

## NASA AOP Workshop

14 Jan 2009

### Profiling Instruments – Working Group Notes:

Participants: Heidi Sosik, Mati Kahru, David English, Stephane Maritorena, Dave Court, Germar Bernhard, Dave Menzies, Wendy Kozlowski

#### **Tasked to:**

- Define REQUIRED vs DESIRED specifications of a community processor
- Define how these specifications would impact current protocols
- Define quality/performance metrics in order to label data (with respect to intended use)

#### **INGESTION STAGE**

##### POTENTIAL INPUT LEVELS:

L0: Instrument specific radiometric data ?

L1: Raw counts

L1: Calibration Data (Including darks, immersion coefficients etc)

\*\* DES: capacity to apply multiple/timed/averaged/interpolated calibrations?

L2: Radiometric Units

L3: Geophysical Data

Potential inputs (incomplete: see also current NASA processor list):

- Station data
- Instrument specifications (including model, serial number, gain information, date, time, location, bottom depth information etc.)
- CTD
- GPS
- METADATA (sky/sea/sun pictures etc)

#### **CORRECTION STAGE:**

**REQ:** Depth data/ pressure corrections / sensor offsets

DES: Temperature effects

DES: Self-Shading

DES: Es Variation (normalization)

DES: Wavelength normalization/co-registration

DES: Cosine correction (including sky conditions etc)

DES: Bottom data (could also be part of the Station Data)

?: Lu angles, FOV

?: bandwidth

Next step would be to APPLY FILTERS (still incomplete):

1. Tilt/Roll (flag or filter?)
2. De-spike
3. Set thresholds

#### **SELECTION OF EXTRAPOLATION INTERVAL STAGE:**

1. DES: Use current “subjective” protocols to create an “automated” method – if you override the “automated” interval, data is flagged to a certain quality level

#### **PROCESSING / REPROCESSING OPTIONS STAGE:**

- Binning issues
- Multiple cast handling
- Downcast/Upcast definition – both automated and manual options

**OUTPUT / DERIVED PRODUCTS:**

- K products
- Lu (0-)
- Ed (0-)
- Ed (0+)
- Lw

\*\*\*\*\*  
\*\*\*\*\*

**IMPACTS ON CURRENT PROTOCOLS:**

Decided some would be necessary, but not defined today.

**QUALITY / PERFORMANCE METRICS** (generally agreed upon)

- Time from calibration
- Noise levels in Ed/Lu data as an indicator of bad K values
- Incorrect dark corrections (which can also affect K values)
- Sampling frequency?
- Inclusion of the “DESIRED” corrections can be used to define data quality and therefore also used to define the performance metrics.

**QUALITY / PERFORMANCE METRICS** (require more discussion)

- Self-consistency checks / depth discontinuities (ie. due to gain switching)
- Time from “field” calibration

**PERFORMANCE METRICS VOCABULARY TO CONSIDER:**