* **Results:**

The results of linear mixed model analysis supported the hypothesis that the magnitude of the effect of net radiation (Rn) on the fluxes (ET) varies across seasons. The model included fluxes as the dependent variable with fixed effects of Rn and random effects of intercepts and the season. The model specification was as follows: ET ~ 1 + Rn + (1 + Rn|Season).

There was a significant fixed effect of Rn (p<0.05) on fluxes with the effect size of 0.000385 ± 0.000095. Additionally, the results showed that the random slope random intercept model has the lowest AIC suggesting that this is the best-fit model given the data (Table 1). These results reinforce our hypothesis that the magnitude of the effect of Rn on fluxes varies among groups (Season).

**Table 1.** Results of Akaike’s Information Criteria (AIC) approach for model selection.

**Models K AIC BIC logLik deviance Chisq Df Pr(>Chisq)**

ET ~ 1 + (1 | Season) 3 -19229 -19206 9617.3 -19235

ET ~ 1 + Rn + (1 | Season) 4 -27837 -27807 13922.4 -27845 8610.3 1 < 2.2e-16 \*\*\*

ET ~ 1 + Rn + (1 + Rn | Season) 6 -29632 -29587 14821.9 -29644 1799.0 2 < 2.2e-16 \*\*\*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Model** | **df** | **AIC** | **RMSE** | **R-squared** |
| Linear | 9 | -23388 | 0.00687 | 0.6213 |
| GAM additive | 35 | -25019 | 0.00605 | 0.6500 |
| GAM interactive | 95 | -26396 | 0.00541 | 0.6950 |
| GAM tensor smooth | 312 | -28195 | 0.00524 | 0.7780 |