NOAA *CoastWatch/OceanWatch* Quarterly Newsletter

Issue 1   October/November/December 2005

Welcome to the first edition of the *CoastWatch/OceanWatch* Newsletter. The objective of this quarterly report is to share the exciting news and updates that are happening with the program, as well as showcase the hard work that has been accomplished. If you have any comments or suggestions, please email them to Shawna.Karlson@noaa.gov.

Central Operations

GOES/POES blended product: *CoastWatch* is making progress towards delivering a pre-operational product in Q3. Jo Murray with Rutherford Appleton Laboratory, under contract with ORAD, developed the Multi-Scale SST analysis technique. The code and initial documentation were delivered to *CoastWatch*, where Heng Gu implemented the code on Tethys in consultation with Jo Murray, Eileen Maturi and Andy Harris (CICS University of MD). The product is created from POES L1B data and GOES 1 hour grid files. Below is an example from December 18, 2005.
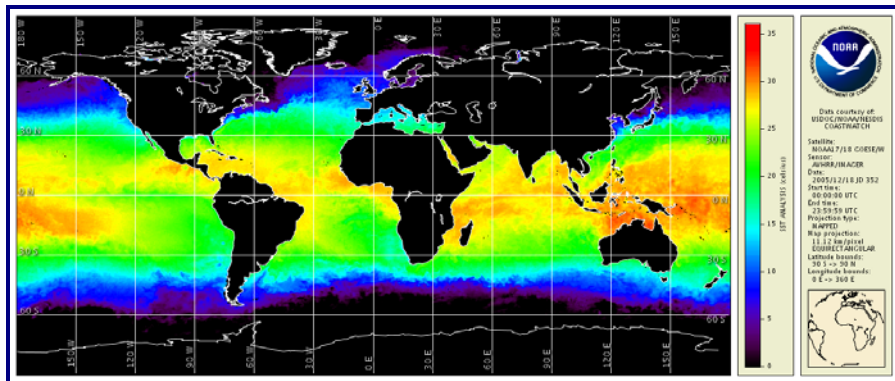

China *CoastWatch*: As a part of *OceanWatch*, collaboration with the People's Republic of China has been ongoing to establish China *CoastWatch*. After the most recent trip to China, Xiaofeng Li and Peter Hollemans were able to forward on the first China *CoastWatch* SST image.
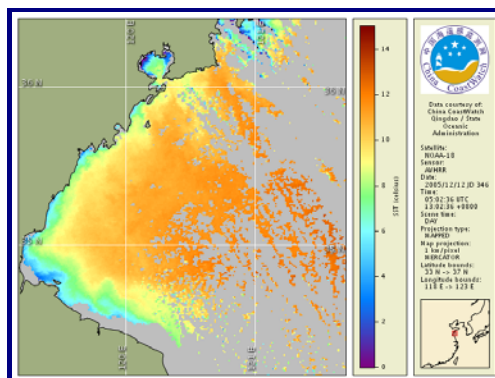
<u>MODIS 250m True Color:</u> Now available for specific (user requested) regions are Aqua and Terra MODIS 250m true color images. The swath data is being ingested into CWHDF at the L2 stage, and then mapped by using the *CoastWatch* Software and Utilities. In addition to the Chesapeake Bay, regions include Texas Coast, Mississippi Delta, and Glovers Reef.
http://coastwatch.noaa.gov/tsm/search.html
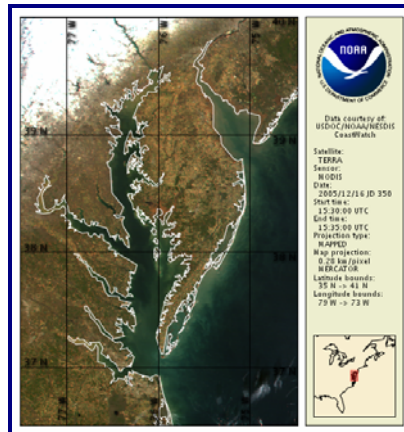
<u>New Ocean Color products:</u> For some time now, *CoastWatch* has been providing Aqua/MODIS near real-time ocean color data for all of the *CoastWatch* regions. This quarter we've added several additional products to compliment the existing data. Now available are 61-day merges for the ocean color products, as well as 5-minute granules and daily composites for K490 and Rrs667 data. These products are generated for all regions and can be found on the FTP server: ftpoceanwatch.noaa.gov.
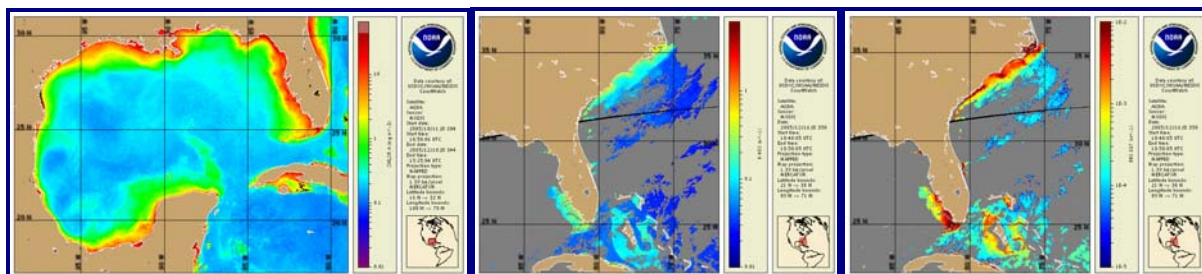
Node Updates

