NASA RDACs Report

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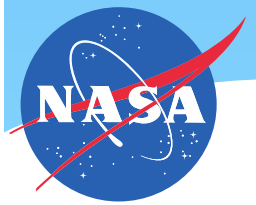
17th GHRSST Science Team Meeting

Tysons Corner, VA, USA

6 June 2016



National Aeronautics and
Space Administration

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

NASA RDACs

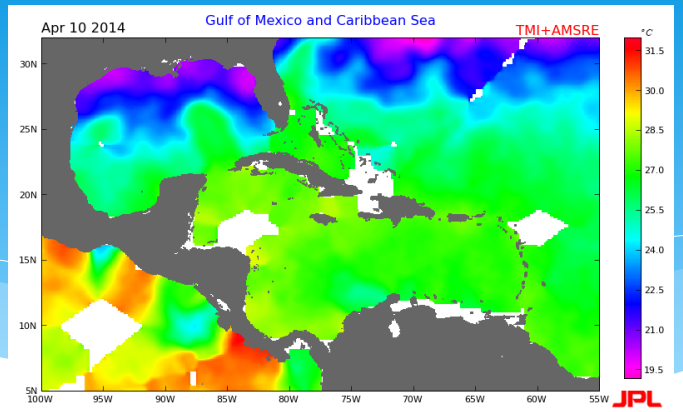
* Current components
  * "JPL" RDAC
    * MODIS L2P
    * MUR L4
    * VIIRS …..
* " JPL_OUROCEAN" RDAC
    * G1SST L4

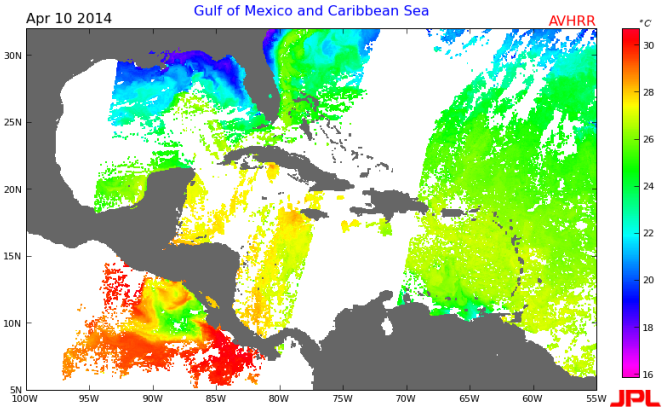
JPL_OUROCEAN G1SST L4

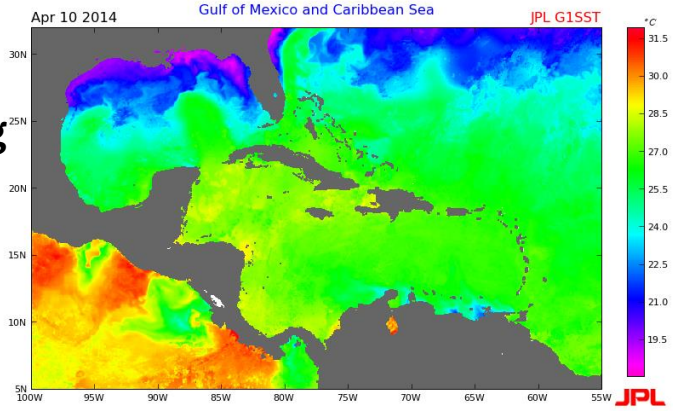
* Brief outage in Jan 2016
  * Many users were affected by this outage and received many inquiries. Popular dataset!
* Wide variety of application and science users
  * SST layer in PO.DAAC Sate Of The Ocean (SOTO) global visualizer
* GDS1 → GDS2 transition unknown
* Jun 2015 -May 2016 usage statistics :
  * 650 unique users
  * 6.2 TBytes downloaded
  * 184K files downloaded

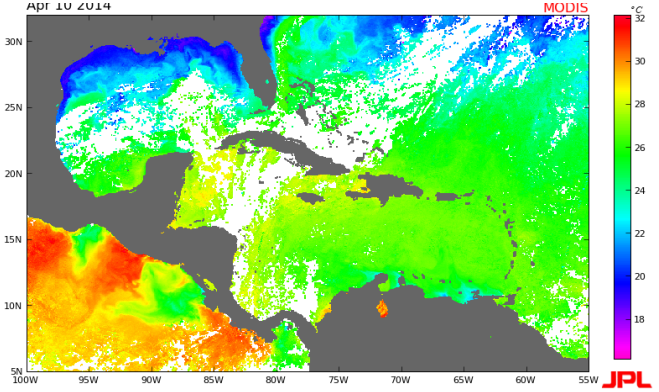
G1SST

- It is planned that the production of G1SST will continue
- The 2DVAR methodology will continue to be optimized
- The 2DVAR system will be adjusted to maximize the reservation of fine structures from sub-km VIIRS SSTs
- G1SST will be used for submesoscale studies









