Probability of occurrance

Call:

model.avg(object = Morn\_mod)

Component model call:

lme.formula(fixed = <10 unique values>, data = Occurrance2, random = ~1 | ID, na.action = na.exclude)

Component models:

df logLik AICc delta weight

2 4 -1590.85 3189.71 0.00 0.96

12 5 -1593.10 3196.22 6.51 0.04

24 5 -1594.82 3199.66 9.95 0.01

124 6 -1596.83 3205.69 15.98 0.00

234 6 -1599.43 3210.88 21.17 0.00

1 4 -1602.23 3212.47 22.75 0.00

4 4 -1603.96 3215.94 26.23 0.00

14 5 -1605.65 3221.33 31.61 0.00

12346 8 -1607.75 3231.54 41.83 0.00

123456 9 -1610.41 3238.87 49.16 0.00

Term codes:

Denning Moonlight\_before Rainfall Temperature Denning:Temperature Rainfall:Temperature

1 2 3 4 5 6

Model-averaged coefficients:

(full average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 7.995e-01 3.335e-02 3.336e-02 23.967 <2e-16 \*\*\*

Moonlight\_before -9.713e-03 1.784e-03 1.784e-03 5.443 1e-07 \*\*\*

Denningyes 9.522e-04 6.720e-03 6.721e-03 0.142 0.887

Temperature 3.064e-05 4.730e-04 4.731e-04 0.065 0.948

Rainfall -4.857e-08 1.200e-05 1.200e-05 0.004 0.997

Rainfall:Temperature 1.680e-13 2.088e-08 2.089e-08 0.000 1.000

Denningyes:Temperature -3.312e-13 9.627e-08 9.628e-08 0.000 1.000

(conditional average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 0.7995404 0.0333490 0.0333603 23.967 <2e-16 \*\*\*

Moonlight\_before -0.0097136 0.0017834 0.0017841 5.445 1e-07 \*\*\*

Denningyes 0.0255411 0.0241505 0.0241596 1.057 0.290

Temperature 0.0043973 0.0035920 0.0035934 1.224 0.221

Rainfall -0.0020087 0.0013844 0.0013849 1.450 0.147

Rainfall:Temperature 0.0002072 0.0007035 0.0007037 0.294 0.768

Denningyes:Temperature -0.0163731 0.0137860 0.0137912 1.187 0.235

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Relative variable importance:

Moonlight\_before Denning Temperature Rainfall Rainfall:Temperature Denning:Temperature

Importance: 1 0.04 0.01 <0.01 <0.01 <0.01

N containing models: 7 6 7 3 2 1

Call:

model.avg(object = Day\_mod)

Component model call:

lme.formula(fixed = <7 unique values>, data = Occurrance2, random = ~1 | ID, na.action = na.exclude)

Component models:

df logLik AICc delta weight

1 4 -617.70 1243.42 0.00 0.85

3 4 -619.43 1246.87 3.46 0.15

13 5 -622.42 1254.86 11.44 0.00

23 5 -625.16 1260.35 16.93 0.00

134 6 -626.02 1264.06 20.65 0.00

1234 7 -631.75 1277.54 34.12 0.00

1235 7 -634.33 1282.69 39.28 0.00

Term codes:

Denning Rainfall Temperature Denning:Temperature Rainfall:Temperature

1 2 3 4 5

Model-averaged coefficients:

(full average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 1.358e-01 4.397e-02 4.398e-02 3.087 0.00202 \*\*

Denningyes 8.688e-03 1.696e-02 1.697e-02 0.512 0.60861

Temperature -3.364e-04 1.308e-03 1.308e-03 0.257 0.79705

Rainfall 1.248e-07 1.658e-05 1.659e-05 0.008 0.99400

Denningyes:Temperature -1.056e-07 5.740e-05 5.742e-05 0.002 0.99853

Rainfall:Temperature 1.257e-12 3.622e-08 3.622e-08 0.000 0.99997

(conditional average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 0.1357687 0.0439668 0.0439791 3.087 0.00202 \*\*

Denningyes 0.0102278 0.0179691 0.0179759 0.569 0.56937

Temperature -0.0021935 0.0026608 0.0026618 0.824 0.40992

Rainfall 0.0006988 0.0010253 0.0010257 0.681 0.49567

Denningyes:Temperature -0.0037917 0.0101929 0.0101967 0.372 0.71000

Rainfall:Temperature 0.0005015 0.0005215 0.0005217 0.961 0.33633

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Call:

model.avg(object = Even\_mod)

Component model call:

lme.formula(fixed = <10 unique values>, data = Occurrance2, random = ~1 | ID, na.action = na.exclude)

Component models:

df logLik AICc delta weight

24 5 -1839.18 3688.38 0.00 0.90

124 6 -1840.67 3693.36 4.98 0.07

2 4 -1843.90 3695.81 7.44 0.02

12 5 -1844.24 3698.49 10.12 0.01

234 6 -1844.73 3701.49 13.11 0.00

4 4 -1846.91 3701.84 13.46 0.00

14 5 -1848.05 3706.12 17.75 0.00

1 4 -1851.01 3710.04 21.66 0.00

12346 8 -1852.48 3721.00 32.62 0.00

123456 9 -1855.67 3729.40 41.02 0.00

Term codes:

