IOCCG Task Force Workshop on Ocean Color Satellite Sensor Calibration - Introduction
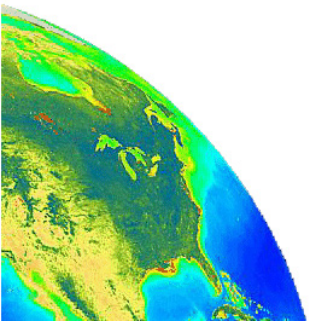
Gerhard Meister, NASA Code 616

OBPG (Ocean Biology Processing Group)

5/16/2017

Internantional Ocean Colour Science Meeting 2017
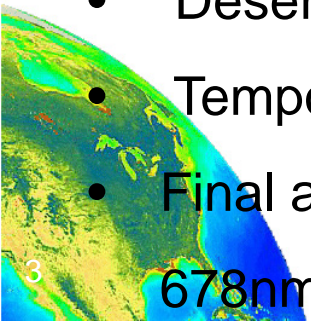
Lisbon, Portugal

Agenda:

- **G. Meister:** Introduction, MODIS Aqua calibration status, PACE calibration concept
- **E. Kwiatkowska:** Solar diffuser on-orbit assessment with yaw maneuvers for Sentinel-3A OLCI radiometric calibration
- **M. Krijger:** Derivation of OLCI's solar diffuser BRDF model from Sentinel-3A yaw maneuver data
- **L. Bourg:** OLCI calibration status
- **S. Cho:** On-orbit Radiometric Calibration Status of GOCI and Prelaunch Characterization Status of GOCI-II
- **J. Sun:** SNPP VIIRS Calibration RSB: improvements, updates and SDR reprocessing
- **S. Lee:** MODIS Aqua optical throughput degradation impact on relative spectral response and calibration on ocean color products
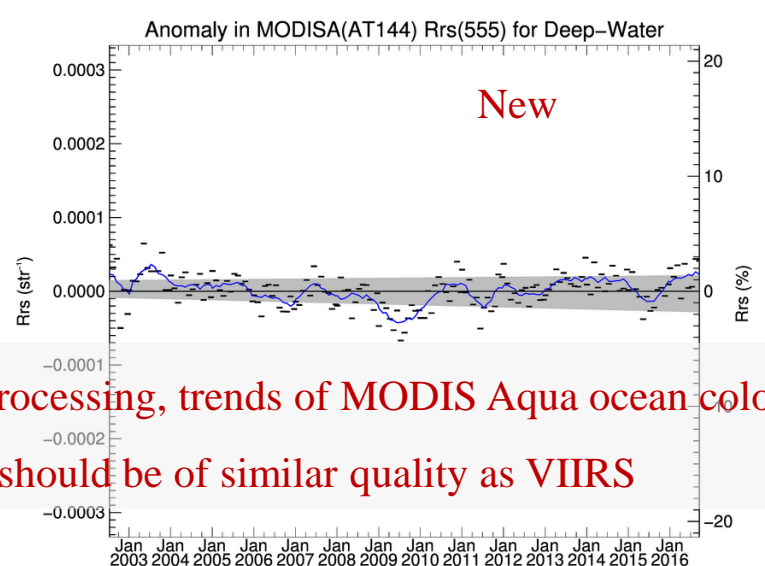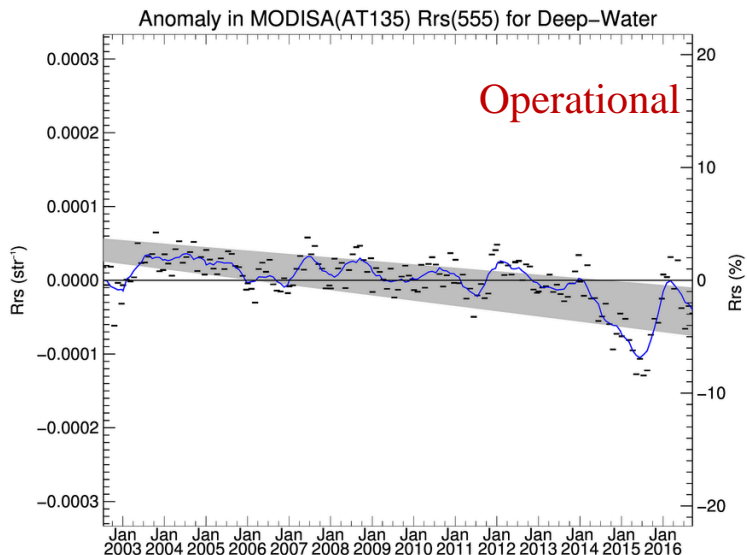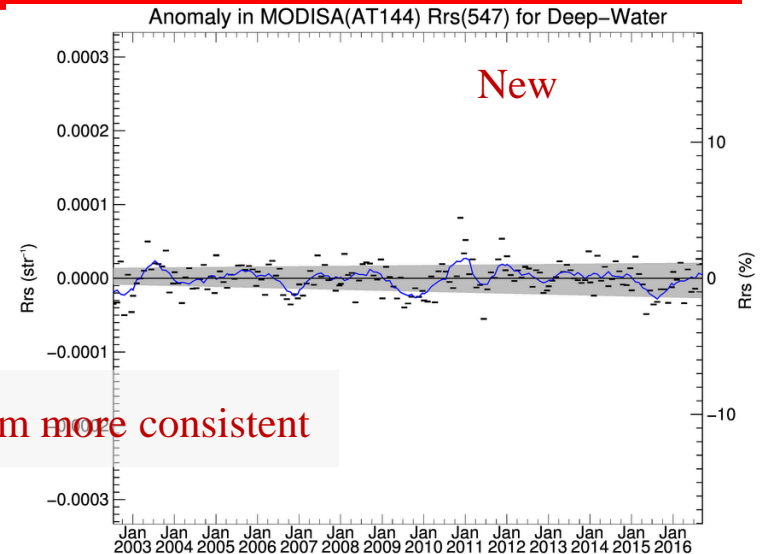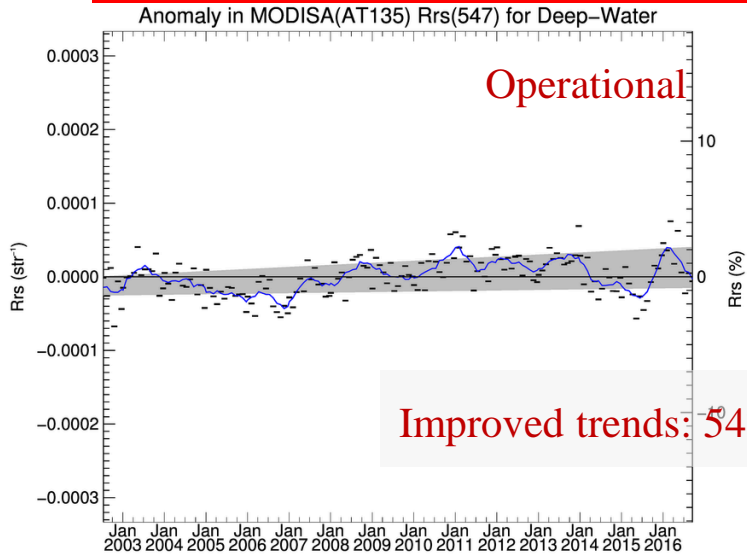
OBPG MODIS Aqua Calibration re-analysis

