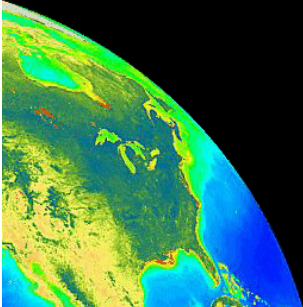


SeaWiFS and MODIS

Paula Bontempi
NASA Headquarters

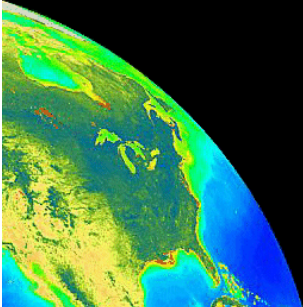
Chuck McClain, Gene Feldman & Bryan Franz
NASA Ocean Biology Processing Group

IOCCG-13
12-14 February 2008



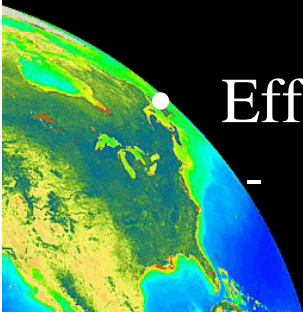
Updates

- SeaWiFS
- MODIS/Aqua: Ocean Color & SST
- MODIS/Terra: Ocean Color & SST
- SeaBASS & NOMAD
- SeaDAS



Activities Since Last IOCCG

- MODIS/Terra Ocean Color evaluations and processing
 - Temporal characterization of RVS & polarization using vicarious techniques, Franz et al., *SPIE Earth Observing Systems XII*, 2007.
- Investigation of vicarious calibration sources & methods
 - Franz et al., *Appl. Opt.*, 46(22), 5068-5082, 2007.
 - Werdell et al., *Appl. Opt.*, 46(23), 5649-5666, 2007.
 - Bailey et al., *Appl. Opt.* (in press)
- NO₂ absorption correction algorithm and source data
 - Ahmad et al., *Appl. Opt.*, 46(26), 6504-6512, 2007.
 - GOME, Sciamachy, OMI time series constructed for 1997-present
- Effect of BRDF on diffuse transmittance
 - Gordon & Franz, *Rem. Sens. Env.*, (in press)

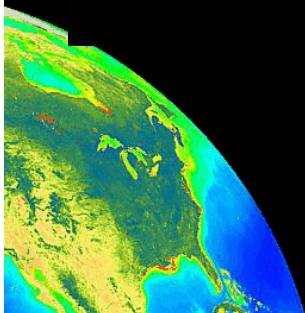


Activities Since Last IOCCG Meeting (*continued*)

- Implementation of new global products for evaluation

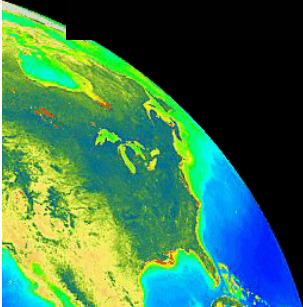
<http://oceancolor.gsfc.nasa.gov/cgi/level3.pl>

- Fluorescence Line Height (Aqua-MODIS)
- PIC (calcite)
- POC
 - Stramski et al., *Biogeosciences*, 4, 3453-3530, 2007.
- KPAR
 - Morel et al., *Rem. Sens. Env.*, 111, 69-88, 2007.
- Z_{eu} (Euphotic Depth)
 - Lee et al., *J. Geophys. Res.*, 112, 2007.
 - Morel et al., *Rem. Sens. Env.*, 111, 69-88, 2007.



NOMAD/SeaBASS Update

- Expect NOMAD version 2 release in Spring 2008
- Expansion of existing datasets based on latest 3 years of *in situ* collection
- Addition of new measurements to include
 - POC
 - Z_{eu}
 - KPAR
- HPLC Data Removed from SeaBASS to be corrected



An IOP algorithm workshop to precede Ocean Optics XIX (October 2008)

Semi-analytical (SA) algorithms provide a mechanism for estimating marine inherent optical properties (IOP), such as spectral absorption and scattering coefficients, from satellite radiometric measurements.