Denning Moonlight Rainfall Temperature Denning:Temperature Rainfall:Temperature

1 2 3 4 5 6

Model-averaged coefficients:

(full average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 1.217e+00 1.329e-01 1.329e-01 9.154 < 2e-16 \*\*\*

Temperature -1.620e-02 4.689e-03 4.690e-03 3.454 0.000552 \*\*\*

Moonlight -9.809e-03 1.950e-03 1.951e-03 5.028 5e-07 \*\*\*

Denningyes 3.407e-03 1.379e-02 1.379e-02 0.247 0.804859

Rainfall -5.333e-07 5.551e-05 5.553e-05 0.010 0.992337

Rainfall:Temperature 7.207e-12 2.095e-07 2.096e-07 0.000 0.999973

Denningyes:Temperature 7.273e-12 5.413e-07 5.414e-07 0.000 0.999989

(conditional average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 1.217e+00 1.329e-01 1.329e-01 9.154 < 2e-16 \*\*\*

Temperature -1.666e-02 3.871e-03 3.872e-03 4.302 1.69e-05 \*\*\*

Moonlight -9.821e-03 1.921e-03 1.922e-03 5.110 3.00e-07 \*\*\*

Denningyes 4.260e-02 2.660e-02 2.661e-02 1.601 0.109

Rainfall -4.183e-04 1.497e-03 1.498e-03 0.279 0.780

Rainfall:Temperature 9.614e-05 7.592e-04 7.594e-04 0.127 0.899

Denningyes:Temperature 6.555e-03 1.487e-02 1.487e-02 0.441 0.659

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Relative variable importance:

Moonlight Temperature Denning Rainfall Rainfall:Temperature Denning:Temperature

Importance: 1 0.97 0.08 <0.01 <0.01 <0.01

N containing models: 7 7 6 3 2 1

Call:

model.avg(object = Night\_mod)

Component model call:

lme.formula(fixed = <10 unique values>, data = Occurrance2, random = ~1 | ID, na.action = na.exclude)

Component models:

df logLik AICc delta weight

24 5 -1766.16 3542.34 0.00 0.83

124 6 -1766.77 3545.56 3.22 0.17

234 6 -1770.82 3553.67 11.33 0.00

12346 8 -1774.49 3565.03 22.69 0.00

123456 9 -1777.48 3573.02 30.68 0.00

12 5 -1784.80 3579.63 37.29 0.00

2 4 -1786.66 3581.34 39.00 0.00

4 4 -1855.24 3718.50 176.16 0.00

14 5 -1854.61 3719.24 176.90 0.00

1 4 -1869.21 3746.44 204.10 0.00

Term codes:

Denning Moonlight Rainfall Temperature Denning:Temperature Rainfall:Temperature

1 2 3 4 5 6

Model-averaged coefficients:

(full average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) -5.874e-01 1.079e-01 1.080e-01 5.441 1e-07 \*\*\*

Temperature 2.679e-02 3.795e-03 3.797e-03 7.055 <2e-16 \*\*\*

Moonlight 2.617e-02 1.880e-03 1.881e-03 13.917 <2e-16 \*\*\*

Denningyes -8.830e-03 2.240e-02 2.240e-02 0.394 0.693

Rainfall -5.288e-06 2.110e-04 2.110e-04 0.025 0.980

Rainfall:Temperature -1.880e-08 6.388e-06 6.388e-06 0.003 0.998

Denningyes:Temperature -2.119e-09 7.932e-06 7.934e-06 0.000 1.000

(conditional average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) -0.5873970 0.1079212 0.1079611 5.441 1e-07 \*\*\*

Temperature 0.0267852 0.0037954 0.0037968 7.055 <2e-16 \*\*\*

Moonlight 0.0261718 0.0018799 0.0018806 13.917 <2e-16 \*\*\*

Denningyes -0.0532575 0.0256877 0.0256973 2.072 0.0382 \*

Rainfall -0.0018338 0.0034761 0.0034765 0.527 0.5979

Rainfall:Temperature -0.0018767 0.0007415 0.0007418 2.530 0.0114 \*

Denningyes:Temperature -0.0116984 0.0145096 0.0145151 0.806 0.4203

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Relative variable importance:

Moonlight Temperature Denning Rainfall Rainfall:Temperature Denning:Temperature

Importance: 1 1 0.17 <0.01 <0.01 <0.01

N containing models: 7 7 6 3 2 1

# Morning

Call:

model.avg(object = Morn\_dur)

Component model call:

lme.formula(fixed = <10 unique values>, data = Morning2, random = ~1 | ID, na.action = na.exclude)

Component models:

df logLik AICc delta weight

123456 9 -14462.70 28943.46 0.00 0.58

14 5 -14467.65 28945.33 1.87 0.23

1 4 -14469.57 28947.16 3.70 0.09

124 6 -14467.94 28947.90 4.45 0.06

12 5 -14469.84 28949.71 6.25 0.03

12346 8 -14467.03 28950.12 6.67 0.02

4 4 -14482.75 28973.52 30.06 0.00

234 6 -14481.52 28975.07 31.61 0.00

24 5 -14483.04 28976.10 32.64 0.00

2 4 -14486.81 28981.64 38.18 0.00

Term codes:

