

The NASA Physical Oceanography Distributed Active Archive Center (DAAC)

Ed Armstrong
Senior Data Engineer
Jet Propulsion Laboratory

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Government sponsorship acknowledged



Planning Workshop for Developing Satellite Sensing as Tool
for Ocean Management in Chile
30 Mar – 1 Apr 2011

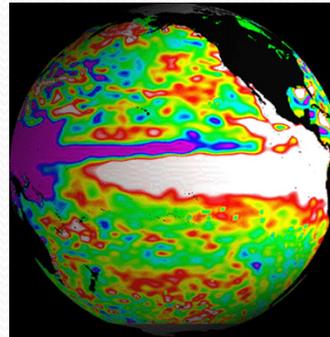
PHYSICAL OCEANOGRAPHY DISTRIBUTED ACTIVE ARCHIVE CENTER

DATA STEWARDSHIP FOR THE EARTH SCIENCES

PROVIDING DATA INGEST, PRODUCTION, ARCHIVING AND DISTRIBUTION SERVICES

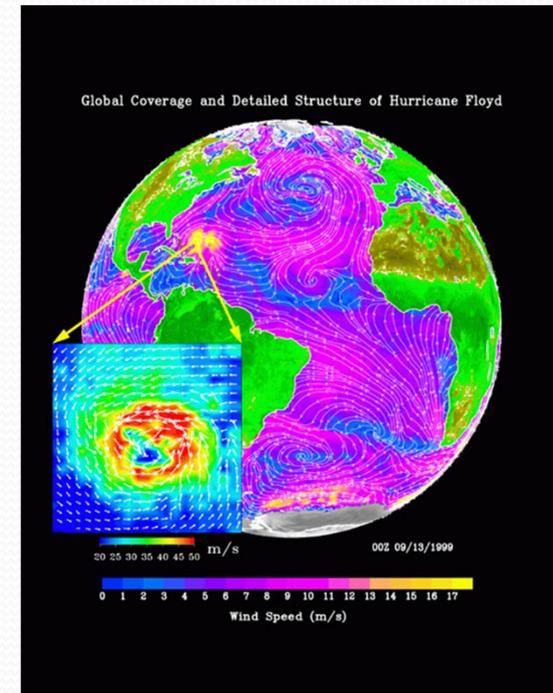
- **OCEAN SURFACE TOPOGRAPHY**

- SeaSat
- TOPEX/Poseidon
- Jason-1
- GRACE



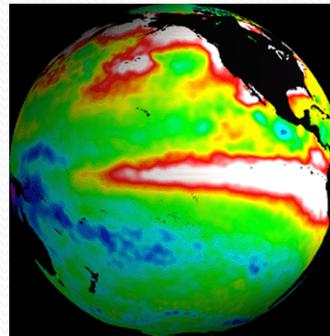
- **OCEAN VECTOR WINDS**

- SeaSat
- NSCAT
- QuikSCAT
