Fluorometer Calibration Notes

2013-05-21

S.Zimmermann

2006-18 JOIS

Data had not been calibrated

**2013-05-20:**

Chlorophyll Data Set calibrated using routine ***cal\_fluorometer\_2006v2.m***

***add\_lag.m***

***out\_finish\_data\_200618\_justChl.m***

Fit using all bottle data, first using w/in chlorophyll range 0.025 to 10mg/m3 but then reran to match the final decision to use 0.025 to 0.6mg/m3. For the fit, a STD of 2.5 was used to remove outliers. The low value criteria excludes those below the CTD Flr sensitivity and the high cut off value excludes calibration points in the chlorophyll peak that can be mismatched w/ CTD due to such sharp gradients.

Also, no alignment had been applied so data were calibrated as is with no alignment (lag) but then re calibrated after applying a 4 second lag and plucking out new CTD values from upcast. Originally used a 5 second lag, but profiles showed this was an overcorrection (wire speed a little over the expected 0.5m/s).

As is typically seen on JOIS, the uncalibrated CTD fluro is close to a 1:1 relationship with the combined chlorophyll plus phaeophytin values.

Also, Chlorophyll and Phaeophytin are approximately 1:1 although this relationship breaks down at higher chlorophyll values (chlorophyll > phaeophytin).

Profile plots show calibrated CTD does a good job of matching chlorophyll at low values, but is usually too low at high chlorophyll values (ex. 20, 21, 48) (likely due to inconsistent chl:phaeo relationship).

Range 0.025 to 0.6 with 4 second lag

36 out of 42 observations used, STD 0.023

Slope = 0.4020, Bias = +0.0071