Denning Moonlight\_before Rainfall Temperature Denning:Temperature Rainfall:Temperature

1 2 3 4 5 6

Model-averaged coefficients:

(full average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 220.05701 21.27025 21.27657 10.343 <2e-16 \*\*\*

Temperature -1.17705 0.76449 0.76471 1.539 0.124

Rainfall -1.77208 2.95912 2.96016 0.599 0.549

Moonlight\_before 0.03734 0.24803 0.24814 0.150 0.880

DenningYes -57.48211 79.88222 79.89365 0.719 0.472

Rainfall:Temperature 0.07629 0.11455 0.11459 0.666 0.506

DenningYes:Temperature 2.88446 2.97957 2.98000 0.968 0.333

(conditional average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 220.05701 21.27025 21.27657 10.343 <2e-16 \*\*\*

Temperature -1.33111 0.67518 0.67546 1.971 0.0488 \*

Rainfall -2.97430 3.33485 3.33639 0.891 0.3727

Moonlight\_before 0.05464 0.29845 0.29859 0.183 0.8548

DenningYes -57.48213 79.88222 79.89365 0.719 0.4718

Rainfall:Temperature 0.12805 0.12408 0.12414 1.031 0.3023

DenningYes:Temperature 5.01417 2.18036 2.18137 2.299 0.0215 \*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Relative variable importance:

Denning Temperature Moonlight\_before Rainfall Rainfall:Temperature Denning:Temperature

Importance: 1.00 0.88 0.68 0.60 0.60 0.58

N containing models: 6 7 7 3 2 1

|  |
| --- |
| Call:  model.avg(object = Morn\_int)  Component model call:  lme.formula(fixed = <10 unique values>, data = Morning2, random = ~1 | ID, na.action = na.exclude)  Component models:  df logLik AICc delta weight  14 5 -10198.06 20406.14 0.00 0.43  1 4 -10199.14 20406.30 0.17 0.40  4 4 -10200.50 20409.01 2.87 0.10  124 6 -10199.76 20411.54 5.40 0.03  12 5 -10200.92 20411.87 5.73 0.02  24 5 -10202.16 20414.34 8.20 0.01  2 4 -10204.06 20416.13 9.99 0.00  234 6 -10204.33 20420.70 14.56 0.00  12346 8 -10204.39 20424.83 18.69 0.00  123456 9 -10204.30 20426.67 20.53 0.00  Term codes:  Denning Moonlight\_before Rainfall Temperature Denning:Temperature Rainfall:Temperature  1 2 3 4 5 6  Model-averaged coefficients:  (full average)  Estimate Std. Error Adjusted SE z value Pr(>|z|)  (Intercept) 5.143e+01 4.646e+00 4.646e+00 11.070 <2e-16 \*\*\*  Temperature -1.503e-01 1.582e-01 1.582e-01 0.950 0.342  DenningYes 1.383e+00 8.766e-01 8.768e-01 1.577 0.115  Moonlight\_before -2.322e-03 1.730e-02 1.730e-02 0.134 0.893  Rainfall 2.935e-05 6.212e-03 6.214e-03 0.005 0.996  Rainfall:Temperature -1.058e-06 2.293e-04 2.293e-04 0.005 0.996  DenningYes:Temperature -9.953e-07 1.691e-03 1.692e-03 0.001 1.000    (conditional average)  Estimate Std. Error Adjusted SE z value Pr(>|z|)  (Intercept) 51.43383 4.64557 4.64642 11.070 <2e-16 \*\*\*  Temperature -0.26216 0.11960 0.11966 2.191 0.0285 \*  DenningYes 1.56003 0.76847 0.76882 2.029 0.0424 \*  Moonlight\_before -0.03615 0.05860 0.05863 0.616 0.5376  Rainfall 0.08353 0.32069 0.32079 0.260 0.7946  Rainfall:Temperature -0.02000 0.02436 0.02437 0.821 0.4119  DenningYes:Temperature -0.06599 0.43042 0.43062 0.153 0.8782  ---  Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1  Relative variable importance:  Denning Temperature Moonlight\_before Rainfall Rainfall:Temperature Denning:Temperature  Importance: 0.89 0.57 0.06 <0.01 <0.01 <0.01  N containing models: 6 7 7 3 2 1 |
|  |
| |  | | --- | | > | |

Start

Component model call:

lme.formula(fixed = <10 unique values>, data = Morning2, random = ~1 | ID, na.action = na.exclude)

Component models:

df logLik AICc delta weight

14 5 7085.74 -14161.46 0.00 0.99

1 4 7080.02 -14152.02 9.44 0.01

4 4 7078.79 -14149.57 11.89 0.00

124 6 7078.72 -14145.41 16.05 0.00

12 5 7072.50 -14134.97 26.49 0.00

24 5 7071.54 -14133.05 28.41 0.00

2 4 7068.99 -14129.97 31.49 0.00

234 6 7062.99 -14113.94 47.52 0.00

12346 8 7060.84 -14105.63 55.83 0.00

123456 9 7054.88 -14091.69 69.77 0.00

Term codes:

Denning Moonlight\_before Rainfall Temperature Denning:Temperature Rainfall:Temperature

1 2 3 4 5 6

Model-averaged coefficients:

(full average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 2.720e-01 5.250e-03 5.252e-03 51.791 <2e-16 \*\*\*