➢ **Carribbean/Gulf of Mexico**

The routine processing of the wind data obtained from CEMSCS were modified to better manage and update the data on an operational scenario, and to increase error tolerance. We added new products like the latest 12-hr winds, ascending and descending passes.

As a cooperative agreement between NOAA and the around the world Volvo Ocean Race (VOR), we implemented a web page where near real time atmospheric and oceanographic information along the race is posted. In addition, VOR meteorologists and external users can access the GRIB datasets, including SST fields, surface currents, wave height and direction, winds, etc. Those are updated every hour to reflect the latest status of the ocean and of the wind fields. Joaquin visited the VOR village to know about the needs and data requirements of the participants. This effort will continue during the next 8 months.
http://www.aoml.noaa.gov/phod/VOR/

We started implementing a web Services-oriented Geographic Information System to dynamically display and provide access to operational satellite and in-situ datasets. This Mapserver-based interface can access remote Web Mapping Services and integrate them within the suite of products. Users can zoom in and out, overlay and order data layers, generate multi-format outputs, change geographic projections, access DODS, etc. Current products include GOES SST, and MODIS SST and chlorophyll, which are routinely obtained from Central CW and processed locally to accommodate our system specifications. During this quarter, we also incorporated additional datasets, such as vector surface currents, Gray's Reef shapefiles, and dynamic height and sea height anomalies in raster format. More datasets will be included in the future as well as additional services as Web Feature Services, Web coverage Services, Locator Services, etc. This is an ongoing project that will continue during the following year.

We are working on a project to estimate volume and heat transports of the Agulhas Retroflection region using altimeter data. Once this project is completed; these estimates will be available through the CW Caribbean/Gulf of Mexico homepage on an operational basis.

We are integrating the SST anomalies within the HDF AVHRR products distributed by this node for the Caribbean and GoM regions. These anomalies are estimated using Pathfinder-derived daily climatologies. This work will continue during the next quarter.

➤ Central Pacific

We requested direct access to the NESDIS data server containing Level-1 AVHRR-GAC SST data. The account has already been established, and all the data acquisition scripts have been updated accordingly. This capacity ensures the near-real time (NRT) distribution of AVHRR-GAC SST data to our data users.

On October 2005, we finalized the logistical arrangements with NOAA NESDIS (Peter Hollemans) and NOAA CLASS (Sushma Gupta) for ensuring the acquisition, archiving and distribution of AVHRR/HRPT data from the NOAA-12 satellite. This action will enable future users to utilize this data for various research applications. Furthermore, we'll utilize this dataset as part of the daily hazard and environmental monitoring programs.

In collaboration with the NOAA Pacific Islands Fisheries Science Center (PIFSC) - Protected Species Division, we generated a series of animations combining satellite-derived SSH data with in-situ track information collected by the ARGOS tag tracking system. The tracks were collected from three young fur seals located in the Gulf of Alaska. These investigations suggested a relationship between oceanic circulation patterns and the seal's feeding grounds.