Underlying goal is to achieve community consensus on the most effective algorithmic approach for producing global scale, remotely sensed IOP products. To this end, the workshop will:

- (1) extend the recent IOCCG effort that surveyed the performance of a series of SA algorithms
- (2) define the state-of-the-art with regards to the application of these algorithms to satellite radiometry
- (3) identify the tools, technology, and analyses required to advance this state-of-the-art

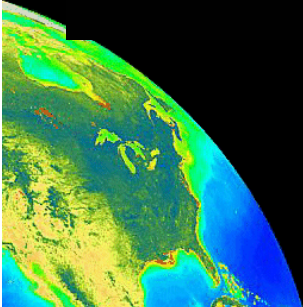
Proposed activities:

- (1) evaluate algorithm performance using *in situ* data (NOMAD version 2) and Level-2 and -3 satellite data (MERIS, SeaWiFS, MODIS ...); stratify results by bioregime / trophic level; identify failure conditions and develop failure remediation strategies
- (2) holistically review algorithm parameterization / inversion / optimization and associated uncertainties, spectral requirements, and spatial and geophysical dynamic ranges; identify approach(es) that minimize global satellite inversion failures
- (3) discuss future directions in field and laboratory instrumentation and related issues

Participation limited to 25 - 30. Active participation required, with algorithm contributors expected to provide documentation and software and to commence workshop-related analyses by May 2008.

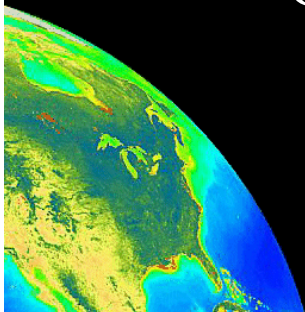
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SeaWiFS Update

- Global data acquisition, processing, calibration, & distribution continued until 31 Dec. 2007
 - Onboard telemetry communication problem
 - Instrument and spacecraft hardware function unaffected
 - Planned switch to B-side computer during first part of February 2008 by GeoEye, Inc., operators of the spacecraft to resolve believed problem
- Access to US Coastal LAC via NOAA/GeoEye Contract through September 2007. Funds within NOAA for this activity have been eliminated
- Other Issues:
 - Node drift approaching 1300 GMT
 - Re-analysis of temperature correction
 - Occasional momentum wheel anomalies - have backup momentum wheel



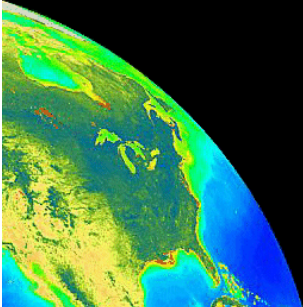
Data Access and Community Support

- Free and open access to all ocean color mission datasets
 - All data available on-line within hours of acquisition
 - MODIS (Aqua and Terra) Level-0 (250m,500m, 1km) through Level-3
 - SeaWiFS, CZCS, OCTS, Level-1A through Level-3
 - Subscription service and geographic and parameter sub-setting
- OceanColor Web (<http://oceancolor.gsfc.nasa.gov/>)
 - Consolidated data access, information and services.
- SeaDAS
 - Level processing, display, and analysis
 - Ability to generate a multitude of non-standard OC products
 - MODIS Aqua and Terra, SeaWiFS, OCTS, CZCS, MOS, OSMI, OCM?
 - Automatic downloading of ancillary files for processing
 - Free, open-source, multi-platform capable
- OceanColor Forum for user support and community discussion



SeaDAS Training

- Recent Workshops
 - Univ. of Maryland - Jan 07
 - Cornell Univ. - May 07
 - Univ. of Mexico - Aug 07
 - Univ. of Costa Rica - Feb 08
- Future Workshops
 - NASA/GSFC - May 2, 2008
 - India (TBD)
- Interest in participating in IOCCG training classes internationally, could be combined with SeaDAS training.



Reprocessing Plans

- Beginning approx. June 2008
 - Aqua: OC, SST
 - Terra: OC, SST
 - SeaWiFS: OC, PAR, Land
 - OCTS: OC
 - CZCS: OC
- All Sensors
 - improved instrument calibrations (especially Terra)
 - update vicarious cal, latest MOBY dataset
 - update Chlorophyll and K490 algorithms via NOMAD-2
 - revise aerosol model suite
 - add correction for NO₂ (CO₂, H₂O)
 - update to best available ancillary MET data
 - review & revise flags & masks