Temperature -8.599e-04 1.841e-04 1.842e-04 4.668 3e-06 \*\*\*

DenningYes -5.385e-03 1.099e-03 1.099e-03 4.898 1e-06 \*\*\*

Moonlight\_before -4.580e-08 2.934e-06 2.935e-06 0.016 0.988

Rainfall 1.904e-15 9.434e-10 9.438e-10 0.000 1.000

Rainfall:Temperature 1.399e-19 2.937e-11 2.939e-11 0.000 1.000

DenningYes:Temperature -4.334e-19 2.284e-11 2.284e-11 0.000 1.000

(conditional average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 2.720e-01 5.250e-03 5.252e-03 51.791 <2e-16 \*\*\*

Temperature -8.676e-04 1.660e-04 1.661e-04 5.223 2e-07 \*\*\*

DenningYes -5.399e-03 1.065e-03 1.066e-03 5.065 4e-07 \*\*\*

Moonlight\_before -1.403e-04 8.185e-05 8.189e-05 1.713 0.0867 .

Rainfall 3.951e-05 1.300e-04 1.301e-04 0.304 0.7613

Rainfall:Temperature 1.881e-07 3.406e-05 3.408e-05 0.006 0.9956

DenningYes:Temperature -6.212e-04 6.015e-04 6.017e-04 1.032 0.3019

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Relative variable importance:

Denning Temperature Moonlight\_before Rainfall Rainfall:Temperature Denning:Temperature

Importance: 1 0.99 <0.01 <0.01 <0.01 <0.01

N containing models: 6 7 7 3 2 1

Call:

model.avg(object = Morn\_stop)

Component model call:

lme.formula(fixed = <10 unique values>, data = Morning2, random = ~1 | ID, na.action = na.exclude)

Component models:

df logLik AICc delta weight

4 4 4794.00 -9579.99 0.00 0.43

14 5 4794.59 -9579.16 0.82 0.29

1 4 4793.56 -9579.10 0.89 0.28

24 5 4786.65 -9563.27 16.72 0.00

124 6 4787.17 -9562.32 17.67 0.00

12 5 4786.02 -9562.01 17.98 0.00

2 4 4782.95 -9557.88 22.11 0.00

234 6 4781.88 -9551.73 28.25 0.00

12346 8 4774.48 -9532.91 47.08 0.00

123456 9 4770.66 -9523.25 56.73 0.00

Term codes:

Denning Moonlight\_before Rainfall Temperature Denning:Temperature Rainfall:Temperature

1 2 3 4 5 6

Model-averaged coefficients:

(full average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 4.131e-01 2.366e-02 2.366e-02 17.463 <2e-16 \*\*\*

Temperature -1.236e-03 8.405e-04 8.405e-04 1.470 0.142

DenningYes 5.272e-03 5.032e-03 5.032e-03 1.048 0.295

Moonlight\_before -2.721e-08 3.486e-06 3.487e-06 0.008 0.994

Rainfall 1.203e-10 2.305e-07 2.305e-07 0.001 1.000

Rainfall:Temperature 2.445e-15 6.343e-10 6.344e-10 0.000 1.000

DenningYes:Temperature 5.678e-16 1.406e-09 1.407e-09 0.000 1.000

(conditional average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 4.131e-01 2.366e-02 2.366e-02 17.463 < 2e-16 \*\*\*

Temperature -1.711e-03 4.054e-04 4.055e-04 4.220 2.44e-05 \*\*\*

DenningYes 9.322e-03 2.649e-03 2.650e-03 3.518 0.000435 \*\*\*

Moonlight\_before -1.202e-04 1.980e-04 1.981e-04 0.607 0.544048

Rainfall 3.783e-04 1.547e-04 1.548e-04 2.444 0.014506 \*

Rainfall:Temperature 9.356e-05 8.150e-05 8.154e-05 1.147 0.251198

DenningYes:Temperature 2.730e-03 1.435e-03 1.435e-03 1.902 0.057169 .

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Relative variable importance:

Temperature Denning Moonlight\_before Rainfall Rainfall:Temperature Denning:Temperature

