

Model call record

Sasha D. Hafner

11 January, 2022

Calculates emission factors

Check package version.

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

```
## [1] '1.5.5'
```

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	air.temp	wind.2m	rain.rate	scenario	man.source
## 1	Marts	4.431012	4.058916	0.05996290	reference	Svinegylle
## 2	April	8.236460	3.844456	0.05521194	reference	Svinegylle
## 3	Maj	12.449250	3.483915	0.07029935	reference	Svinegylle

## 4	Sommer	16.876226	3.156240	0.10592531	reference	Svinegylle
## 5	Efterår	14.497748	3.322770	0.12826017	reference	Svinegylle
## 1.1	Marts	4.431012	4.058916	0.05996290	reference	Kvæggylle
## 2.1	April	8.236460	3.844456	0.05521194	reference	Kvæggylle
## 3.1	Maj	12.449250	3.483915	0.07029935	reference	Kvæggylle
## 4.1	Sommer	16.876226	3.156240	0.10592531	reference	Kvæggylle
## 5.1	Efterår	14.497748	3.322770	0.12826017	reference	Kvæggylle
## 1.2	Marts	4.431012	4.058916	0.05996290	reference	Afgasset biomasse
## 2.2	April	8.236460	3.844456	0.05521194	reference	Afgasset biomasse
## 3.2	Maj	12.449250	3.483915	0.07029935	reference	Afgasset biomasse
## 4.2	Sommer	16.876226	3.156240	0.10592531	reference	Afgasset biomasse
## 5.2	Efterår	14.497748	3.322770	0.12826017	reference	Afgasset biomasse
## 1.3	Marts	4.431012	4.058916	0.05996290	low	Svinegylle
## 2.3	April	8.236460	3.844456	0.05521194	low	Svinegylle
## 3.3	Maj	12.449250	3.483915	0.07029935	low	Svinegylle
## 4.3	Sommer	16.876226	3.156240	0.10592531	low	Svinegylle
## 5.3	Efterår	14.497748	3.322770	0.12826017	low	Svinegylle
## 1.4	Marts	4.431012	4.058916	0.05996290	low	Kvæggylle
## 2.4	April	8.236460	3.844456	0.05521194	low	Kvæggylle
## 3.4	Maj	12.449250	3.483915	0.07029935	low	Kvæggylle
## 4.4	Sommer	16.876226	3.156240	0.10592531	low	Kvæggylle
## 5.4	Efterår	14.497748	3.322770	0.12826017	low	Kvæggylle
## 1.5	Marts	4.431012	4.058916	0.05996290	low	Afgasset biomasse
## 2.5	April	8.236460	3.844456	0.05521194	low	Afgasset biomasse
## 3.5	Maj	12.449250	3.483915	0.07029935	low	Afgasset biomasse
## 4.5	Sommer	16.876226	3.156240	0.10592531	low	Afgasset biomasse
## 5.5	Efterår	14.497748	3.322770	0.12826017	low	Afgasset biomasse
## 1.6	Marts	4.431012	4.058916	0.05996290	mid	Svinegylle
## 2.6	April	8.236460	3.844456	0.05521194	mid	Svinegylle
## 3.6	Maj	12.449250	3.483915	0.07029935	mid	Svinegylle
## 4.6	Sommer	16.876226	3.156240	0.10592531	mid	Svinegylle
## 5.6	Efterår	14.497748	3.322770	0.12826017	mid	Svinegylle
## 1.7	Marts	4.431012	4.058916	0.05996290	mid	Kvæggylle
## 2.7	April	8.236460	3.844456	0.05521194	mid	Kvæggylle
## 3.7	Maj	12.449250	3.483915	0.07029935	mid	Kvæggylle
## 4.7	Sommer	16.876226	3.156240	0.10592531	mid	Kvæggylle
## 5.7	Efterår	14.497748	3.322770	0.12826017	mid	Kvæggylle
## 1.8	Marts	4.431012	4.058916	0.05996290	mid	Afgasset biomasse
## 2.8	April	8.236460	3.844456	0.05521194	mid	Afgasset biomasse

