NASA'S OST WEB SITE: PROMOTING OSTST RESEARCH

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Ocean Surface Topography Science Team Meeting
11 November 2008
Nice, France

Acknowledgements

Kristy Kawasaki - Raytheon Webmaster

Rosemary Sullivant - JPL Science Writer

Annie Richardson – JPL Ocean Outreach Lead

Jason-1 & OSTM/Jason-2 Project Management

OSTST

Promoting the OSTST

http://sealevel.jpl.nasa.gov

Several opportunities to promote your science research, activities, awards, etc.

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http://sealevel.jpl.nasa.gov

Several opportunities to promote your science research, activities, awards, etc.

Methods

Features – monthly updates

New Science Pages

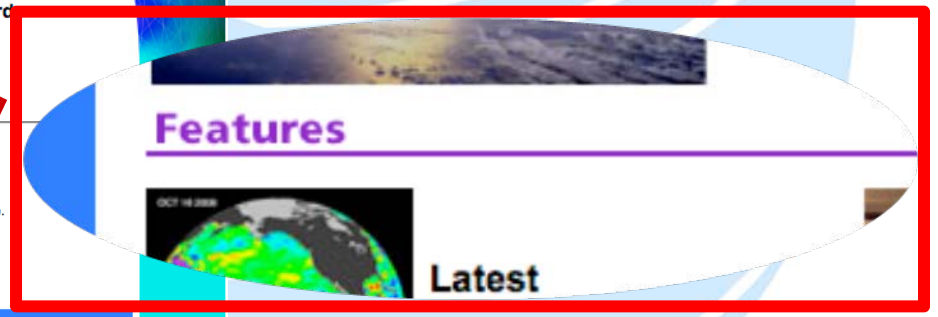
New Science Investigations – summaries

Literature Database – quarterly updates

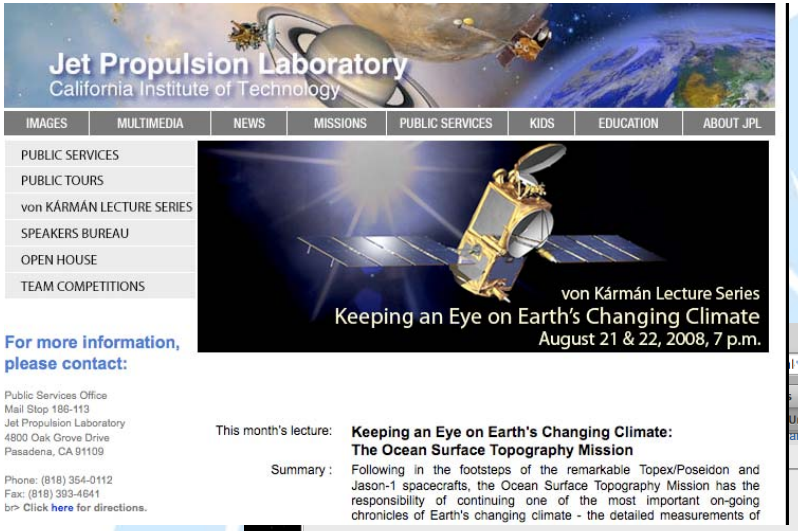
Societal Benefits

Features

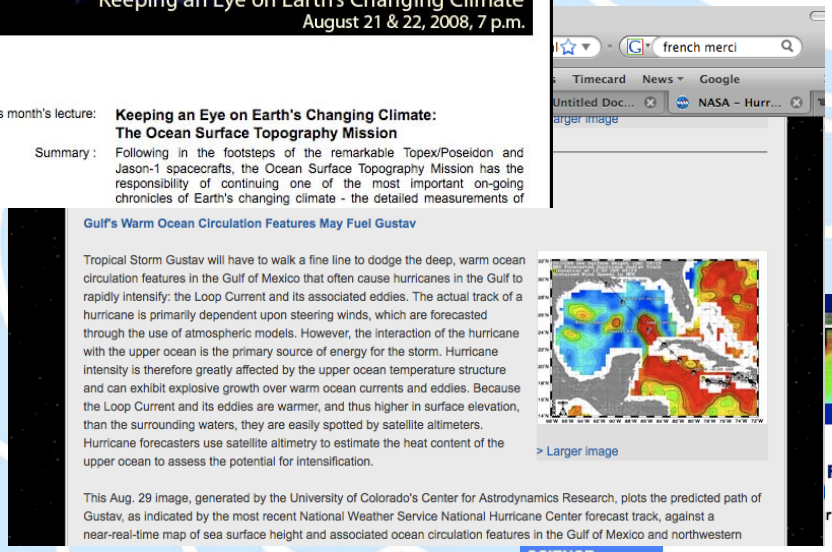
Monthly updates – news, press & image releases, awards, outreach activities, new societal benefits…