Importance: 0.72 0.57 <0.01 <0.01 <0.01 <0.01

N containing models: 7 6 7 3 2 1

# Evening

|  |
| --- |
| Call:  model.avg(object = Evening\_dur)  Component model call:  lme.formula(fixed = <10 unique values>, data = Evening2, random = ~1 | ID, na.action =  na.exclude)  Component models:  df logLik AICc delta weight  1235 7 -12677.46 25368.96 0.00 0.80  1234567 10 -12676.08 25372.26 3.30 0.15  123457 9 -12678.31 25374.70 5.74 0.05  235 6 -12696.22 25404.47 35.51 0.00  2345 7 -12695.51 25405.06 36.10 0.00  123 6 -12701.39 25414.81 45.85 0.00  15 5 -12710.74 25431.50 62.54 0.00  23 5 -12726.85 25463.73 94.77 0.00  1 4 -12730.65 25469.32 100.36 0.00  5 4 -12731.86 25471.74 102.79 0.00  Term codes:  Denning Moonlight Moonrise\_sun Rainfall Temperature  1 2 3 4 5  Denning:Temperature Rainfall:Temperature  6 7  Model-averaged coefficients:  (full average)  Estimate Std. Error Adjusted SE z value Pr(>|z|)  (Intercept) 226.494573 12.533706 12.539881 18.062 <2e-16 \*\*\*  Temperature -3.010965 0.443603 0.443821 6.784 <2e-16 \*\*\*  Moonlight -1.843667 0.219071 0.219179 8.412 <2e-16 \*\*\*  Moonrise\_sun -0.006336 0.114749 0.114805 0.055 0.956  DenningYes 7.432989 25.564484 25.569651 0.291 0.771  Rainfall -0.014220 0.995420 0.995912 0.014 0.989  Rainfall:Temperature 0.002697 0.037970 0.037988 0.071 0.943  DenningYes:Temperature 0.313894 0.951435 0.951624 0.330 0.742    (conditional average)  Estimate Std. Error Adjusted SE z value Pr(>|z|)  (Intercept) 226.494573 12.533706 12.539881 18.062 <2e-16 \*\*\*  Temperature -3.010965 0.443603 0.443821 6.784 <2e-16 \*\*\*  Moonlight -1.843667 0.219071 0.219179 8.412 <2e-16 \*\*\*  Moonrise\_sun -0.006336 0.114749 0.114805 0.055 0.956  DenningYes 7.432989 25.564484 25.569651 0.291 0.771  Rainfall -0.071344 2.228704 2.229807 0.032 0.974  Rainfall:Temperature 0.013533 0.084181 0.084223 0.161 0.872  DenningYes:Temperature 2.039534 1.536959 1.537720 1.326 0.185  ---  Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1  Relative variable importance:  Moonlight Moonrise\_sun Temperature Denning Rainfall Rainfall:Temperature  Importance: 1.00 1.00 1.00 1.00 0.20 0.20  N containing models: 7 7 7 6 3 2  Denning:Temperature  Importance: 0.15  N containing models: 1 |
|  |
| |  | | --- | | > | |

Call:

model.avg(object = Evening\_Intensity)

Component model call:

lme.formula(fixed = <10 unique values>, data = Evening2, random = ~1 | ID, na.action =

na.exclude)

Component models:

df logLik AICc delta weight

15 5 -9587.98 19185.98 0.00 0.55

1235 7 -9586.54 19187.13 1.15 0.31

123457 9 -9586.01 19190.08 4.10 0.07

1234567 10 -9585.05 19190.19 4.20 0.07

1 4 -9607.88 19223.78 37.79 0.00

123 6 -9607.89 19227.81 41.83 0.00

235 6 -9620.61 19253.26 67.28 0.00

2345 7 -9620.11 19254.27 68.29 0.00

5 4 -9623.61 19255.24 69.26 0.00

23 5 -9650.23 19310.49 124.51 0.00

Term codes:

Denning Moonlight Moonrise\_sun Rainfall Temperature

1 2 3 4 5

Denning:Temperature Rainfall:Temperature

6 7

Model-averaged coefficients:

(full average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 62.982890 3.794458 3.796200 16.591 <2e-16 \*\*\*

Temperature -0.828668 0.128431 0.128491 6.449 <2e-16 \*\*\*

DenningYes 7.497329 4.948398 4.949382 1.515 0.130

Moonlight -0.095304 0.113524 0.113532 0.839 0.401

Moonrise\_sun -0.002572 0.022091 0.022102 0.116 0.907

Rainfall -0.195872 0.542573 0.542624 0.361 0.718

Rainfall:Temperature 0.007966 0.021779 0.021781 0.366 0.715

DenningYes:Temperature -0.038835 0.183825 0.183860 0.211 0.833

(conditional average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 62.982890 3.794458 3.796200 16.591 < 2e-16 \*\*\*

Temperature -0.828668 0.128430 0.128491 6.449 < 2e-16 \*\*\*

DenningYes 7.497329 4.948398 4.949382 1.515 0.129823

Moonlight -0.212285 0.062237 0.062268 3.409 0.000651 \*\*\*

Moonrise\_sun -0.005729 0.032695 0.032711 0.175 0.860980

Rainfall -1.416138 0.632705 0.633018 2.237 0.025278 \*

Rainfall:Temperature 0.057593 0.023899 0.023911 2.409 0.016010 \*

DenningYes:Temperature -0.576225 0.437881 0.438098 1.315 0.188413

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Relative variable importance:

Denning Temperature Moonlight Moonrise\_sun Rainfall Rainfall:Temperature

Importance: 1.00 1.00 0.45 0.45 0.14 0.14

N containing models: 6 7 7 7 3 2

Denning:Temperature

Importance: 0.07

N containing models: 1

Call:

model.avg(object = Evening\_start)

Component model call:

lme.formula(fixed = <10 unique values>, data = Evening2, random = ~1 | ID, na.action =

na.exclude)

Component models:

df logLik AICc delta weight

1235 7 6089.15 -12164.26 0.00 0.9

15 5 6084.90 -12159.78 4.48 0.1

235 6 6079.39 -12146.75 17.51 0.0

2345 7 6077.13 -12140.22 24.04 0.0

5 4 6073.28 -12138.53 25.73 0.0

123457 9 6077.74 -12137.42 26.85 0.0

1234567 10 6074.51 -12128.94 35.33 0.0

1 4 6034.40 -12060.78 103.48 0.0

123 6 6033.45 -12054.87 109.40 0.0

23 5 6013.91 -12017.80 146.46 0.0

Term codes:

Denning Moonlight Moonrise\_sun Rainfall Temperature

1 2 3 4 5

Denning:Temperature Rainfall:Temperature

6 7

Model-averaged coefficients:

(full average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 6.555e-01 6.315e-03 6.318e-03 103.756 < 2e-16 \*\*\*

Temperature 2.430e-03 2.157e-04 2.158e-04 11.260 < 2e-16 \*\*\*

Moonlight 6.374e-04 2.317e-04 2.317e-04 2.751 0.00594 \*\*

Moonrise\_sun -1.275e-06 5.360e-05 5.363e-05 0.024 0.98104

DenningYes -7.509e-03 1.350e-03 1.350e-03 5.561 < 2e-16 \*\*\*

Rainfall -2.271e-09 1.581e-06 1.581e-06 0.001 0.99885

Rainfall:Temperature 1.429e-11 4.964e-08 4.967e-08 0.000 0.99977

DenningYes:Temperature -3.589e-11 2.790e-07 2.790e-07 0.000 0.99990

(conditional average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 6.555e-01 6.315e-03 6.318e-03 103.756 <2e-16 \*\*\*

Temperature 2.430e-03 2.157e-04 2.158e-04 11.260 <2e-16 \*\*\*

Moonlight 7.051e-04 1.076e-04 1.077e-04 6.548 <2e-16 \*\*\*

Moonrise\_sun -1.410e-06 5.638e-05 5.641e-05 0.025 0.9801

DenningYes -7.510e-03 1.347e-03 1.347e-03 5.575 <2e-16 \*\*\*

Rainfall -3.345e-04 5.060e-04 5.063e-04 0.661 0.5088

Rainfall:Temperature 1.053e-05 4.129e-05 4.131e-05 0.255 0.7989

DenningYes:Temperature -1.862e-03 7.552e-04 7.556e-04 2.465 0.0137 \*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Relative variable importance:

Temperature Denning Moonlight Moonrise\_sun Rainfall Rainfall:Temperature

Importance: 1 1 0.9 0.9 <0.01 <0.01

N containing models: 7 6 7 7 3 2

Denning:Temperature

Importance: <0.01

N containing models: 1

Call:

model.avg(object = Evening\_stop)

Component model call:

lme.formula(fixed = <10 unique values>, data = Evening2, random = ~1 | ID, na.action =

na.exclude)

Component models:

df logLik AICc delta weight

1 4 6057.25 -12106.48 0.00 0.54

23 5 6058.04 -12106.05 0.43 0.43

5 4 6053.96 -12099.90 6.58 0.02

123 6 6054.71 -12097.39 9.09 0.01

15 5 6051.98 -12093.93 12.55 0.00

235 6 6051.53 -12091.03 15.44 0.00

1235 7 6048.80 -12083.56 22.92 0.00

2345 7 6043.57 -12073.10 33.37 0.00

123457 9 6031.83 -12045.59 60.88 0.00

1234567 10 6025.66 -12031.23 75.24 0.00

Term codes:

Denning Moonlight Moonrise\_sun Rainfall Temperature

1 2 3 4 5

Denning:Temperature Rainfall:Temperature

6 7

Model-averaged coefficients:

(full average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 8.210e-01 2.368e-03 2.368e-03 346.637 <2e-16 \*\*\*

DenningYes 1.782e-03 1.904e-03 1.904e-03 0.936 0.349

Moonlight -2.659e-04 3.082e-04 3.082e-04 0.863 0.388

Moonrise\_sun -3.052e-06 3.837e-05 3.839e-05 0.079 0.937

Temperature 7.931e-06 6.212e-05 6.213e-05 0.128 0.898

Rainfall -2.569e-12 2.029e-08 2.030e-08 0.000 1.000

Rainfall:Temperature 7.241e-19 8.596e-12 8.600e-12 0.000 1.000

DenningYes:Temperature -7.669e-21 4.110e-12 4.112e-12 0.000 1.000

(conditional average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 8.210e-01 2.368e-03 2.368e-03 346.637 <2e-16 \*\*\*

DenningYes 3.271e-03 1.335e-03 1.335e-03 2.449 0.0143 \*

Moonlight -6.032e-04 1.096e-04 1.096e-04 5.501 <2e-16 \*\*\*

Moonrise\_sun -6.**923e**-06 5.756e-05 5.758e-05 0.120 0.9043

Temperature 3.718e-04 2.137e-04 2.138e-04 1.739 0.0820 .