## 3.8	Maj	12.449250	3.483915	0.07029935	mid	Afgasset	biomasse
## 4.8	Sommer	16.876226	3.156240	0.10592531	mid	Afgasset	biomasse
## 5.8	Efterår	14.497748	3.322770	0.12826017	mid	Afgasset	biomasse
## 1.9	Marts	4.431012	4.058916	0.05996290	high	Svinegylle	
## 2.9	April	8.236460	3.844456	0.05521194	high	Svinegylle	
## 3.9	Maj	12.449250	3.483915	0.07029935	high	Svinegylle	
## 4.9	Sommer	16.876226	3.156240	0.10592531	high	Svinegylle	
## 5.9	Efterår	14.497748	3.322770	0.12826017	high	Svinegylle	
## 1.10	Marts	4.431012	4.058916	0.05996290	high	Kvæggylle	
## 2.10	April	8.236460	3.844456	0.05521194	high	Kvæggylle	
## 3.10	Maj	12.449250	3.483915	0.07029935	high	Kvæggylle	
## 4.10	Sommer	16.876226	3.156240	0.10592531	high	Kvæggylle	
## 5.10	Efterår	14.497748	3.322770	0.12826017	high	Kvæggylle	
## 1.11	Marts	4.431012	4.058916	0.05996290	high	Afgasset	biomasse
## 2.11	April	8.236460	3.844456	0.05521194	high	Afgasset	biomasse
## 3.11	Maj	12.449250	3.483915	0.07029935	high	Afgasset	biomasse
## 4.11	Sommer	16.876226	3.156240	0.10592531	high	Afgasset	biomasse
## 5.11	Efterår	14.497748	3.322770	0.12826017	high	Afgasset	biomasse
## 1.12	Marts	4.431012	4.058916	0.05996290	high2	Svinegylle	
## 2.12	April	8.236460	3.844456	0.05521194	high2	Svinegylle	
## 3.12	Maj	12.449250	3.483915	0.07029935	high2	Svinegylle	
## 4.12	Sommer	16.876226	3.156240	0.10592531	high2	Svinegylle	
## 5.12	Efterår	14.497748	3.322770	0.12826017	high2	Svinegylle	
## 1.13	Marts	4.431012	4.058916	0.05996290	high2	Kvæggylle	
## 2.13	April	8.236460	3.844456	0.05521194	high2	Kvæggylle	
## 3.13	Maj	12.449250	3.483915	0.07029935	high2	Kvæggylle	
## 4.13	Sommer	16.876226	3.156240	0.10592531	high2	Kvæggylle	
## 5.13	Efterår	14.497748	3.322770	0.12826017	high2	Kvæggylle	
## 1.14	Marts	4.431012	4.058916	0.05996290	high2	Afgasset	biomasse
## 2.14	April	8.236460	3.844456	0.05521194	high2	Afgasset	biomasse
## 3.14	Maj	12.449250	3.483915	0.07029935	high2	Afgasset	biomasse
## 4.14	Sommer	16.876226	3.156240	0.10592531	high2	Afgasset	biomasse
## 5.14	Efterår	14.497748	3.322770	0.12826017	high2	Afgasset	biomasse
## 1.15	Marts	4.431012	4.058916	0.05996290	low	Svinegylle	
## 2.15	April	8.236460	3.844456	0.05521194	low	Svinegylle	
## 3.15	Maj	12.449250	3.483915	0.07029935	low	Svinegylle	
## 4.15	Sommer	16.876226	3.156240	0.10592531	low	Svinegylle	
## 5.15	Efterår	14.497748	3.322770	0.12826017	low	Svinegylle	
## 1.16	Marts	4.431012	4.058916	0.05996290	low	Kvæggylle	

