Model call record

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Calculates emission factors

Check package version.

```r
packageVersion('ALFAM2')
```

```
## [1] '0.5.1'
```

Parameter values.

```r
ALFAM2pars02
```

```
##             int.f0   app.mthd.os.f0   app.rate.ni.f0      man.dm.f0 man.source.pig.f0      app.mthd.cs.f0           int.r1   app.mt
##        -0.60568338     -1.74351499     -0.01114900      0.39967070      -0.59202858         -7.63373787     -0.93921516          0.
##           man.ph.r1           int.r2     rain.rate.r2            int.r3    app.mthd.bc.r3      app.mthd.cs.r3       man.ph.r3 incorp.sh
##         0.66500000     -1.79918546      0.39402156     -3.22841225       0.56153956         -0.66647417      0.23800000         -0.
```

```r
dat
```

```
##    app.timing.dk app.timing air.temp wind.2m rain.rate        app.mthd  incorp t.incorp app.rate.ni    man.name man.source
## 1          Marts      March    4.900 4.02500      0.09   Trailing hose    None       NA          30   Svinegylle        Pig
## 2          April      April    8.500 3.91000      0.09   Trailing hose    None       NA          30   Svinegylle        Pig
## 3            Maj        May   12.400 3.56500      0.09   Trailing hose    None       NA          30   Svinegylle        Pig
## 4         Sommer     Summer   16.867 3.18167      0.09   Trailing hose    None       NA          30   Svinegylle        Pig
## 5         Efterår     Autumn   14.600 3.45000      0.09   Trailing hose    None       NA          30   Svinegylle        Pig
## 6          Marts      March    4.900 4.02500      0.09   Trailing hose Shallow        4          30   Svinegylle        Pig
## 7          April      April    8.500 3.91000      0.09   Trailing hose Shallow        4          30   Svinegylle        Pig
## 8            Maj        May   12.400 3.56500      0.09   Trailing hose Shallow        4          30   Svinegylle        Pig
## 9         Sommer     Summer   16.867 3.18167      0.09   Trailing hose Shallow        4          30   Svinegylle        Pig
## 10        Efterår     Autumn   14.600 3.45000      0.09   Trailing hose Shallow        4          30   Svinegylle        Pig
## 11         Marts      March    4.900 4.02500      0.09   Trailing hose    Deep        4          30   Svinegylle        Pig
```

```
## 12        April    April    8.500 3.91000  0.09      Trailing hose Deep     4    30 Svinegylle      Pig
## 13          Maj      May   12.400 3.56500  0.09      Trailing hose Deep     4    30 Svinegylle      Pig
## 14       Sommer   Summer   16.867 3.18167  0.09      Trailing hose Deep     4    30 Svinegylle      Pig
## 15       Efterår   Autumn  14.600 3.45000  0.09      Trailing hose Deep     4    30 Svinegylle      Pig
## 16        Marts    March    4.900 4.02500  0.09 Open slot injection None   NA     0 Svinegylle      Pig
## 17        April    April    8.500 3.91000  0.09 Open slot injection None   NA     0 Svinegylle      Pig
## 18          Maj      May   12.400 3.56500  0.09 Open slot injection None   NA     0 Svinegylle      Pig
## 19       Sommer   Summer   16.867 3.18167  0.09 Open slot injection None   NA     0 Svinegylle      Pig
## 20       Efterår   Autumn  14.600 3.45000  0.09 Open slot injection None   