Rainfall -8.433e-05 8.006e-05 8.010e-05 1.053 0.2924

Rainfall:Temperature 2.234e-05 4.220e-05 4.222e-05 0.529 0.5967

DenningYes:Temperature -3.111e-04 7.671e-04 7.675e-04 0.405 0.6852

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Relative variable importance:

Denning Moonlight Moonrise\_sun Temperature Rainfall Rainfall:Temperature

Importance: 0.54 0.44 0.44 0.02 <0.01 <0.01

N containing models: 6 7 7 7 3 2

Denning:Temperature

Importance: <0.01

N containing models: 1

# Night

Call:

model.avg(object = Night\_dur)

Component model call:

lme.formula(fixed = <10 unique values>, data = Night2, random = ~1 | ID, na.action = na.exclude)

Component models:

df logLik AICc delta weight

1234567 10 -6122.28 12264.78 0.00 0.70

1235 7 -6126.52 12267.15 2.37 0.21

123457 9 -6125.51 12269.19 4.41 0.08

15 5 -6132.91 12275.88 11.10 0.00

2345 7 -6131.39 12276.89 12.12 0.00

235 6 -6132.41 12276.91 12.13 0.00

123 6 -6133.60 12279.28 14.50 0.00

5 4 -6138.71 12285.47 20.69 0.00

23 5 -6138.33 12286.71 21.93 0.00

1 4 -6139.58 12287.21 22.43 0.00

Term codes:

Denning Moonlight Moonrise\_sun Rainfall Temperature Denning:Temperature Rainfall:Temperature

1 2 3 4 5 6 7

Model-averaged coefficients:

(full average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) -7.4017 50.6445 50.7053 0.146 0.88394

Temperature 5.6451 1.7605 1.7626 3.203 0.00136 \*\*

Rainfall 2.6504 9.2425 9.2534 0.286 0.77455

Moonlight 2.3852 0.8128 0.8137 2.931 0.00338 \*\*

Moonrise\_sun 0.7223 0.5033 0.5039 1.433 0.15176

DenningYes 127.3608 195.2058 195.4170 0.652 0.51457

Rainfall:Temperature -0.1158 0.3459 0.3463 0.334 0.73806

DenningYes:Temperature -3.6410 7.2935 7.3014 0.499 0.61801

(conditional average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) -7.4017 50.6445 50.7053 0.146 0.88394

Temperature 5.6480 1.7563 1.7584 3.212 0.00132 \*\*

Rainfall 3.3954 10.3395 10.3520 0.328 0.74292

Moonlight 2.3918 0.8042 0.8051 2.971 0.00297 \*\*

Moonrise\_sun 0.7243 0.5026 0.5032 1.439 0.15004

DenningYes 127.7829 195.3910 195.6028 0.653 0.51358

Rainfall:Temperature -0.1487 0.3856 0.3861 0.385 0.70019

DenningYes:Temperature -5.1893 8.2329 8.2429 0.630 0.52899

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Relative variable importance:

Temperature Moonlight Moonrise\_sun Denning Rainfall Rainfall:Temperature Denning:Temperature

Importance: 1.00 1.00 1.00 1.00 0.78 0.78 0.70

N containing models: 7 7 7 6 3 2 1

Call:

model.avg(object = Night\_Intensity)

Component model call:

lme.formula(fixed = <10 unique values>, data = Night2, random = ~1 | ID, na.action = na.exclude)

Component models:

df logLik AICc delta weight

1235 7 -4092.87 8199.85 0.00 0.41

123 6 -4094.02 8200.12 0.27 0.36

23 5 -4096.16 8202.37 2.52 0.12

235 6 -4095.44 8202.96 3.11 0.09

2345 7 -4096.07 8206.26 6.41 0.02

1234567 10 -4094.01 8208.24 8.39 0.01

123457 9 -4095.11 8208.39 8.55 0.01

1 4 -4107.59 8223.23 23.38 0.00

15 5 -4106.89 8223.83 23.98 0.00

5 4 -4109.28 8226.61 26.76 0.00

Term codes:

Denning Moonlight Moonrise\_sun Rainfall Temperature Denning:Temperature Rainfall:Temperature

1 2 3 4 5 6 7

Model-averaged coefficients:

(full average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 32.3797881 7.5526180 7.5564801 4.285 1.83e-05 \*\*\*

Temperature 0.2122400 0.2594471 0.2595691 0.818 0.4135

Moonlight 0.5987190 0.1085159 0.1086465 5.511 < 2e-16 \*\*\*

Moonrise\_sun 0.1560476 0.0677579 0.0678395 2.300 0.0214 \*

DenningYes 1.9392978 3.1950678 3.1981819 0.606 0.5443

Rainfall 0.0126936 0.2048804 0.2050191 0.062 0.9506

Rainfall:Temperature -0.0006072 0.0079326 0.0079375 0.076 0.9390

DenningYes:Temperature -0.0026304 0.0936215 0.0937204 0.028 0.9776

(conditional average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 32.37979 7.55262 7.55648 4.285 1.83e-05 \*\*\*

Temperature 0.40391 0.22513 0.22540 1.792 0.0731 .

Moonlight 0.59872 0.10851 0.10864 5.511 < 2e-16 \*\*\*

Moonrise\_sun 0.15605 0.06776 0.06784 2.300 0.0214 \*

DenningYes 2.48488 3.42413 3.42786 0.725 0.4685

Rainfall 0.44462 1.13060 1.13148 0.393 0.6944

Rainfall:Temperature -0.05100 0.05211 0.05217 0.978 0.3283

DenningYes:Temperature -0.42523 1.11232 1.11366 0.382 0.7026

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Relative variable importance:

Moonlight Moonrise\_sun Denning Temperature Rainfall Rainfall:Temperature Denning:Temperature

Importance: 1.00 1.00 0.78 0.53 0.03 0.01 0.01

N containing models: 7 7 6 7 3 2 1

Call:

model.avg(object = Night\_start)