## 2.16	April	8.236460	3.844456	0.05521194	low	Kvæggylle
## 3.16	Maj	12.449250	3.483915	0.07029935	low	Kvæggylle
## 4.16	Sommer	16.876226	3.156240	0.10592531	low	Kvæggylle
## 5.16	Efterår	14.497748	3.322770	0.12826017	low	Kvæggylle
## 1.17	Marts	4.431012	4.058916	0.05996290	low	Afgasset biomasse
## 2.17	April	8.236460	3.844456	0.05521194	low	Afgasset biomasse
## 3.17	Maj	12.449250	3.483915	0.07029935	low	Afgasset biomasse
## 4.17	Sommer	16.876226	3.156240	0.10592531	low	Afgasset biomasse
## 5.17	Efterår	14.497748	3.322770	0.12826017	low	Afgasset biomasse
## 1.18	Marts	4.431012	4.058916	0.05996290	low	Svinegylle
## 2.18	April	8.236460	3.844456	0.05521194	low	Svinegylle
## 3.18	Maj	12.449250	3.483915	0.07029935	low	Svinegylle
## 4.18	Sommer	16.876226	3.156240	0.10592531	low	Svinegylle
## 5.18	Efterår	14.497748	3.322770	0.12826017	low	Svinegylle
## 1.19	Marts	4.431012	4.058916	0.05996290	low	Kvæggylle
## 2.19	April	8.236460	3.844456	0.05521194	low	Kvæggylle
## 3.19	Maj	12.449250	3.483915	0.07029935	low	Kvæggylle
## 4.19	Sommer	16.876226	3.156240	0.10592531	low	Kvæggylle
## 5.19	Efterår	14.497748	3.322770	0.12826017	low	Kvæggylle
## 1.20	Marts	4.431012	4.058916	0.05996290	low	Afgasset biomasse
## 2.20	April	8.236460	3.844456	0.05521194	low	Afgasset biomasse
## 3.20	Maj	12.449250	3.483915	0.07029935	low	Afgasset biomasse
## 4.20	Sommer	16.876226	3.156240	0.10592531	low	Afgasset biomasse
## 5.20	Efterår	14.497748	3.322770	0.12826017	low	Afgasset biomasse
## 1.21	Marts	4.431012	4.058916	0.05996290	mid	Svinegylle
## 2.21	April	8.236460	3.844456	0.05521194	mid	Svinegylle
## 3.21	Maj	12.449250	3.483915	0.07029935	mid	Svinegylle
## 4.21	Sommer	16.876226	3.156240	0.10592531	mid	Svinegylle
## 5.21	Efterår	14.497748	3.322770	0.12826017	mid	Svinegylle
## 1.22	Marts	4.431012	4.058916	0.05996290	mid	Kvæggylle
## 2.22	April	8.236460	3.844456	0.05521194	mid	Kvæggylle
## 3.22	Maj	12.449250	3.483915	0.07029935	mid	Kvæggylle
## 4.22	Sommer	16.876226	3.156240	0.10592531	mid	Kvæggylle
## 5.22	Efterår	14.497748	3.322770	0.12826017	mid	Kvæggylle
## 1.23	Marts	4.431012	4.058916	0.05996290	mid	Afgasset biomasse
## 2.23	April	8.236460	3.844456	0.05521194	mid	Afgasset biomasse
## 3.23	Maj	12.449250	3.483915	0.07029935	mid	Afgasset biomasse
## 4.23	Sommer	16.876226	3.156240	0.10592531	mid	Afgasset biomasse
## 5.23	Efterår	14.497748	3.322770	0.12826017	mid	Afgasset biomasse

## 1.24	Marts	4.431012	4.058916	0.05996290	mid	Svinegylle
## 2.24	April	8.236460	3.844456	0.05521194	mid	Svinegylle
## 3.24	Maj	12.449250	3.483915	0.07029935	mid	Svinegylle
## 4.24	Sommer	16.876226	3.156240	0.10592531	mid	Svinegylle
## 5.24	Efterår	14.497748	3.322770	0.12826017	mid	Svinegylle
## 1.25	Marts	4.431012	4.058916	0.05996290	mid	Kvæggylle
## 2.25	April	8.236460	3.844456	0.05521194	mid	Kvæggylle
## 3.25	Maj	12.449250	3.483915	0.07029935	mid	Kvæggylle
## 4.25	Sommer	16.876226	3.156240	0.10592531	mid	Kvæggylle
## 5.25	Efterår	14.497748	3.322770	0.12826017	mid	Kvæggylle
## 1.26	Marts	4.431012	4.058916	0.05996290	mid	Afgasset biomasse
## 2.26	April	8.236460	3.844456	0.05521194	mid	Afgasset biomasse
## 3.26	Maj	12.449250	3.483915	0.07029935	mid	Afgasset biomasse
## 4.26	Sommer	16.876226	3.156240	0.10592531	mid	Afgasset biomasse
## 5.26	Efterår	14.497748	3.322770	0.12826017	mid	Afgasset biomasse
## 1.27	Marts	4.431012	4.058916	0.05996290	high	Svinegylle
## 2.27	April	8.236460	3.844456	0.05521194	high	Svinegylle
## 3.27	Maj	12.449250	3.483915	0.07029935	high	Svinegylle
## 4.27	Sommer	16.876226	3.156240	0.10592531	high	Svinegylle
## 5.27	Efterår	14.497748	3.322770	0.12826017	high	Svinegylle
## 1.28	Marts	4.431012	4.058916	0.05996290	high	Kvæggylle
## 2.28	April	8.236460	3.844456	0.05521194	high	Kvæggylle
## 3.28	Maj	12.449250	3.483915	0.07029935	high	Kvæggylle
## 4.28	Sommer	16.876226	3.156240	0.10592531	high	Kvæggylle
## 5.28	Efterår	14.497748	3.322770	0.12826017	high	Kvæggylle
## 1.29	Marts	4.431012	4.058916	0.05996290	high	Afgasset biomasse
## 2.29	April	8.236460	3.844456	0.05521194	high	Afgasset biomasse
## 3.29	Maj	12.449250	3.483915	0.07029935	high	Afgasset biomasse
## 4.29	Sommer	16.876226	3.156240	0.10592531	high	Afgasset biomasse
## 5.29	Efterår	14.497748	3.322770	0.12826017	high	Afgasset biomasse
## 1.30	Marts	4.431012	4.058916	0.05996290	high	Svinegylle
## 2.30	April	8.236460	3.844456	0.05521194	high	Svinegylle
## 3.30	Maj	12.449250	3.483915	0.07029935	high	Svinegylle
## 4.30	Sommer	16.876226	3.156240	0.10592531	high	Svinegylle
## 5.30	Efterår	14.497748	3.322770	0.12826017	high	Svinegylle
## 1.31	Marts	4.431012	4.058916	0.05996290	high	Kvæggylle
## 2.31	April	8.236460	3.844456	0.05521194	high	Kvæggylle
## 3.31	Maj	12.449250	3.483915	0.07029935	high	Kvæggylle
## 4.31	Sommer	16.876226	3.156240	0.10592531	high	Kvæggylle