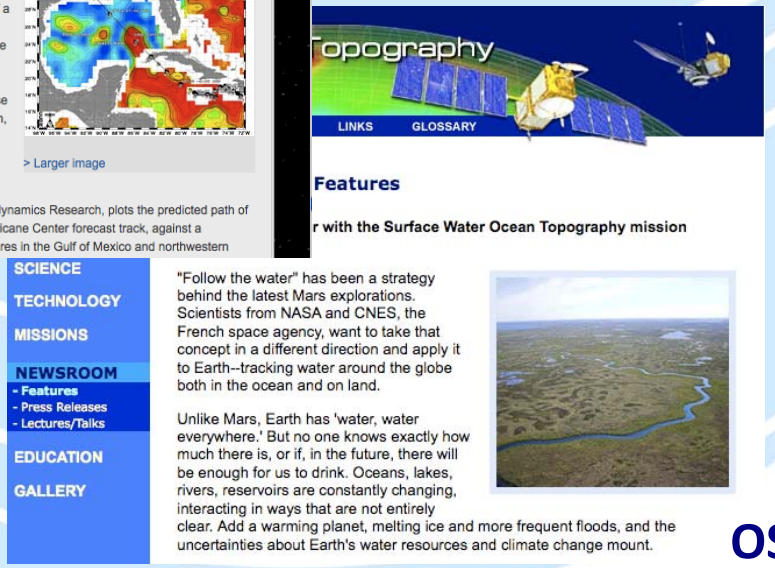
Features



JPL web site



NASA Hurricane web site



OST web site

Science


Jet Propulsion Laboratory
California Institute of Technology
+ View the NASA Portal
JPL HOME
EARTH
SOLAR SYSTEM
STARS & GALAXIES
TECHNOLOGY
Ocean Surface Topography From Space
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GALLERY
Sea Level Monitoring Enters a New Era
Society Benefits
Sea Level Viewer NEW
Literature Database
Monthly Time Series
Features
Latest El Niño/La Niña Jason Data
The latest image from NASA's Jason satellite is updated every two weeks. Check out the latest ocean conditions here!
We remember our friend & colleague, Yves Ménard
Read more ...
Congratulations! OSTM/Jason-2 successfully launched on 20 June 2008
WHERE IS IT NOW?
Join the Sealevel Mailing List
OSTST Meeting 10-12 November 2008
The 2008 ocean altimetry meeting and GODAE conference is in Nice, France.
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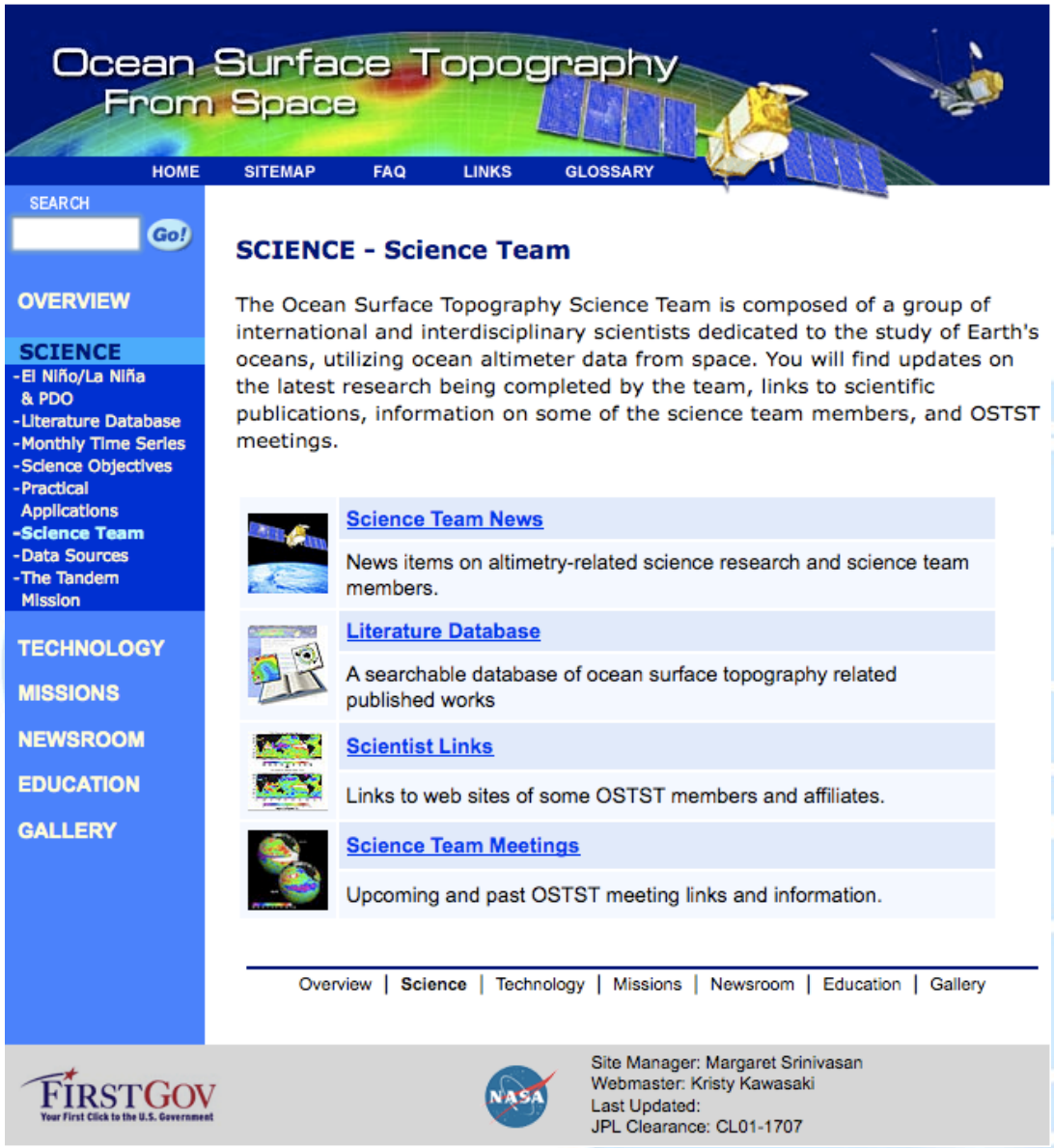
JPL Clearance: CL01-1707

