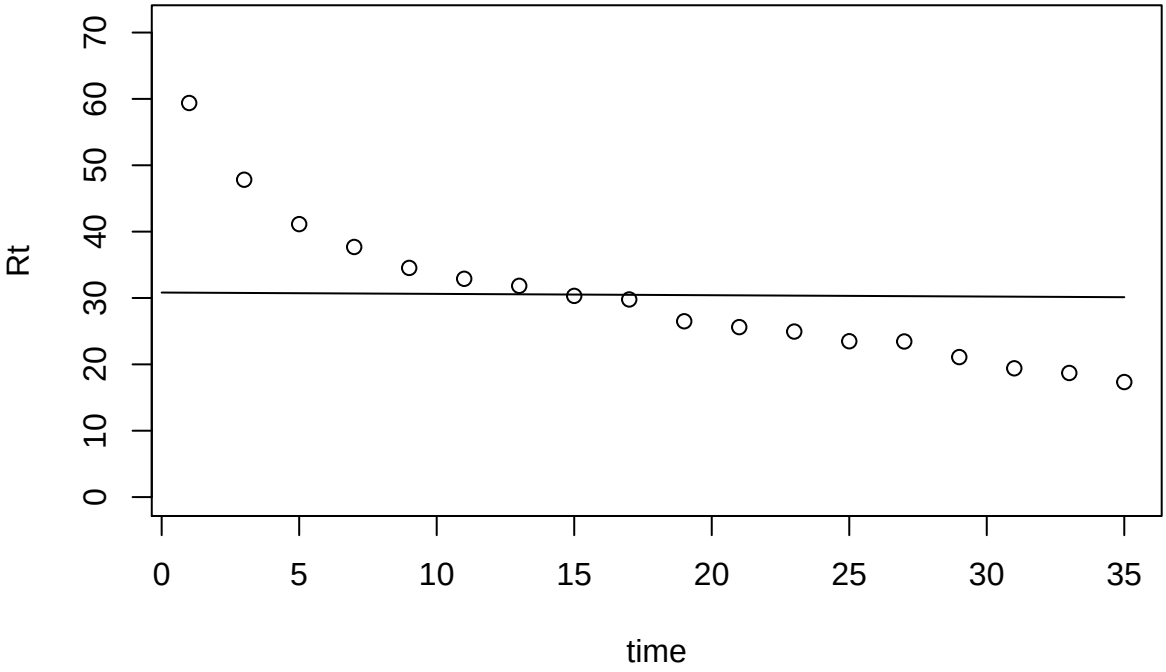

```
## [1] "AIC =  5.91044661610917"
```



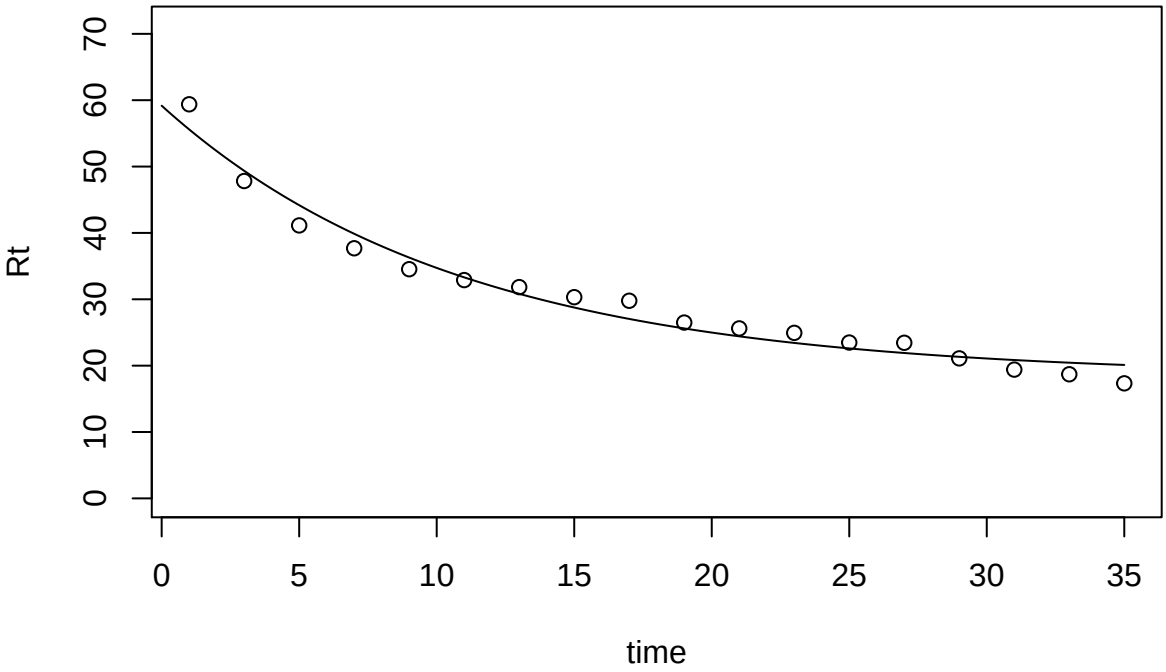
model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
One-pool	-7.59	0.000327	NA	NA	NA	NA	-7.34	0.998	NA	NA
Two-pool parallel	3.91	0.0812	2.95e-05	0.0112	NA	NA	5.62	0.00153	33500	23100

model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
Two-pool feedback	7.91	0.0812	3.19e-05	0.0125	0.075	1	12.9	4e-05	2550	9.58
Two-pool series	5.91	0.0812	2.95e-05	0.0119	0.0572	NA	8.99	0.000285	1950	9.31

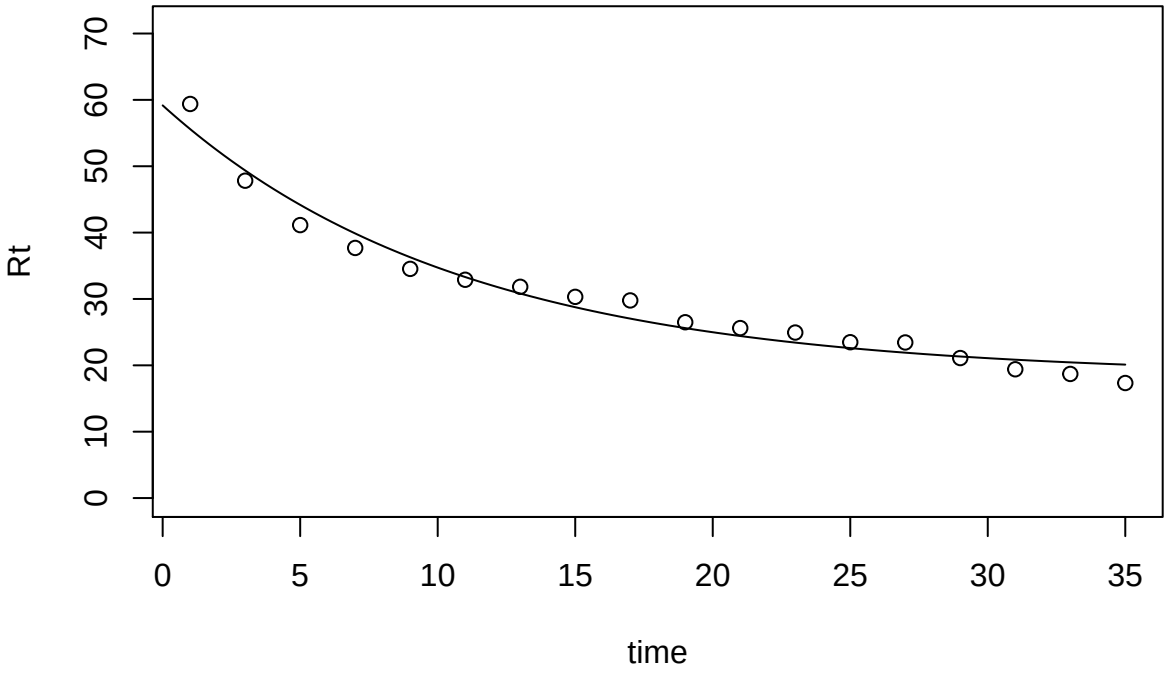
```
## [1] "Best fit parameter:  0.000657159862917823"
```



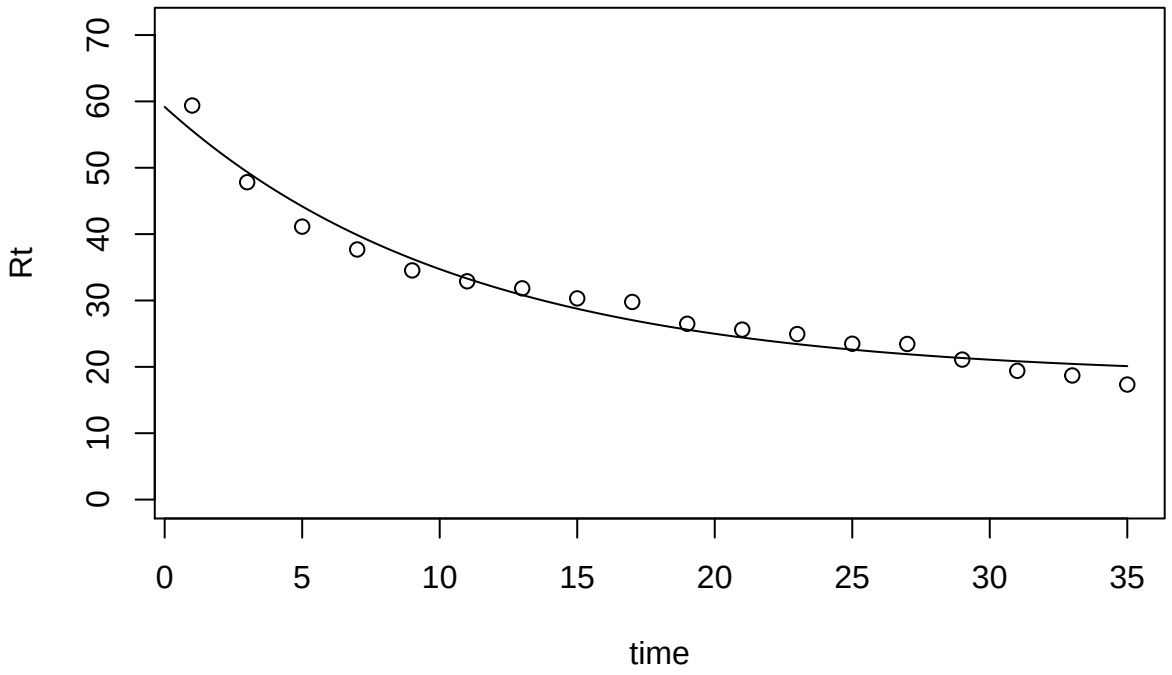

```
## [1] "AIC =  -7.3646392282026"
## [1] "k1= 0.0924786487701396"
## [2] "k2= 0.000404305549748118"
## [3] "proportion of C0 in pool 1= 0.00931113638392056"
```



