

SATURN-07 Turbidity Data QA/QC

1/1/15 - 5/1/16

OFFSET CORRECTIONS:

The Turner Designs Cyclops 7 turbidity sensor was deployed at SATURN-07 in January 2015. A pre-deployment reading in DI water indicated the sensor had an approximate baseline offset of 19 rfu.

The buoy was visited and serviced on 5/7/15 and again on 7/29/15. During these visits DI water was run through the sensors before and following cleaning. These readings, along with the concurrent shift in data indicate that the sensor fouled, or new placement of the flow cell caused a shift in baseline. These readings, along with the post-recovery reading of DI were used to correct for several periods of baseline drift during the deployment. The turbidity sensor was recovered, cleaned, tested and re-deployed in late February 2016. The new baseline offset was much lower (~3.4 rfu) as indicated by DI water readings. The correction and quality controlled data are summarized in the figures and tables below.

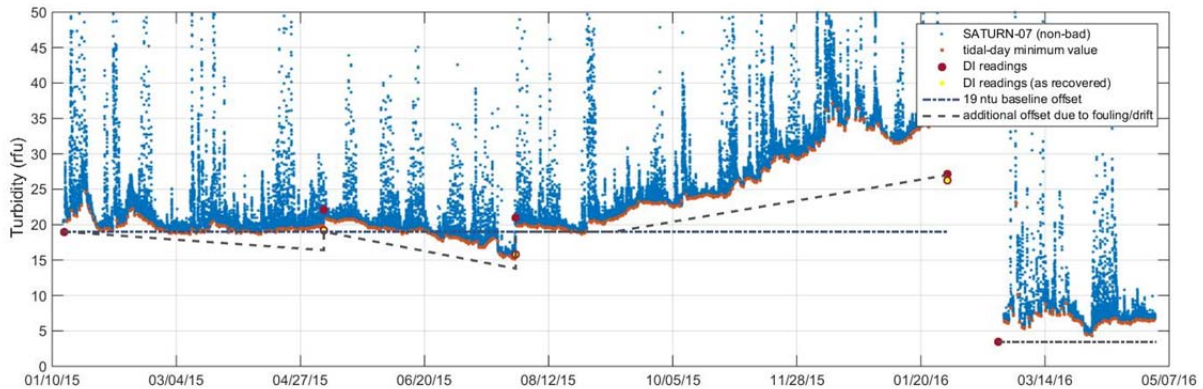


Figure 1. The non-bad raw data are shown in blue, with the tidal-day minimum values shown in rust color points. The double dashed line indicates the stable 19 rfu offset subtracted from the raw data while the single hatched lines show the offsets subtracted from the data after the periods of fouling/drift are included.

Table 1: Corrections applied to SATURN-07 turbidity data between January 2015 and April 2016

<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>
1/1/15	5/7/2015 11:09	19	-1.7	19	17.3
5/7/2015 11:09	7/29/15 10:30	19	-5.127	19	13.873
7/29/15 10:30	9/10/15	19	0	19	19
9/10/15	1/30/16	19	8	19	27
2/20/16	5/1/16	3.4	0	3.4	3.4

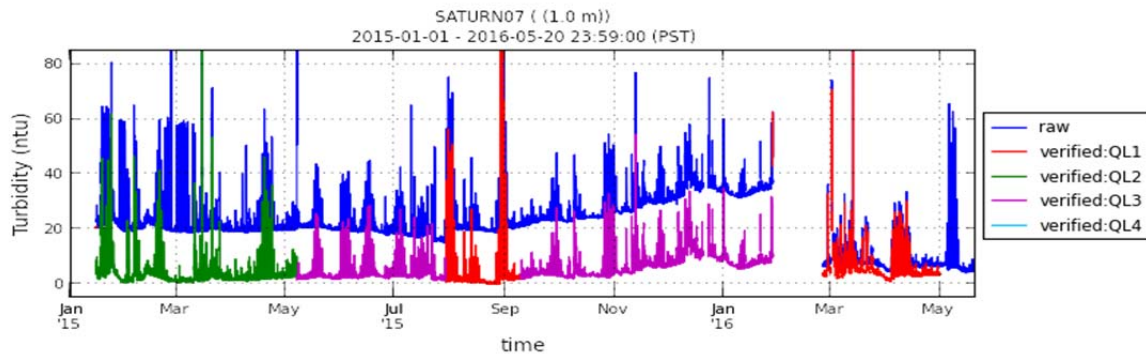


Figure 2: Raw and quality controlled data from SATURN-07 via the data explorer

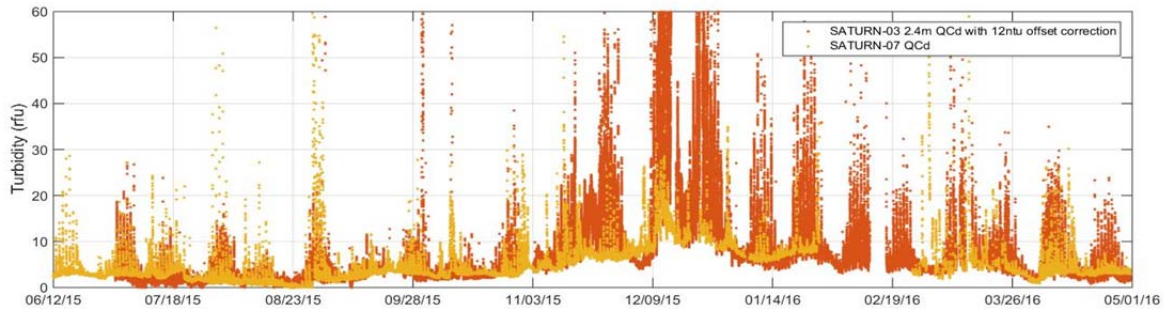


Figure 3. The quality controlled and corrected SATURN-07 data (red) are in general alignment with the quality controlled data from SATURN-03 (yellow; also corrected here for a 12 rfu baseline offset).

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