

Trait Model Selection

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Model Selection for Trait Model using GJAM

The most appropriate model is selected using a model selection approach and based on the Deviance Information Criterion (DIC) and a Bayesian score. The model with the highest score or the lowest DIC value is selected.

Predictors

The proposed models may consist of climatological variables (including mean winter temperature, soil moisture, hydrothermal deficit and hydrothermal surplus), soil data, topographical data (slope and aspect) and their interactions. The table below shows how different models explain the response variables throughout the dataset.

| No | Predictors | DIC | xScore | yScore |
|-----|--|----------|--------|--------|
| 149 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:temp, moisture:soil5, temp:soil5, deficit:soil5, deficit:temp | 0 | -8.49 | 146060 |
| 148 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:deficit, moisture:soil5, temp:soil5, deficit:soil5, deficit:temp | 2.89e+32 | -8.95 | 145348 |
| 150 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:deficit, moisture:temp, moisture:soil5, temp:soil5, deficit:soil5, deficit:temp | 4.73e+32 | -9.37 | 144545 |
| 144 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:soil5, temp:soil5, deficit:soil5, deficit:temp | 8.54e+32 | -7.94 | 144248 |
| 147 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:deficit, moisture:temp, temp:soil5, deficit:soil5, deficit:temp | 1.2e+33 | -9.12 | 143644 |
| 142 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:temp, moisture:soil5, temp:soil5, deficit:temp | 1.4e+33 | -8.64 | 144134 |
| 145 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:deficit, moisture:temp, moisture:soil5, temp:soil5, deficit:temp | 1.79e+33 | -9.46 | 143854 |
| 138 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:deficit, moisture:temp, temp:soil5, deficit:temp | 1.8e+33 | -9.59 | 144691 |
| 78 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:surplus, moisture:deficit, moisture:temp, moisture:soil5, temp:soil5, deficit:soil5 | 1.9e+33 | -13.5 | 144783 |

| No | Predictors | DIC | xScore | yScore |
|-----|---|----------|--------|--------|
| 134 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:soil5, temp:soil5, deficit:temp | 2.2e+33 | -7.87 | 144599 |
| 74 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:surplus, moisture:deficit, moisture:soil5, temp:soil5, deficit:soil5 | 2.21e+33 | -12.6 | 144093 |
| 140 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:deficit, moisture:soil5, temp:soil5, deficit:temp | 2.34e+33 | -9.36 | 143534 |
| 141 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:deficit, moisture:soil5, deficit:soil5, deficit:temp | 2.59e+33 | -7.86 | 144106 |
| 73 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:surplus, moisture:temp, moisture:soil5, temp:soil5, deficit:soil5 | 2.61e+33 | -12.2 | 143967 |
| 146 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:deficit, moisture:temp, moisture:soil5, deficit:soil5, deficit:temp | 2.66e+33 | -7.97 | 143128 |
| 72 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:deficit, moisture:temp, moisture:soil5, temp:soil5, deficit:soil5 | 2.76e+33 | -9.43 | 144134 |
| 124 | ~ temp, moisture, deficit, soil5, u1, u2, u3, moisture:deficit, moisture:soil5, temp:soil5, deficit:soil5, deficit:temp | 2.78e+33 | -9.62 | 144184 |
| 132 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:temp, temp:soil5, deficit:temp | 2.78e+33 | -8.17 | 143170 |
| 135 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:soil5, deficit:soil5, deficit:temp | 2.78e+33 | -6.93 | 144147 |
| 126 | ~ temp, moisture, deficit, soil5, u1, u2, u3, moisture:deficit, moisture:temp, moisture:soil5, temp:soil5, deficit:soil5, deficit:temp | 2.82e+33 | -9.87 | 144744 |
| 121 | ~ temp, moisture, deficit, soil5, u1, u2, u3, moisture:deficit, moisture:temp, moisture:soil5, temp:soil5, deficit:temp | 2.87e+33 | -9.68 | 143511 |
| 129 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:deficit, temp:soil5, deficit:temp | 3.07e+33 | -9.37 | 143219 |
| 71 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:temp, moisture:soil5, temp:soil5, deficit:soil5 | 3.08e+33 | -8.2 | 142857 |
| 110 | ~ temp, moisture, deficit, soil5, u1, u2, u3, moisture:soil5, temp:soil5, deficit:temp | 3.14e+33 | -8.27 | 143585 |

