Model call record

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September 2020

Calculates emission factors

Check package version.

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

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

Parameter values.

```
ALFAM2pars02
```

```
##            int.f0    app.mthd.os.f0    app.rate.ni.f0         man.dm.f0
##       -0.60568338       -1.74351499       -0.01114900        0.39967070
## man.source.pig.f0    app.mthd.cs.f0            int.r1    app.mthd.bc.r1
##       -0.59202858       -7.63373787       -0.93921516        0.79352480
##         man.dm.r1       air.temp.r1        wind.2m.r1    app.mthd.ts.r1
##       -0.13988189        0.07354268        0.15026720       -0.45907135
## ts.cereal.hght.r1         man.ph.r1            int.r2      rain.rate.r2
##       -0.24471238        0.66500000       -1.79918546        0.39402156
##            int.r3    app.mthd.bc.r3    app.mthd.cs.r3         man.ph.r3
##       -3.22841225        0.56153956       -0.66647417        0.23800000
## incorp.shallow.f4 incorp.shallow.r3    incorp.deep.f4    incorp.deep.r3
##       -0.96496655       -0.58052689       -3.69494954       -1.26569562
```

```
dat
```

```
##    app.timing.dk app.timing         app.mthd.wthr air.temp wind.2m rain.rate
## 1          Marts      March                   All    4.900 4.02500      0.09
## 2          April      April                   All    8.500 3.91000      0.09
## 3            Maj        May                   All   12.400 3.56500      0.09
```

```
## 4        Sommer     Summer         Trailing hose   16.867 3.18167      0.09
## 5       Efterår     Autumn                 All   14.600 3.45000      0.09
## 6         Marts      March                 All    4.900 4.02500      0.09
## 7         April      April                 All    8.500 3.91000      0.09
## 8           Maj        May                 All   12.400 3.56500      0.09
## 9        Sommer     Summer         Trailing hose   16.867 3.18167      0.09
## 10      Efterår     Autumn                 All   14.600 3.45000      0.09
## 11        Marts      March                 All    4.900 4.02500      0.09
## 12        April      April                 All    8.500 3.91000      0.09
## 13          Maj        May                 All   12.400 3.56500      0.09
## 14       Sommer     Summer         Trailing hose   16.867 3.18167      0.09
## 15      Efterår     Autumn                 All   14.600 3.45000      0.09
## 16        Marts      March                 All    4.900 4.02500      0.09
## 17        April      April                 All    8.500 3.91000      0.09
## 18          Maj        May                 All   12.400 3.56500      0.09
## 19      Efterår     Autumn                 All   14.600 3.45000      0.09
## 20       Sommer     Summer   Open slot injection   15.750 3.27750      0.09
## 21        Marts      March                 All    4.900 4.02500      0.09
## 22        April      April                 All    8.500 3.91000      0.09
## 23          Maj        May                 All   12.400 3.56500      0.09
## 24      Efterår     Autumn                 All   14.600 3.45000      0.09
## 25       Sommer     Summer Closed slot injection   17.550 3.10500      0.09
## 26        Marts      March                 All    4.900 4.02500      0.09
## 27        April      April                 All    8.500 3.91000      0.09
## 28          Maj        May                 All   12.400 3.56500      0.09
## 29       Sommer     Summer         Trailing hose   16.867 3.18167      0.09
## 30      Efterår     Autumn                 All   14.600 3.45000      0.09
## 31        Marts      March                 All    4.900 4.02500      0.09
## 32        April      April                 All    8.500 3.91000      0.09
## 33          Maj        May                 All   