- SeaWinds



- **OCEAN SURFACE TEMPERATURE**

- AVHRR
- ATSR
- MODIS

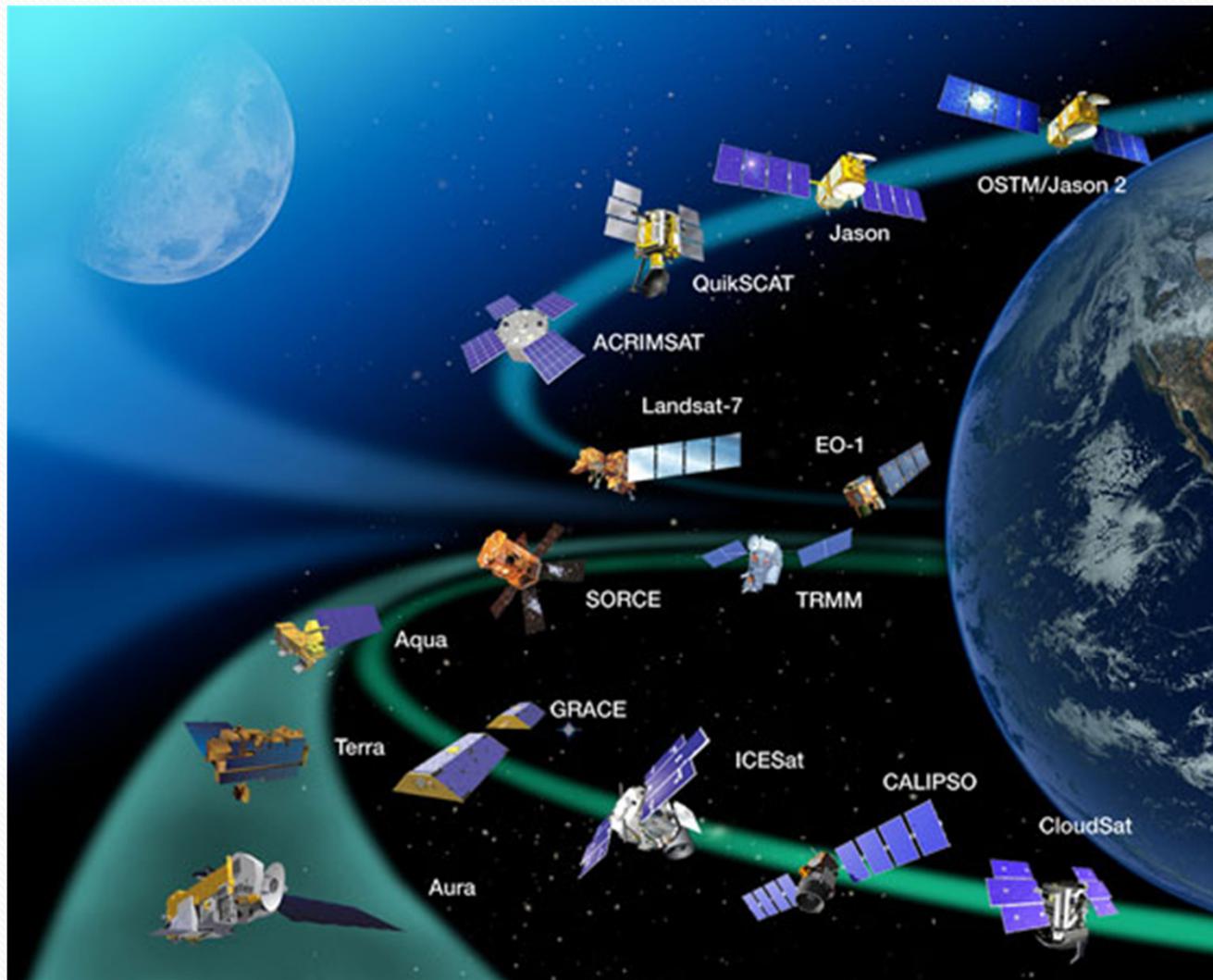




PO.DAAC infrastructure statistics

- 72 Tbyte archive
- 30 Tbyte FTP distribution (2010)
 - Also distribution via OPeNDAP and POET
- future order of magnitude increase in data ingest, archive, ftp distribution, customer base.

NASA earth observing satellites



PO.DAAC disciplines

- Disciplines:
 - Ocean Winds and Scatterometry (David Moroni)
 - Sea Surface Temperature (Gregg Foti and Ed Armstrong)
 - Ocean Surface Topography (Jessica Hausman)
 - Sea Surface Salinity (Gregg Foti)
 - Gravity (Chris Finch and Jessica Hausman)
 - Ocean Circulation (Jessica Hausman)
 - Cross cutting; ocean color, air-sea interaction, coastal studies, sea ice (All)