| No | Predictors | DIC | xScore | yScore |
|-----|--|----------|--------|--------|
| 300 | ~ temp, moisture, deficit, surplus, soil4, u1, u2, u3, moisture:deficit, moisture:temp, moisture:soil4, temp:soil4, deficit:soil4, deficit:temp | 3.22e+33 | -8.89 | 143724 |
| 299 | ~ temp, moisture, deficit, surplus, soil4, u1, u2, u3, moisture:temp, moisture:soil4, temp:soil4, deficit:soil4, deficit:temp | 3.24e+33 | -8.05 | 143850 |
| 116 | ~ temp, moisture, deficit, soil5, u1, u2, u3, moisture:deficit, moisture:soil5, temp:soil5, deficit:temp | 3.26e+33 | -9.49 | 144125 |
| 125 | ~ temp, moisture, deficit, soil5, u1, u2, u3, moisture:temp, moisture:soil5, temp:soil5, deficit:soil5, deficit:temp | 3.26e+33 | -9.28 | 144107 |
| 118 | ~ temp, moisture, deficit, soil5, u1, u2, u3, moisture:temp, moisture:soil5, temp:soil5, deficit:temp | 3.38e+33 | -8.83 | 144297 |
| 63 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:surplus, moisture:deficit, temp:soil5, deficit:soil5 | 3.38e+33 | -13 | 143002 |
| 55 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:temp, moisture:soil5, temp:soil5 | 3.38e+33 | -6.02 | 143904 |
| 77 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:surplus, moisture:deficit, moisture:temp, moisture:soil5, temp:soil5 | 3.43e+33 | -13.5 | 143326 |
| 143 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:temp, moisture:soil5, deficit:soil5, deficit:temp | 3.49e+33 | -7.42 | 143610 |
| 66 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:surplus, moisture:temp, temp:soil5, deficit:soil5 | 3.56e+33 | -11.9 | 142798 |
| 57 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:soil5, temp:soil5, deficit:soil5 | 3.67e+33 | -7.51 | 143214 |
| 137 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:deficit, moisture:temp, moisture:soil5, deficit:temp | 3.7e+33 | -8.6 | 143759 |
| 120 | ~ temp, moisture, deficit, soil5, u1, u2, u3, moisture:soil5, temp:soil5, deficit:soil5, deficit:temp | 3.75e+33 | -8.59 | 144479 |
| 53 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:deficit, moisture:soil5, temp:soil5 | 3.89e+33 | -9.53 | 143394 |
| 294 | ~ temp, moisture, deficit, surplus, soil4, u1, u2, u3, moisture:soil4, temp:soil4, deficit:soil4, deficit:temp | 3.95e+33 | -7.57 | 143510 |

| No | Predictors | DIC | xScore | yScore |
|-----|---|----------|--------|--------|
| 298 | ~ temp, moisture, deficit, surplus, soil4, u1, u2, u3, moisture:deficit, moisture:soil4, temp:soil4, deficit:soil4, deficit:temp | 3.96e+33 | -8.48 | 142684 |
| 114 | ~ temp, moisture, deficit, soil5, u1, u2, u3, moisture:deficit, moisture:temp, temp:soil5, deficit:temp | 4.1e+33 | -9.31 | 143217 |
| 297 | ~ temp, moisture, deficit, surplus, soil4, u1, u2, u3, moisture:deficit, moisture:temp, temp:soil4, deficit:soil4, deficit:temp | 4.11e+33 | -8.39 | 142754 |
| 123 | ~ temp, moisture, deficit, soil5, u1, u2, u3, moisture:deficit, moisture:temp, temp:soil5, deficit:soil5, deficit:temp | 4.19e+33 | -9.47 | 144112 |
| 96 | ~ temp, moisture, deficit, soil5, u1, u2, u3, moisture:soil5, temp:soil5, deficit:soil5 | 4.28e+33 | -8.61 | 142162 |
| 56 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:temp, moisture:soil5, deficit:soil5 | 4.29e+33 | -7.34 | 143212 |
| 293 | ~ temp, moisture, deficit, surplus, soil4, u1, u2, u3, moisture:temp, moisture:soil4, deficit:soil4, deficit:temp | 4.29e+33 | -7.23 | 144103 |
| 284 | ~ temp, moisture, deficit, surplus, soil4, u1, u2, u3, moisture:soil4, temp:soil4, deficit:temp | 4.33e+33 | -7.7 | 144143 |
| 131 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:temp, moisture:soil5, deficit:temp | 4.4e+33 | -7.58 | 143900 |
| 290 | ~ temp, moisture, deficit, surplus, soil4, u1, u2, u3, moisture:deficit, moisture:soil4, temp:soil4, deficit:temp | 4.49e+33 | -8.62 | 142476 |
| 48 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:surplus, moisture:soil5, temp:soil5 | 4.55e+33 | -9.39 | 142597 |
| 286 | ~ temp, moisture, deficit, surplus, soil4, u1, u2, u3, temp:soil4, deficit:soil4, deficit:temp | 4.66e+33 | -5.18 | 143759 |
| 70 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:deficit, moisture:soil5, temp:soil5, deficit:soil5 | 4.7e+33 | -8.95 | 142139 |
| 51 | ~ temp, moisture, deficit, surplus, soil5, u1, u2, u3, moisture:deficit, moisture:temp, temp:soil5 | 4.78e+33 | -10.1 | 142331 |
| 97 | ~ temp, moisture, deficit, soil5, u1, u2, u3, moisture:deficit, moisture:temp, moisture:soil5, temp:soil5 | 4.92e+33 | -9.9 | 142706 |
| 108 | ~ temp, moisture, deficit, soil5, u1, u2, u3, moisture:temp, temp:soil5, deficit:temp | 5.4e+33 | -8.26 | 143783 |