12.400 3.56500      0.09
## 34       Sommer     Summer         Trailing hose   16.867 3.18167      0.09
## 35      Efterår     Autumn                 All   14.600 3.45000      0.09
## 36        Marts      March                 All    4.900 4.02500      0.09
## 37        April      April                 All    8.500 3.91000      0.09
## 38          Maj        May                 All   12.400 3.56500      0.09
## 39       Sommer     Summer         Trailing hose   16.867 3.18167      0.09
## 40      Efterår     Autumn                 All   14.600 3.45000      0.09
## 41        Marts      March                 All    4.900 4.02500      0.09
## 42        April      April                 All    8.500 3.91000      0.09
```

```
## 43          Maj        May                   All   12.400 3.56500      0.09
## 44       Efterår     Autumn                   All   14.600 3.45000      0.09
## 45        Sommer     Summer   Open slot injection   15.750 3.27750      0.09
## 46         Marts      March                   All    4.900 4.02500      0.09
## 47         April      April                   All    8.500 3.91000      0.09
## 48          Maj        May                   All   12.400 3.56500      0.09
## 49       Efterår     Autumn                   All   14.600 3.45000      0.09
## 50        Sommer     Summer Closed slot injection   17.550 3.10500      0.09
## 51         Marts      March                   All    4.900 4.02500      0.09
## 52         April      April                   All    8.500 3.91000      0.09
## 53          Maj        May                   All   12.400 3.56500      0.09
## 54        Sommer     Summer         Trailing hose   16.867 3.18167      0.09
## 55       Efterår     Autumn                   All   14.600 3.45000      0.09
## 56         Marts      March                   All    4.900 4.02500      0.09
## 57         April      April                   All    8.500 3.91000      0.09
## 58          Maj        May                   All   12.400 3.56500      0.09
## 59        Sommer     Summer         Trailing hose   16.867 3.18167      0.09
## 60       Efterår     Autumn                   All   14.600 3.45000      0.09
## 61         Marts      March                   All    4.900 4.02500      0.09
## 62         April      April                   All    8.500 3.91000      0.09
## 63          Maj        May                   All   12.400 3.56500      0.09
## 64        Sommer     Summer         Trailing hose   16.867 3.18167      0.09
## 65       Efterår     Autumn                   All   14.600 3.45000      0.09
## 66         Marts      March                   All    4.900 4.02500      0.09
## 67         April      April                   All    8.500 3.91000      0.09
## 68          Maj        May                   All   12.400 3.56500      0.09
## 69       Efterår     Autumn                   All   14.600 3.45000      0.09
## 70        Sommer     Summer   Open slot injection   15.750 3.27750      0.09
## 71         Marts      March                   All    4.900 4.02500      0.09
## 72         April      April                   All    8.500 3.91000      0.09
## 73          Maj        May                   All   12.400 3.56500      0.09
## 74       Efterår     Autumn                   All   14.600 3.45000      0.09
## 75        Sommer     Summer Closed slot injection   17.550 3.10500      0.09
## 76         Marts      March                   All    4.900 4.02500      0.09
## 77         April      April                   All    8.500 3.91000      0.09
## 78          Maj        May                   All   12.400 3.56500      0.09
## 79        Sommer     Summer         Trailing hose   16.867 3.18167      0.09
## 80       Efterår     Autumn                   All   14.600 3.45000      0.09
## 81         Marts      March                   All    4.900 4.02500      0.09
```