G1SSTs for maximizing reservation of 1-km satellite SST features

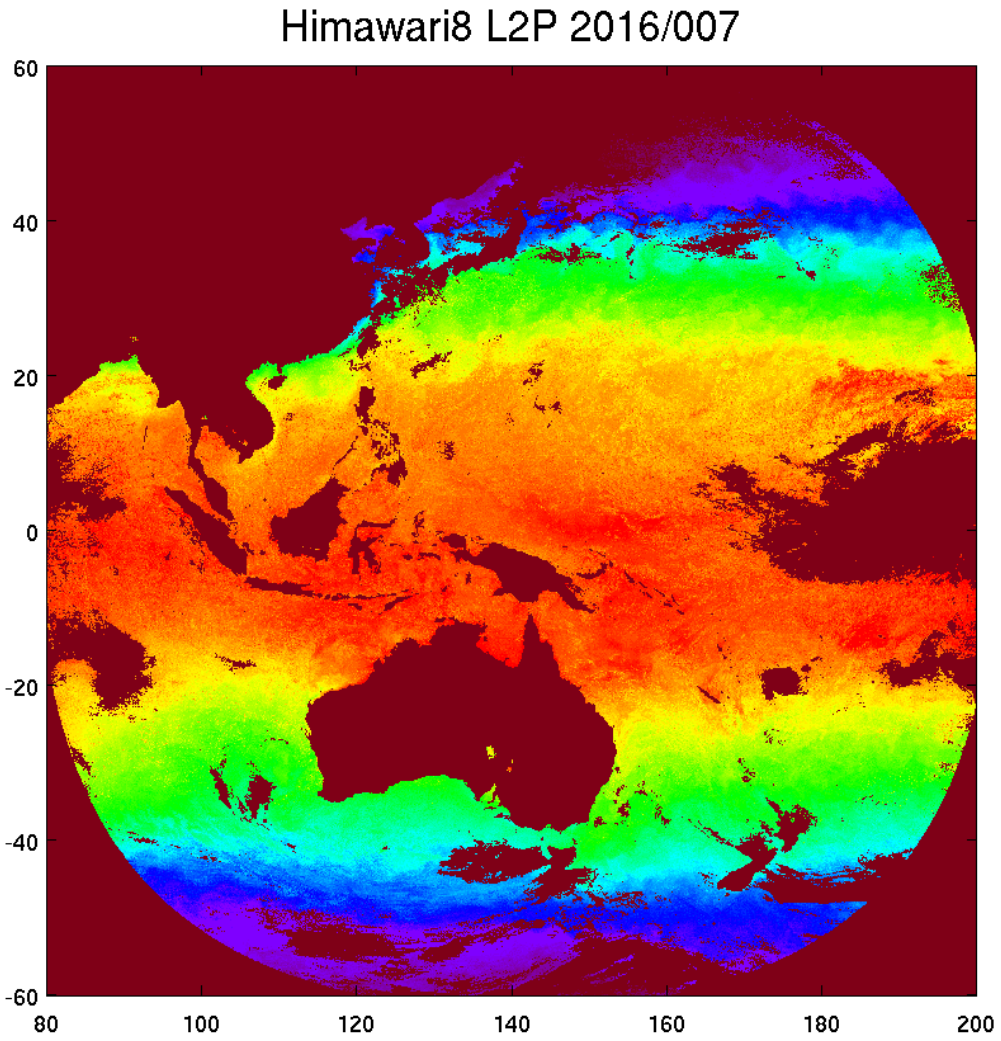
JPL MODIS L2P

* 3 way collaboration between PO.DAAC, OBPG, and RSMAS
* GDS2 Forward stream processing started in May 2016. v2014.0
  * Historical processing to start soon: Aqua → 2002; Terra → 2000. Completed in 6 months.
  * Prioritizing Aqua data since there is a Terra reprocessing scheduled in 2016
  * Contains the most up-to-date SST and SST4, and Chl-A algorithms
* Many science and applications users
  * E.g., See recent publication by Prabhat and Harris
    * *Improved Quality of MODIS Sea Surface Temperature Retrieval and Data Coverage Using Physical Deterministic Methods , Remote Sens.* **2016**, *8*, 454; doi:10.3390/rs8060454
  * Also used in SOTO
  * L3 MODIS SST available in non-GHRSST netCDF format from PO.DAAC and OBPG
* 2015-2016 usage statistics (Aqua/Terra combined):
    * 651 unique users
      * About 2 out of 3 are Aqua users
    * 52 TBytes downloaded
    * 15.3 M files downloaded

JPL MUR L4

- V4.1 processed to 2002
  - V4.0 will be retired soon
- New inputs: AMSR2 L2P SST, OSI-401-b sea ice concentration
- Implemented pixel flag that allows MUR to be used as a 'MODIS L3S' product
- Ongoing activities
  - Reviewing VIIRS L2P input
  - Validation of high resolution features (using VIIRS and Himawari8)
  - Write up of analysis procedures
- Wide variety of science and application users
  - SST layer for commercial Surfline company
    - Used in surf forecasting, fish forecasting, and sailing forecasting and related web interfaces
  - Peru high resolution SST gradients. Vazquez et al. Publication under review.
- 2015-2016 usage statistics:
    - 2700 unique users (most still v4.0 !)
    - 75 TBytes download
    - 5M files downloaded

MUR improvements



VIIRS (L2P)

* NASA VIIRS L2
  * Regression based algorithm to ensure continuity with the MODIS SSTs to build a Climate Data Record (CDR)
    * Daytime 2 channel (using 11, 12 um data)
    * Nighttime 3 channel (using 3.7, 11, 12 um data)
  * Experiments are underway to test an Optimum Estimation approach with MODIS. Could also be used for VIIRS.
  * See Minnet et al. poster
* PO.DAAC evaluating VIIRS OBPG granules
* GHRSST L2P production TBD

NASA Physical Oceanography Program Support

- NASA Soil Moisture Active/Passive (SMAP) mission
  - Oceans: Measures both salinity and wind speed
  - Preliminary datasets available
- Salinity Processes Upper Ocean Regional Studies (SPURS)
  - SPURS 1 (2013): Focused on Salinity Maximum in the North Atlantic
  - SPURS 2 (2016): Will focus on Salinity Minimum in the Eastern Pacific
- Sponsored workshop on SST/Salinity
  - New focus emphasis on relationship between SST, Winds and Salinity
- CEOS COVERAGE Project
  - Sponsored workshop on development of web interface that integrates NASA remotes sensing data with fish tracks and in-situ data

COVERAGE Portal