| Model | df | logLik | AICc | Delta AIC | Weight | R2 |
| --- | --- | --- | --- | --- | --- | --- |
| Biomass (g AFDM/m2) |
| te(Temperature, P, Date) | 50 | -278.3 | 699.4 | 0.00 | 1.00 | 0.96 |
| te(Temperature, P) | 26 | -409.0 | 880.4 | 180.93 | 0.00 | 0.88 |
| s(Temperature, Date) | 11 | -453.4 | 931.8 | 232.39 | 0.00 | 0.73 |
| s(Temperature, Date) + s(P, Date) | 11 | -453.4 | 931.8 | 232.39 | 0.00 | 0.73 |
| s(Temperature, Date) + s(P) | 11 | -453.2 | 932.2 | 232.75 | 0.00 | 0.73 |
| s(Temperature) | 8 | -462.3 | 942.2 | 242.75 | 0.00 | 0.73 |
| s(Temperature) + s(P, Date) | 8 | -462.3 | 942.2 | 242.76 | 0.00 | 0.73 |
| s(Temperature) + s(P) | 8 | -461.8 | 942.6 | 243.20 | 0.00 | 0.73 |
| Intercept-only | 3 | -643.7 | 1295.5 | 596.05 | 0.00 | 0.02 |
| s(P, Date) | 3 | -643.7 | 1295.5 | 596.05 | 0.00 | 0.02 |
| s(P) | 3 | -643.7 | 1295.5 | 596.05 | 0.00 | 0.02 |
| ER (µM C/m2/h) |
| s(Temperature, Date) + s(P, Date) | 7 | -496.9 | 1012.4 | 0.00 | 0.54 | 0.75 |
| s(Temperature, Date) + s(P) | 7 | -497.6 | 1013.7 | 1.21 | 0.30 | 0.72 |
| s(Temperature, Date) | 6 | -499.6 | 1015.0 | 2.58 | 0.15 | 0.72 |
| s(Temperature) + s(P) | 6 | -503.8 | 1021.9 | 9.44 | 0.00 | 0.68 |
| s(Temperature) | 5 | -505.8 | 1023.4 | 10.92 | 0.00 | 0.69 |
| s(Temperature) + s(P, Date) | 5 | -506.8 | 1024.7 | 12.24 | 0.00 | 0.71 |
| te(Temperature, P) | 12 | -499.9 | 1030.5 | 18.08 | 0.00 | 0.68 |
| te(Temperature, P, Date) | 31 | -466.9 | 1069.3 | 56.83 | 0.00 | 0.86 |
| Intercept-only | 3 | -562.2 | 1130.8 | 118.31 | 0.00 | 0.00 |
| s(P) | 3 | -562.2 | 1130.8 | 118.31 | 0.00 | 0.00 |
| s(P, Date) | 3 | -561.6 | 1131.1 | 118.70 | 0.00 | 0.01 |
| GPP (µM C/m2/h) |
| s(Temperature) + s(P, Date) | 8 | -554.4 | 1130.5 | 0.00 | 0.59 | 0.73 |
| s(Temperature) + s(P) | 8 | -555.1 | 1131.8 | 1.31 | 0.30 | 0.70 |
| s(Temperature) | 7 | -558.2 | 1134.9 | 4.40 | 0.06 | 0.67 |
| s(Temperature, Date) + s(P, Date) | 11 | -554.1 | 1136.6 | 6.13 | 0.03 | 0.73 |
| s(Temperature, Date) + s(P) | 11 | -554.4 | 1137.8 | 7.31 | 0.02 | 0.70 |
| s(Temperature, Date) | 10 | -557.9 | 1140.9 | 10.43 | 0.00 | 0.67 |
| te(Temperature, P) | 16 | -550.2 | 1148.0 | 17.54 | 0.00 | 0.69 |
| te(Temperature, P, Date) | 25 | -545.5 | 1182.3 | 51.77 | 0.00 | 0.75 |
| Intercept-only | 3 | -615.5 | 1237.4 | 106.90 | 0.00 | 0.00 |
| s(P, Date) | 3 | -614.7 | 1237.6 | 107.08 | 0.00 | 0.02 |
| s(P) | 3 | -615.3 | 1237.7 | 107.22 | 0.00 | 0.00 |
| NEP (µM C/m2/h) |
| s(Temperature) + s(P, Date) | 9 | -539.3 | 1100.6 | 0.00 | 0.50 | 0.58 |
| s(Temperature) + s(P) | 9 | -539.7 | 1101.3 | 0.71 | 0.35 | 0.57 |
| s(Temperature) | 8 | -542.2 | 1103.3 | 2.69 | 0.13 | 0.51 |
| s(Temperature, Date) + s(P, Date) | 12 | -539.1 | 1109.9 | 9.28 | 0.00 | 0.58 |
| s(Temperature, Date) + s(P) | 12 | -539.6 | 1111.0 | 10.37 | 0.00 | 0.57 |
| s(Temperature, Date) | 11 | -542.6 | 1113.2 | 12.61 | 0.00 | 0.52 |
| te(Temperature, P) | 16 | -536.9 | 1119.3 | 18.65 | 0.00 | 0.56 |
| te(Temperature, P, Date) | 22 | -538.2 | 1153.3 | 52.62 | 0.00 | 0.56 |
| Intercept-only | 3 | -589.9 | 1186.3 | 85.62 | 0.00 | 0.00 |
| s(P, Date) | 3 | -589.1 | 1186.4 | 85.77 | 0.00 | 0.02 |
| s(P) | 3 | -589.4 | 1186.8 | 86.11 | 0.00 | 0.01 |
| N fixation (µM N/m2/h) |
| s(Temperature) | 7 | -322.0 | 662.6 | 0.00 | 0.59 | 0.54 |
| s(Temperature) + s(P) | 8 | -321.7 | 663.3 | 0.75 | 0.40 | 0.55 |
| te(Temperature, P) | 15 | -315.1 | 672.2 | 9.63 | 0.00 | 0.63 |
| s(Temperature, Date) | 8 | -327.9 | 676.4 | 13.77 | 0.00 | 0.52 |
| s(Temperature, Date) + s(P, Date) | 9 | -327.5 | 677.0 | 14.38 | 0.00 | 0.53 |
| s(Temperature, Date) + s(P) | 9 | -327.5 | 677.2 | 14.59 | 0.00 | 0.54 |
| s(Temperature) + s(P, Date) | 4 | -336.5 | 683.4 | 20.78 | 0.00 | 0.53 |
| te(Temperature, P, Date) | 20 | -320.4 | 705.1 | 42.52 | 0.00 | 0.57 |
| Intercept-only | 3 | -366.8 | 740.0 | 77.45 | 0.00 | 0.00 |
| s(P, Date) | 3 | -366.8 | 740.0 | 77.46 | 0.00 | 0.00 |
| s(P) | 3 | -366.2 | 740.4 | 77.83 | 0.00 | 0.01 |