- Perform in-house, end-to-end calibration from L1A files

- Solar Diffuser (SD) / SDSM (SD stability monitor) screens: derived from yaw maneuver data

- SD Bidirectional Reflectance Factor derived from yaw maneuver data

- SDSM measurements determine SD degradation

- MODIS SD measurements determine detector gain

- Lunar measurements determine response-versus-scan (RVS) for bands 10-16 (488 – 869nm)

- Desert and moon determine RVS for bands 8-9 (412, 443nm)

- Temporal smoothing for gain and RVS values

- Final adjustment with crosscalibration (L2 to L3) for bands 8-14 (412-678nm), then vicarious calibration for bands 8-15 (412-748nm)

Preliminary Results: 547nm and 551nm

Anomaly in MODISA(AT135) Rrs(547) for Deep-Water — Operational

Anomaly in MODISA(AT144) Rrs(547) for Deep-Water — New

Anomaly in MODISA(AT135) Rrs(555) for Deep-Water — Operational

Anomaly in MODISA(AT144) Rrs(555) for Deep-Water — New

Improved trends: 547 and 555 nm more consistent

After reprocessing, trends of MODIS Aqua ocean color products should be of similar quality as VIIRS

# *PACE OCI Calibration approach*

- OCI (Ocean Color Instrument) description: Antonio Mannino, Thursday morning

- OCI measurement concept is very similar to SeaWiFS

- Long term trending via lunar measurements

- Dual diffuser concept for short to medium term trending

- Spectral calibration via solar/atmospheric absorption lines

- Difference to heritage missions: spacecraft will perform maneuver during during solar calibration to keep illumination angle constant
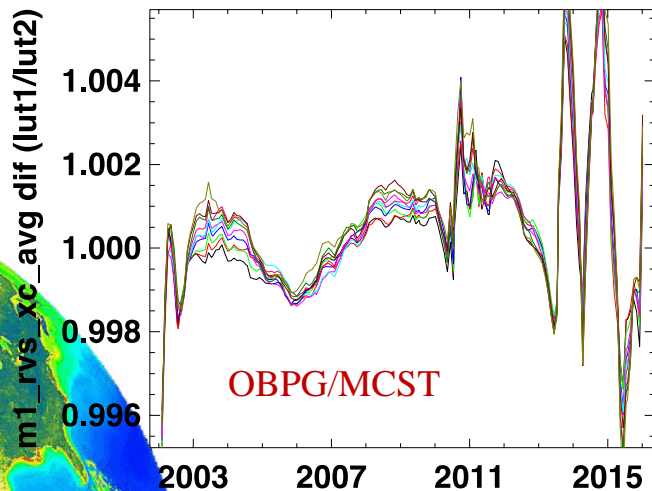
- Question: do you see any problem with that approach?