```
## 82         April      April                   All    8.500 3.91000      0.09
## 83           Maj        May                   All   12.400 3.56500      0.09
## 84        Sommer     Summer         Trailing hose   16.867 3.18167      0.09
## 85       Efterår     Autumn                   All   14.600 3.45000      0.09
## 86         Marts      March                   All    4.900 4.02500      0.09
## 87         April      April                   All    8.500 3.91000      0.09
## 88           Maj        May                   All   12.400 3.56500      0.09
## 89        Sommer     Summer         Trailing hose   16.867 3.18167      0.09
## 90       Efterår     Autumn                   All   14.600 3.45000      0.09
##                                                                  notes
## 1                                                                 <NA>
## 2                                                                 <NA>
## 3                                                                 <NA>
## 4                                          For trailing hose, 6-8.
## 5                                                    9 (September)
## 6                                                                 <NA>
## 7                                                                 <NA>
## 8                                                                 <NA>
## 9                                          For trailing hose, 6-8.
## 10                                                   9 (September)
## 11                                                                <NA>
## 12                                                                <NA>
## 13                                                                <NA>
## 14                                         For trailing hose, 6-8.
## 15                                                   9 (September)
## 16                                                                <NA>
## 17                                                                <NA>
## 18                                                                <NA>
## 19                                                   9 (September)
## 20                     Summer-grass, for open slot injection, 5-8.
## 21                                                                <NA>
## 22                                                                <NA>
## 23                                                                <NA>
## 24                                                   9 (September)
## 25 Summer, before winter rapeseed, for closed slot injection, 7-8.
## 26                                                                <NA>
## 27                                                                <NA>
## 28                                                                <NA>
## 29                                         For trailing hose, 6-8.
```

```
## 30                                                 9 (September)
## 31                                                         <NA>
## 32                                                         <NA>
## 33                                                         <NA>
## 34                                       For trailing hose, 6-8.
## 35                                                 9 (September)
## 36                                                         <NA>
## 37                                                         <NA>
## 38                                                         <NA>
## 39                                       For trailing hose, 6-8.
## 40                                                 9 (September)
## 41                                                         <NA>
## 42                                                         <NA>
## 43                                                         <NA>
## 44                                                 9 (September)
## 45                         Summer-grass, for open slot injection, 5-8.
## 46                                                         <NA>
## 47                                                         <NA>
## 48                                                         <NA>
## 49                                                 9 (September)
## 50 Summer, before winter rapeseed, for closed slot injection, 7-8.
## 51                                                         <NA>
## 52                                                         <NA>
## 53                                                         <NA>
## 54                                       For trailing hose, 6-8.
## 55                                                 9 (September)
## 56                                                         <NA>
## 57                                                         <NA>
## 58                                                         <NA>
## 59                                       For trailing hose, 6-8.
## 60                                                 9 (September)
## 61                                                         <NA>
## 62                                                         <NA>
## 63                                                         <NA>
## 64                                       For trailing hose, 6-8.
## 65                                                 9 (September)
## 66                                                         <NA>
## 67                                                         <NA>
## 68                                                         <NA>
```

