

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	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.

```
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
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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)

```