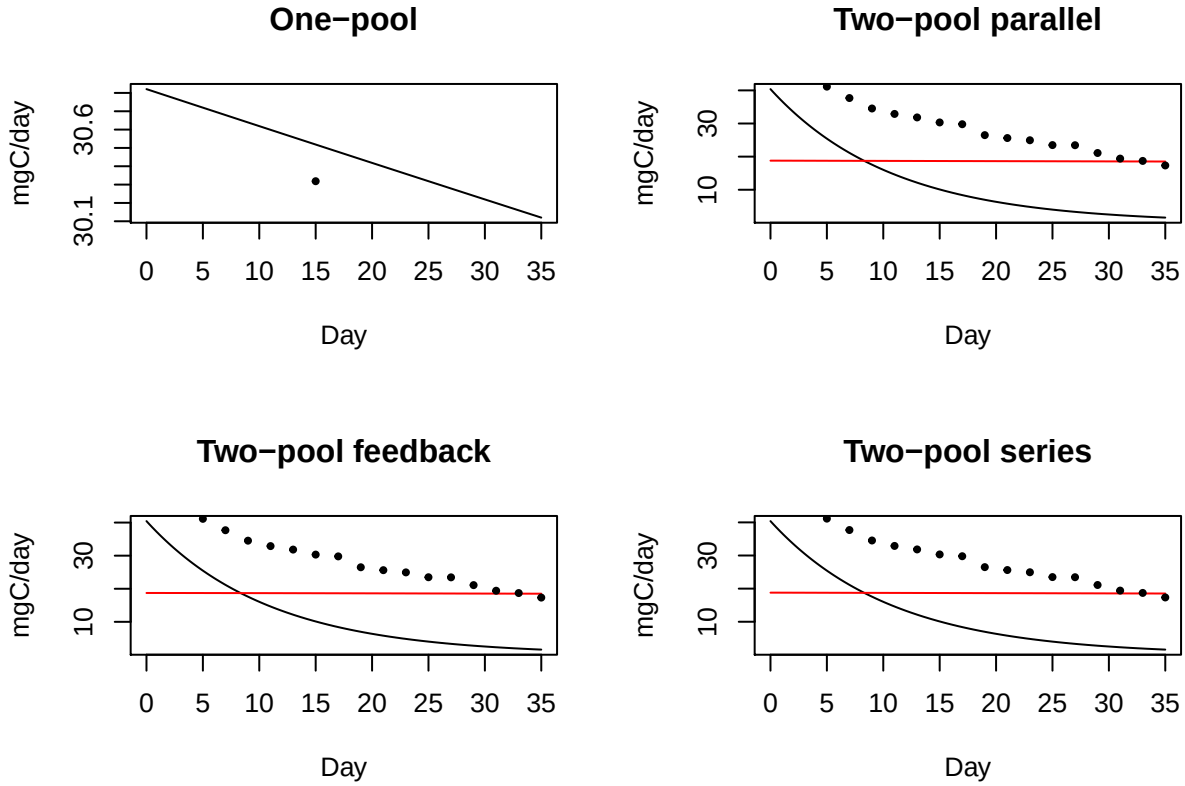
```
## [1] "AIC =  3.41507205177659"
## [1] "k1= 0.0924795073135869"
## [2] "k2= 0.000404396537206573"
## [3] "a21= 0.193162262545306"
## [4] "a12= 0.00114487504374317"
## [5] "Proportion of C0 in pool 1= 0.0115572324945054"
```




```
## [1] "AIC =  7.4150720451205"
## [1] "k1= 0.0924802207127089"
## [2] "k2= 0.000404309263368301"
## [3] "a21= 0.000231189518881014"
## [4] "Proportion of C0 in pool 1= 0.00931308782834778"
```



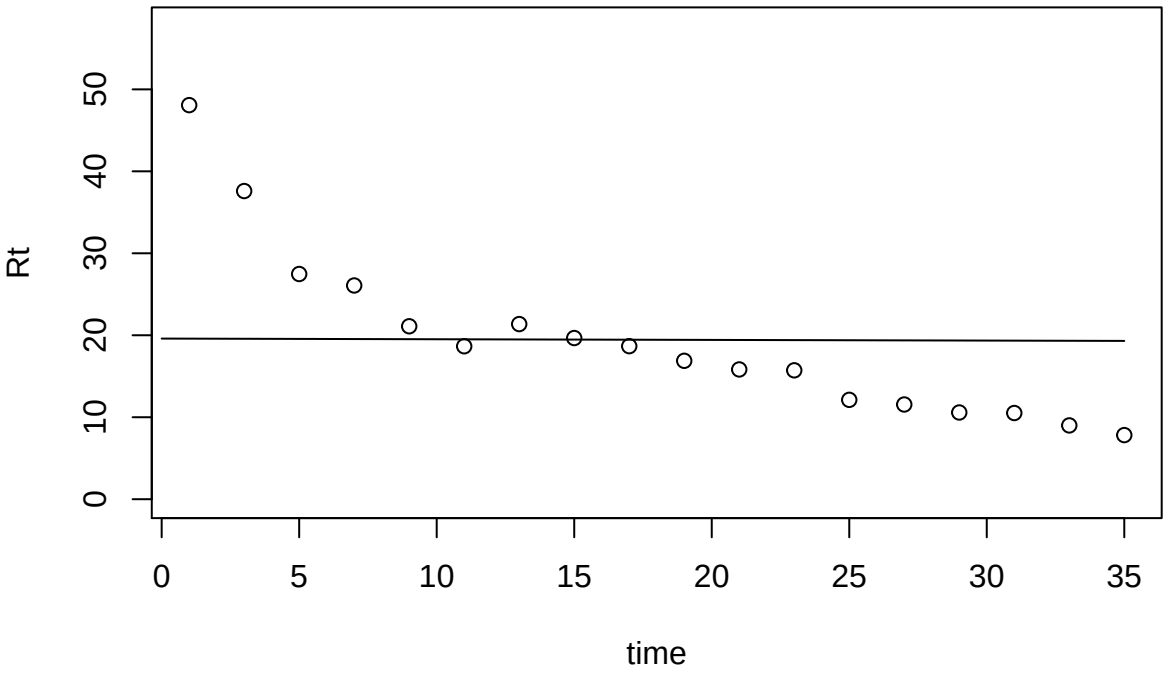

```
## [1] "AIC =  5.41507204912665"
```



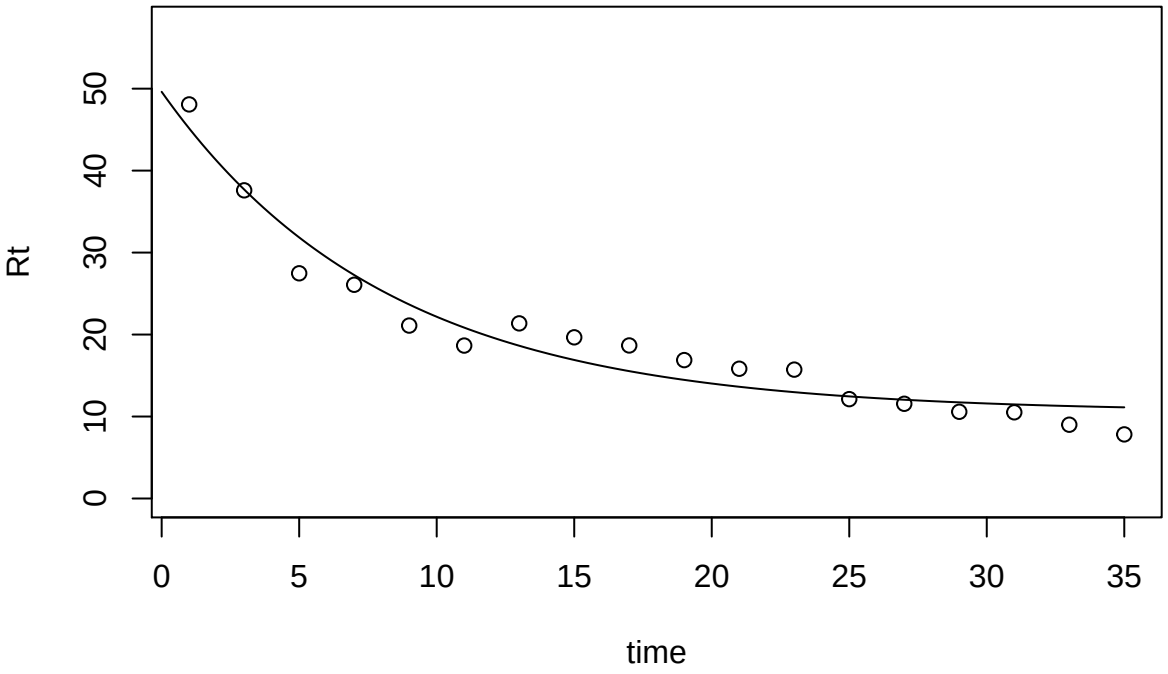
model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
One-pool	-7.36	0.000657	NA	NA	NA	NA	-7.11	0.998	NA	NA
Two-pool parallel	3.42	0.0925	0.000404	0.00931	NA	NA	5.13	0.00219	2450	1690
Two-pool feedback	7.42	0.0925	0.000404	0.0116	0.193	0.00114	12.4	5.73e-05	489	10.4

model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
Two-pool series	5.42	0.0925	0.000404	0.00931	0.000231	NA	8.49	0.000407	11.4	7.5

```
## [1] "Best fit parameter:  0.000417817606796521"
```

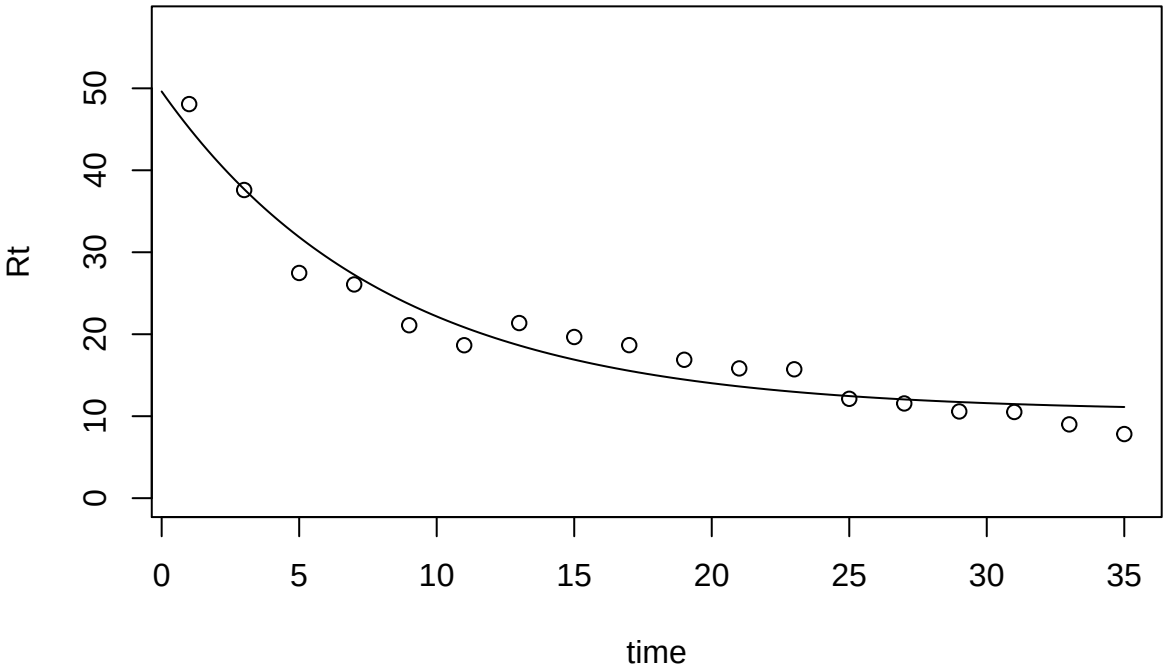



```
## [1] "AIC =  -7.19926766913961"
## [1] "k1= 0.121658697104026"
## [2] "k2= 0.000228728062653473"
## [3] "proportion of C0 in pool 1= 0.00682834240682467"
```