Component model call:

lme.formula(fixed = <10 unique values>, data = Night2, random = ~1 | ID, na.action = na.exclude)

Component models:

df logLik AICc delta weight

5 4 -565.00 1138.05 0.00 0.89

15 5 -566.61 1143.28 5.23 0.07

1 4 -568.87 1145.77 7.73 0.02

235 6 -566.91 1145.90 7.85 0.02

23 5 -569.17 1148.39 10.34 0.01

1235 7 -568.65 1151.40 13.36 0.00

123 6 -571.07 1154.23 16.19 0.00

2345 7 -570.26 1154.63 16.58 0.00

123457 9 -577.27 1172.71 34.66 0.00

1234567 10 -578.95 1178.12 40.07 0.00

Term codes:

Denning Moonlight Moonrise\_sun Rainfall Temperature Denning:Temperature Rainfall:Temperature

1 2 3 4 5 6 7

Model-averaged coefficients:

(full average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 1.141e+00 2.153e-01 2.155e-01 5.297 1e-07 \*\*\*

Temperature -2.327e-02 7.568e-03 7.575e-03 3.071 0.00213 \*\*

DenningYes -3.119e-03 2.074e-02 2.076e-02 0.150 0.88057

Moonlight 9.524e-05 8.020e-04 8.024e-04 0.119 0.90552

Moonrise\_sun -1.969e-04 1.293e-03 1.293e-03 0.152 0.87893

Rainfall 1.301e-06 1.018e-04 1.018e-04 0.013 0.98980

Rainfall:Temperature 3.254e-11 3.404e-07 3.406e-07 0.000 0.99992

DenningYes:Temperature 7.641e-11 2.351e-06 2.353e-06 0.000 0.99997

(conditional average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 1.141352 0.215272 0.215470 5.297 1e-07 \*\*\*

Temperature -0.023841 0.006710 0.006718 3.549 0.000387 \*\*\*

DenningYes -0.036589 0.061824 0.061893 0.591 0.554415

Moonlight 0.003920 0.003388 0.003392 1.156 0.247797

Moonrise\_sun -0.008106 0.002162 0.002165 3.744 0.000181 \*\*\*

Rainfall 0.005809 0.003538 0.003543 1.640 0.101088

Rainfall:Temperature 0.001150 0.001665 0.001667 0.690 0.490294

DenningYes:Temperature 0.043087 0.035517 0.035560 1.212 0.225636

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Relative variable importance:

Temperature Denning Moonlight Moonrise\_sun Rainfall Rainfall:Temperature Denning:Temperature

Importance: 0.98 0.09 0.02 0.02 <0.01 <0.01 <0.01

N containing models: 7 6 7 7 3 2 1

stop

Component models:

df logLik AICc delta weight

23 5 -133.51 277.07 0.00 0.85

123 6 -134.33 280.74 3.67 0.14

235 6 -136.87 285.82 8.75 0.01

1235 7 -138.10 290.32 13.25 0.00

1 4 -143.11 294.26 17.19 0.00

2345 7 -140.66 295.42 18.35 0.00

5 4 -146.05 300.14 23.07 0.00

15 5 -147.03 304.12 27.05 0.00

123457 9 -146.90 311.97 34.90 0.00

1234567 10 -148.10 316.41 39.34 0.00

Term codes:

Denning Moonlight Moonrise\_sun Rainfall Temperature Denning:Temperature Rainfall:Temperature

1 2 3 4 5 6 7

Model-averaged coefficients:

(full average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 3.527e-01 3.016e-02 3.018e-02 11.686 <2e-16 \*\*\*

Moonlight -1.402e-02 2.239e-03 2.241e-03 6.254 <2e-16 \*\*\*

Moonrise\_sun 1.644e-03 1.416e-03 1.418e-03 1.159 0.246

DenningYes 9.181e-03 2.708e-02 2.708e-02 0.339 0.735

Temperature -7.829e-05 8.640e-04 8.643e-04 0.091 0.928

Rainfall 3.365e-07 4.248e-05 4.250e-05 0.008 0.994

Rainfall:Temperature -3.491e-11 2.801e-07 2.803e-07 0.000 1.000

DenningYes:Temperature 1.028e-10 2.377e-06 2.378e-06 0.000 1.000

(conditional average)

Estimate Std. Error Adjusted SE z value Pr(>|z|)

(Intercept) 0.352717 0.030162 0.030182 11.686 <2e-16 \*\*\*

Moonlight -0.014020 0.002231 0.002234 6.276 <2e-16 \*\*\*

Moonrise\_sun 0.001644 0.001416 0.001418 1.159 0.2464

DenningYes 0.066921 0.038464 0.038510 1.738 0.0823 .

Temperature -0.006559 0.004476 0.004481 1.464 0.1433

Rainfall 0.003820 0.002428 0.002431 1.571 0.1161

Rainfall:Temperature -0.001400 0.001090 0.001091 1.283 0.1995

DenningYes:Temperature 0.042131 0.023238 0.023267 1.811 0.0702 .

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Relative variable importance:

Moonlight Moonrise\_sun Denning Temperature Rainfall Rainfall:Temperature Denning:Temperature

Importance: 1 1 0.14 0.01 <0.01 <0.01 <0.01

N containing models: 7 7 6 7 3 2 1