##	5.31	Efterår	14.497748	3.322770	0.12826017	high	Kvæggylle		
##	1.32	Marts	4.431012	4.058916	0.05996290	high	Afgasset biomasse		
##	2.32	April	8.236460	3.844456	0.05521194	high	Afgasset biomasse		
##	3.32	Maj	12.449250	3.483915	0.07029935	high	Afgasset biomasse		
##	4.32	Sommer	16.876226	3.156240	0.10592531	high	Afgasset biomasse		
##	5.32	Efterår	14.497748	3.322770	0.12826017	high	Afgasset biomasse		
##	1.33	Marts	4.431012	4.058916	0.05996290	high2	Svinegylle		
##	2.33	April	8.236460	3.844456	0.05521194	high2	Svinegylle		
##	3.33	Maj	12.449250	3.483915	0.07029935	high2	Svinegylle		
##	4.33	Sommer	16.876226	3.156240	0.10592531	high2	Svinegylle		
##	5.33	Efterår	14.497748	3.322770	0.12826017	high2	Svinegylle		
##	1.34	Marts	4.431012	4.058916	0.05996290	high2	Kvæggylle		
##	2.34	April	8.236460	3.844456	0.05521194	high2	Kvæggylle		
##	3.34	Maj	12.449250	3.483915	0.07029935	high2	Kvæggylle		
##	4.34	Sommer	16.876226	3.156240	0.10592531	high2	Kvæggylle		
##	5.34	Efterår	14.497748	3.322770	0.12826017	high2	Kvæggylle		
##	1.35	Marts	4.431012	4.058916	0.05996290	high2	Afgasset biomasse		
##	2.35	April	8.236460	3.844456	0.05521194	high2	Afgasset biomasse		
##	3.35	Maj	12.449250	3.483915	0.07029935	high2	Afgasset biomasse		
##	4.35	Sommer	16.876226	3.156240	0.10592531	high2	Afgasset biomasse		
##	5.35	Efterår	14.497748	3.322770	0.12826017	high2	Afgasset biomasse		
##	1.36	Marts	4.431012	4.058916	0.05996290	high2	Svinegylle		
##	2.36	April	8.236460	3.844456	0.05521194	high2	Svinegylle		
##	3.36	Maj	12.449250	3.483915	0.07029935	high2	Svinegylle		
##	4.36	Sommer	16.876226	3.156240	0.10592531	high2	Svinegylle		
##	5.36	Efterår	14.497748	3.322770	0.12826017	high2	Svinegylle		
##	1.37	Marts	4.431012	4.058916	0.05996290	high2	Kvæggylle		
##	2.37	April	8.236460	3.844456	0.05521194	high2	Kvæggylle		
##	3.37	Maj	12.449250	3.483915	0.07029935	high2	Kvæggylle		
##	4.37	Sommer	16.876226	3.156240	0.10592531	high2	Kvæggylle		
##	5.37	Efterår	14.497748	3.322770	0.12826017	high2	Kvæggylle		
##	1.38	Marts	4.431012	4.058916	0.05996290	high2	Afgasset biomasse		
##	2.38	April	8.236460	3.844456	0.05521194	high2	Afgasset biomasse		
##	3.38	Maj	12.449250	3.483915	0.07029935	high2	Afgasset biomasse		
##	4.38	Sommer	16.876226	3.156240	0.10592531	high2	Afgasset biomasse		
##	5.38	Efterår	14.497748	3.322770	0.12826017	high2	Afgasset biomasse		
##		fraction	red.dm	man.dm	man.ph	incorp	app.mthd	t.incorp	app.rate.ni
##	1	raw	0	3.900	7.2	none	Trailing hose	NA	30
##	2	raw	0	3.900	7.2	none	Trailing hose	NA	30