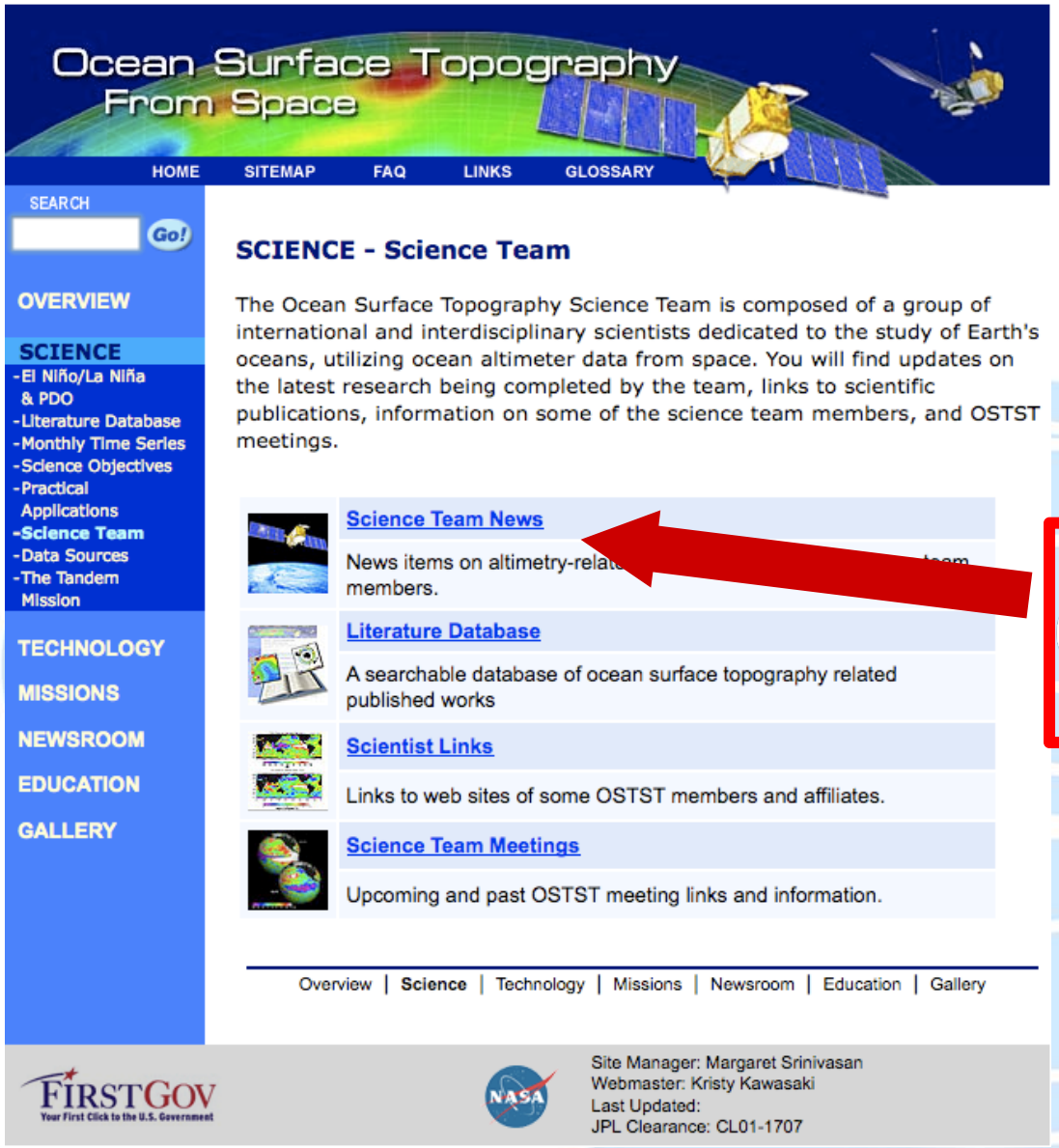

SCIENCE

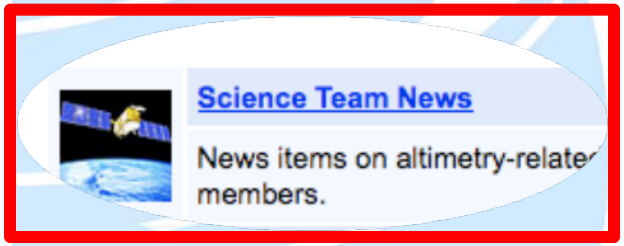
New Science Pages



Not yet public

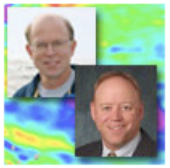
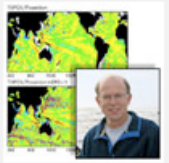
Science Team News





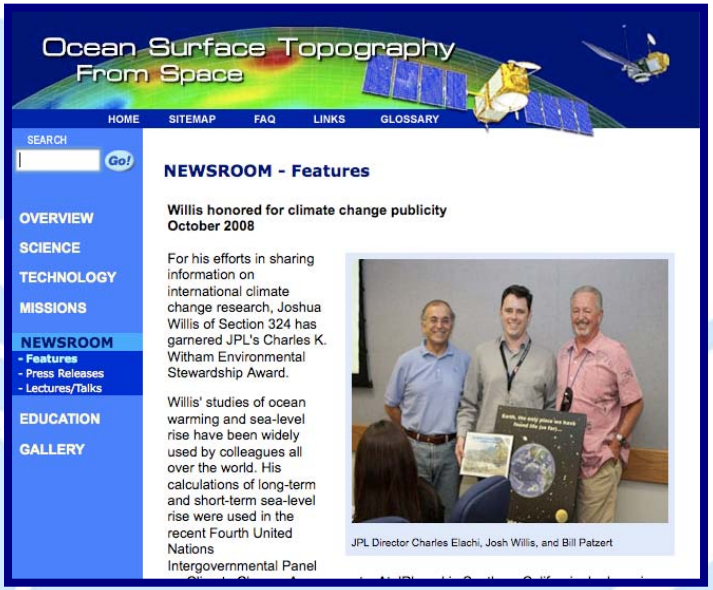
Science Team News

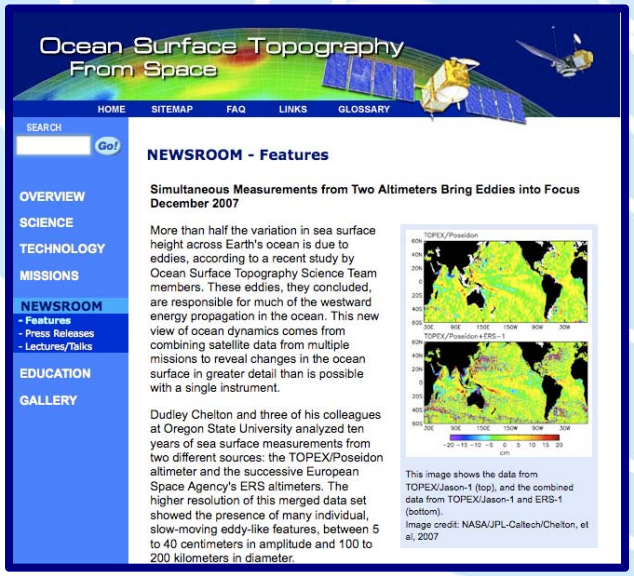
GALLERY

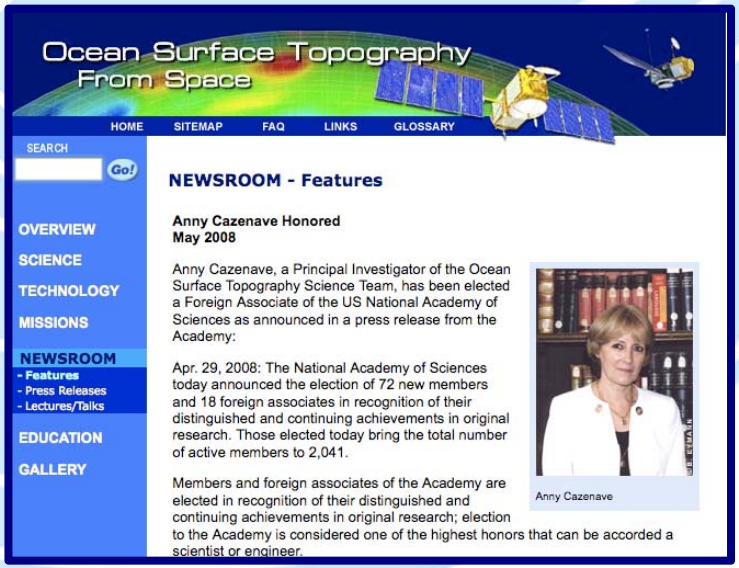
Rising Oceans and Global Warming Listen to a podcast with JPL's Josh Willis on OSTM/Jason-2 mission science.	
Riding the Waves! OSTM's Parag Vaze and Lee Fu share their views on the newest NASA mission.	
Anny Cazenave Honored Another outstanding OSTST member has been recognized for excellence.	
Dr. Lee-Lueng Fu Honored Jason Project Scientist is selected to the National Academy of Engineering	
Chelton & Nerem Honored Jason Science Team Members elected AGU Fellows.	
Altimeters Bring Eddies into Focus Jason Investigators find eddies in the details.	
Girl scouts voyage 'Under the Sea' JPL's Dr. Patzert takes ocean science to local troop.	
Ray and Roemmich win AMS awards Two OST science	