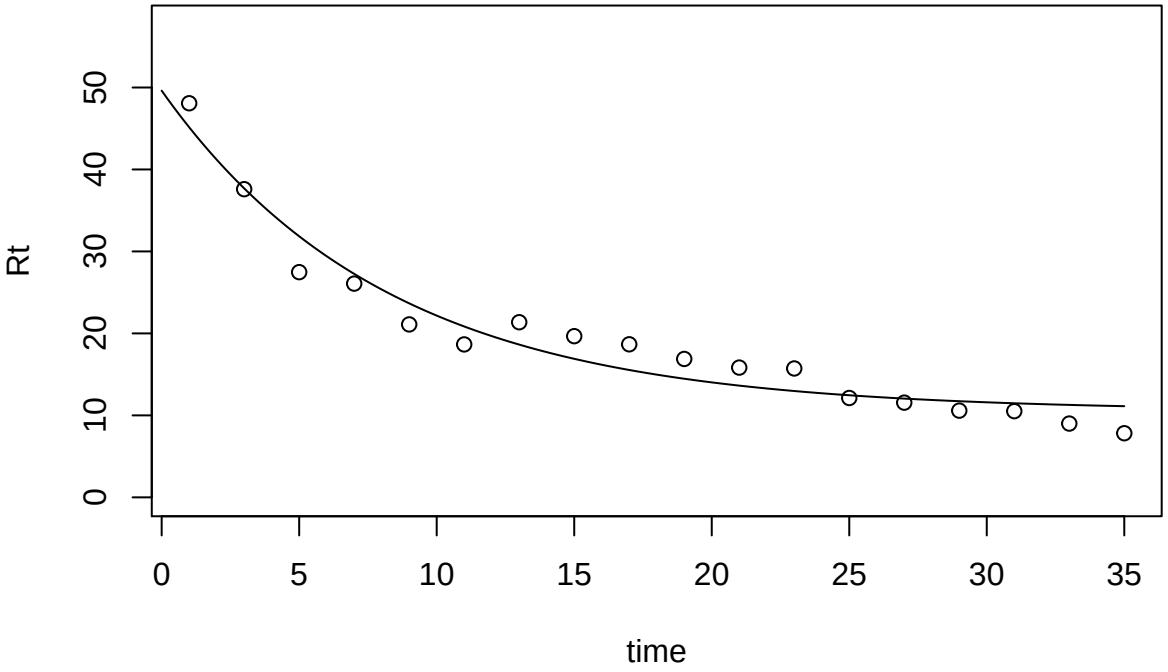



```
## [1] "AIC =  2.52474446416212"
```

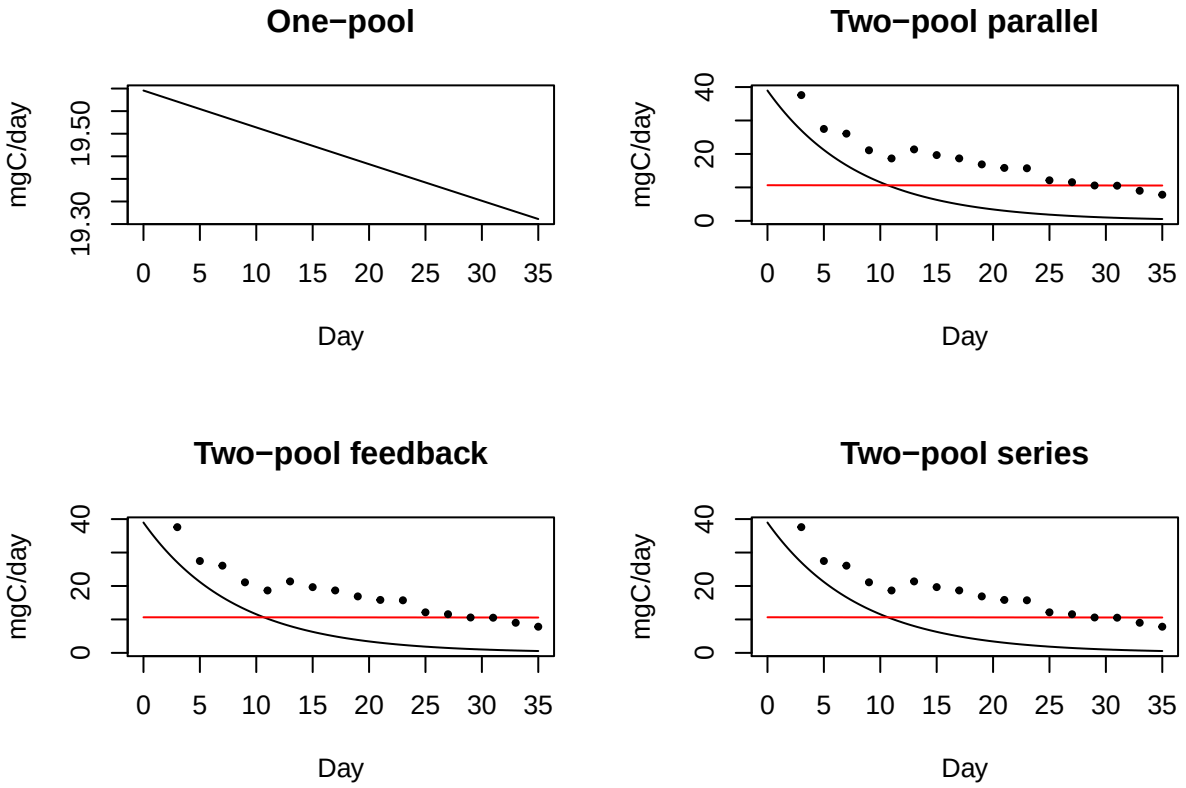
```
## [1] "k1= 0.121659592201957"
## [2] "k2= 0.000228730693821394"
## [3] "a21= 0.203382916904993"
## [4] "a12= 3.26583425732663e-05"
## [5] "Proportion of C0 in pool 1= 0.00857573515636412"
```




```
## [1] "AIC =  6.52474446150621"
## [1] "k1= 0.121661305280148"
## [2] "k2= 0.000228731297310458"
## [3] "a21= 0.152871544939857"
## [4] "Proportion of C0 in pool 1= 0.00806312571424178"
```

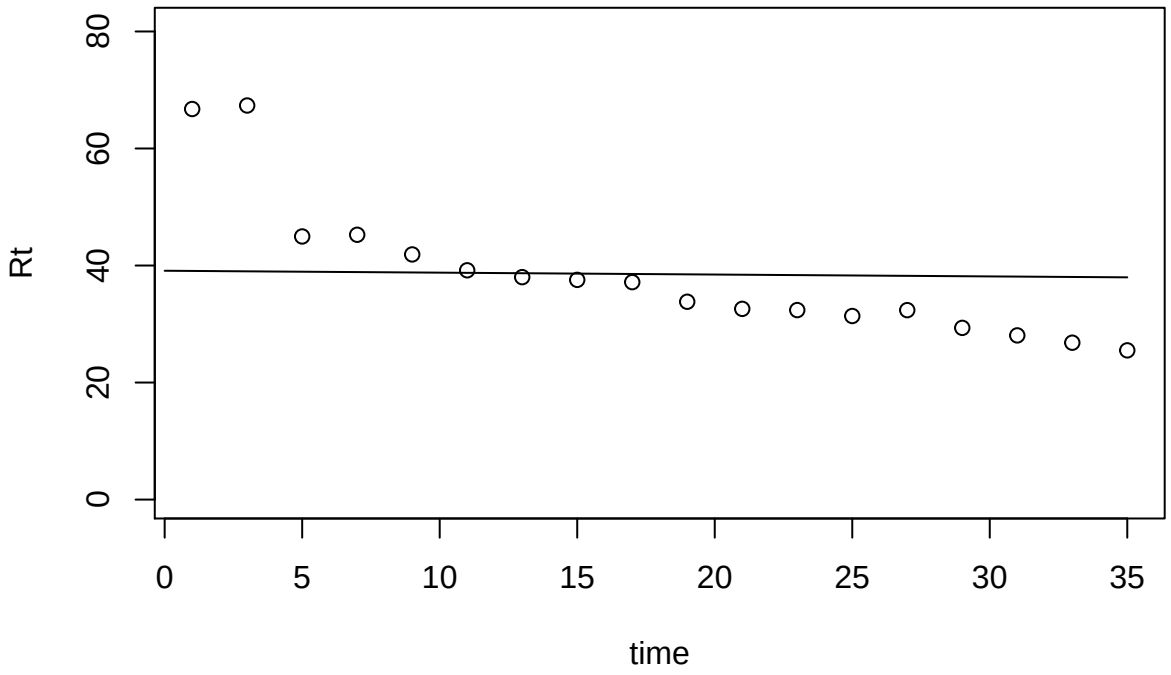


```
## [1] "AIC =  4.52474446566694"
```