## 3	raw	0	3.900	7.2	none	Trailing hose	NA	30
## 4	raw	0	3.900	7.2	none	Trailing hose	NA	30
## 5	raw	0	3.900	7.2	none	Trailing hose	NA	30
## 1.1	raw	0	6.500	7.0	none	Trailing hose	NA	30
## 2.1	raw	0	6.500	7.0	none	Trailing hose	NA	30
## 3.1	raw	0	6.500	7.0	none	Trailing hose	NA	30
## 4.1	raw	0	6.500	7.0	none	Trailing hose	NA	30
## 5.1	raw	0	6.500	7.0	none	Trailing hose	NA	30
## 1.2	raw	0	5.900	7.9	none	Trailing hose	NA	30
## 2.2	raw	0	5.900	7.9	none	Trailing hose	NA	30
## 3.2	raw	0	5.900	7.9	none	Trailing hose	NA	30
## 4.2	raw	0	5.900	7.9	none	Trailing hose	NA	30
## 5.2	raw	0	5.900	7.9	none	Trailing hose	NA	30
## 1.3	liquid	0.55	1.755	7.2	none	Trailing hose	NA	30
## 2.3	liquid	0.55	1.755	7.2	none	Trailing hose	NA	30
## 3.3	liquid	0.55	1.755	7.2	none	Trailing hose	NA	30
## 4.3	liquid	0.55	1.755	7.2	none	Trailing hose	NA	30
## 5.3	liquid	0.55	1.755	7.2	none	Trailing hose	NA	30
## 1.4	liquid	0.55	2.925	7.0	none	Trailing hose	NA	30
## 2.4	liquid	0.55	2.925	7.0	none	Trailing hose	NA	30
## 3.4	liquid	0.55	2.925	7.0	none	Trailing hose	NA	30
## 4.4	liquid	0.55	2.925	7.0	none	Trailing hose	NA	30
## 5.4	liquid	0.55	2.925	7.0	none	Trailing hose	NA	30
## 1.5	liquid	0.55	2.655	7.9	none	Trailing hose	NA	30
## 2.5	liquid	0.55	2.655	7.9	none	Trailing hose	NA	30
## 3.5	liquid	0.55	2.655	7.9	none	Trailing hose	NA	30
## 4.5	liquid	0.55	2.655	7.9	none	Trailing hose	NA	30
## 5.5	liquid	0.55	2.655	7.9	none	Trailing hose	NA	30
## 1.6	liquid	0.35	2.535	7.2	none	Trailing hose	NA	30
## 2.6	liquid	0.35	2.535	7.2	none	Trailing hose	NA	30
## 3.6	liquid	0.35	2.535	7.2	none	Trailing hose	NA	30
## 4.6	liquid	0.35	2.535	7.2	none	Trailing hose	NA	30
## 5.6	liquid	0.35	2.535	7.2	none	Trailing hose	NA	30
## 1.7	liquid	0.35	4.225	7.0	none	Trailing hose	NA	30
## 2.7	liquid	0.35	4.225	7.0	none	Trailing hose	NA	30
## 3.7	liquid	0.35	4.225	7.0	none	Trailing hose	NA	30
## 4.7	liquid	0.35	4.225	7.0	none	Trailing hose	NA	30
## 5.7	liquid	0.35	4.225	7.0	none	Trailing hose	NA	30
## 1.8	liquid	0.35	3.835	7.9	none	Trailing hose	NA	30

