

SATURN-07 Phycoerythrin Data QA/QC

4/13/21 - 3/1/22

CORRECTION FOR DRIFT:

8/8/21 - 10/20/21 - a correction for sensor drift, most likely due to fouling, has been applied to the data during this time. Following this period of drift, the sensor became too fouled for data to be corrected and have been flagged as bad. The data have been corrected for a baseline drift of -0.09 rfu between 8/8/21 & 10/20/21.

SCALING OF DATA:

Prior to deployment at SATURN-07, the phycoerythrin (PE) sensor was co-deployed at SATURN-03 along with the regular SATURN-03 sensors, allowing for comparison with the SATURN-03 PE sensor output. Following correction for baseline drift, the output of the sensor was scaled to match the output of the phycoerythrin sensor deployed at SATURN-03.

$$\text{scaled PE} = \text{drift corrected PE} * 3.71 - 0.797.$$

Scaling to a common output allows phycoerythrin data from these stations to be directly comparable but does not represent a calibration of the sensor output to units of concentration. The data units should be considered relative fluorescent units (rfu).

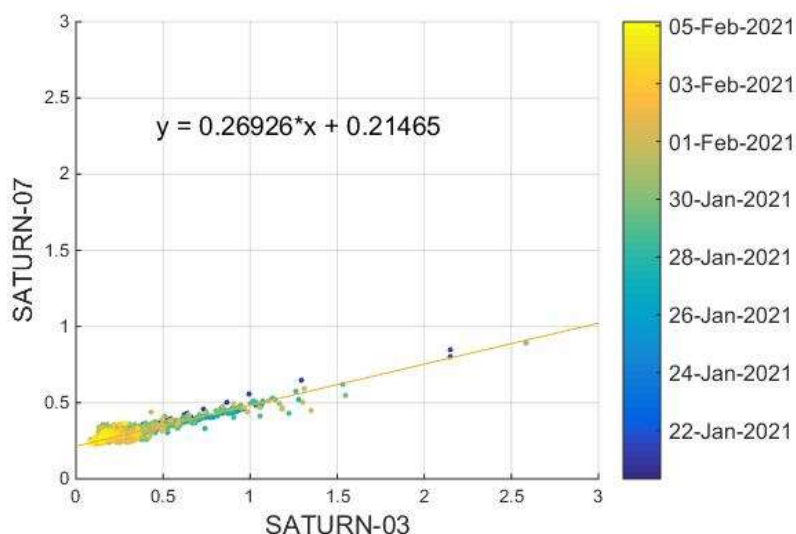


Figure 1: Relationship between sensor outputs for the SATURN-07 phycoerythrin sensor co-deployed at SATURN-03. This relationship was used to scale the output of the SATURN-07 sensor so that data between station can be inter-related.

CORRECTION FOR TURBIDITY ARTIFACT:

Using the drift corrected and scaled data, the relationship between the phycoerythrin and quality controlled turbidity data was determined and a correction for the turbidity artifact was calculated. The value subtracted from the scaled data = $0.0193 * \text{turbidity} + 0.10$.