Statistics summary table

Table 1. Summary statistics.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Method** | **Mean** | | **Median** | **SD** | **Range** |
| All units:μmol CO2 m−2**·**s−1 | | **TPU-Enabled (N = 27 pairs)** | | | |
| *Vcmax* |  | |  |  |  |
| DAT | 33.2 | | 28.5 | 17.8 | 10.1, 80.9 |
| SS | 34.2 | | 26.7 | 18.3 | 11.0, 83.2 |
| *Jmax* |  | |  |  |  |
| DAT | 51.6 | | 48.4 | 24.2 | 11.8, 112.4 |
| SS | 59.6 | | 52.4 | 26.2 | 24.0, 120.5 |
| **No TPU (N = 27 pairs)** | | | | | |
| *Vcmax* |  | |  |  |  |
| DAT | 31.6 | | 28.5 | 15.9 | 9.92, 69.9 |
| SS | 33.7 | | 26.7 | 18.2 | 11.0, 83.2 |
| *Jmax* |  | |  |  |  |
| DAT | 47.4 | | 47.4 | 20.3 | 9.51, 100.4 |
| SS | 58.3 | | 51.6 | 25.0 | 24.0, 114.5 |
| **TPU-enabled, *Only* Curves without Overshoot (N = 19 pairs)** | | | | | |
| *Vcmax* |  | |  |  |  |
| DAT | 29.7 | | 24.7 | 14.0 | 10.1, 67.6 |
| SS | 30.6 | | 25.9 | 14.2 | 11.0, 64.0 |
| *Jmax* |  | |  |  |  |
| DAT | 51.3 | | 47.8 | 19.1 | 22.7, 100.5 |
| SS | 55.6 | | 51.6 | 19.9 | 24.0, 105.9 |
| **No TPU, *Only* Curves without Overshoot (N = 19 pairs)** | | | | | |
| *Vcmax* |  | |  |  |  |
| DAT | 28.9 | | 24.7 | 13.5 | 9.9, 67.4 |
| SS | 30.6 | | 25.9 | 14.2 | 11.0, 64.0 |
| *Jmax* |  | |  |  |  |
| DAT | 50.2 | | 47.4 | 17.5 | 23.6, 100.4 |
| SS | 55.6 | | 51.6 | 19.9 | 24.0, 105.9 |

TO DO:

* Look for outliers/sensitivity
  + I took a quick look at the one-to-one plots, and I’m not sure we could say that any of our values are outliers/have high influence. There are a few that don’t line up perfectly, but I don’t know that we could really say they are outliers.

Title ideas:

Impact of DAT on photosynthetic parameters Vcmax and Jmax

DAT method yields “comparable” Vcmax parameter estimates but underestimates Jmax compared to steady-state method in a species-rich tropical forest

Table 1. Wilcoxon signed-rank paired t-tests.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Comparison**  (All units: μmol CO2 m−2**·**s−1) | **MDE** | **V Statistic** | **P-value** | **Effect Size** | **95% CI of the MDE** |
| **DAT vs. SS: TPU-Enabled** | | | | | |
| *Vcmax* (N = 27 pairs) | -0.78 | 115 | 0.0772 | 0.342 | -1.68 – 0.09 |
| *Jmax* (N = 27 pairs) | -5.64 | 10 | <0.00001\*\*\*\* | 0.828 | -7.83 – -3.91 |
| *\*TPU (N = 6 pairs)* | *-1.88* | *0* | *0.031\** | *0.899* | *-3.00 – -1.17* |
| **DAT vs. SS: No TPU** | | | | | |
| *Vcmax* (N = 27 pairs) | -1.69 | 78 | 0.0065\*\* | 0.513 | -3.18 – -0.48 |
| *Jmax* (N = 27 pairs) | -8.87 | 4 | <0.00001\*\*\*\* | 0.855 | -13.40 – -5.01 |
| **DAT vs. SS: TPU-Enabled, *Only* Curves without Overshoot** | | | | | |
| *Vcmax* (N = 19 pairs) | -0.96 | 46 | 0.0494\* | 0.452 | -1.92 – -0.06 |
| *Jmax* (N = 19 pairs) | -4.34 | 10 | 0.00016\*\*\* | 0.785 | -6.02 – -2.51 |
| **DAT vs. SS: No TPU, *Only* Curves without Overshoot** | | | | | |
| *Vcmax* (N = 19 pairs) | -1.47 | 36 | 0.016\* | 0.545 | -2.71 – -0.253 |
| *Jmax* (N = 19 pairs) | -4.59 | 4 | 0.00003\*\*\* | 0.840 | -7.15 – -2.89 |

Notes: The small sample size makes comparisons underpowered for the TPU comparison (last row). Bolded values denote the 95% confidence intervals that cross zero. Effect size is Z/sqrt(N).

Sign-test also performed for Jmax for the full data:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Estimate | Statistic | P-value | 95% CI of the estimate |
| **No TPU (N=28 pairs)** | | | | |
| DAT vs. steady-state |  |  |  |  |
| Jmax | -6.47 | 1 | <0.00001\*\*\*\* | -13.4 – -2.98 |
| **TPU (N = 28 pairs)** | | | | |
| DAT vs. steady-state |  |  |  |  |
| Jmax | -5.39 | 2 | <0.00001\*\*\*\* | -8.14 – -3.27 |

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**Comparing MG to Photo (just to note, probably don’t need to report stats):**

Vcmax by method not significant with pooled data

Vcmax by fit type (MG or photo) not significant with pooled data

Jmax by method not significant with pooled data

Jmax by fit type (MG or photo) not significant with pooled data

Vcmax: compared ANOVA models. Most support for the intercept model (AICc = 1041.1, AICcWt = 0.53, LL = -518.5).

Jmax: compared ANOVA models. Some support for ‘method’ model (AICc = 1114.9, AICcWt = 0.58, LL = -554.3).