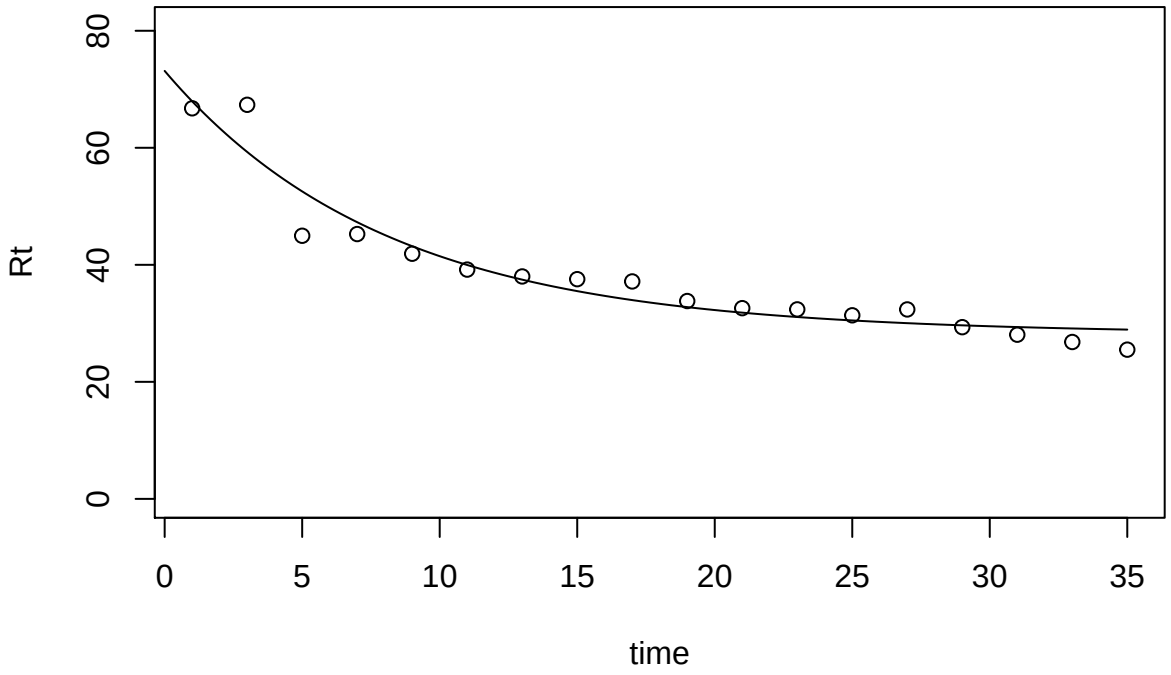


model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
One-pool	-7.2	0.000418	NA	NA	NA	NA	-6.95	0.996	NA	NA
Two-pool parallel	2.52	0.122	0.000229	0.00683	NA	NA	4.24	0.00371	4340	3000
Two-pool feedback	6.52	0.122	0.000229	0.00858	0.203	3.27e-05	11.5	9.7e-05	897	8.12
Two-pool series	4.52	0.122	0.000229	0.00806	0.153	NA	7.6	0.00069	677	7.33

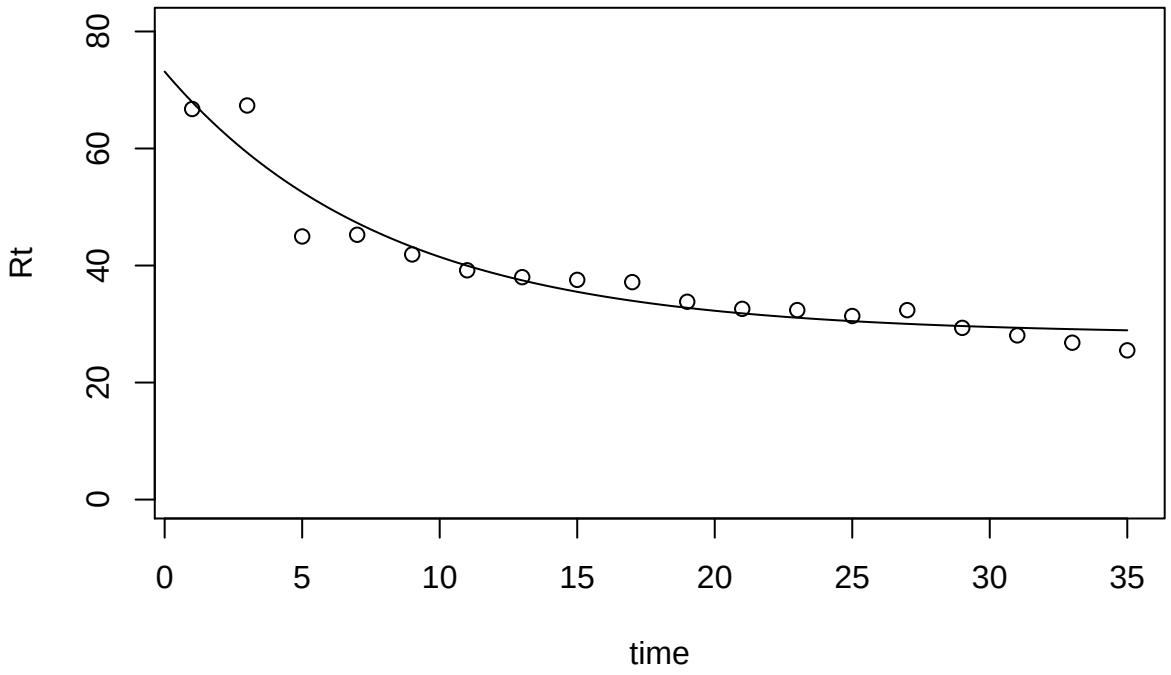
```
## [1] "Best fit parameter:  0.000833814471792977"
```



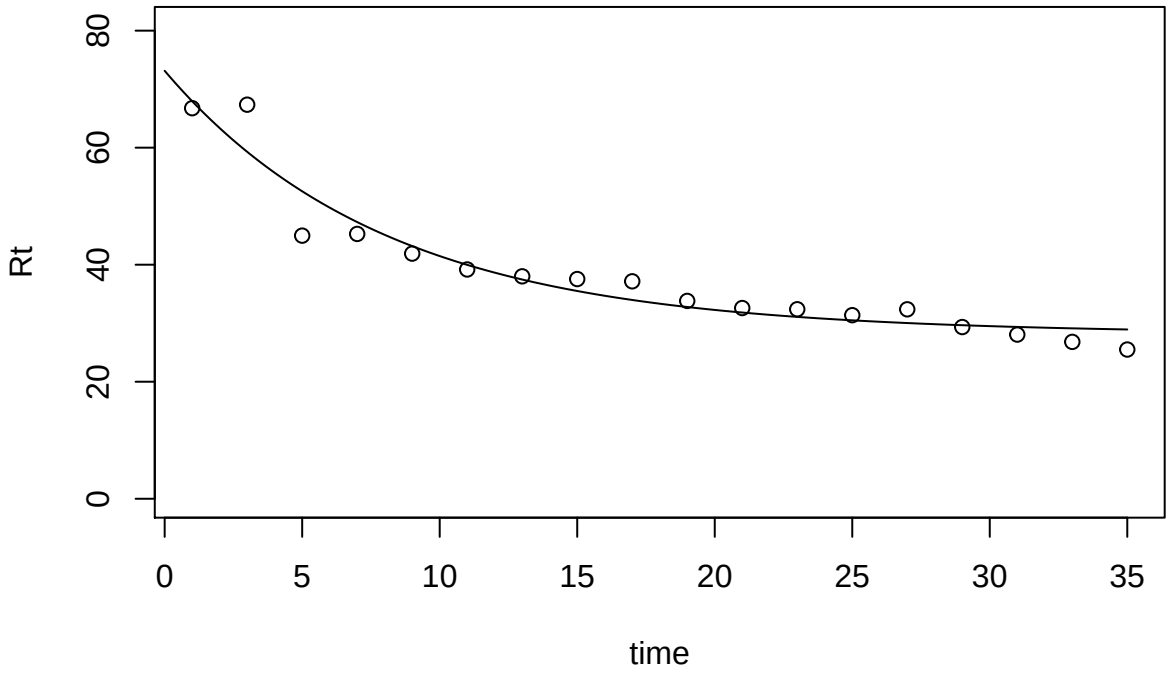

```
## [1] "AIC =  -7.69564584454673"
## [1] "k1= 0.124901501429981"
## [2] "k2= 0.000622978578601853"
## [3] "proportion of C0 in pool 1= 0.0075354368135509"
```



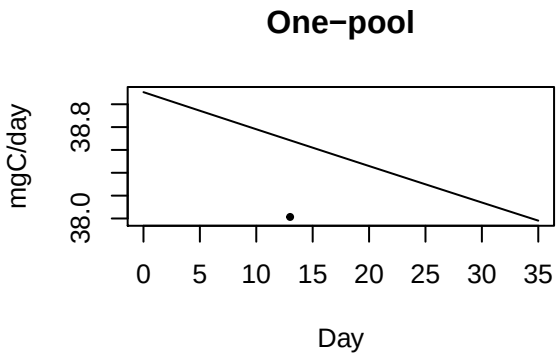

```
## [1] "AIC =  1.46983429975182"
## [1] "k1= 0.124901358892499"
## [2] "k2= 0.000622978972096467"
## [3] "a21= 0.0301288764177655"
## [4] "a12= 3.13288350439755e-05"
## [5] "Proportion of C0 in pool 1= 0.00777089073708248"
```

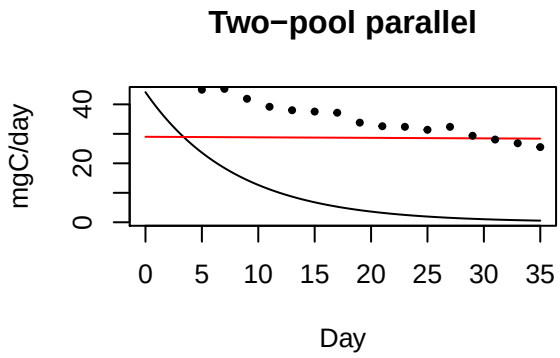


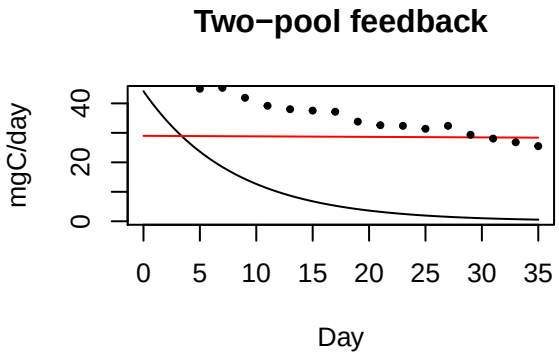

```
## [1] "AIC =  5.46983429968539"
## [1] "k1= 0.124900377366197"
## [2] "k2= 0.000622977079324976"
## [3] "a21= 0.0140473634817949"
## [4] "Proportion of C0 in pool 1= 0.00764337736276216"
```

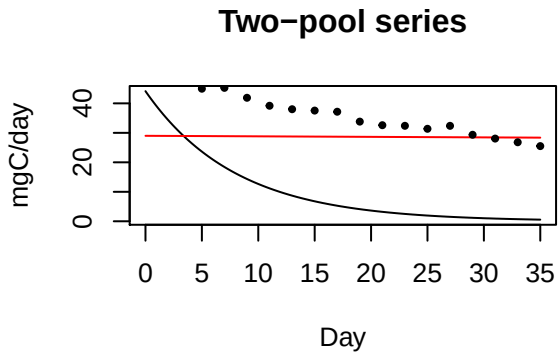



```
## [1] "AIC =  3.46983429880524"
```



