

SATURN-09 Turbidity Data QA/QC

9/23/14 - 5/1/16

OFFSET CORRECTIONS:

The Turner Designs Cyclops 7 turbidity sensor was deployed at SATURN-09 in September 2014, with a baseline offset of 19 rfu (based on pre-deployment DI water readings). Periods of sensor drift/fouling resulted in additional offset during some periods. The sensor was recovered in late April 2015. After cleaning and redeployment, the shift in the baseline was used to estimate the maximum extent of sensor drift in addition to the baseline offset

Following re-deployment in April 2015 the sensor remained stable for a short period but began to drift in June 2015. While a post-deployment measurement of DI indicates that the sensor offset was approximately 17 rfu's in addition to the baseline, the data pattern during this period is suspect. A correction for total offset (assuming linear drift) has been applied, however, without additional information to evaluate data quality during this period, the data have been flagged as QL4. The correction and quality controlled data are summarized in the figures and tables below.

<i>Start time</i>	<i>End time</i>	<i>Baseline offset (rfu)</i>	<i>Additional Fouling/ drift (rfu)</i>	<i>Starting total offset (rfu)</i>	<i>Final total offset (rfu)</i>
9/8/14	4/24/15	19	17	19	36
4/24/15	6/19/15	19	0	19	19
6/19/15	3/17/16	19	17	19	36* data during this period are suspect and the data have been flagged as poor

Table 1: Corrections applied to SATURN-09 turbidity data between January 2015 and April 2016. Drift between starting and ending offsets assumed to be linear. Corrections are approximate and do not address any potential signal quenching or degradation caused by fouling.

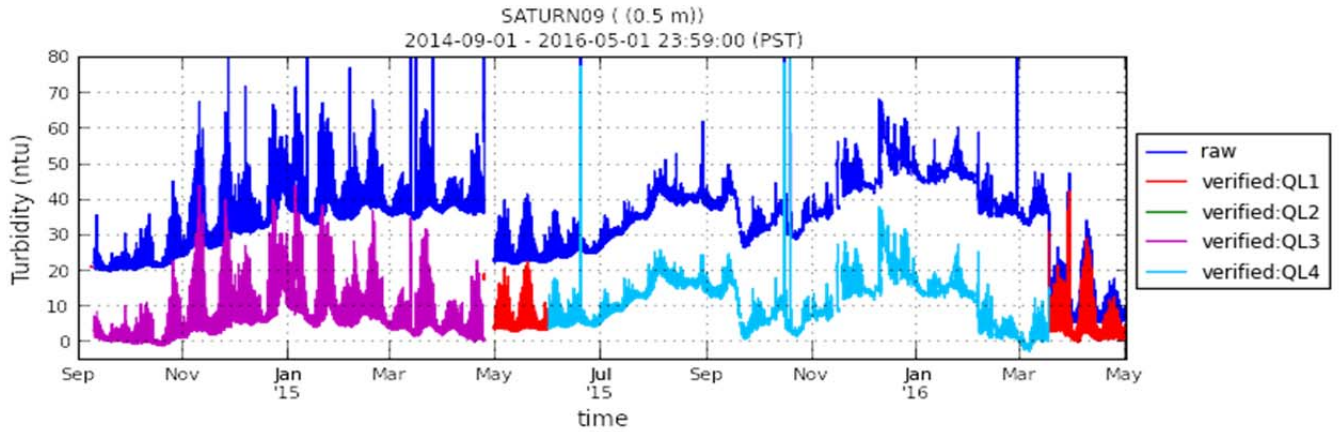


Figure 2: Raw and quality controlled data from SATURN-09 via the data explorer

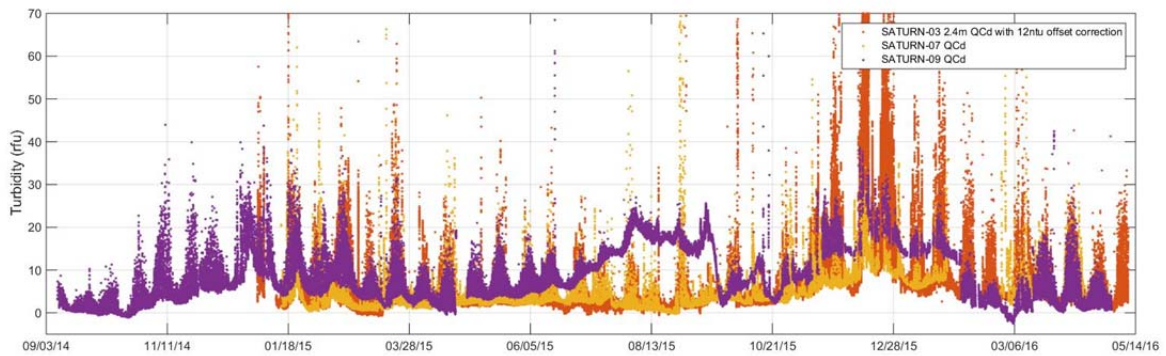


Figure 3. The quality controlled and corrected SATURN-09 data (purple) relative to quality controlled data from SATURN-03 (red; also corrected here for a 12 rfu baseline offset) and SATURN-07.

CALIBRATION:

Units are relative fluorescence units (RFUs) only. No additional calibration is currently available for this sensor. Data may not be directly comparable to turbidity sensors deployed at other stations. See turbidity QA/QC information page for additional information:

http://www.stccmop.org/book/qaqc_information/qaqc_turbidity