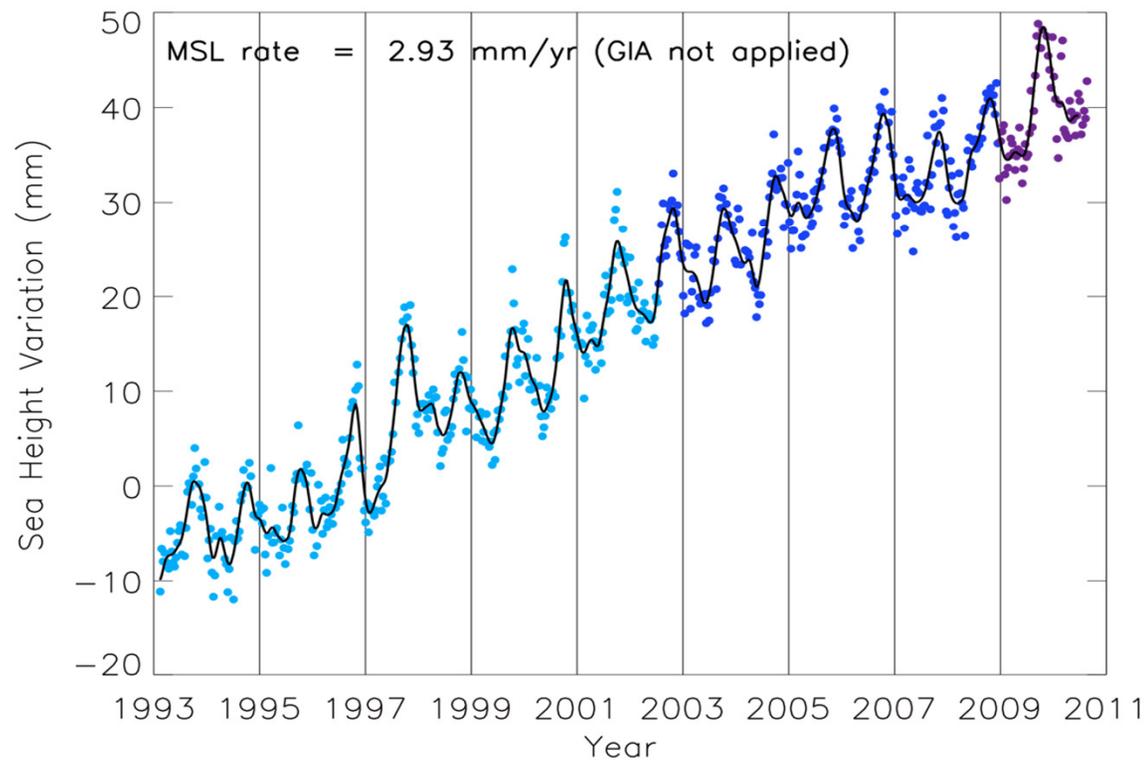
Core Missions

- Primary NASA data center for longterm preservation:
 - Seasat
 - NSCAT
 - Topex/Poseidon
 - SeaWinds on QuikSCAT
 - Jason-1
 - AMSR-E on Aqua
 - GRACE
 - Jason-2, OSTM
 - SeaWinds on Adeos-II
 - Aquarius

