

MODIS & VIIRS Calibration & Validation Proposal Overview

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NASA VIIRS-MODIS Joint Science Team Mtg
Ocean Breakout Session
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Proposals & Activities

- “MODIS Aqua & Terra Calibration & Validation Analyses in Support of Ocean Products”
 - C. McClain, PI; G. Feldman, Co-I
 - Staff: Z. Ahmad, S. Bailey, B. Franz, E. Kwaitkowska, G. Meister, F. Patt, J. Werdell
 - Activities:
 - Maintain sensor calibrations (including vicarious using MOBY) in collaboration with MCST.
 - Maintain processing S/W including HiRes module for routine processing & SeaDAS.
 - Maintain SeaBASS support.
 - Conduct product quality evaluations.
 - Work with algorithm PIs on implementation & testing.
 - Refine processing algorithms for coastal applications (SWIR-based aerosol correction, AERONET-based aerosol models) using Chesapeake Bay as test site.
 - Evaluate methods for improving MODIS/Terra products
 - Evaluate use of Calipso and Glory data on improving atmospheric corrections.



Proposals & Activities

- “Evaluation of the VIIRS Sensor Performance and Operational NPOESS Ocean Product Algorithms”
 - C. McClain, PI; G. Feldman, Co-I; W. Esaias, Co-I
 - Staff: Z. Ahmad, S. Bailey, R. Barnes, G. Eplee, G. Meister, F. Patt, K. Turpie, J. Werdell
 - Activities:
 - Continue review of operational algorithms (calibration, bio-optical, masks/flags, SST) as implemented by NGST.
 - Collaborate with NICST on prelaunch calibration & characterization analyses for NPP.
 - Conduct product sensitivity analyses based on sensor calibration data.
 - Develop a simulated data set using “best available” calibration, bio-optical, and atmospheric correction algorithms.
 - Support NPP Project Scientist & Deputy PS and NPP Project Office and provide science team interface to Ocean PEATE.



Related Publications, Past Year

- Franz, B. A., S. W. Bailey, P. J. Werdell, and C. R. McClain, Sensor-independent approach to the vicarious calibration of satellite ocean color radiometry, *Appl. Opt.*, 46(22), 5068-5082, 2007.
- Ahmad, Z., C. R. McClain, J. R. Herman, B. A. Franz, E. J. Kwiatkowska, W. D. Robinson, E. J. Bucsela, and M. Tzortziou, Atmospheric correction of NO₂ in retrieving water-leaving reflectances from the SeaWiFS and MODIS measurements, *Appl. Opt.*, 46(26), 6504-6512, 2007.
- Werdell, P. J., S. W. Bailey, B. A. Franz, A. Morel, C. R. McClain, and S. B. Hooker, The on-orbit vicarious calibration of ocean color sensors using a sea surface reflectance model, *Appl. Opt.*, 46(23), 5649-5666, 2007.
- Gordon, H. R., B. A. Franz, Remote sensing of ocean color: Assessment of the water-leaving radiance bidirectional effects on the atmospheric diffuse transmittance for SeaWiFS and MODIS intercomparisons, *Remote Sens. Environ.*, 112, 2677-2685, 2008.
- Bailey, S. W., S. B. Hooker, D. Antoine, B. A. Franz, and P. J. Werdell, Sources and assumptions for the vicarious calibration of ocean color satellite observations, *Appl. Opt.* 47, 2035-2045, 2008.
- Franz, B. A., E. J. Kwiatkowska, G. Meister, and C. R. McClain, Moderate Resolution Imaging Spectroradiometer on Terra: Limitations for Ocean Color Applications, *J. Appl. Remote Sens.*, in press.