```
## 69                                                  9 (September)
## 70                    Summer-grass, for open slot injection, 5-8.
## 71                                                          <NA>
## 72                                                          <NA>
## 73                                                          <NA>
## 74                                                  9 (September)
## 75 Summer, before winter rapeseed, for closed slot injection, 7-8.
## 76                                                          <NA>
## 77                                                          <NA>
## 78                                                          <NA>
## 79                                       For trailing hose, 6-8.
## 80                                                  9 (September)
## 81                                                          <NA>
## 82                                                          <NA>
## 83                                                          <NA>
## 84                                       For trailing hose, 6-8.
## 85                                                  9 (September)
## 86                                                          <NA>
## 87                                                          <NA>
## 88                                                          <NA>
## 89                                       For trailing hose, 6-8.
## 90                                                  9 (September)
##                app.mthd  incorp t.incorp app.rate.ni          man.name
## 1          Trailing hose    None       NA          30        Svinegylle
## 2          Trailing hose    None       NA          30        Svinegylle
## 3          Trailing hose    None       NA          30        Svinegylle
## 4          Trailing hose    None       NA          30        Svinegylle
## 5          Trailing hose    None       NA          30        Svinegylle
## 6          Trailing hose Shallow        4          30        Svinegylle
## 7          Trailing hose Shallow        4          30        Svinegylle
## 8          Trailing hose Shallow        4          30        Svinegylle
## 9          Trailing hose Shallow        4          30        Svinegylle
## 10         Trailing hose Shallow        4          30        Svinegylle
## 11         Trailing hose    Deep        4          30        Svinegylle
## 12         Trailing hose    Deep        4          30        Svinegylle
## 13         Trailing hose    Deep        4          30        Svinegylle
## 14         Trailing hose    Deep        4          30        Svinegylle
## 15         Trailing hose    Deep        4          30        Svinegylle
## 16   Open slot injection    None       NA           0        Svinegylle
```

```
## 17   Open slot injection    None       NA           0        Svinegylle
## 18   Open slot injection    None       NA           0        Svinegylle
## 19   Open slot injection    None       NA           0        Svinegylle
## 20   Open slot injection    None       NA           0        Svinegylle
## 21 Closed slot injection    None       NA           0        Svinegylle
## 22 Closed slot injection    None       NA           0        Svinegylle
## 23 Closed slot injection    None       NA           0        Svinegylle
## 24 Closed slot injection    None       NA           0        Svinegylle
## 25 Closed slot injection    None       NA           0        Svinegylle
## 26         Trailing hose    None       NA          30         Kvæggylle
## 27         Trailing hose    None       NA          30         Kvæggylle
## 28         Trailing hose    None       NA          30         Kvæggylle
## 29         Trailing hose    None       NA          30         Kvæggylle
## 30         Trailing hose    None       NA          30         Kvæggylle
## 31         Trailing hose Shallow        4          30         Kvæggylle
## 32         Trailing hose Shallow        4          30         Kvæggylle
## 33         Trailing hose Shallow        4          30         Kvæggylle
## 34         Trailing hose Shallow        4          30         Kvæggylle
## 35         Trailing hose Shallow        4          30         Kvæggylle
## 36         Trailing hose    Deep        4          30         Kvæggylle
## 37         Trailing hose    Deep        4          30         Kvæggylle
## 38         Trailing hose    Deep        4          30         Kvæggylle
## 39         Trailing hose    Deep        4          30         Kvæggylle
## 40         Trailing hose    Deep        4          30         Kvæggylle
## 41   Open slot injection    None       NA           0         Kvæggylle
## 42   Open slot injection    None       NA           0         Kvæggylle
## 43   Open slot injection    None       NA           