

Model call record

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Calculates emission factors

Run model

With set 2 (2f) parameters

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

With default values

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

Add results to main df

```
dat$emis <- signif(preds$e, 3)
dat$EF <- signif(preds$er, 3)
head(preds)
```

```
##          id ct dt          f0          r1          r2          r3 f4          f
## 1 0001-1980  6  6 0.1232057 0.00984595 0.08233442 0.0006713027  1 4.6770731
## 2 0001-1980 12  6 0.1232057 0.00984595 0.08233442 0.0006631261  1 2.6901321
## 3 0001-1980 18  6 0.1232057 0.00984595 0.08233442 0.0006550492  1 1.5472947
## 4 0001-1980 24  6 0.1232057 0.00984595 0.08233442 0.0006470707  1 0.8899641
## 5 0001-1980 30  6 0.1232057 0.00984595 0.08233442 0.0006391893  1 0.5118844
## 6 0001-1980 36  6 0.1232057 0.00984595 0.08233442 0.0006314039  1 0.2944228
##          s          j          e          e.int          er
## 1 60.71456 0.10139509 0.6083706 0.6083706 0.009217736
## 2 62.24433 0.07619438 1.0655369 0.4571663 0.016144498
## 3 63.01875 0.06140232 1.4339508 0.3684139 0.021726527
## 4 63.36044 0.05260740 1.7495952 0.3156444 0.026509018
## 5 63.45490 0.04726998 2.0332151 0.2836199 0.030806289
```

```
## 6 63.40879 0.04392798 2.2967829 0.2635679 0.034799741
```

```
head(dat)
```

```
##      decade app.timing      app.mthd crop.status incorp.timing man.trt
## 145      1980    March Open slot injection      -      <NA>      None
## 145.1    1980    March Open slot injection      -      <NA>      None
## 145.2    1980    March Open slot injection      -      <NA>      None
## 145.3    1980    March Open slot injection      -      <NA>      None
## 145.4    1980    March Open slot injection      -      <NA>      None
## 145.5    1980    March Open slot injection      -      <NA>      None
##      man.source      id incorp      man.descrip.d.x man.type.d app.mthd.d.x
## 145      Cattle 0001-1980      None Ikke behandlet gylle      Kvæg      Nedfælder
## 145.1    Cattle 0001-1980      None Ikke behandlet gylle      Kvæg      Nedfælder
## 145.2    Cattle 0001-1980      None Ikke behandlet gylle      Kvæg      Nedfælder
## 145.3    Cattle 0001-1980      None Ikke behandlet gylle      Kvæg      Nedfælder
## 145.4    Cattle 0001-1980      None Ikke behandlet gylle      Kvæg      Nedfælder
## 145.5    Cattle 0001-1980      None Ikke behandlet gylle      Kvæg      Nedfælder
##      crop.status.d app.timing.d.x incorp.timing.d notes.inputs man.dm man.ph
## 145      -      Marts      <NA>      <NA>      7.3      7.4
## 145.1    -      Marts      <NA>      <NA>      7.3      7.4
## 145.2    -      Marts      <NA>      <NA>      7.3      7.4
## 145.3    -      Marts      <NA>      <NA>      7.3      7.4
## 145.4    -      Marts      <NA>      <NA>      7.3      7.4
## 145.5    -      Marts      <NA>      <NA>      7.3      7.4
##      man.tn man.tan      man.descrip.d.y man.source.d man.source.pig t.incorp
## 145      4      2.2 Ikke behandlet gylle      Kvæg      0      NA
## 145.1    4      2.2 Ikke behandlet gylle      Kvæg      0      NA
## 145.2    4      2.2 Ikke behandlet gylle      Kvæg      0      NA
## 145.3    4      2.2 Ikke behandlet gylle      Kvæg      0      NA
## 145.4    4      2.2 Ikke behandlet gylle      Kvæg      0      NA
## 145.5    4      2.2 Ikke behandlet gylle      Kvæg      0      NA
##      incorp.deep incorp.shallow crop crop.hght crop.notes grass.hght
## 145      FALSE      FALSE <NA>      NA      <NA>      NA
## 145.1    FALSE      FALSE <NA>      NA      <NA>      NA
## 145.2    FALSE      FALSE <NA>      NA      <NA>      NA
## 145.3    FALSE      FALSE <NA>      NA      <NA>      NA
## 145.4    FALSE      FALSE <NA>      NA      <NA>      NA
## 145.5    FALSE      FALSE <NA>      NA      <NA>      NA
##      cereal.hght app.mthd.d.y app.timing.d.y bsth.cereal.hght month.start
```

```

## 145      0      <NA>      <NA>      0      3
## 145.1    0      <NA>      <NA>      0      3
## 145.2    0      <NA>      <NA>      0      3
## 145.3    0      <NA>      <NA>      0      3
## 145.4    0      <NA>      <NA>      0      3
## 145.5    0      <NA>      <NA>      0      3
##      month.end app.timing.d date.notes air.temp wind.2m app.mthd.bc
## 145      3      Marts      <NA>      2.4      3.8      0
## 145.1    3      Marts      <NA>      2.4      3.8      0
## 145.2    3      Marts      <NA>      2.4      3.8      0
## 145.3    3      Marts      <NA>      2.4      3.8      0
## 145.4    3      Marts      <NA>      2.4      3.8      0
## 145.5    3      Marts      <NA>      2.4      3.8      0
##      app.mthd.os app.rate tan.app app.rate.nos ct rain.rate rain.cum id1 emis
## 145      1      30      66      0 6      0.074      0.222      1 0.608
## 145.1    1      30      66      0 12      0.074      0.666      1 1.070
## 145.2    1      30      66      0 18      0.074      1.110      1 1.430
## 145.3    1      30      66      0 24      0.074      1.554      1 1.750
## 145.4    1      30      66      0 30      0.074      1.998      1 2.030
## 145.5    1      30      66      0 36      0.074      2.442      1 2.300
##      EF
## 145      0.00922
## 145.1    0.01610
## 145.2    0.02170
## 145.3    0.02650
## 145.4    0.03080
## 145.5    0.03480

```

pars

```

##      int.f0      app.mthd.os.f0      app.rate.nos.f0      man.dm.f0
##      -0.614028290      -1.858073878      -0.009573025      0.392065396
##      man.source.pig.f0      int.r1      app.mthd.bc.r1      man.dm.r1
##      -0.487836883      -1.086074294      0.837869687      -0.111977710
##      air.temp.r1      wind.2m.r1 bsth.cereal.hght.r1      int.r2
##      0.082679225      0.146638859      -0.011020863      -1.116328728
##      rain.rate.r2      int.r3      air.temp.r3      app.mthd.os.r3
##      0.431218377      -2.786331689      0.008930925      -0.259421036
##      rain.cum.r3      incorp.deep.r3      incorp.shallow.r3      incorp.deep.f4
##      -0.011986982      -1.330775875      -0.575027977      -3.277037657

```

```
##    incorp.shallow.f4          man.ph.r1          man.ph.r3
##      -0.754842646          0.600000000          0.300000000
dat$emis.def <- signif(preds.def$e, 3)
dat$EF.def <- signif(preds.def$er, 3)
```