

BBP

On Argo ADMT Website

<http://www.argodatamgt.org/Documentation/Draft-documents>

Bio-Argo manuals

Processing Bio-Argo particle backscattering at the DAC level <http://dx.doi.org/10.13155/39459>

Sent yesterday to Thierry

Quality control

Bio-Argo quality control manual for particle backscattering, version 1.0, October 2015:

PROCESSING (1)

From a single angle measurement of the VFS in the backward direction, the contribution of pure seawater, β_{sw} , has to be removed. The values of β_{sw} with dependencies on temperature and salinity and a depolarization ratio of 0.039 are derived from the study of Zhang et al. (2009).

$$\beta_p(\theta, \lambda) = \beta(\theta, \lambda) - \beta_{sw}(\theta, \lambda)$$

Using χ as a conversion factor, to extrapolate the measurement at a single angle to the total coefficient, it follows that :

$$b_{bp}(\lambda) = 2\pi\chi(\beta(\theta, \lambda) - \beta_{sw}(\theta, \lambda))$$

PROCESSING(2)

....

Second case, a DARK_BACKSCATTERING700_O, is not provided:

PREDEPLOYMENT_CALIB_EQUATION="BBP700=2*pi*khi *((BETA_BACKSCATTERING700-DARK_BACKSCATTERING700)*SCALE_BACKSCATTERING700-BETASW700)"

PREDEPLOYMENT_CALIB_COEFFICIENT="DARK_BACKSCATTERING700=71, SCALE_BACKSCATTERING700=0.008, khi=1.076, BETASW700 (contribution of pure sea water) is calculated at 124°"

PREDEPLOYMENT_CALIB_COMMENT="No DARK_BACKSCATTERING700_O provided, Sullivan et al., 2012, Zhang et al., 2009, BETASW700 is the contribution by the pure seawater at 700nm, the calculation can be found at http://www.und.edu/instruct/zhang/programs/betasw_ZHH2009.m"

- *All informations: references, links... are reported in the document Processing particle backscattering at the DAC level*
- *This Calculation is already implemented at Coriolis*

DARK_BACKSCATTERINGxxx_O

If DARK_BACKSCATTERINGxxx_O is provided

=> user measured the instrument dark counts before deployment

=> BBPxxx_QC=1

If DARK_BACKSCATTERINGxxx_O not provided

=> user didn't measured the instrument dark counts before deployment

=> BBPxxx_QC=2 (probably good)

Range Test

If $BBP700 < -0.000025$ or $BBP700 > 0.1$ then $BBP700_QC=3$

If $BBP532 < -0.000005$ or $BBP532 > 0.1$ then $BBP532_QC=3$

Bad Offset Test

For BBP700

BBP700_smooth=median_filter(5, BBP700)

IF min(BBP700_smooth) < -0.000025 then

QC_THRESHOLD_700=-20*min(BBP700_smooth)

IF BBP700 < QC_THRESHOLD_700 then BBP700_QC=3

IF BBP700 \geq QC_THRESHOLD_700 then BBP700_QC=2