NASA GHRSST Products

MODIS L2P, *MUR* L4, *G1SST* L4

Mike Chin

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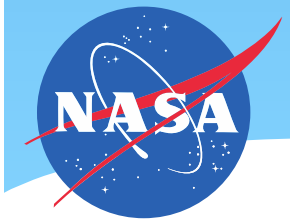

National Aeronautics and
Space Administration

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

Products at a glance

- **MODIS L2P:** SST retrievals covering the globe (polar orbits) at *1-km resolution* in *wide swaths*. Two satellites (Terra & Aqua) and two channels (11 & 4 μm).
- **MUR L4 and G1SST L4:** Both are *daily* SST analyses at *1-km resolution*. Key differences between the two:
  - ***Inputs:*** MUR uses considerably less products, e.g., *no day-time data*, and no geo-stationary satellite data which are used by G1.
  - ***Time coverage:*** MUR covers over a decade (since *mid-2002*) and has *4-day latency*. G1 starts *mid-2010* and has *1-day latency*.
  - ***Analysis Technique:*** Both interpolate at multiple scales. MUR uses "*multi-resolution analysis (MRA)*" with Battle-Lemarié wavelet basis (~10 scales). G1 uses a 2D-Var technique (~3 scales).

Words from the producers

- **MODIS L2P:**
  - Updated coefficient estimation algorithm uses the LATBAND approach, e.g., 6 zonal bands 20 degrees wide symmetric from the equator. OBPG (Bryan Franz) is implementing the algorithm into the SeaWiFS Data Analysis System (SeaDAS). Reprocessing is underway.

Words from the producers 2

- **MUR L4:**
  - Bestseller (# ftp users) at PO.DAAC in year 2012. (Thank you!)
  - ***Version 4*** upgrade: i) *corrects over-smoothing at high-latitudes* (details in MISST session), ii) *adds **WindSAT** microwave data and **iQuam** buoy data*, and iii) *updates bias corrections*.
  - Plans for algorithm upgrades: i) use of *day-time data*; ii) reduce product latency from 4 days to 1 day.

- **G1SST L4:**
  - Zhijin (Gene) Li of JPL is the new contact person.
  - Updated the 2DVAR algorithm and thus effectively supressed noise over areas where signal and error ratios are relatively small. The background error covariance were optimized accordingly.

Main activities since GHRSST-XIII

- **MODIS L2P:** Delivery of updated coefficient estimation algorithm (LATBAND approach). Some test runs and reprocessing have been performed.
- **MUR L4:** Upgrade to Version 4 ("stable" version) in April 2013. Retrospective version-update back to August 2012. Further reprocessing underway.
- **G1SST L4:** No new activity has been reported.

GDS 2.0 Implementation

- **MODIS L2P:** PO.DAAC plans to transition to GDS2.0 in *late fall*, after reprocessing using the new algorithm.
- **MUR L4:** Production line is *ready* for GDS2.0; transition is planned for *early summer*. Complete GDS2.0 conversion, back to 2002.June.01, is planned along with retrospective *Version 4 reprocessing* by the *end of this year*.
- **G1SST L4:** No GDS2.0 plan has been reported.

Issues to be raised at GHRSST-XIV

* Product delivery. We are dealing with **large volumes**, e.g., each day&sensor MODIS L2P consists of ~300 granule files of 25Mbytes each, bz2-compressed, (=7.5Gbytes); both 1-km L4 products are sized 200-300 Mbytes per day, compressed.
* **Server-side subsetting** is thus crucial for delivery. OPeNDAP works well (and popular among users) for L4 products, especially with the internal compression of netCDF-4 (a GDS2.0 feature).
* New **delivery tool development** seems needed for L2P, since geo-locations are not apparent from the data grids (more details in DAS-TAG).