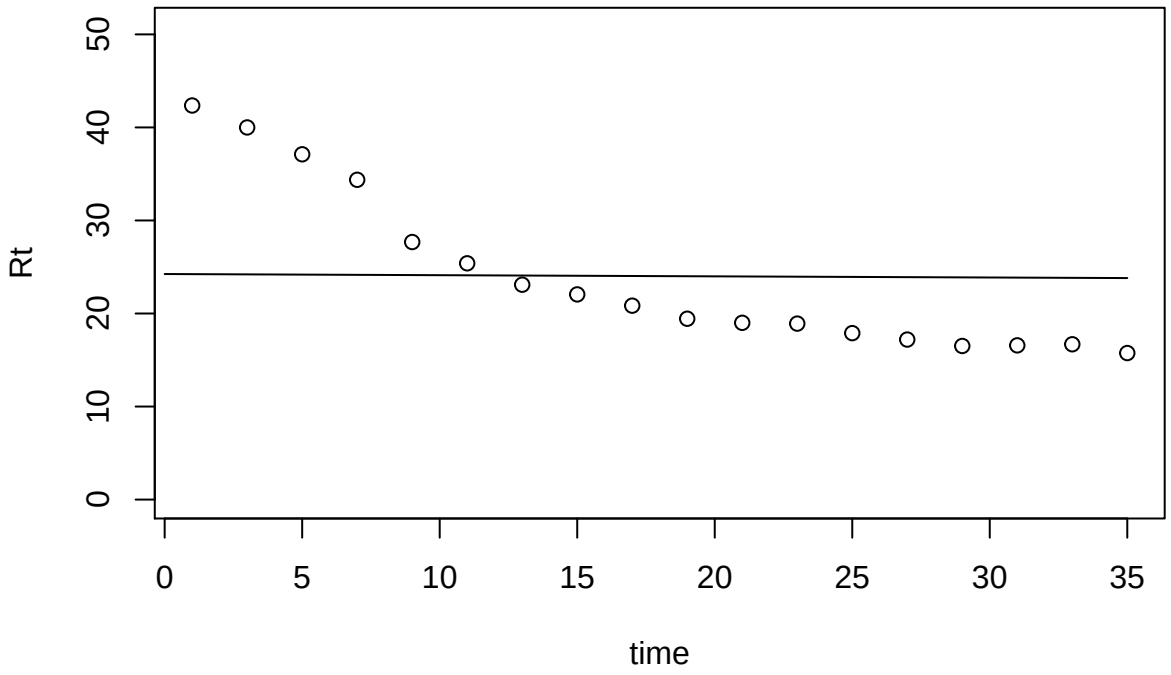




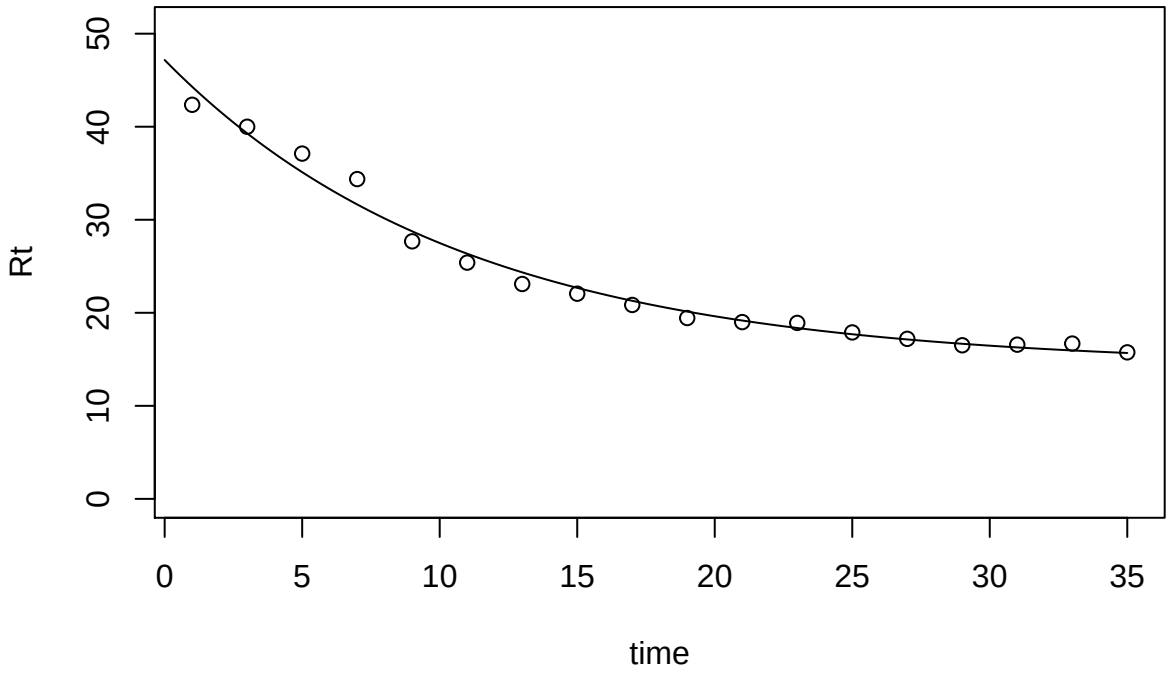


model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
One-pool	-7.7	0.000834	NA	NA	NA	NA	-7.45	0.995	NA	NA
Two-pool parallel	1.47	0.125	0.000623	0.00754	NA	NA	3.18	0.00489	1590	1100
Two-pool feedback	5.47	0.125	0.000623	0.00777	0.0301	3.13e-05	10.5	0.000128	56.4	5.8
Two-pool series	3.47	0.125	0.000623	0.00764	0.014	NA	6.55	0.000911	30.6	5.66

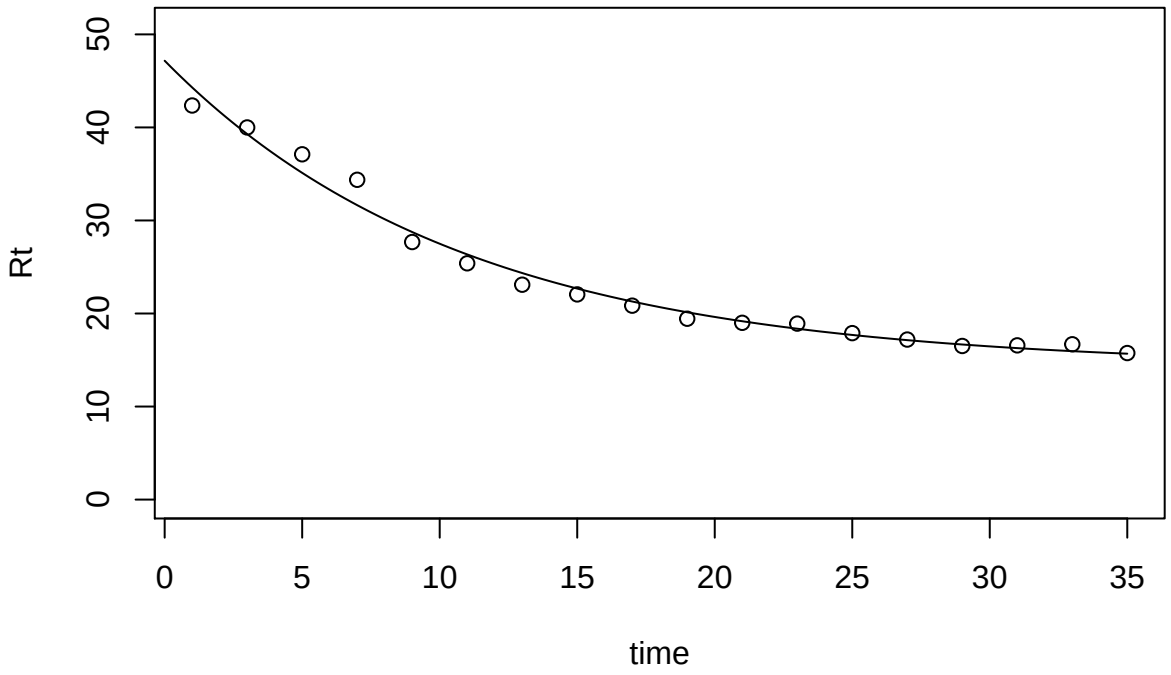
```
## [1] "Best fit parameter:  0.000516899907191467"
```



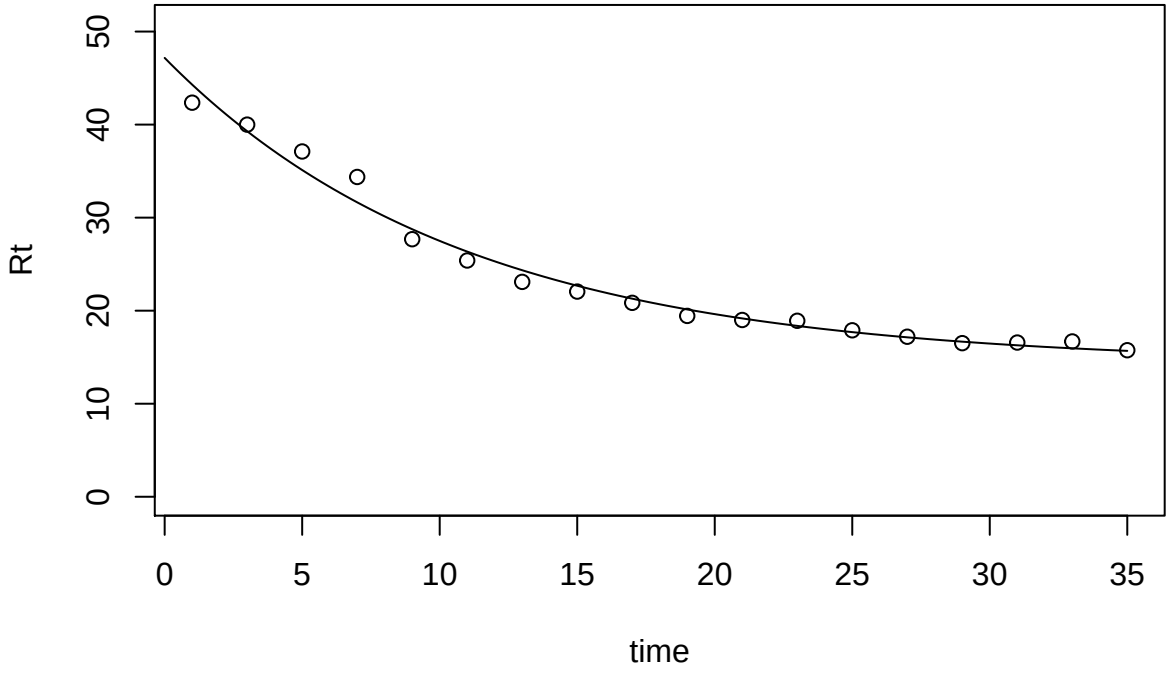

```
## [1] "AIC =  -6.48891797221742"
## [1] "k1= 0.0919603778178666"
## [2] "k2= 0.000312227531321934"
## [3] "proportion of C0 in pool 1= 0.00756682512765389"
```