## 2.8	liquid	0.35	3.835	7.9	none	Trailing hose	NA	30
## 3.8	liquid	0.35	3.835	7.9	none	Trailing hose	NA	30
## 4.8	liquid	0.35	3.835	7.9	none	Trailing hose	NA	30
## 5.8	liquid	0.35	3.835	7.9	none	Trailing hose	NA	30
## 1.9	liquid	0.15	3.315	7.2	none	Trailing hose	NA	30
## 2.9	liquid	0.15	3.315	7.2	none	Trailing hose	NA	30
## 3.9	liquid	0.15	3.315	7.2	none	Trailing hose	NA	30
## 4.9	liquid	0.15	3.315	7.2	none	Trailing hose	NA	30
## 5.9	liquid	0.15	3.315	7.2	none	Trailing hose	NA	30
## 1.10	liquid	0.15	5.525	7.0	none	Trailing hose	NA	30
## 2.10	liquid	0.15	5.525	7.0	none	Trailing hose	NA	30
## 3.10	liquid	0.15	5.525	7.0	none	Trailing hose	NA	30
## 4.10	liquid	0.15	5.525	7.0	none	Trailing hose	NA	30
## 5.10	liquid	0.15	5.525	7.0	none	Trailing hose	NA	30
## 1.11	liquid	0.15	5.015	7.9	none	Trailing hose	NA	30
## 2.11	liquid	0.15	5.015	7.9	none	Trailing hose	NA	30
## 3.11	liquid	0.15	5.015	7.9	none	Trailing hose	NA	30
## 4.11	liquid	0.15	5.015	7.9	none	Trailing hose	NA	30
## 5.11	liquid	0.15	5.015	7.9	none	Trailing hose	NA	30
## 1.12	liquid	0.15	3.315	7.2	none	Trailing hose	NA	30
## 2.12	liquid	0.15	3.315	7.2	none	Trailing hose	NA	30
## 3.12	liquid	0.15	3.315	7.2	none	Trailing hose	NA	30
## 4.12	liquid	0.15	3.315	7.2	none	Trailing hose	NA	30
## 5.12	liquid	0.15	3.315	7.2	none	Trailing hose	NA	30
## 1.13	liquid	0.15	5.525	7.0	none	Trailing hose	NA	30
## 2.13	liquid	0.15	5.525	7.0	none	Trailing hose	NA	30
## 3.13	liquid	0.15	5.525	7.0	none	Trailing hose	NA	30
## 4.13	liquid	0.15	5.525	7.0	none	Trailing hose	NA	30
## 5.13	liquid	0.15	5.525	7.0	none	Trailing hose	NA	30
## 1.14	liquid	0.15	5.015	7.9	none	Trailing hose	NA	30
## 2.14	liquid	0.15	5.015	7.9	none	Trailing hose	NA	30
## 3.14	liquid	0.15	5.015	7.9	none	Trailing hose	NA	30
## 4.14	liquid	0.15	5.015	7.9	none	Trailing hose	NA	30
## 5.14	liquid	0.15	5.015	7.9	none	Trailing hose	NA	30
## 1.15	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 2.15	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 3.15	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 4.15	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 5.15	solid	<NA>	15.000	7.2	deep	Broadcast	4	30

## 1.16	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 2.16	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 3.16	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 4.16	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 5.16	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 1.17	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 2.17	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 3.17	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 4.17	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 5.17	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 1.18	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 2.18	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 3.18	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 4.18	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 5.18	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 1.19	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 2.19	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 3.19	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 4.19	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 5.19	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 1.20	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 2.20	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 3.20	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 4.20	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 5.20	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 1.21	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 2.21	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 3.21	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 4.21	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 5.21	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 1.22	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 2.22	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 3.22	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 4.22	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 5.22	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 1.23	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 2.23	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 3.23	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 4.23	solid	<NA>	15.000	7.9	deep	Broadcast	4	30

## 5.23	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 1.24	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 2.24	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 3.24	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 4.24	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 5.24	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 1.25	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 2.25	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 3.25	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 4.25	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 5.25	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 1.26	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 2.26	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 3.26	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 4.26	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 5.26	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 1.27	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 2.27	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 3.27	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 4.27	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 5.27	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 1.28	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 2.28	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 3.28	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 4.28	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 5.28	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 1.29	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 2.29	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 3.29	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 4.29	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 5.29	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 1.30	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 2.30	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 3.30	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 4.30	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 5.30	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 1.31	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 2.31	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 3.31	solid	<NA>	15.000	7.0	none	Broadcast	NA	30

## 4.31	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 5.31	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 1.32	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 2.32	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 3.32	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 4.32	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 5.32	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 1.33	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 2.33	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 3.33	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 4.33	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 5.33	solid	<NA>	15.000	7.2	deep	Broadcast	4	30
## 1.34	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 2.34	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 3.34	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 4.34	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 5.34	solid	<NA>	15.000	7.0	deep	Broadcast	4	30
## 1.35	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 2.35	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 3.35	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 4.35	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 5.35	solid	<NA>	15.000	7.9	deep	Broadcast	4	30
## 1.36	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 2.36	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 3.36	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 4.36	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 5.36	solid	<NA>	15.000	7.2	none	Broadcast	NA	30
## 1.37	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 2.37	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 3.37	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 4.37	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 5.37	solid	<NA>	15.000	7.0	none	Broadcast	NA	30
## 1.38	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 2.38	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 3.38	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 4.38	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
## 5.38	solid	<NA>	15.000	7.9	none	Broadcast	NA	30
##	ct tan.app	id						
## 1	168	100	1					