Recent stories & highlights of OSTST members

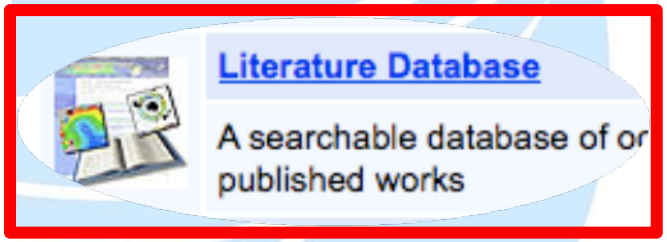
Science Team News







Literature Database



Literature Database

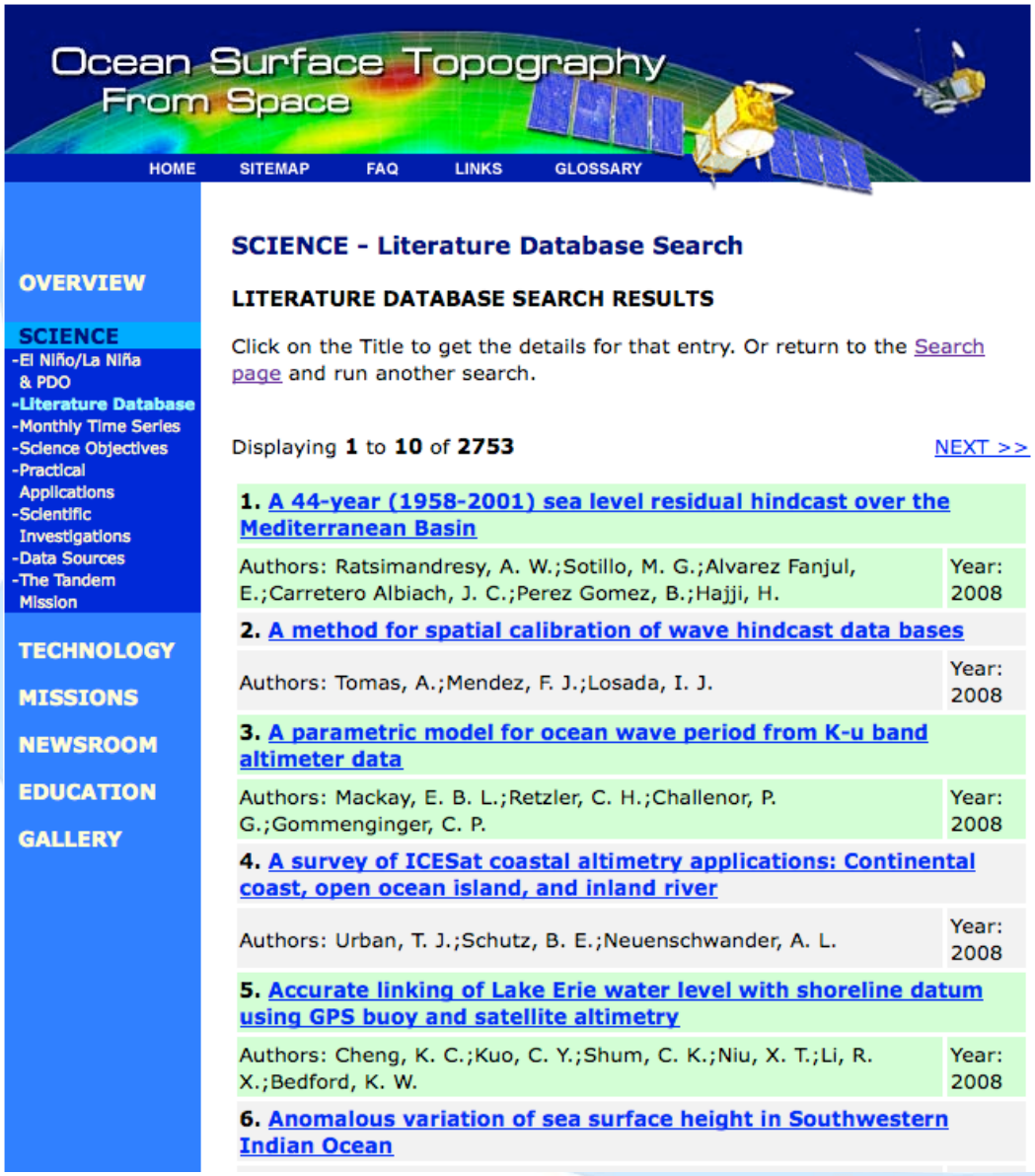
Also linked from the home page

Literature Database

Search on;

- **-Author**
- **-Abstract**
- **-Keyword**
- **-Title**

Literature Database



--Updated quarterly

--2,801 entries

Literature Database

LITERATURE DATABASE SEARCH DETAILS

Return to the Search page.

A parametric model for ocean wave period from K-u band altimeter data

Authors: Mackay, E. B. L.;Retzler, C. H.;Challenor, P. G.;Gommenginger, C. P.

Year: 2008

Journal: Journal Of Geophysical Research-Oceans
Publisher:
Volume: 113
Number: C3
Pages: C03029
Edition:
Type of Work:
Category: 2a. Science Applications - Winds & Surface Waves (WW)