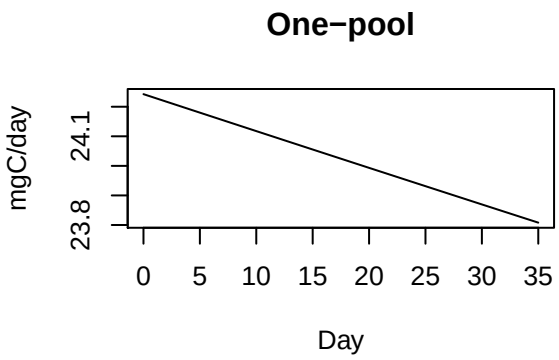

```
## [1] "AIC =  5.65047114581206"
## [1] "k1= 0.0919604128755926"
## [2] "k2= 0.000312232299933348"
## [3] "a21= 0.194188318696216"
## [4] "a12= 7.7152929683133e-05"
## [5] "Proportion of C0 in pool 1= 0.00939828277865085"
```

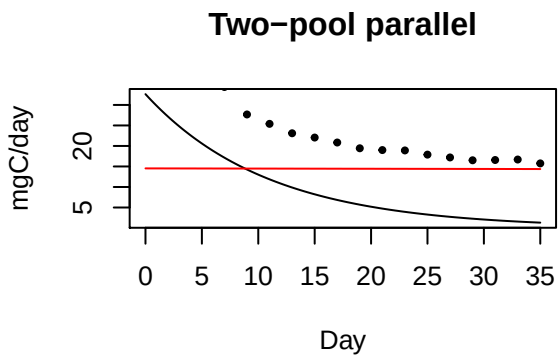


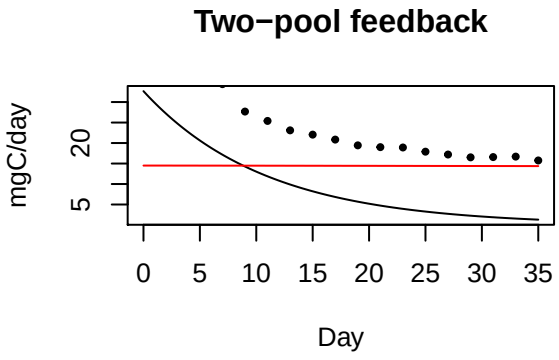

```
## [1] "AIC =  9.65047114576072"
## [1] "k1= 0.091960303493915"
## [2] "k2= 0.000312227387634235"
## [3] "a21= 0.230006850930487"
## [4] "Proportion of C0 in pool 1= 0.00983714895437432"
```

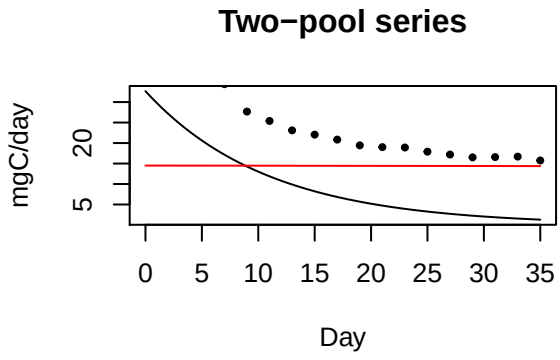



```
## [1] "AIC =  7.65047114576819"
```



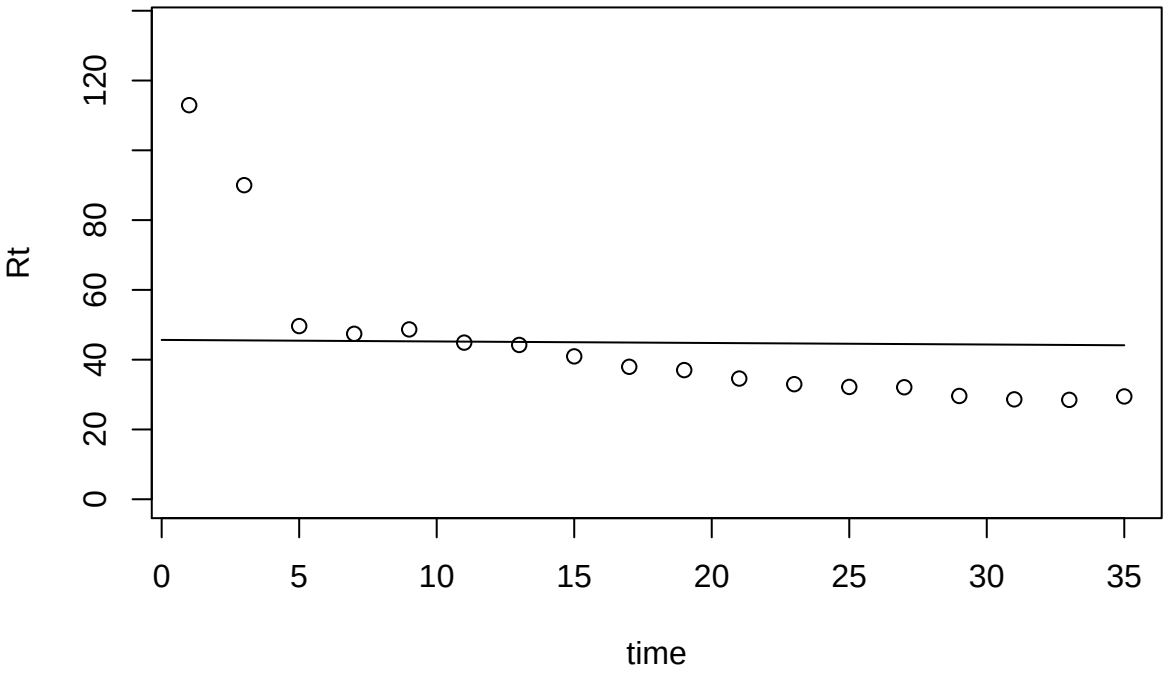




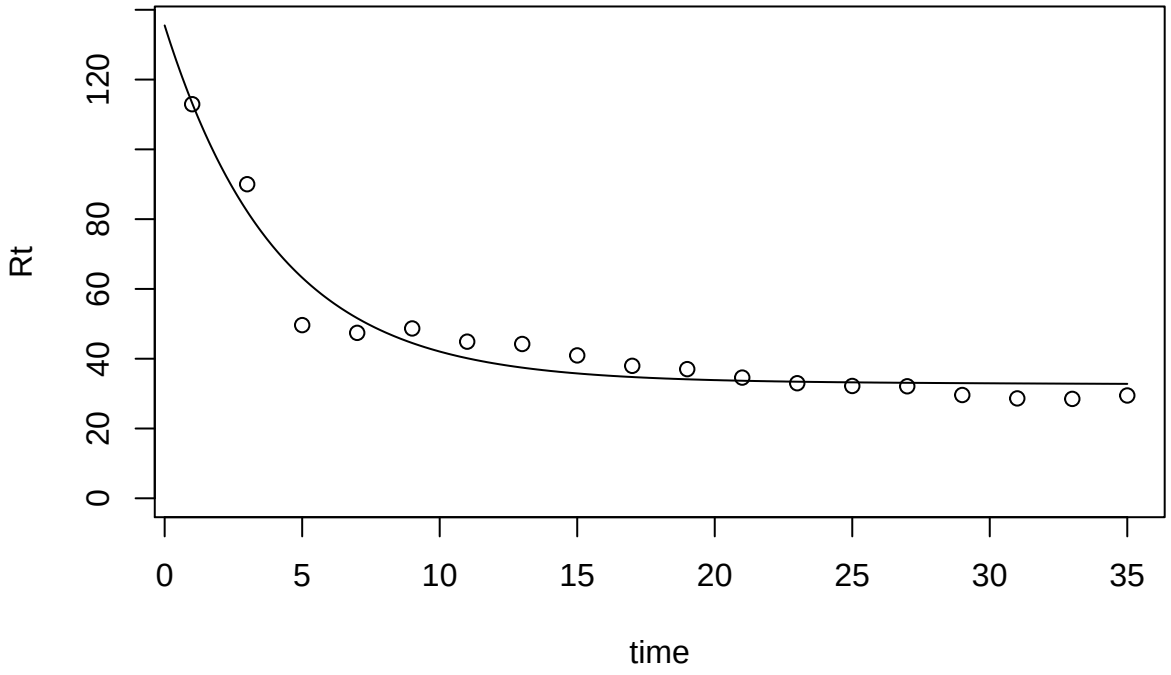


model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
One-pool	-6.49	0.000517	NA	NA	NA	NA	-6.24	0.999	NA	NA
Two-pool parallel	5.65	0.092	0.000312	0.00757	NA	NA	7.36	0.00111	3180	2200
Two-pool feedback	9.65	0.092	0.000312	0.0094	0.194	7.72e-05	14.7	2.91e-05	633	10.5
Two-pool series	7.65	0.092	0.000312	0.00984	0.23	NA	10.7	0.000207	748	11.4

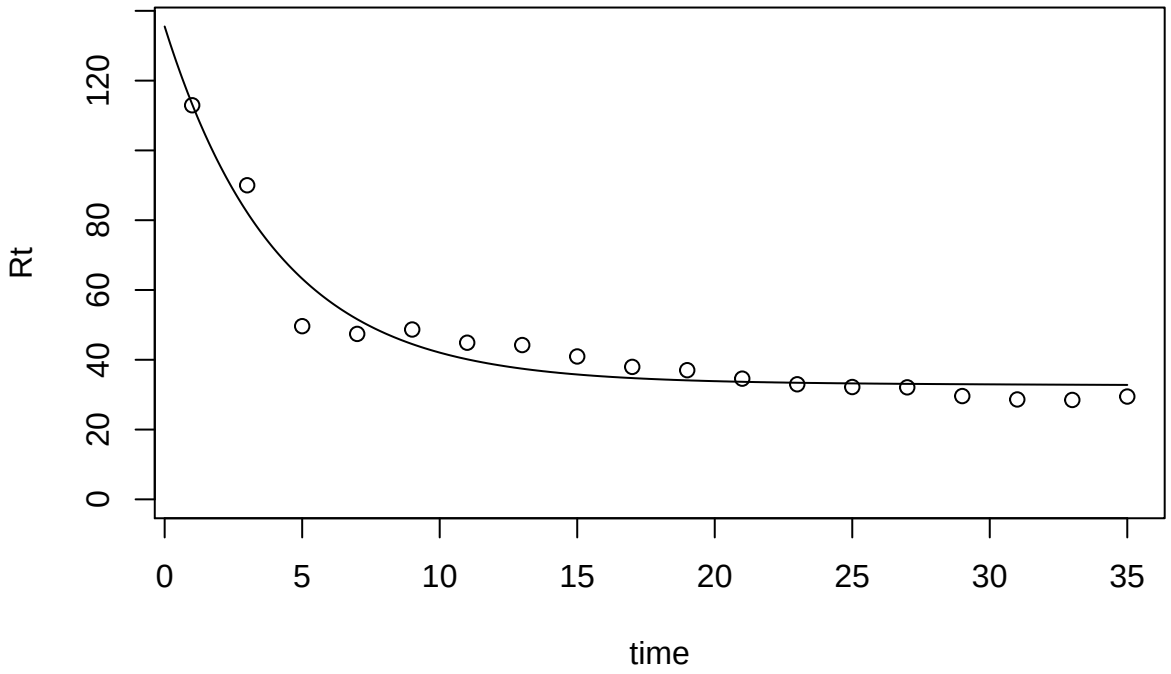
```
## [1] "Best fit parameter:  0.000973603830651112"
```