##	2	168	100	2
##	3	168	100	3
##	4	168	100	4
##	5	168	100	5
##	1.1	168	100	6
##	2.1	168	100	7
##	3.1	168	100	8
##	4.1	168	100	9
##	5.1	168	100	10
##	1.2	168	100	11
##	2.2	168	100	12
##	3.2	168	100	13
##	4.2	168	100	14
##	5.2	168	100	15
##	1.3	168	100	16
##	2.3	168	100	17
##	3.3	168	100	18
##	4.3	168	100	19
##	5.3	168	100	20
##	1.4	168	100	21
##	2.4	168	100	22
##	3.4	168	100	23
##	4.4	168	100	24
##	5.4	168	100	25
##	1.5	168	100	26
##	2.5	168	100	27
##	3.5	168	100	28
##	4.5	168	100	29
##	5.5	168	100	30
##	1.6	168	100	31
##	2.6	168	100	32
##	3.6	168	100	33
##	4.6	168	100	34
##	5.6	168	100	35
##	1.7	168	100	36
##	2.7	168	100	37
##	3.7	168	100	38
##	4.7	168	100	39
##	5.7	168	100	40

##	1.8	168	100	41
##	2.8	168	100	42
##	3.8	168	100	43
##	4.8	168	100	44
##	5.8	168	100	45
##	1.9	168	100	46
##	2.9	168	100	47
##	3.9	168	100	48
##	4.9	168	100	49
##	5.9	168	100	50
##	1.10	168	100	51
##	2.10	168	100	52
##	3.10	168	100	53
##	4.10	168	100	54
##	5.10	168	100	55
##	1.11	168	100	56
##	2.11	168	100	57
##	3.11	168	100	58
##	4.11	168	100	59
##	5.11	168	100	60
##	1.12	168	100	61
##	2.12	168	100	62
##	3.12	168	100	63
##	4.12	168	100	64
##	5.12	168	100	65
##	1.13	168	100	66
##	2.13	168	100	67
##	3.13	168	100	68
##	4.13	168	100	69
##	5.13	168	100	70
##	1.14	168	100	71
##	2.14	168	100	72
##	3.14	168	100	73
##	4.14	168	100	74
##	5.14	168	100	75
##	1.15	168	100	76
##	2.15	168	100	77
##	3.15	168	100	78
##	4.15	168	100	79

##	5.15	168	100	80
##	1.16	168	100	81
##	2.16	168	100	82
##	3.16	168	100	83
##	4.16	168	100	84
##	5.16	168	100	85
##	1.17	168	100	86
##	2.17	168	100	87
##	3.17	168	100	88
##	4.17	168	100	89
##	5.17	168	100	90
##	1.18	168	100	91
##	2.18	168	100	92
##	3.18	168	100	93
##	4.18	168	100	94
##	5.18	168	100	95
##	1.19	168	100	96
##	2.19	168	100	97
##	3.19	168	100	98
##	4.19	168	100	99
##	5.19	168	100	100
##	1.20	168	100	101
##	2.20	168	100	102
##	3.20	168	100	103
##	4.20	168	100	104
##	5.20	168	100	105
##	1.21	168	100	106
##	2.21	168	100	107
##	3.21	168	100	108
##	4.21	168	100	109
##	5.21	168	100	110
##	1.22	168	100	111
##	2.22	168	100	112
##	3.22	168	100	113
##	4.22	168	100	114
##	5.22	168	100	115
##	1.23	168	100	116
##	2.23	168	100	117
##	3.23	168	100	118

##	4.23	168	100	119
##	5.23	168	100	120
##	1.24	168	100	121
##	2.24	168	100	122
##	3.24	168	100	123
##	4.24	168	100	124
##	5.24	168	100	125
##	1.25	168	100	126
##	2.25	168	100	127
##	3.25	168	100	128
##	4.25	168	100	129
##	5.25	168	100	130
##	1.26	168	100	131
##	2.26	168	100	132
##	3.26	168	100	133
##	4.26	168	100	134
##	5.26	168	100	135
##	1.27	168	100	136
##	2.27	168	100	137
##	3.27	168	100	138
##	4.27	168	100	139
##	5.27	168	100	140
##	1.28	168	100	141
##	2.28	168	100	142
##	3.28	168	100	143
##	4.28	168	100	144
##	5.28	168	100	145
##	1.29	168	100	146
##	2.29	168	100	147
##	3.29	168	100	148
##	4.29	168	100	149
##	5.29	168	100	150
##	1.30	168	100	151
##	2.30	168	100	152
##	3.30	168	100	153
##	4.30	168	100	154
##	5.30	168	100	155
##	1.31	168	100	156
##	2.31	168	100	157