ISBN/ISSN:
Accession Number: ISI:000254533600003

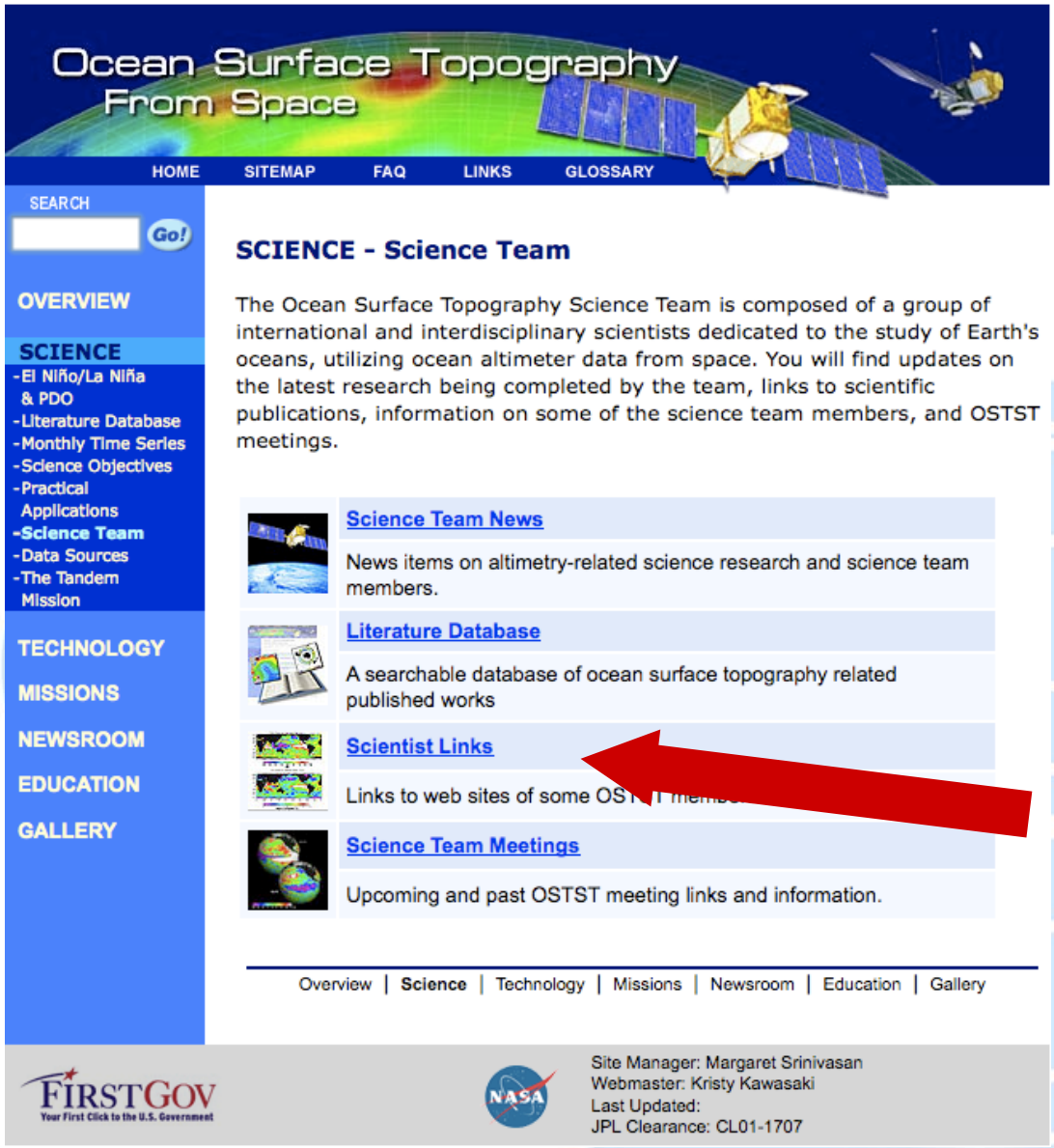
Notes:
0148-0227 C03029

Author Address:

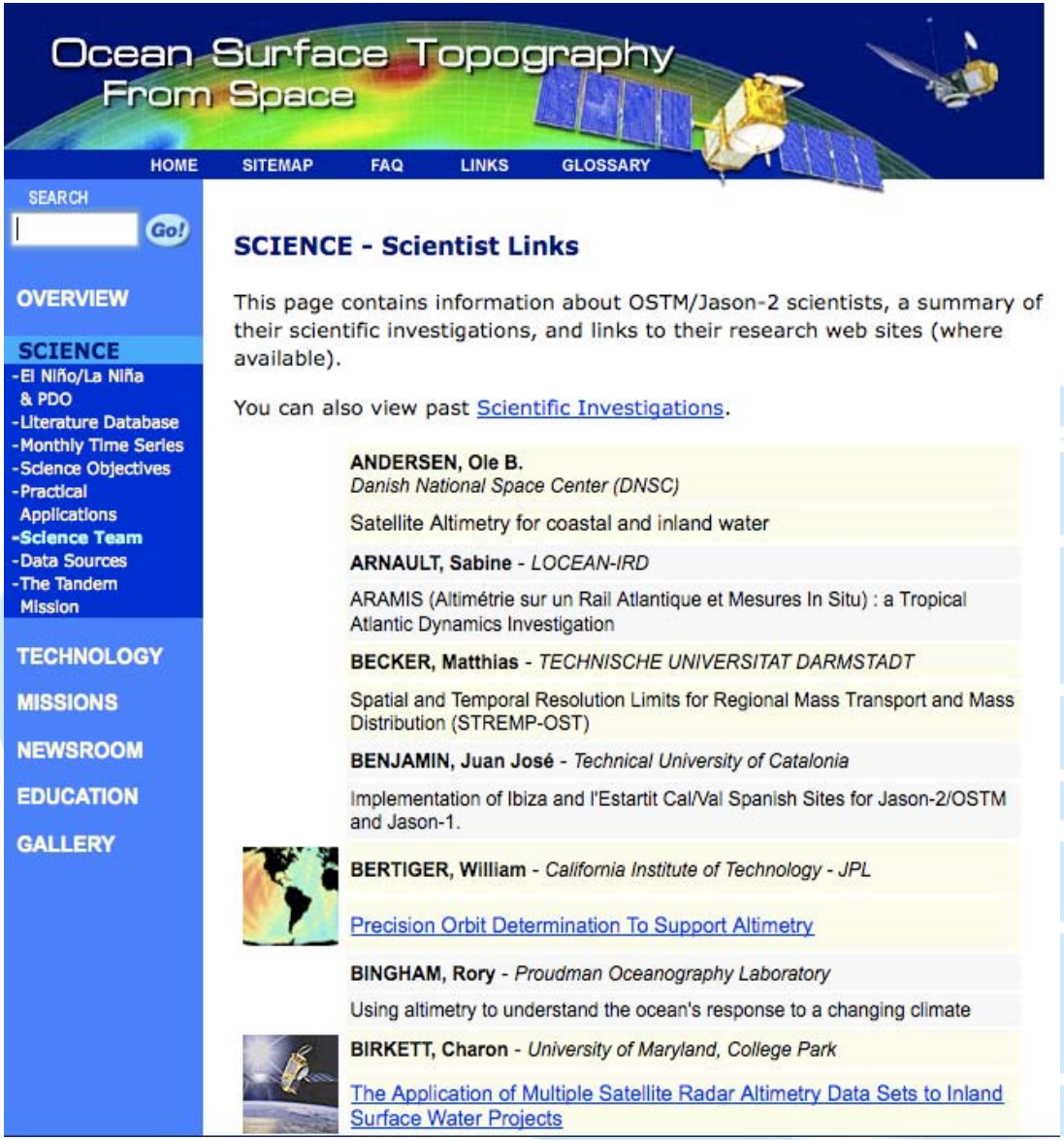
Abstract:
Using a large collocated data set of altimeter and buoy measurements, we examine the relationship between the altimeter Ku-band measurements of significant wave height, H-s, backscatter coefficient, sigma(0), and the buoy wave period. This is used to derive an empirical altimeter wave period model for TOPEX, Poseidon, Jason-1, ERS-2, Envisat, and GEOSAT follow-on. We show that there is a step change in the response of sigma(0) at around 13 dB and above this value sigma(0) is not related to wave period. The results are compared to algorithms proposed by two previous authors (Gommenginger et al., 2003; Quilfen et al., 2004) and examined in terms of absolute accuracy (RMS error), ability to replicate the joint distribution of wave height and period, and residual trends with various parameters. The new algorithm is shown to perform better than the previous algorithms in all metrics considered. Finally, we demonstrate that there is a limiting accuracy achievable for a function of the form f(H-s,

Entry detail; authors, citation information, abstract, etc.