NASA MEaSUREs datasets

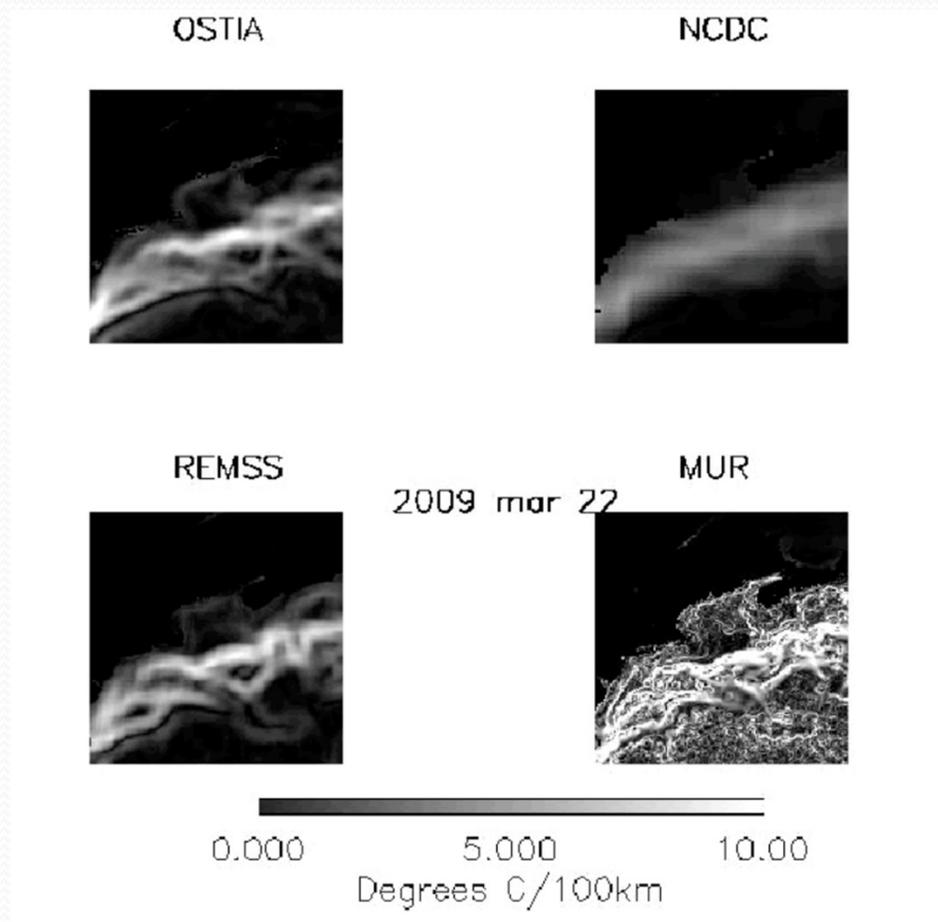
- Cross-Calibrated Multi-Platform (CCMP) Ocean Surface Wind Components. 1987-2009. Level 4. (2010 data expected soon).
- Multiscale Ultrahigh Resolution (MUR) sea surface temperature. 2007-2009. Level 4
- Integrated Multi-Mission Altimeter record. 1993-2010. Level 2
- Grace Tellus. 2002-2008. Level 3.
- All projects have funding for 2+ years. Will look to other sources for continuation.
- Validation processes varied across projects. Some internal, some peer/user review
- PO.DAAC:
 - Has no formal role in validation or dataset production
 - Accepts the products as “validated”
 - Report anomalies discovered to project. Work with the user community. Collect usage metrics.

Merged altimetry (Ray et al., MEaSUREs)