##	3.31	168	100	158
##	4.31	168	100	159
##	5.31	168	100	160
##	1.32	168	100	161
##	2.32	168	100	162
##	3.32	168	100	163
##	4.32	168	100	164
##	5.32	168	100	165
##	1.33	168	100	166
##	2.33	168	100	167
##	3.33	168	100	168
##	4.33	168	100	169
##	5.33	168	100	170
##	1.34	168	100	171
##	2.34	168	100	172
##	3.34	168	100	173
##	4.34	168	100	174
##	5.34	168	100	175
##	1.35	168	100	176
##	2.35	168	100	177
##	3.35	168	100	178
##	4.35	168	100	179
##	5.35	168	100	180
##	1.36	168	100	181
##	2.36	168	100	182
##	3.36	168	100	183
##	4.36	168	100	184
##	5.36	168	100	185
##	1.37	168	100	186
##	2.37	168	100	187
##	3.37	168	100	188
##	4.37	168	100	189
##	5.37	168	100	190
##	1.38	168	100	191
##	2.38	168	100	192
##	3.38	168	100	193
##	4.38	168	100	194
##	5.38	168	100	195

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, prep = TRUE)
```

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

```
## Incorporation applied (for group 106).
```

```
## Incorporation applied (for group 107).
```

```
## Incorporation applied (for group 108).
```

```
## Incorporation applied (for group 109).
```

```
## Incorporation applied (for group 110).
```

```
## Incorporation applied (for group 111).
```

```
## Incorporation applied (for group 112).
```

```
## Incorporation applied (for group 113).
```

```
## Incorporation applied (for group 114).
```

```
## Incorporation applied (for group 115).
```

```
## Incorporation applied (for group 116).
```

```
## Incorporation applied (for group 117).
```

```
## Incorporation applied (for group 118).
```

```
## Incorporation applied (for group 119).
```

```
## Incorporation applied (for group 120).
```

```
## Incorporation applied (for group 136).
```

```
## Incorporation applied (for group 137).
```

```
## Incorporation applied (for group 138).
```

```
## Incorporation applied (for group 139).
```

```
## Incorporation applied (for group 140).
```

```
## Incorporation applied (for group 141).
```

Incorporation applied (for group 142).
Incorporation applied (for group 143).
Incorporation applied (for group 144).
Incorporation applied (for group 145).
Incorporation applied (for group 146).
Incorporation applied (for group 147).
Incorporation applied (for group 148).
Incorporation applied (for group 149).
Incorporation applied (for group 150).
Incorporation applied (for group 166).
Incorporation applied (for group 167).
Incorporation applied (for group 168).
Incorporation applied (for group 169).
Incorporation applied (for group 170).
Incorporation applied (for group 171).
Incorporation applied (for group 172).
Incorporation applied (for group 173).
Incorporation applied (for group 174).
Incorporation applied (for group 175).
Incorporation applied (for group 176).
Incorporation applied (for group 177).
Incorporation applied (for group 178).
Incorporation applied (for group 179).
Incorporation applied (for group 180).
Incorporation applied (for group 76).
Incorporation applied (for group 77).

```

## Incorporation applied (for group 78).
## Incorporation applied (for group 79).
## Incorporation applied (for group 80).
## Incorporation applied (for group 81).
## Incorporation applied (for group 82).
## Incorporation applied (for group 83).
## Incorporation applied (for group 84).
## Incorporation applied (for group 85).
## Incorporation applied (for group 86).
## Incorporation applied (for group 87).
## Incorporation applied (for group 88).
## Incorporation applied (for group 89).
## Incorporation applied (for group 90).

## Warning in ALFAM2mod(dat, pars = ALFAM2pars02, app.name = "tan.app", time.name = "ct", : Running with 17 parameters. Dropped 7 with no
## These secondary parameters have been dropped:
##   app.mthd.os.f0
##   app.mthd.cs.f0
##   app.mthd.ts.r1
##   ts.cereal.hght.r1
##   app.mthd.cs.r3
##   incorp.shallow.f4
##   incorp.shallow.r3
##
## These secondary parameters are being used:
##   int.f0
##   app.rate.ni.f0
##   man.dm.f0
##   man.source.pig.f0
##   int.r1
##   app.mthd.bc.r1
##   man.dm.r1
##   air.temp.r1

```

```
##  wind.2m.r1
##  man.ph.r1
##  int.r2
##  rain.rate.r2
##  int.r3
##  app.mthd.bc.r3
##  man.ph.r3
##  incorp.deep.f4
##  incorp.deep.r3
```

Add results to main df

```
dat$EF <- signif(preds$er, 4)
dat$EFp <- 100 * signif(preds$er, 4)
```