Scientists Links

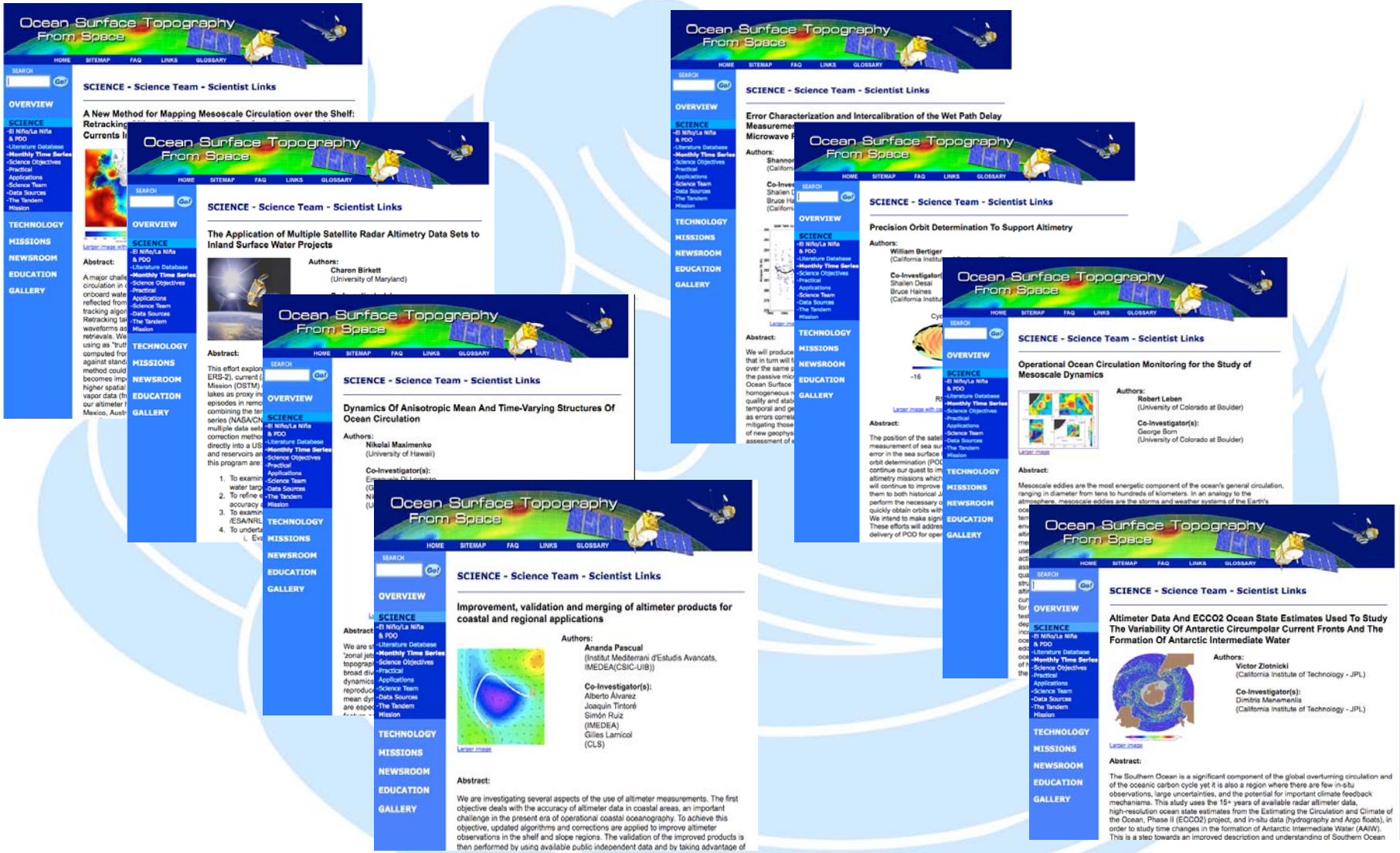


Science Investigations

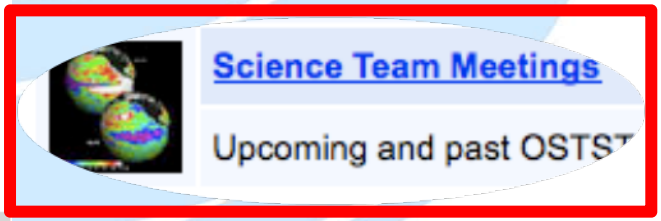


-All science plans listed
-All NASA- and some CNES-funded research linked
-Review & provide text/images/captions