NA     0 Svinegylle      Pig
## 21        Marts    March    4.900 4.02500  0.09 Closed slot injection None NA     0 Svinegylle      Pig
## 22        April    April    8.500 3.91000  0.09 Closed slot injection None NA     0 Svinegylle      Pig
## 23          Maj      May   12.400 3.56500  0.09 Closed slot injection None NA     0 Svinegylle      Pig
## 24       Sommer   Summer   16.867 3.18167  0.09 Closed slot injection None NA     0 Svinegylle      Pig
## 25       Efterår   Autumn  14.600 3.45000  0.09 Closed slot injection None NA     0 Svinegylle      Pig
## 26        Marts    March    4.900 4.02500  0.09      Trailing hose None   NA    30 Kvæggylle     Cattle
## 27        April    April    8.500 3.91000  0.09      Trailing hose None   NA    30 Kvæggylle     Cattle
## 28          Maj      May   12.400 3.56500  0.09      Trailing hose None   NA    30 Kvæggylle     Cattle
## 29       Sommer   Summer   16.867 3.18167  0.09      Trailing hose None   NA    30 Kvæggylle     Cattle
## 30       Efterår   Autumn  14.600 3.45000  0.09      Trailing hose None   NA    30 Kvæggylle     Cattle
## 31        Marts    March    4.900 4.02500  0.09      Trailing hose Shallow  4    30 Kvæggylle     Cattle
## 32        April    April    8.500 3.91000  0.09      Trailing hose Shallow  4    30 Kvæggylle     Cattle
## 33          Maj      May   12.400 3.56500  0.09      Trailing hose Shallow  4    30 Kvæggylle     Cattle
## 34       Sommer   Summer   16.867 3.18167  0.09      Trailing hose Shallow  4    30 Kvæggylle     Cattle
## 35       Efterår   Autumn  14.600 3.45000  0.09      Trailing hose Shallow  4    30 Kvæggylle     Cattle
## 36        Marts    March    4.900 4.02500  0.09      Trailing hose Deep     4    30 Kvæggylle     Cattle
## 37        April    April    8.500 3.91000  0.09      Trailing hose Deep     4    30 Kvæggylle     Cattle
## 38          Maj      May   12.400 3.56500  0.09      Trailing hose Deep     4    30 Kvæggylle     Cattle
## 39       Sommer   Summer   16.867 3.18167  0.09      Trailing hose Deep     4    30 Kvæggylle     Cattle
## 40       Efterår   Autumn  14.600 3.45000  0.09      Trailing hose Deep     4    30 Kvæggylle     Cattle
## 41        Marts    March    4.900 4.02500  0.09 Open slot injection None   NA     0 Kvæggylle     Cattle
## 42        April    April    8.500 3.91000  0.09 Open slot injection None   NA     0 Kvæggylle     Cattle
## 43          Maj      May   12.400 3.56500  0.09 Open slot injection None   NA     0 Kvæggylle     Cattle
## 44       Sommer   Summer   16.867 3.18167  0.09 Open slot injection None   NA     0 Kvæggylle     Cattle
## 45       Efterår   Autumn  14.600 3.45000  0.09 Open slot injection None   NA     0 Kvæggylle     Cattle
## 46        Marts    March    4.900 4.02500  0.09 Closed slot injection None NA     0 Kvæggylle     Cattle
## 47        April    April    8.500 3.91000  0.09 Closed slot injection None NA     0 Kvæggylle     Cattle
## 48          Maj      May   12.400 3.56500  0.09 Closed slot injection None NA     0 Kvæggylle     Cattle
## 49       Sommer   Summer   16.867 3.18167  0.09 Closed slot injection None NA     0 Kvæggylle     Cattle
## 50       Efterår   Autumn  14.600 3.45000  0.09 Closed slot injection None NA     0 Kvæggylle     Cattle
```