New GHRSSST L4 MUR 1 km regional SST

SST gradient comparison in Gulf Stream



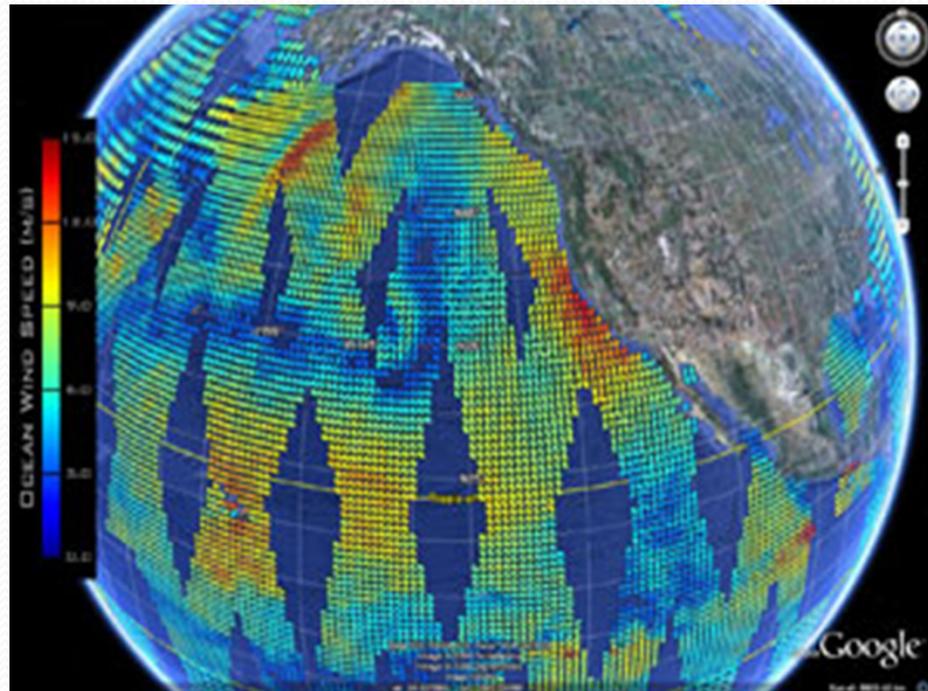
Ocean Wind Science Products

- OVW science products from:
 - Seawinds*† on QuikSCAT, ADEOS-II
 - ASCAT*
 - AMSR-E†
 - ERS-1,-2*
 - CCMP*
 - NSCAT*†
 - Nimbus-7
 - SeaSAT*
 - SSM/I†
 - Windsat*‡