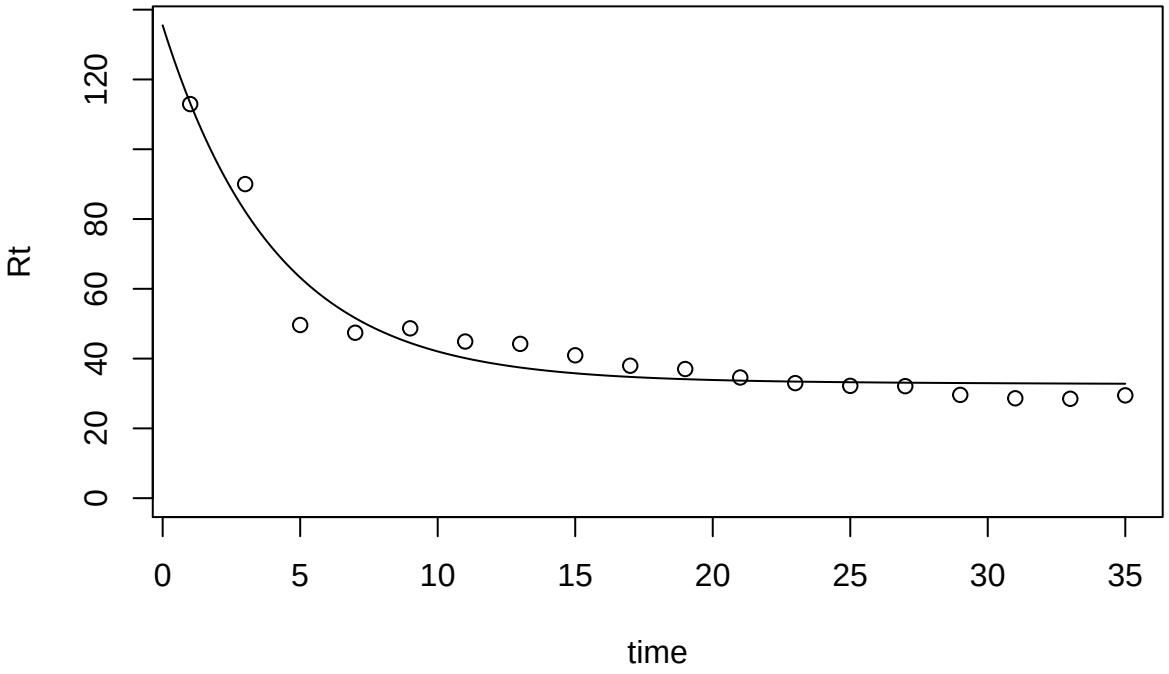
```
## [1] "AIC =  -10.2295115423496"
## [1] "k1= 0.246263251780938"
## [2] "k2= 0.000723079137584811"
## [3] "proportion of C0 in pool 1= 0.00882289542430431"
```



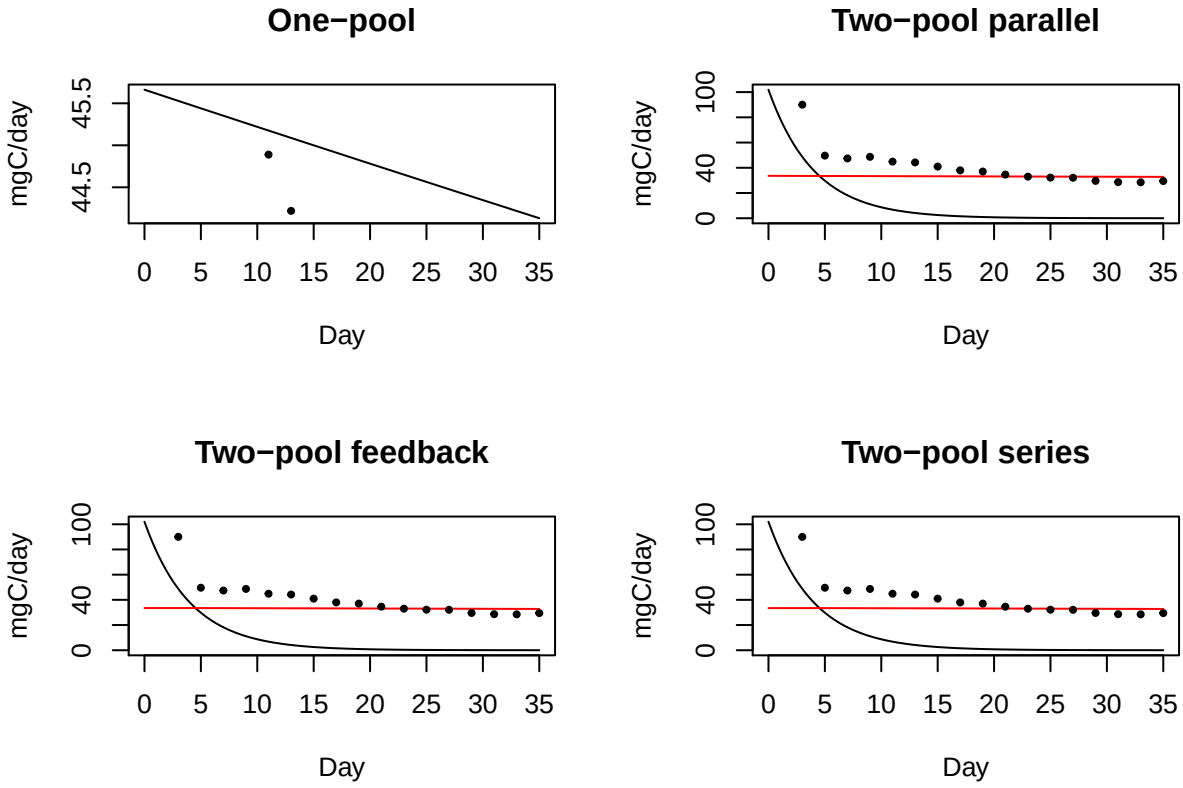

```
## [1] "AIC =  -0.474257913878761"
## [1] "k1= 0.24626412016061"
## [2] "k2= 0.000723083095847043"
## [3] "a21= 0.32468741520804"
## [4] "a12= 1.44823318939391e-05"
## [5] "Proportion of C0 in pool 1= 0.013083476234509"
```



```
## [1] "AIC =  3.52574208613774"
## [1] "k1= 0.246265326716352"
## [2] "k2= 0.000723080459262926"
## [3] "a21= 0.370012853963961"
## [4] "Proportion of C0 in pool 1= 0.0140290543855286"
```

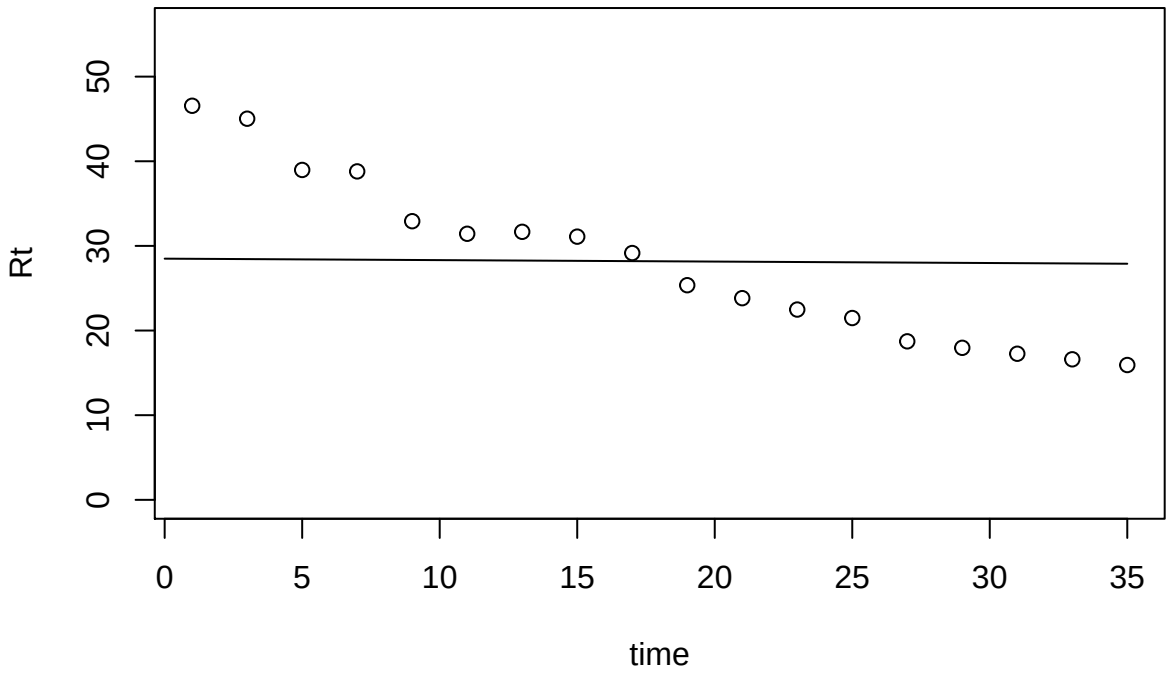



```
## [1] "AIC =  1.52574208646643"
```

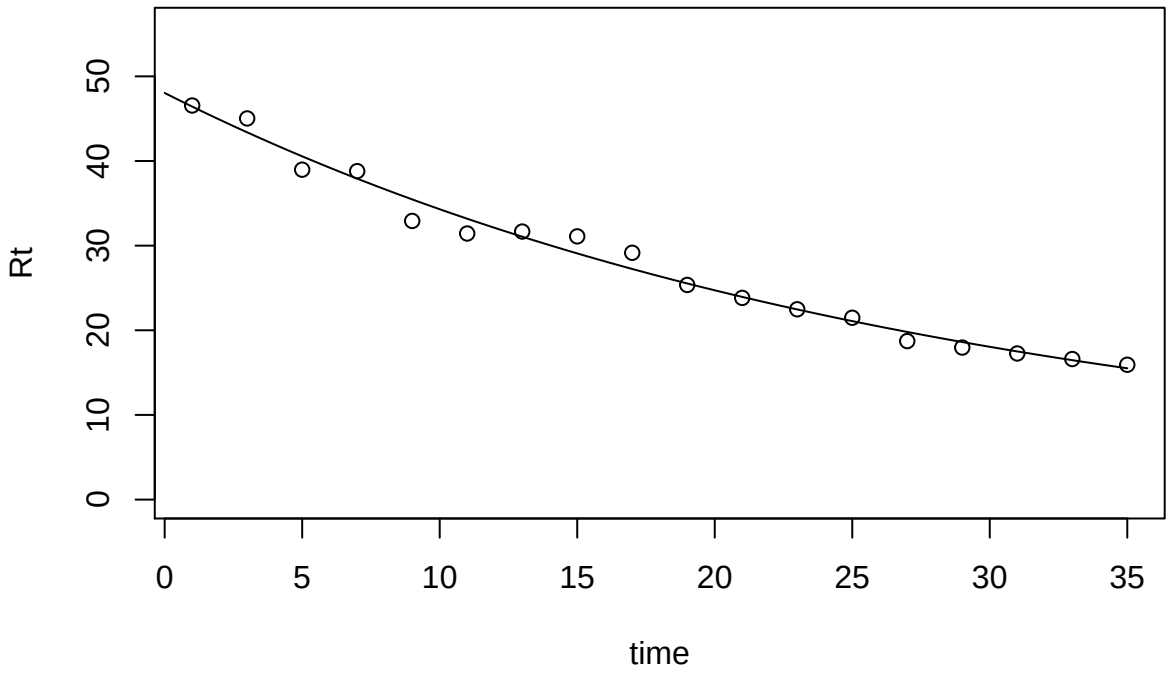


model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrT	q05
One-pool	-10.2	0.000974	NA	NA	NA	NA	-9.98	0.996	NA	NA
Two-pool parallel	-0.474	0.246	0.000723	0.00882	NA	NA	1.24	0.00365	1370	946
Two-pool feedback	3.53	0.246	0.000723	0.0131	0.325	1.45e-05	8.53	9.55e-05	453	5.46
Two-pool series	1.53	0.246	0.000723	0.014	0.37	NA	4.6	0.000679	516	6.38