0         Kvæggylle
## 44   Open slot injection    None       NA           0         Kvæggylle
## 45   Open slot injection    None       NA           0         Kvæggylle
## 46 Closed slot injection    None       NA           0         Kvæggylle
## 47 Closed slot injection    None       NA           0         Kvæggylle
## 48 Closed slot injection    None       NA           0         Kvæggylle
## 49 Closed slot injection    None       NA           0         Kvæggylle
## 50 Closed slot injection    None       NA           0         Kvæggylle
## 51         Trailing hose    None       NA          30 Afgasset biomasse
## 52         Trailing hose    None       NA          30 Afgasset biomasse
## 53         Trailing hose    None       NA          30 Afgasset biomasse
## 54         Trailing hose    None       NA          30 Afgasset biomasse
## 55         Trailing hose    None       NA          30 Afgasset biomasse
```

```
## 56         Trailing hose Shallow        4          30 Afgasset biomasse
## 57         Trailing hose Shallow        4          30 Afgasset biomasse
## 58         Trailing hose Shallow        4          30 Afgasset biomasse
## 59         Trailing hose Shallow        4          30 Afgasset biomasse
## 60         Trailing hose Shallow        4          30 Afgasset biomasse
## 61         Trailing hose    Deep        4          30 Afgasset biomasse
## 62         Trailing hose    Deep        4          30 Afgasset biomasse
## 63         Trailing hose    Deep        4          30 Afgasset biomasse
## 64         Trailing hose    Deep        4          30 Afgasset biomasse
## 65         Trailing hose    Deep        4          30 Afgasset biomasse
## 66   Open slot injection    None       NA           0 Afgasset biomasse
## 67   Open slot injection    None       NA           0 Afgasset biomasse
## 68   Open slot injection    None       NA           0 Afgasset biomasse
## 69   Open slot injection    None       NA           0 Afgasset biomasse
## 70   Open slot injection    None       NA           0 Afgasset biomasse
## 71 Closed slot injection    None       NA           0 Afgasset biomasse
## 72 Closed slot injection    None       NA           0 Afgasset biomasse
## 73 Closed slot injection    None       NA           0 Afgasset biomasse
## 74 Closed slot injection    None       NA           0 Afgasset biomasse
## 75 Closed slot injection    None       NA           0 Afgasset biomasse
## 76         Trailing hose    None       NA          30        Svinegylle
## 77         Trailing hose    None       NA          30        Svinegylle
## 78         Trailing hose    None       NA          30        Svinegylle
## 79         Trailing hose    None       NA          30        Svinegylle
## 80         Trailing hose    None       NA          30        Svinegylle
## 81         Trailing hose    None       NA          30         Kvæggylle
## 82         Trailing hose    None       NA          30         Kvæggylle
## 83         Trailing hose    None       NA          30         Kvæggylle
## 84         Trailing hose    None       NA          30         Kvæggylle
## 85         Trailing hose    None       NA          30         Kvæggylle
## 86         Trailing hose    None       NA          30 Afgasset biomasse
## 87         Trailing hose    None       NA          30 Afgasset biomasse
## 88         Trailing hose    None       NA          30 Afgasset biomasse
## 89         Trailing hose    None       NA          30 Afgasset biomasse
## 90         Trailing hose    None       NA          30 Afgasset biomasse
##    man.source  acid man.dm man.ph man.source.pig app.mthd.os app.mthd.cs
## 1         Pig FALSE    3.9   7.20           TRUE       FALSE       FALSE
## 2         Pig FALSE    3.9   7.20           TRUE       FALSE       FALSE
## 3         Pig FALSE    3.9   7.20           TRUE       FALSE       FALSE
```

```
## 4         Pig FALSE    3.9   7.20          TRUE       FALSE       FALSE
## 5         Pig FALSE    3.9   7.20          TRUE       FALSE       FALSE
## 6         Pig FALSE    3.9   7.20          TRUE       FALSE       FALSE
## 7         Pig FALSE    3.9   7.20          TRUE       FALSE       FALSE
## 8         Pig FALSE    3.9   7.20          TRUE       FALSE       FALSE
## 9         Pig FALSE    3.9   7.20          TRUE       FALSE       FALSE
## 10        Pig FALSE    3.9   7.20          TRUE       FALSE       FALSE
## 11        Pig FALSE    3.9   7.20          TRUE       FALSE       FALSE
## 12        Pig FALSE    3.9   7.20          TRUE       FALSE       FALSE
## 13        Pig FALSE    3.9   7.20          TRUE       FALSE       FALSE
## 14        Pig FALSE    3.9   7.20          TRUE       FALSE       FALSE
## 15        Pig FALSE    3.9   7.20          TRUE       FALSE       FALSE
## 16        Pig FALSE    3.9   7.20          TRUE        TRUE       FALSE
## 17        Pig FALSE    3.9   7.20          TRUE        TRUE       FALSE
## 18        Pig FALSE    3.9   7.20          TRUE        TRUE       FALSE
## 19        Pig FALSE    3.9   7.20          TRUE        TRUE       FALSE
## 20        Pig FALSE    3.9   7.20          TRUE        TRUE       FALSE
## 21        Pig FALSE    3.9   