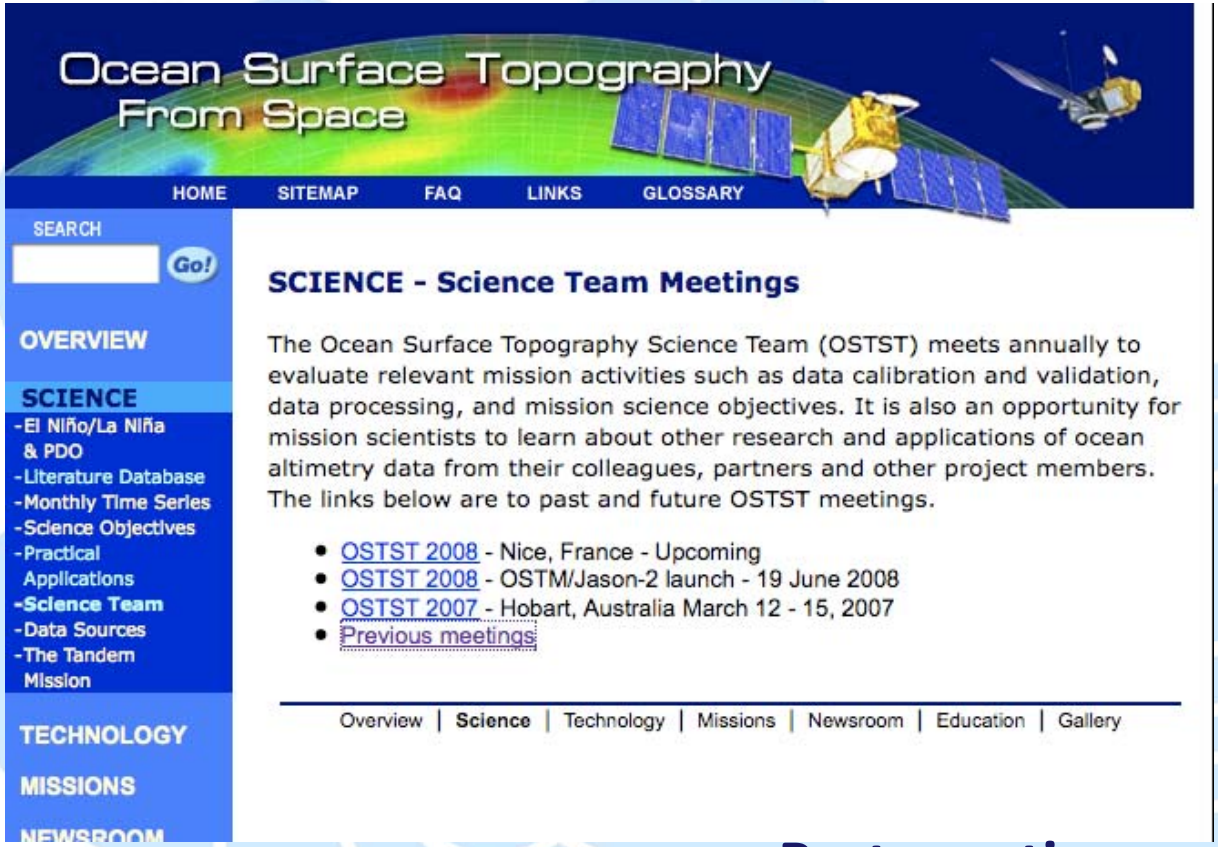
Science Investigations



Science Team Meetings



Science Team Meetings



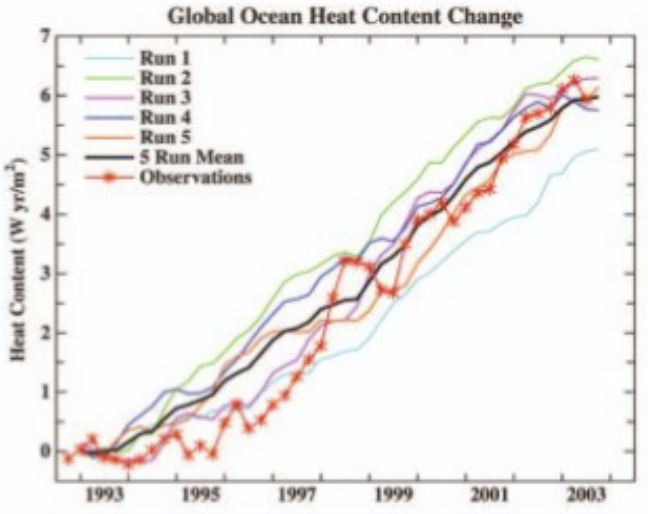
- Past meeting web sites - "Previous Meetings" links to Aviso archive

Societal Benefits

Societal Benefits

Ocean warming estimates from Jason

JPL Postdoc Josh Willis was a co-author on the study and provided the ocean warming estimates used for comparison with the model.



Ocean heat content vs. time, from observations and several global climate model runs.

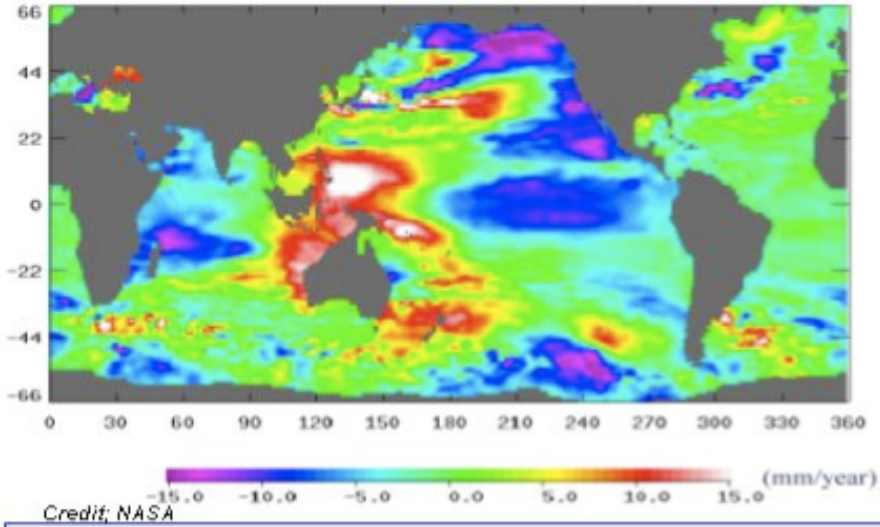
(J. Hansen, et al)*

A new NASA study concludes that more energy is being absorbed from the Sun than is emitted back to space, warming the globe. The study compares ocean warming estimates based on data from satellite altimeters on TOPEX/Poseidon, Jason-1 and other spacecraft, along with oceanographic profiling instruments such as Argo floats with results from a global climate model. JPL's Dr. Josh Willis used the satellite data to provide a global picture of rising sea level and ocean warming. The climate model predicted that growing amounts of human-produced greenhouse gases would trap solar radiation and lead to a warming planet. Aided by ocean altimetry data, they found this excess heat in the oceans. The measurements show that, over the past ten years, the heat content of the ocean has grown dramatically and can account for the excess energy that the climate model calculated should exist. Dr. Willis' analysis of the data showed a fairly steady, measurable warming over the past decade.

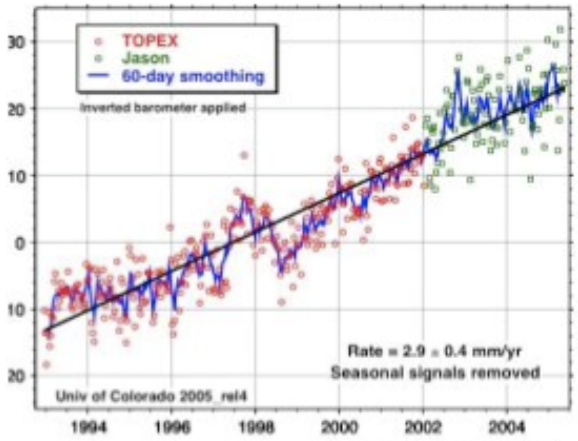
**Hansen et al., Earth's Energy Imbalance: Confirmation and Implications, Science, 2005, vol.(308),pp. 1431-1435*

Societal Benefits

Global mean sea level rise



Credit; NASA



Credit; Univ. Colorado

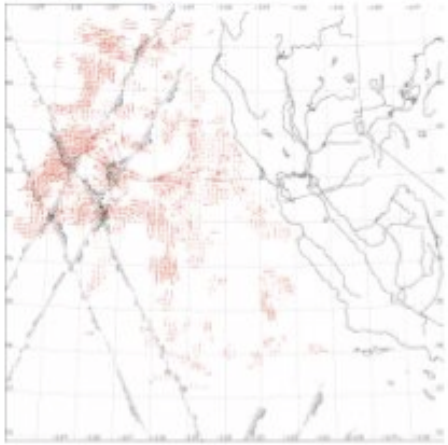
This global map of the trend of sea surface height (SSH) is estimated from the combined data from TOPEX/POSEIDON and Jason-1 from 1993 through 2004. Complex patterns of spatial variability are clearly shown. In the North Pacific the pattern of variability is similar to that of the Pacific Decadal Oscillation, in part caused by wind-driven long-period Rossby waves. The SSH trends in the North Atlantic are caused by a slowdown of the circulation of the subpolar gyre of the North Atlantic Ocean, leading to a decrease of the northward heat transport of the ocean.

In the South Atlantic and South Pacific, the marked striations are roughly consistent with the characteristics of Rossby wave fronts, reflecting a possible role of Rossby waves in the decadal change of ocean circulation. In the Southern Ocean the spatial pattern shows the characteristics of a wavenumber-2 Antarctic Circumpolar Wave, with two minima centered at longitudes of 30°-60° and 210°-240°. These waves travel eastward around Antarctica in 8 to 9 years.

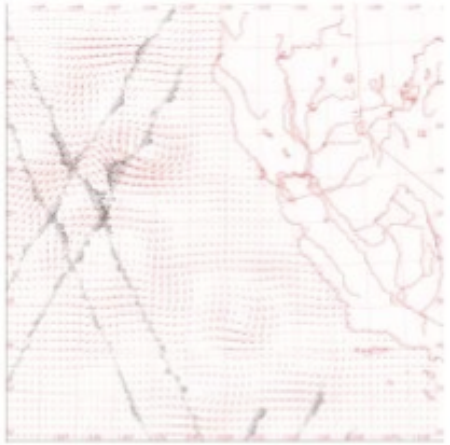
The decadal trend of SSH in the Indian Ocean suggests that there is a decrease in the northward geostrophic flow of the upper ocean and hence a reduction of the ventilation of the tropical Indian Ocean by the cold water from the South Indian Ocean, responsible for a long-term warming of the upper Indian Ocean.