* Provides Vector Winds

† Also via CCMP

‡ Cal/Val Distribution Only

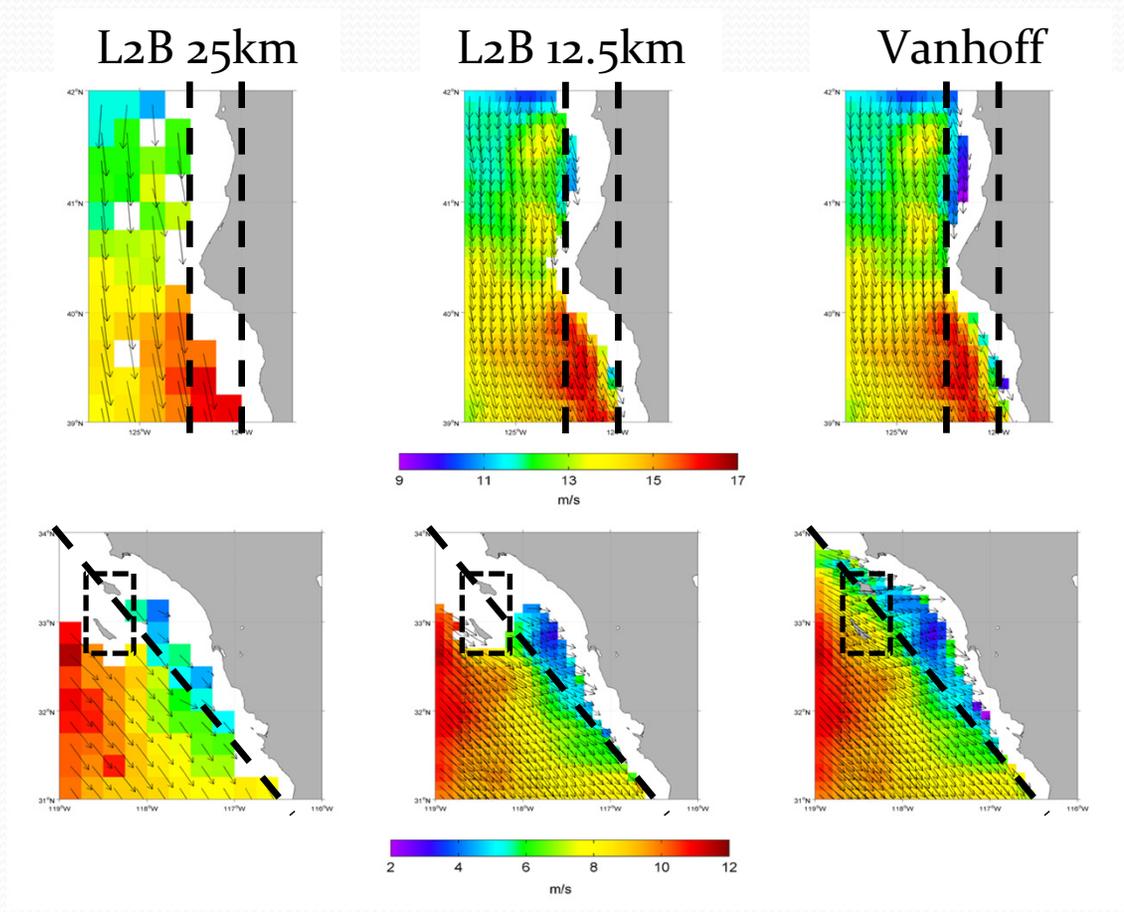


ASCAT L2 25km

New OVW Products

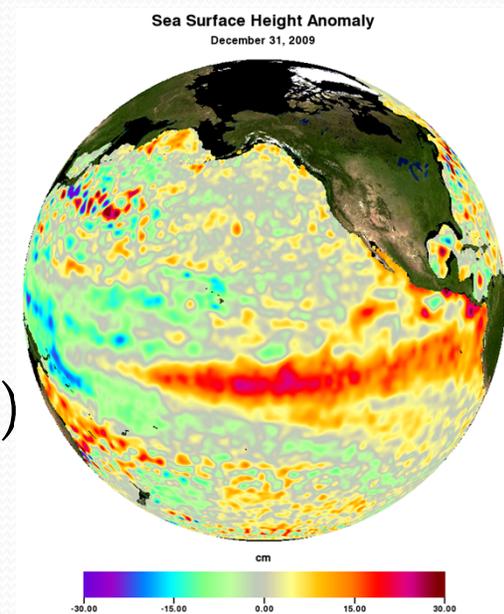
- QuikSCAT L3 Coastal High Resolution Wind Vector, Stress, and Derivative Fields (Vanhoff et al.) – 0.1 degree gridded fields; U.S. West Coast region is just released; other coastal regions being developed.
- Expected:
 - QuikSCAT L2BC (QuikSCAT Project) Climate-Quality Wind and Stress Vectors provided at 12.5-km resolution and contains the latest reprocessed data from a new GMF developed by Frank Wentz (RSS); under development/testing
 - QuikSCAT/SeaWinds Enhanced Resolution L3 Sigma-o Product (David Long/BYU) – Ingested, preparing for Public Release
 - QuikSCAT L3 Pseudostress (Bourassa) – under development
 - ASCAT L3 (KNMI/MyOcean) –under development
 - ASCAT L2 Sigma-o Data (EUMETSAT) – 25-km and 12.5-km along-track resolutions; awaiting approval from EUMETSAT.
 - IPCC ocean wind dataset in production. Developed by QS Science Team for Level 3

Vanhoff Coastal Dataset Example



OST Science Products

- OST science products from:
 - GEOS
 - TOPEX/Poseidon
 - Jason-1 (Jason-1 is active)
 - Jason-2/OSTM (not full mission archive)