7.20          TRUE       FALSE        TRUE
## 22        Pig FALSE    3.9   7.20          TRUE       FALSE        TRUE
## 23        Pig FALSE    3.9   7.20          TRUE       FALSE        TRUE
## 24        Pig FALSE    3.9   7.20          TRUE       FALSE        TRUE
## 25        Pig FALSE    3.9   7.20          TRUE       FALSE        TRUE
## 26     Cattle FALSE    6.5   7.00         FALSE       FALSE       FALSE
## 27     Cattle FALSE    6.5   7.00         FALSE       FALSE       FALSE
## 28     Cattle FALSE    6.5   7.00         FALSE       FALSE       FALSE
## 29     Cattle FALSE    6.5   7.00         FALSE       FALSE       FALSE
## 30     Cattle FALSE    6.5   7.00         FALSE       FALSE       FALSE
## 31     Cattle FALSE    6.5   7.00         FALSE       FALSE       FALSE
## 32     Cattle FALSE    6.5   7.00         FALSE       FALSE       FALSE
## 33     Cattle FALSE    6.5   7.00         FALSE       FALSE       FALSE
## 34     Cattle FALSE    6.5   7.00         FALSE       FALSE       FALSE
## 35     Cattle FALSE    6.5   7.00         FALSE       FALSE       FALSE
## 36     Cattle FALSE    6.5   7.00         FALSE       FALSE       FALSE
## 37     Cattle FALSE    6.5   7.00         FALSE       FALSE       FALSE
## 38     Cattle FALSE    6.5   7.00         FALSE       FALSE       FALSE
## 39     Cattle FALSE    6.5   7.00         FALSE       FALSE       FALSE
## 40     Cattle FALSE    6.5   7.00         FALSE       FALSE       FALSE
## 41     Cattle FALSE    6.5   7.00         FALSE        TRUE       FALSE
## 42     Cattle FALSE    6.5   7.00         FALSE        TRUE       FALSE
```

```
## 43     Cattle FALSE    6.5   7.00          FALSE        TRUE       FALSE
## 44     Cattle FALSE    6.5   7.00          FALSE        TRUE       FALSE
## 45     Cattle FALSE    6.5   7.00          FALSE        TRUE       FALSE
## 46     Cattle FALSE    6.5   7.00          FALSE       FALSE        TRUE
## 47     Cattle FALSE    6.5   7.00          FALSE       FALSE        TRUE
## 48     Cattle FALSE    6.5   7.00          FALSE       FALSE        TRUE
## 49     Cattle FALSE    6.5   7.00          FALSE       FALSE        TRUE
## 50     Cattle FALSE    6.5   7.00          FALSE       FALSE        TRUE
## 51  Digestate FALSE    5.1   7.90          FALSE       FALSE       FALSE
## 52  Digestate FALSE    5.1   7.90          FALSE       FALSE       FALSE
## 53  Digestate FALSE    5.1   7.90          FALSE       FALSE       FALSE
## 54  Digestate FALSE    5.1   7.90          FALSE       FALSE       FALSE
## 55  Digestate FALSE    5.1   7.90          FALSE       FALSE       FALSE
## 56  Digestate FALSE    5.1   7.90          FALSE       FALSE       FALSE
## 57  Digestate FALSE    5.1   7.90          FALSE       FALSE       FALSE
## 58  Digestate FALSE    5.1   7.90          FALSE       FALSE       FALSE
## 59  Digestate FALSE    5.1   7.90          FALSE       FALSE       FALSE
## 60  Digestate FALSE    5.1   7.90          FALSE       FALSE       FALSE
## 61  Digestate FALSE    5.1   7.90          FALSE       FALSE       FALSE
## 62  Digestate FALSE    5.1   7.90          FALSE       FALSE       FALSE
## 63  Digestate FALSE    5.1   7.90          FALSE       FALSE       FALSE
## 64  Digestate FALSE    5.1   7.90          FALSE       FALSE       FALSE
## 65  Digestate FALSE    5.1   7.90          FALSE       FALSE       FALSE
## 66  Digestate FALSE    5.1   7.90          FALSE        TRUE       FALSE
## 67  Digestate FALSE    5.1   7.90          FALSE        TRUE       FALSE
## 68  Digestate FALSE    5.1   7.90          FALSE        TRUE       FALSE
## 69  Digestate FALSE    5.1   7.90          FALSE        TRUE       FALSE
## 70  Digestate FALSE    5.1   7.90          FALSE        TRUE       FALSE
## 71  Digestate FALSE    5.1   7.90          FALSE       FALSE        TRUE
## 72  Digestate FALSE    5.1   7.90          FALSE       FALSE        TRUE
## 73  Digestate FALSE    5.1   7.90          FALSE       FALSE        TRUE
## 74  Digestate FALSE    5.1   7.90          FALSE       FALSE        TRUE
## 75  Digestate FALSE    5.1   7.90          FALSE       FALSE        TRUE
## 76        Pig  TRUE    3.9   6.47           TRUE       FALSE       FALSE
## 77        Pig  TRUE    3.9   6.47           TRUE       FALSE       FALSE
## 78        Pig  TRUE    3.9   6.47           TRUE       FALSE       FALSE
## 79        Pig  TRUE    3.9   6.47           TRUE       FALSE       FALSE
## 80        Pig  TRUE    3.9   6.47           TRUE       FALSE       FALSE
## 81     Cattle  TRUE    6.5   6.47          FALSE       FALSE       FALSE
```

```