Societal Benefits

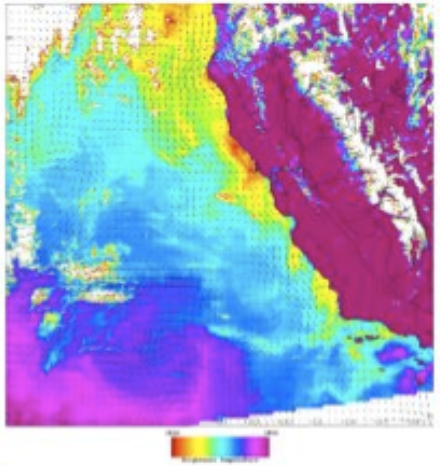
Coastal Surface Current Mapping with Radiometry and Altimetry



Composited MCC currents (red) computed from AVHRR images with altimeter currents (black) overlain for Sep. 13-16, 2003.



OI currents from MCC method (red) with altimeter currents (black) overlain for Sep. 13-16, 2003.



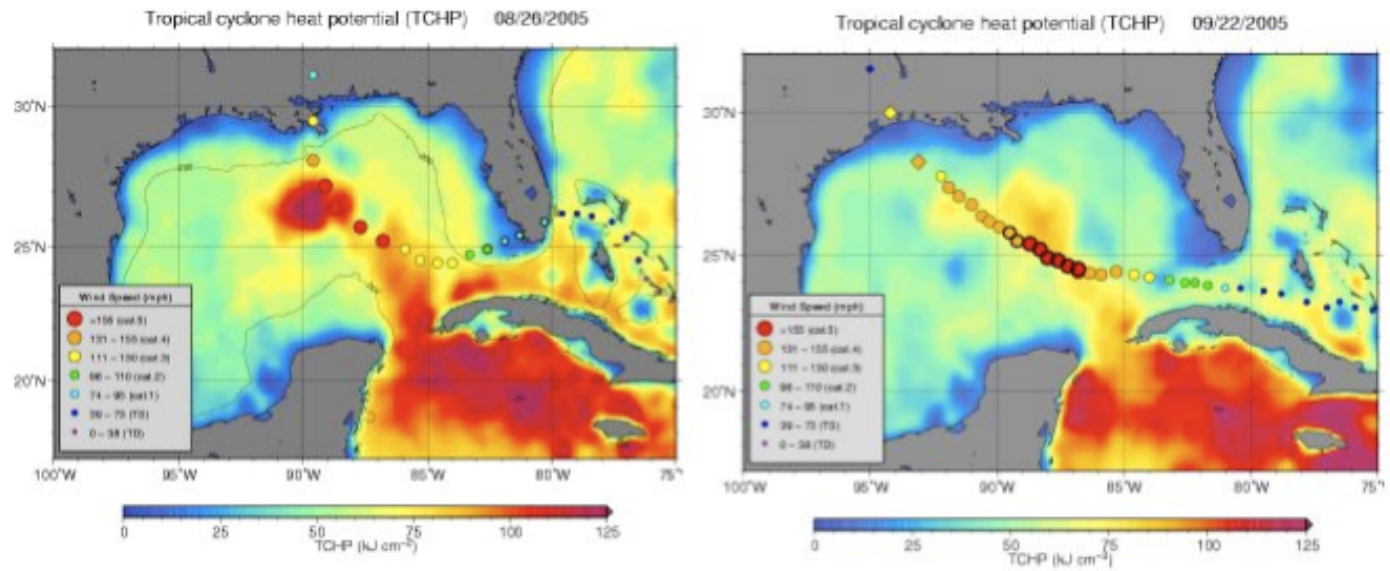
10-day OI currents from MCC method and altimetry centered on Apr. 8, 2003.

(W. Emery, D. Matthews, R. Crocker, D. Baldwin)

The California Current is representative of the complex temporal and spatial variability that can be seen in an eastern boundary basin. Conventional oceanographic measurements are unable to resolve these relatively small scale variations, but by employing both satellite imagery and satellite altimetry we are able to resolve this complex structure and its variations in space and time. In addition, using historical satellite imagery it is possible to extend this study back into the past. This system focuses on resolving these variations and later studies will relate these variations to various forcing functions. These images demonstrate that ocean surface currents derived from sequential thermal images can be merged with altimeter derived geostrophic surface currents to form a high-spatial resolution surface observational product. *http://ccar.colorado.edu/research/cali/*

Societal Benefits

Packing Heat in the Gulf

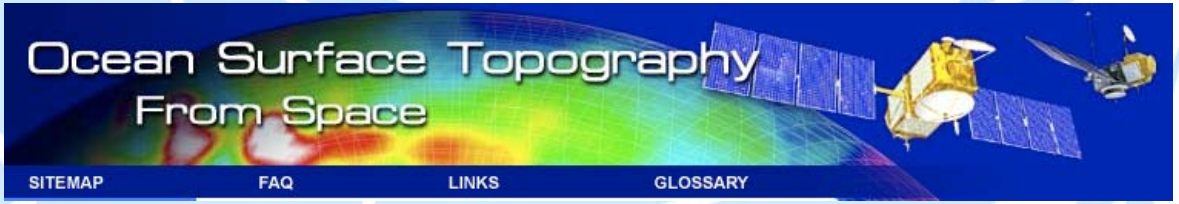


(G. Goni and J. Trinanes, NOAA/AOML)

Tropical Cyclone Heat Potential (TCHP) fields are derived from altimetry data for hurricanes Katrina (left) and Rita (right) in 2005. The path of each hurricane is indicated with circles, their size and color representing intensity (see legend), as the storms made their way across the Gulf of Mexico. Both hurricanes rapidly intensified to category 5 as they passed over the Loop Current and a warm ring, then diminished to category 4 and category 3, respectively, by the time they traveled over cooler waters outside the warm ring. NOAA's Atlantic Oceanographic and Meteorological Laboratory uses blended satellite altimetry data, including those from NASA's TOPEX/Poseidon and Jason-1 missions, to estimate TCHP (a measure of the oceanic heat content from the sea surface to the depth of the 26°C isotherm) in the Gulf of Mexico in near-real time. High values of TCHP may be linked to hurricane intensification. These fields are critical to scientists and forecasters in better understanding the link between the ocean and the intensification of hurricanes. See http://www.aoml.noaa.gov/phod/cyclone/data/ for more information.

Web Resources

- NASA/JPL Ocean Surface Topography from Space
  http://sealevel.jpl.nasa.gov/



- AVISO page - http://www.aviso.oceanobs.com/

Your help…

- Consider potential and operational applications of your research
- Estimate the economic/practical effects/benefits
- Get your story out into the public domain;
  - Feature
  - Press Release
  - Image Release
  - Awards, Honors, Milestones

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Merci.