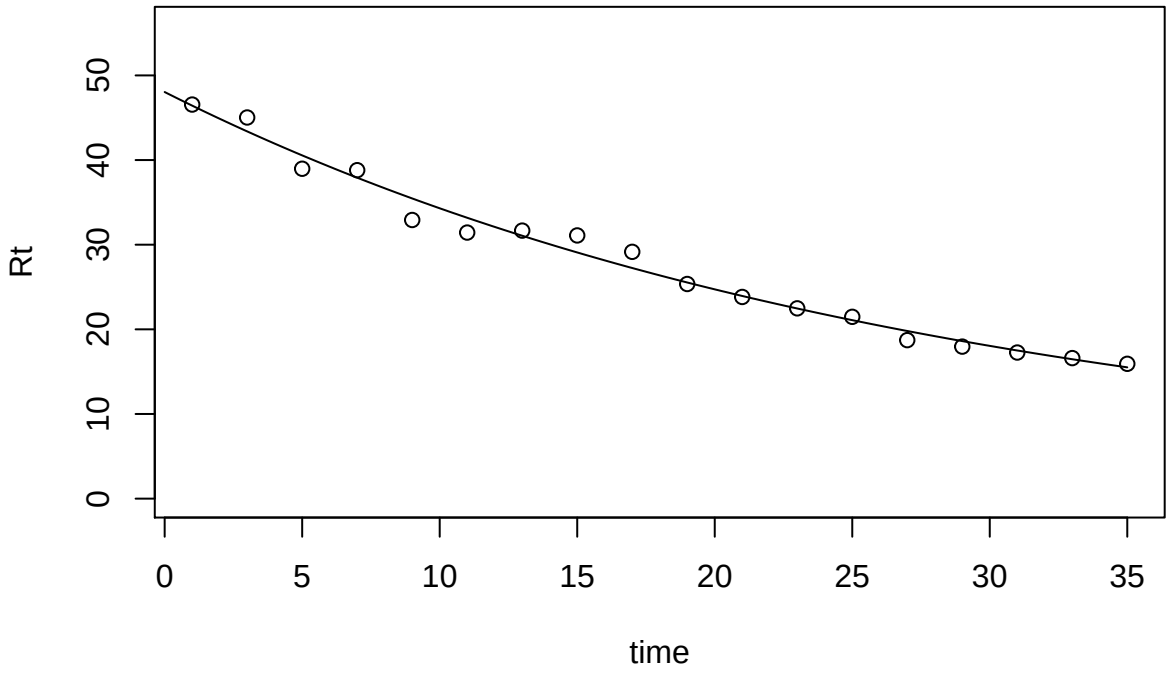
```
## [1] "Best fit parameter:  0.000607525358148709"
```




```
## [1] "AIC =  -6.90928562856072"
## [1] "k1= 0.0360578109919075"
## [2] "k2= 5.85736877122462e-05"
## [3] "proportion of C0 in pool 1= 0.0268238128440649"
```

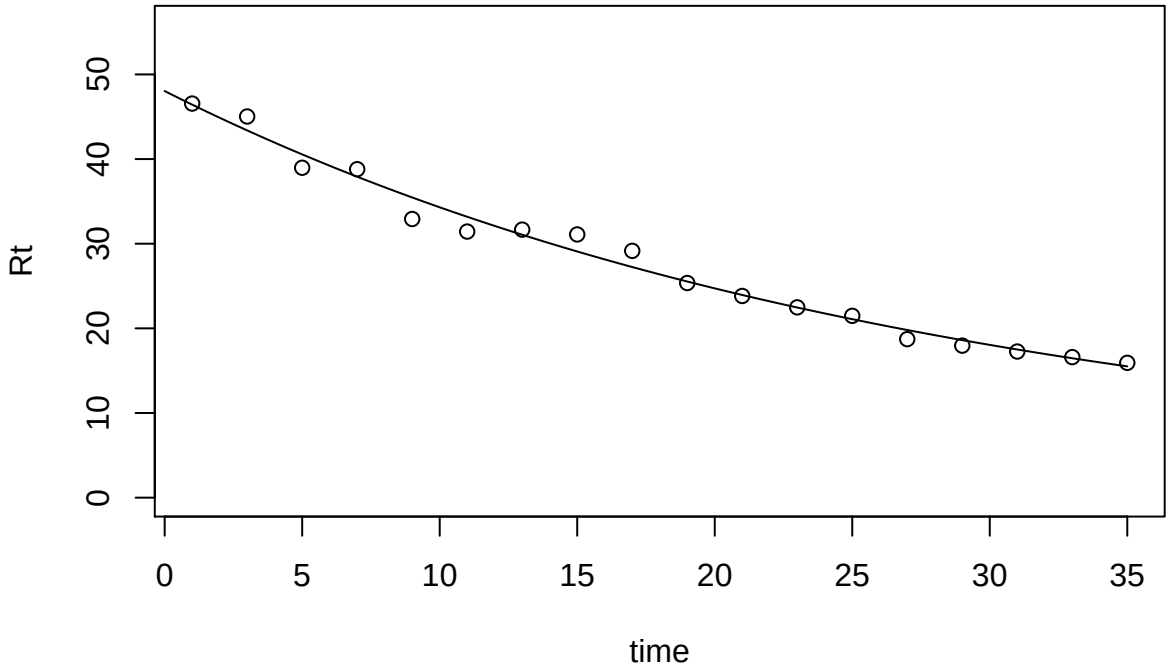



```
## [1] "AIC =  5.29225077640169"
## [1] "k1= 0.0360578504517049"
## [2] "k2= 5.85746477835521e-05"
## [3] "a21= 0.0866499355320142"
## [4] "a12= 6.93201298023749e-05"
## [5] "Proportion of C0 in pool 1= 0.0293731887236759"
```

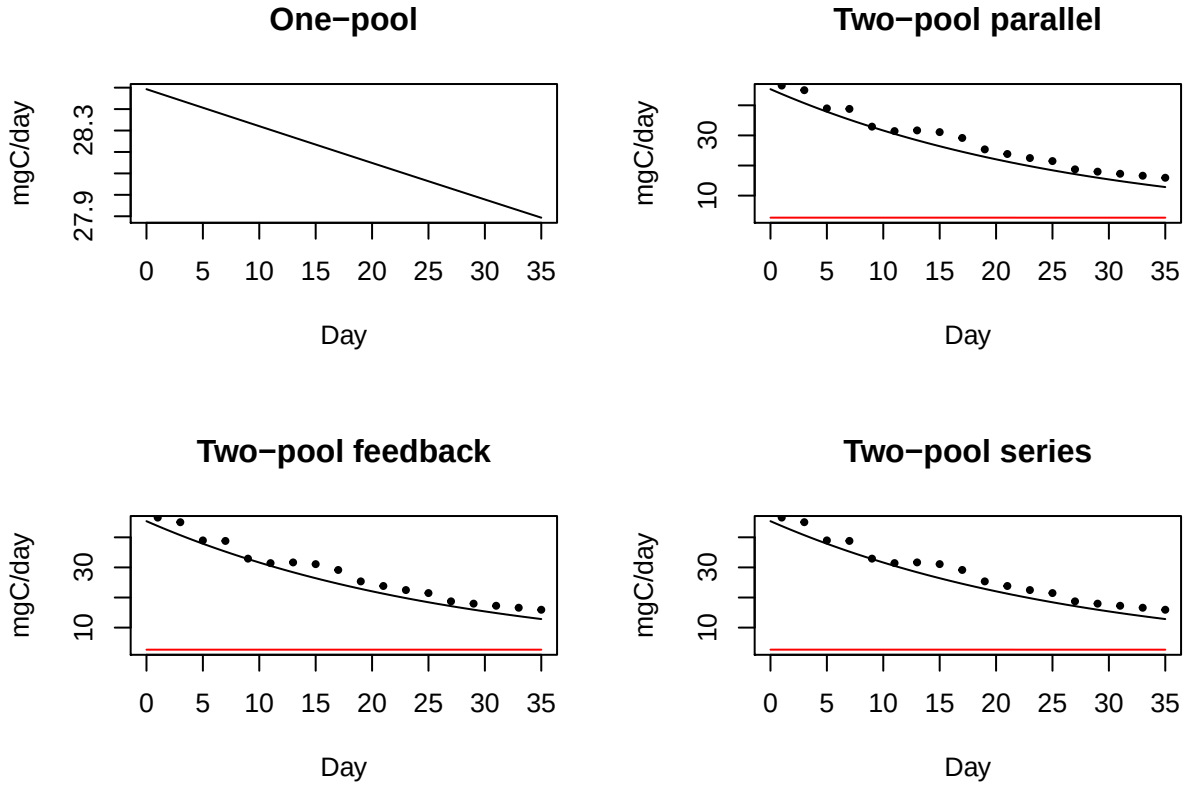



```
## [1] "AIC =  9.29225077633719"
## [1] "k1= 0.0360578655041097"
## [2] "k2= 5.85745236114716e-05"
## [3] "a21= 0.00145393699438934"
```

```
## [4] "Proportion of C0 in pool 1= 0.0268628615254153"
```




```
## [1] "AIC =  7.2922507762058"
```



model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTrTq05	
One-pool	-6.91	0.000608	NA	NA	NA	NA	-6.66	0.999	NA	NA

model	AIC	k1	k2	C0Inp1	a21	a12	AICc	wi	MeanTr	Tq05
Two-pool parallel	5.29	0.0361	5.86e-05	0.0268	NA	NA	7.01	0.00108	16600	11400
Two-pool feedback	9.29	0.0361	5.86e-05	0.0294	0.0866	6.93e-05	14.3	2.82e-05	1510	22
Two-pool series	7.29	0.0361	5.86e-05	0.0269	0.00145	NA	10.4	2e-04	52.6	19.3