## 82     Cattle  TRUE    6.5   6.47          FALSE       FALSE       FALSE
## 83     Cattle  TRUE    6.5   6.47          FALSE       FALSE       FALSE
## 84     Cattle  TRUE    6.5   6.47          FALSE       FALSE       FALSE
## 85     Cattle  TRUE    6.5   6.47          FALSE       FALSE       FALSE
## 86  Digestate  TRUE    5.1   6.52          FALSE       FALSE       FALSE
## 87  Digestate  TRUE    5.1   6.52          FALSE       FALSE       FALSE
## 88  Digestate  TRUE    5.1   6.52          FALSE       FALSE       FALSE
## 89  Digestate  TRUE    5.1   6.52          FALSE       FALSE       FALSE
## 90  Digestate  TRUE    5.1   6.52          FALSE       FALSE       FALSE
##    incorp.deep incorp.shallow  ct tan.app id
## 1        FALSE          FALSE 168     100  1
## 2        FALSE          FALSE 168     100  2
## 3        FALSE          FALSE 168     100  3
## 4        FALSE          FALSE 168     100  4
## 5        FALSE          FALSE 168     100  5
## 6        FALSE           TRUE 168     100  6
## 7        FALSE           TRUE 168     100  7
## 8        FALSE           TRUE 168     100  8
## 9        FALSE           TRUE 168     100  9
## 10       FALSE           TRUE 168     100 10
## 11        TRUE          FALSE 168     100 11
## 12        TRUE          FALSE 168     100 12
## 13        TRUE          FALSE 168     100 13
## 14        TRUE          FALSE 168     100 14
## 15        TRUE          FALSE 168     100 15
## 16       FALSE          FALSE 168     100 16
## 17       FALSE          FALSE 168     100 17
## 18       FALSE          FALSE 168     100 18
## 19       FALSE          FALSE 168     100 19
## 20       FALSE          FALSE 168     100 20
## 21       FALSE          FALSE 168     100 21
## 22       FALSE          FALSE 168     100 22
## 23       FALSE          FALSE 168     100 23
## 24       FALSE          FALSE 168     100 24
## 25       FALSE          FALSE 168     100 25
## 26       FALSE          FALSE 168     100 26
## 27       FALSE          FALSE 168     100 27
## 28       FALSE          FALSE 168     100 28
## 29       FALSE          FALSE 168     100 29
```

```
## 30       FALSE          FALSE 168     100 30
## 31       FALSE           TRUE 168     100 31
## 32       FALSE           TRUE 168     100 32
## 33       FALSE           TRUE 168     100 33
## 34       FALSE           TRUE 168     100 34
## 35       FALSE           TRUE 168     100 35
## 36        TRUE          FALSE 168     100 36
## 37        TRUE          FALSE 168     100 37
## 38        TRUE          FALSE 168     100 38
## 39        TRUE          FALSE 168     100 39
## 40        TRUE          FALSE 168     100 40
## 41       FALSE          FALSE 168     100 41
## 42       FALSE          FALSE 168     100 42
## 43       FALSE          FALSE 168     100 43
## 44       FALSE          FALSE 168     100 44
## 45       FALSE          FALSE 168     100 45
## 46       FALSE          FALSE 168     100 46
## 47       FALSE          FALSE 168     100 47
## 48       FALSE          FALSE 168     100 48
## 49       FALSE          FALSE 168     100 49
## 50       FALSE          FALSE 168     100 50
## 51       FALSE          FALSE 168     100 51
## 52       FALSE          FALSE 168     100 52
## 53       FALSE          FALSE 168     100 53
## 54       FALSE          FALSE 168     100 54
## 55       FALSE          FALSE 168     100 55
## 56       FALSE           TRUE 168     100 56
## 57       FALSE           TRUE 168     100 57
## 58       FALSE           TRUE 168     100 58
## 59       FALSE           TRUE 168     100 59
## 60       FALSE           TRUE 168     100 60
## 61        TRUE          FALSE 168     100 61
## 62        TRUE          FALSE 168     100 62
## 63        TRUE          FALSE 168     100 63
## 64        TRUE          FALSE 168     100 64
## 65        TRUE          FALSE 168     100 65
## 66       FALSE          FALSE 168     100 66
## 67       FALSE          FALSE 168     100 67
## 68       FALSE          FALSE 168     100 68
```

```
## 69       FALSE          FALSE 168     100 69
## 70       FALSE          FALSE 168     100 70
## 71       FALSE          FALSE 168     100 71
## 72       FALSE          FALSE 168     100 72
## 73       FALSE          FALSE 168     100 73
## 74       FALSE          FALSE 168     100 74
## 75       FALSE          FALSE 168     100 75
## 76       FALSE          FALSE 168     100 76
## 77       FALSE          FALSE 168     100 77
## 78       FALSE          FALSE 168     100 78
## 79       FALSE          FALSE 168     100 79
## 80       FALSE          FALSE 168     100 80
## 81       FALSE          FALSE 168     100 81
## 82       FALSE          FALSE 168     100 82
## 83       FALSE          FALSE 168     100 83
## 84       FALSE          FALSE 168     100 84
## 85       FALSE          FALSE 168     100 85
## 86       FALSE          FALSE 168     100 86
## 87       FALSE          FALSE 168     100 87
## 88       FALSE          FALSE 168     100 88
## 89       FALSE          FALSE 168     100 89
## 90       FALSE          FALSE 168     100 90
```

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(s): incorp.deep,
## incorp.shallow. Skipping incorporation.
```

```
## 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
## 1 168 168 0.3237724 0.06628499 0.1110777 0.001255181  1 3.7119e-12 71.30525
##           j        e    e.int        er
## 1 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(s): incorp.shallow,
## incorp.deep. Skipping incorporation.
```

```
## 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
## 1 168 168 0.2589096 0.115023 0.01587869 0.0005910004  1 7.283926e-09 69.96107
##           j        e    e.int        er
## 1 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)
```