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 supersetting
  – 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