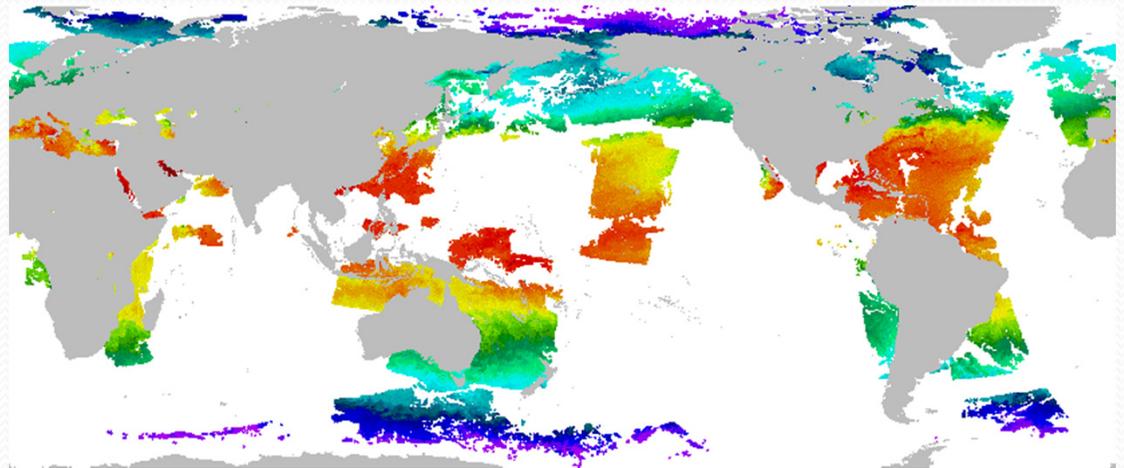


New SSH products

- L4 Coastal SSHA and along shore currents (Strub et al.)
- Jason-1 enhanced JMR product (Brown), provides better ice and land flagging and more accurate correction values near the coast.
- Ray et al. L2 altimetry climate data record for TOPEX/Poseidon, Jason-1 and OSTM (Jason-2)
- Retracked TOPEX/Poseidon GDR (Callahan)
- Upcoming:
 - Retrospective Sea Level Rise (Hamlington and Leben) sea level anomalies from 1954 to present

SST Science Products

- SST science products from:
 - GHRSSST
 - AVHRR Pathfinder
 - AVHRR NAVO
 - MODIS
 - GOES
 - Reynolds SST

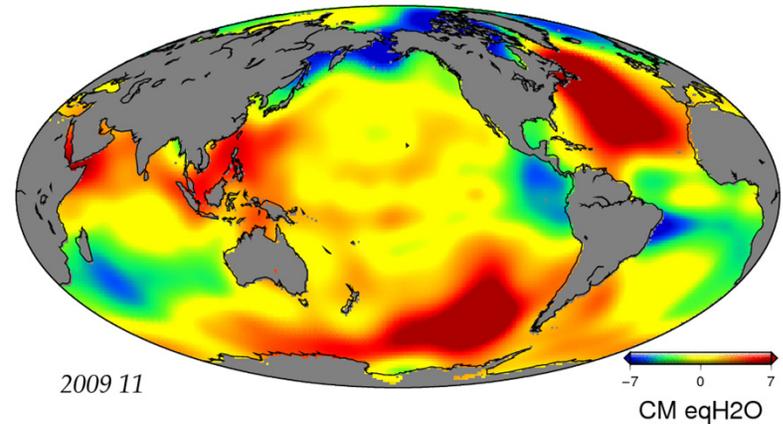


New SST products

- GHRSSST
 - Close to distributing its 100th million granule since 2005. 58 datasets.
 - High resolution Level 4 products:
 - MUR (Regional 1 km, MEaSUREs, Mike Chin [JPL]). Next year global. Eventually extend to 1981-present.
 - G1SST (Global 1 km, Yi Chao [JPL])
 - Expecting variety of new L3 products later this year
- SST frontal probability preview products now include MODIS Aqua (previously AVHRR Pathfinder and GHRSSST L4 AVHRR_OI)

New Gravity Products

- Grace
 - L3 Tellus MEASURES products from GRACE PIs using L2 products
 - New L1 and L2 products expected from reprocessing in 2011
 - Improve Tellus integration with PO.DAAC





Ocean circulation

- Ocean currents: 1/3 degree OSCAR products (derived surface currents)
- Ocean model: ECCO-2 (3D Global model)

Salinity

- Aquarius to launch June 2011 !
 - PO.DAAC is positioning itself to be the salinity resource center for Aquarius. Archive for all L0/L1/L2/L3 data. Established web presence.
 - Currently distributing simulated datasets (based on Hycom ocean model)
- Support Cal/Val data



The screenshot shows the PO.DAAC (Physical Oceanography DAAC) website. The header includes the NASA logo and Jet Propulsion Laboratory/California Institute of Technology information. The main content area is titled "Aquarius Instrument" and features a "News and Announcements" section. A prominent article dated 27 July 2009 discusses the "Seawater Gets a New Definition" in the context of better modeling salinity and currents. Another article from 01 June 2009 announces that the Aquarius instrument is expected for its first shipment to Argentina. The page also includes a "What is Aquarius?" section, a "Links and Resources" sidebar, and a footer with "Aquarius Products" information.