Other user requests included one from the National Park Service for customized satellite remote sensing datasets for the Island of Hawaii region. The datasets included AVISO SSH, Aqua/MODIS chlorophyll-a, as well as GOES SST and Pathfinder SST. In addition, researchers at the Univ. of Hawaii – Oceanography Department, asked for customized datasets to include GOES SST, AVHRR-GAC SST and AVHRR-HRPT SST. The objective of this study included the utilization of satellite remote sensing for identifying manta ray migration patterns.

➤ East Coast

The East Coast Node is on its way! This Node will be located at NOAA's Chesapeake Bay Office (NCBO) in Annapolis, Maryland. The initial coverage area will be from Maine to the Carolina's and include SST, chlorophyll –a, and ocean surface winds data. In time, the coverage area will extend south to Florida and across the Atlantic to Europe. The Node Manager will be reporting for work on January 9, while the Operations Manager will begin on February 1. The Node should be established by June 2006… stay tuned!

- ## Great Lakes

  We are currently converting the GLSEA composite chart to a 1024x1024 format; this will include reformatting the winter ice cover produced by the National Ice Center to the new format. We're also in the process of improving the AVHRR turbidity product that will include better atmospheric correction and cloud masking.

  Recently, we added a link to the ice charts for the Great Lakes on the National Ice Center East and West Lakes Composite site. It was found that the US Coast Guard relies heavily on the Great Lakes CoastWatch web site for RADARSAT and MODIS True Color imagery.

  The International Field Year on Lake Erie (IFYLE) cruises were completed by October. Optical data and water sample were collected during 5 cruises. The data is being analyzed and will be used to produce a bio-optical model for Lake Erie. Software developed by project collaborators has been installed at GLERL, which will produce Chlorophyll, DOC, and SM products from MODIS imagery using the new bio-optical model.

- ## West Coast

Education and Outreach

Once again, *CoastW*atch set up an exhibit with other NOAA offices at the MTS/IEEE Oceans conference in September. This annual event was held close to home, in Washington D.C. *CoastW*atch used this opportunity to share with the ocean community advances in the product suite, as well as begin introducing *OceanW*atch. The next Ocean's conference will be in Boston, MA, in September. But, our upcoming conference will be the 2006 Ocean Sciences Meeting, hosted by ASLO/TOS/AGU from February 20 – 26, 2006 in Honolulu, HI.

*CoastW*atch is developing several ocean remote sensing educational modules, with help from the Maryland Department of Education. The first few will cover the three primary data streams of *CoastW*atch – sea surface temperature, chlorophyll –a, and ocean surface winds. When completed, these materials will be available online in PDF format, and publicly announced at the upcoming National Science Teachers Association conference in April 2006. Thank you LTjg Amanda Bittinger for your time and assistance with these!

(CB/GoM) Joaquin Trinanes attended the National Thematic Network on Marine Remote Systems Workshop in Cadiz, Spain from Nov 27th to Nov 29th. His presentation displayed the current range of CW historical and NRT products and their effectiveness for real-case scenarios. Those in attendance included scientists from EU's universities and laboratories.

(GL) George Leshkevich and Songzhi Liu presented at the State of the Lake 2005 Conference hosted by USEPA/Wisconsin SeaGrant/Great Lakes Commission in Green Bay, WI, from November 2-3. The title of the presentation was called "Environmental Monitoring of Lake Michigan Using CoastWatch Data and Java GIS".

(CP) On December 5th and 6th, Lucas Moxey participated in the Pacific Risk Management Organization Workshop for Waves and Water Level Hazards (WWLH) Data Framework Development. The meeting allowed for the identification of data requirements, and also established future action agendas that would facilitate researchers, managers and general users with timely and accurate WWLH information.

Publications

Stefan Plattner, Doran M. Mason, George A. Leshkevich, David J. Schwab, and Edward S. Rutherford. Classifying and Forecasting Coastal Upwellings in Lake Michigon Using Satellite Derived Temperature Image and Buoy Data, *Journal of Great Lakes Research* (in press).

Contact

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