## 51	Marts	March	4.900	4.02500	0.09	Trailing hose	None	NA	30	Afgasset biomasse	Digestate
## 52	April	April	8.500	3.91000	0.09	Trailing hose	None	NA	30	Afgasset biomasse	Digestate
## 53	Maj	May	12.400	3.56500	0.09	Trailing hose	None	NA	30	Afgasset biomasse	Digestate
## 54	Sommer	Summer	16.867	3.18167	0.09	Trailing hose	None	NA	30	Afgasset biomasse	Digestate
## 55	Efterår	Autumn	14.600	3.45000	0.09	Trailing hose	None	NA	30	Afgasset biomasse	Digestate
## 56	Marts	March	4.900	4.02500	0.09	Trailing hose	Shallow	4	30	Afgasset biomasse	Digestate
## 57	April	April	8.500	3.91000	0.09	Trailing hose	Shallow	4	30	Afgasset biomasse	Digestate
## 58	Maj	May	12.400	3.56500	0.09	Trailing hose	Shallow	4	30	Afgasset biomasse	Digestate
## 59	Sommer	Summer	16.867	3.18167	0.09	Trailing hose	Shallow	4	30	Afgasset biomasse	Digestate
## 60	Efterår	Autumn	14.600	3.45000	0.09	Trailing hose	Shallow	4	30	Afgasset biomasse	Digestate
## 61	Marts	March	4.900	4.02500	0.09	Trailing hose	Deep	4	30	Afgasset biomasse	Digestate
## 62	April	April	8.500	3.91000	0.09	Trailing hose	Deep	4	30	Afgasset biomasse	Digestate
## 63	Maj	May	12.400	3.56500	0.09	Trailing hose	Deep	4	30	Afgasset biomasse	Digestate
## 64	Sommer	Summer	16.867	3.18167	0.09	Trailing hose	Deep	4	30	Afgasset biomasse	Digestate
## 65	Efterår	Autumn	14.600	3.45000	0.09	Trailing hose	Deep	4	30	Afgasset biomasse	Digestate
## 66	Marts	March	4.900	4.02500	0.09	Open slot injection	None	NA	0	Afgasset biomasse	Digestate
## 67	April	April	8.500	3.91000	0.09	Open slot injection	None	NA	0	Afgasset biomasse	Digestate
## 68	Maj	May	12.400	3.56500	0.09	Open slot injection	None	NA	0	Afgasset biomasse	Digestate
## 69	Sommer	Summer	16.867	3.18167	0.09	Open slot injection	None	NA	0	Afgasset biomasse	Digestate
## 70	Efterår	Autumn	14.600	3.45000	0.09	Open slot injection	None	NA	0	Afgasset biomasse	Digestate
## 71	Marts	March	4.900	4.02500	0.09	Closed slot injection	None	NA	0	Afgasset biomasse	Digestate
## 72	April	April	8.500	3.91000	0.09	Closed slot injection	None	NA	0	Afgasset biomasse	Digestate
## 73	Maj	May	12.400	3.56500	0.09	Closed slot injection	None	NA	0	Afgasset biomasse	Digestate
## 74	Sommer	Summer	16.867	3.18167	0.09	Closed slot injection	None	NA	0	Afgasset biomasse	Digestate
## 75	Efterår	Autumn	14.600	3.45000	0.09	Closed slot injection	None	NA	0	Afgasset biomasse	Digestate
## 76	Marts	March	4.900	4.02500	0.09	Trailing hose	None	NA	30	Svinegylle	Pig
## 77	April	April	8.500	3.91000	0.09	Trailing hose	None	NA	30	Svinegylle	Pig
## 78	Maj	May	12.400	3.56500	0.09	Trailing hose	None	NA	30	Svinegylle	Pig
## 79	Sommer	Summer	16.867	3.18167	0.09	Trailing hose	None	NA	30	Svinegylle	Pig
## 80	Efterår	Autumn	14.600	3.45000	0.09	Trailing hose	None	NA	30	Svinegylle	Pig
## 81	Marts	March	4.900	4.02500	0.09	Trailing hose	None	NA	30	Kvæggylle	Cattle
## 82	April	April	8.500	3.91000	0.09	Trailing hose	None	NA	30	Kvæggylle	Cattle
## 83	Maj	May	12.400	3.56500	0.09	Trailing hose	None	NA	30	Kvæggylle	Cattle
## 84	Sommer	Summer	16.867	3.18167	0.09	Trailing hose	None	NA	30	Kvæggylle	Cattle
## 85	Efterår	Autumn	14.600	3.45000	0.09	Trailing hose	None	NA	30	Kvæggylle	Cattle
## 86	Marts	March	4.900	4.02500	0.09	Trailing hose	None	NA	30	Afgasset biomasse	Digestate
## 87	April	April	8.500	3.91000	0.09	Trailing hose	None	NA	30	Afgasset biomasse	Digestate
## 88	Maj	May	12.400	3.56500	0.09	Trailing hose	None	NA	30	Afgasset biomasse	Digestate
## 89	Sommer	Summer	16.867	3.18167	0.09	Trailing hose	None	NA	30	Afgasset biomasse	Digestate

```
## 90        Efterår    Autumn    14.600 3.45000      0.09          Trailing hose    None        NA          30 Afgasset biomasse  Digestate
```