Backup
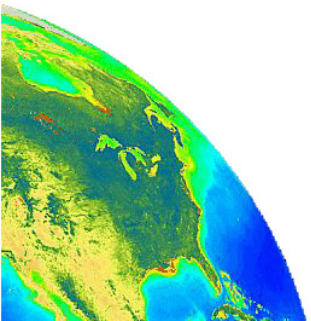
Preliminary Results: 488nm
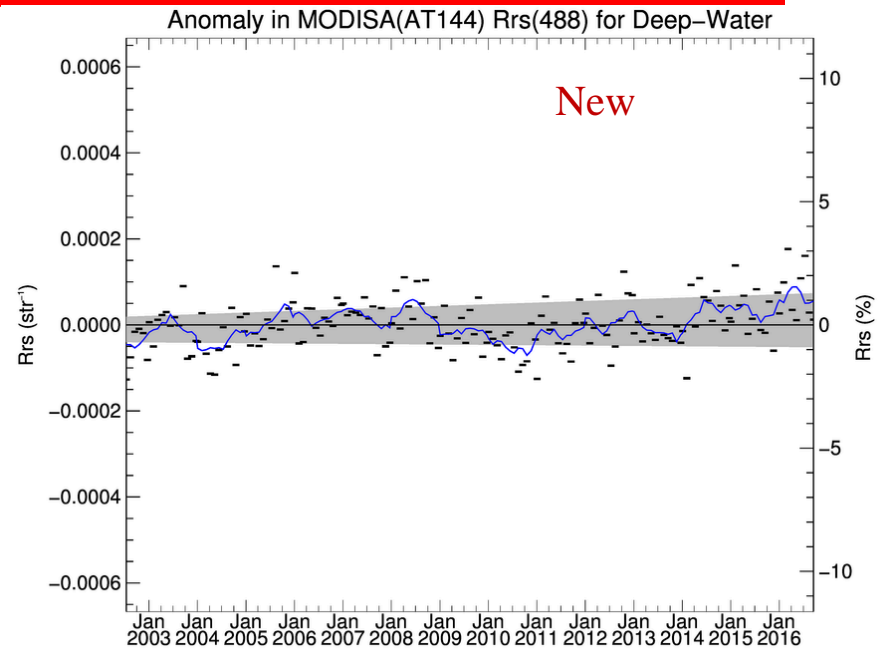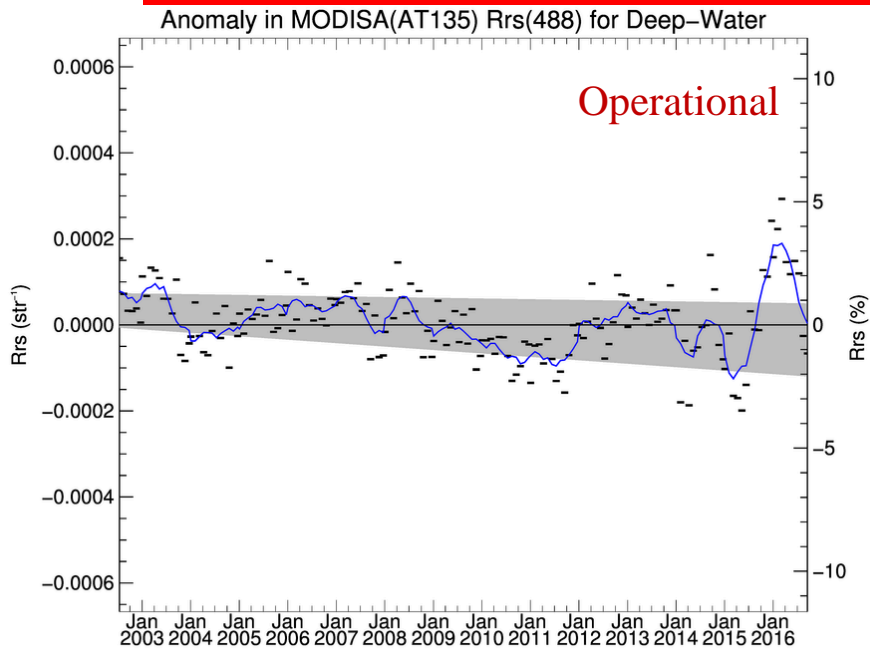
- New OBPG LUT differs from MCST (current operational)
- Reduced variations in anomaly of Rrs 488nm