

Consistent Ocean Color Time Series Requires Similar

- 1) Calibration
- 2) Algorithms
- 3) Spatial and Temporal Resolution (Level-3)
- 4) Data Format
- 5) Access
- 6) Analysis Tools
- 7) Quantification of errors and biases

CDR

- Chlorophyll (global) as TCDR
 - May be others in the future as knowledge improves
- nL_w as FCDR
 - Would require saving these at full resolution of sensor
 - Assumes that Level 1A data are preserved

Information Flow

- L1A → Navigate, calibrate (vicarious) → L2 algorithms (input ancillary fields of humidity, ozone, wind speed, surface pressure) → Binning → L3
- Satellite/sensor information appended to L1A
 - Issues regarding preserving geometry, etc. for VIIRS
 - Differences between “level” world and IPO definitions of RDR, SDR, EDR, etc.

Chlorophyll as TCDR

- Proof of concept because it's most mature
 - Does not preclude new ones in the future
- Ensuring consistency across multiple platforms
 - Challenging in NPOESS era given launch-on-failure strategy
 - Use of residual on-orbit assets?
 - Different Equatorial crossing times
 - But also might learn about diurnal variation
- Sensor on-orbit characterization
 - Looking at the Moon
 - Need access to solar diffuser data
- In situ data
 - Vicarious calibration
 - Validation
 - Intercalibration of in situ sensors
 - Need two sites?
- Archive services
 - Independent of NPOESS
 - Documentation
- Processing
 - Need science-focused processing system
 - Could be combined as an active archive

Chlorophyll as TCDR (cont'd)

- Sensor pre-launch characterization
 - Check on completeness of tests
 - Documentation and archiving
 - Vicarious calibration is even more important for VIIRS
- Science team
 - Algorithm development and improvement
 - Analysis of errors and biases
 - Time and space
 - Uncertainties
 - Understanding the time series
 - Community analysis
 - Software tools
 - Data assimilation
- Resolution of TCDR (for next 3 years)
 - 10 km global
 - Daily
- Data access and formats
 - Access rates are important to analyses
 - Common formats are important
 - Subsetting and supersampling
 - Regularly assess data access patterns and reorganize data as appropriate
- Reprocessing
 - Ask Gene
 - 100x as placeholder
 - Balanced with stability of products
 - Documentation and analysis of differences

Water-leaving Radiances

- Ancillary data fields
 - Documentation on models
 - Versions of fields
 - Current version of vicarious calibration
 - Ask Gene
 - Ensembles of tables, input fields, etc.
- Validation
 - SeaBASS-like system