Run model

With set 2 parameters

```
preds <- ALFAM2mod(dat, pars = ALFAM2pars02, app.name = 'tan.app', time.name = 'ct', time.incorp = 't.incorp', group = 'id', warn = TRUE)
```

```
## User-supplied parameters are being used.
## Incorporation applied (for group 10).
## Incorporation applied (for group 11).
## Incorporation applied (for group 12).
## Incorporation applied (for group 13).
## Incorporation applied (for group 14).
## Incorporation applied (for group 15).
## Incorporation applied (for group 31).
## Incorporation applied (for group 32).
## Incorporation applied (for group 33).
## Incorporation applied (for group 34).
## Incorporation applied (for group 35).
## Incorporation applied (for group 36).
## Incorporation applied (for group 37).
## Incorporation applied (for group 38).
## Incorporation applied (for group 39).
## Incorporation applied (for group 40).
## Incorporation applied (for group 56).
## Incorporation applied (for group 57).
## Incorporation applied (for group 58).
## Incorporation applied (for group 59).
## Incorporation applied (for group 6).
```

```
## Incorporation applied (for group 60).

## Incorporation applied (for group 61).

## Incorporation applied (for group 62).

## Incorporation applied (for group 63).

## Incorporation applied (for group 64).

## Incorporation applied (for group 65).

## Incorporation applied (for group 7).

## Incorporation applied (for group 8).

## Incorporation applied (for group 9).

## Warning in ALFAM2mod(dat, pars = ALFAM2pars02, app.name = "tan.app", time.name = "ct", : Running with 20 parameters. Dropped 4 with no
## These secondary parameters have been dropped:
##    app.mthd.bc.r1
##    app.mthd.ts.r1
##    ts.cereal.hght.r1
##    app.mthd.bc.r3
##
## These secondary parameters are being used:
##    int.f0
##    app.mthd.os.f0
##    app.rate.ni.f0
##    man.dm.f0
##    man.source.pig.f0
##    app.mthd.cs.f0
##    int.r1
##    man.dm.r1
##    air.temp.r1
##    wind.2m.r1
##    man.ph.r1
##    int.r2
##    rain.rate.r2
##    int.r3
##    app.mthd.cs.r3
##    man.ph.r3
##    incorp.shallow.f4
```

```
##    incorp.shallow.r3
##    incorp.deep.f4
##    incorp.deep.r3
```

Check reference condition.

```
ALFAM2mod(ref, pars = ALFAM2pars01, app.name = 'tan.app', time.name = 'ct', time.incorp = 't.incorp', warn = TRUE)
```

```
## User-supplied parameters are being used.

## Warning in ALFAM2mod(ref, pars = ALFAM2pars01, app.name = "tan.app", time.name = "ct", : No matching column for incorporation parameter

## Warning in ALFAM2mod(ref, pars = ALFAM2pars01, app.name = "tan.app", time.name = "ct", : Running with 15 parameters. Dropped 5 with no
## These secondary parameters have been dropped:
##    app.rate.f0
##    incorp.deep.f4
##    incorp.shallow.f4
##    incorp.deep.r3
##    rain.cum.r3
##
## These secondary parameters are being used:
##    int.f0
##    int.r1
##    int.r2
##    int.r3
##    app.mthd.os.f0
##    man.dm.f0
##    app.mthd.bc.r1
##    man.dm.r1
##    air.temp.r1
##    wind.2m.r1
##    man.ph.r1
##    air.temp.r3
##    app.mthd.os.r3
##    man.ph.r3
##    rain.rate.r2

##    ct  dt        f0         r1        r2          r3 f4        f           s        j        e    e.int        er
## 1 168 168 0.3237724 0.06628499 0.1110777 0.001255181  1 3.7119e-12 71.30525 0.1708021 28.69475 28.69475 0.2869475
```

```
ALFAM2mod(ref, pars = ALFAM2pars02, app.name = 'tan.app', time.name = 'ct', time.incorp = 't.incorp', warn = TRUE)
```

```
## User-supplied parameters are being used.

## Warning in ALFAM2mod(ref, pars = ALFAM2pars02, app.name = "tan.app", time.name = "ct", : No matching column for incorporation parameter

## Warning in ALFAM2mod(ref, pars = ALFAM2pars02, app.name = "tan.app", time.name = "ct", : Running with 20 parameters. Dropped 4 with no
## These secondary parameters have been dropped:
##    incorp.shallow.f4
##    incorp.shallow.r3
##    incorp.deep.f4
##    incorp.deep.r3
##
## These secondary parameters are being used:
##    int.f0
##    app.mthd.os.f0
##    app.rate.ni.f0
##    man.dm.f0
##    man.source.pig.f0
##    app.mthd.cs.f0
##    int.r1
##    app.mthd.bc.r1
##    man.dm.r1
##    air.temp.r1
##    wind.2m.r1
##    app.mthd.ts.r1
##    ts.cereal.hght.r1
##    man.ph.r1
##    int.r2
##    rain.rate.r2
##    int.r3
##    app.mthd.bc.r3
##    app.mthd.cs.r3
##    man.ph.r3

##    ct  dt        f0        r1         r2           r3 f4            f        s        j        e    e.int        er
## 1 168 168 0.2589096 0.115023 0.01587869 0.0005910004  1 7.283926e-09 69.96107 0.1788032 30.03893 30.03893 0.3003893
```

Add results to main df

```
dat$EF <- signif(preds$er, 2)
dat$EFp <- 100 * signif(preds$er, 2)
```