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Cooperative Institute for Climate & Satellites
UNIVERSITY OF MARYLAND

Cooperative Institute for Climate and Satellites-Maryland

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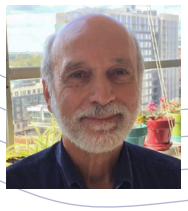
Circular December 2017



DIRECTOR'S MESSAGE

Dear colleagues,

Our scientists are frequently recognized and it has become increasingly difficult to list them all here. Thus, we have created a specific page in our web site to distinguish them (http://cicsmd.umd.edu/people-awards/). Still, this time I want to congratulatee Scott Rudlosky, who received the NOAA David Johnson Award for *his innovative contributions to the exploitation of lightning measurements during the preparation for and during the post launch check out of the GOES-16 Geostationary Lightning Mapper, including the development of visualizations and new applications of ground lightning measurements for operational weather forecasters, paving the way for the transition of these highly valuable applications from GOES-16 into the forecaster operational environment.*

On November 18, 2017 the JPSS-1 satellite was launched and soon after our scientists started receiving and processing its information. This quick response is an example of CICS research helping improve NOAA operations. I can foresee that in the near future we will have an issue of the Circular focused on JPSS-1 research and applications. In the meantime, this current issue highlights CICS research and support activities in Ocean Science. I hope you enjoy learning more about these less known activities carried out at CICS.

With best wishes for the New Year,
Hugo Berbery

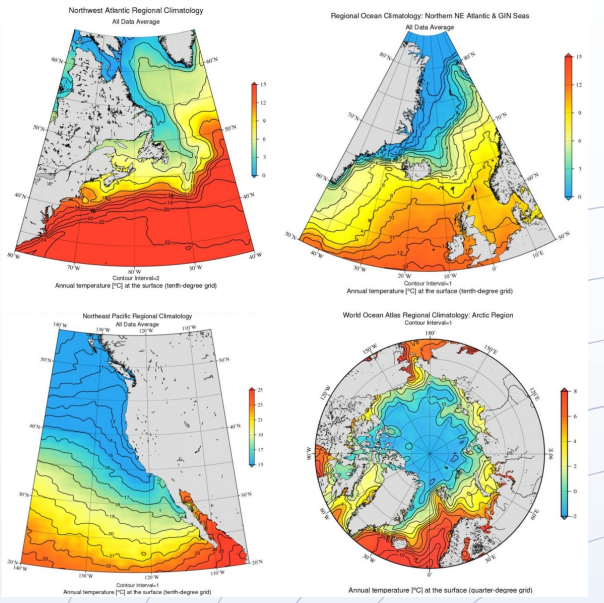
Participants at the CICS annual science meeting (November 6-8, 2017). More details are available at http://cicsmd.umd.edu/outreach/science-meeting-announcement/.

Building NOAA/NCEI High-resolution Regional Ocean Climatologies

(Contributed by Dan Seidov (NOAA), Alexey Mishonov (CICS), and James Reagan (CICS))

An ocean climatology is a compendium of objectively analyzed, quality controlled, gridded oceanographic variables, such as temperature, salinity, oxygen, etc. One of the most widely cited ocean climatologies is the World Ocean Atlas (WOA), which is based on the NOAA's National Centers for Environmental Information (NCEI) flagship product—the World Ocean Database (WOD). The WOD is one of the largest quality-controlled, uniformly formatted, and publicly available oceanographic databases in the world. The WOA 2013 (WOA13) is the most recent version of the WOA series, published in 2014 and updated in 2015 (https://www.nodc.noaa.gov/OC5/woa13/). CICS-MD Scientists Jim Reagan and Alexey Mishonov work on processing oceanographic data for inclusion in WOD and both perform quality control of the ocean data in help building WOA, with Reagan focusing on salinity and Mishonov working on temperature. Both use the data from WOD to investigate decadal ocean climate change in the North Atlantic Ocean. In 2017, the results of their research were published in *Geophysical Research Letters* and presented at the AGU Fall meeting.

The NCEI Regional Climatologies (RC) project aims at creating high-resolution regional ocean climatologies in key areas where data are sufficient for true 1/4-degree or even 1/10-degree spatial resolution on 102 standard depth levels. All NCEI RCs are descendants from WOA. There are only a few regions where data availability supports the building of high-resolution ocean climatologies, allowing a new level of detail to be obtained in these locals. Eight RCs have been completed and published at NCEI thus far. Figure 1 shows the front pages of the websites for four of those RCs from their respective websites under the main NCEI RC portal https://www.nodc.noaa.gov/OC5/regional_climate/. NCEI RCs can be instrumental in detailing local assessment of ongoing global ocean climate change and can help the scientific community understand long-term variability and trends.



Four NCEI regional climatologies (clockwise from top left): Northwest Atlantic (NWA), Greenland, Iceland and Norwegian Seas (GINS), Arctic, Northeast Pacific (NEP) (see more at https://www.nodc.noaa.gov/OC5/regional_climate/).

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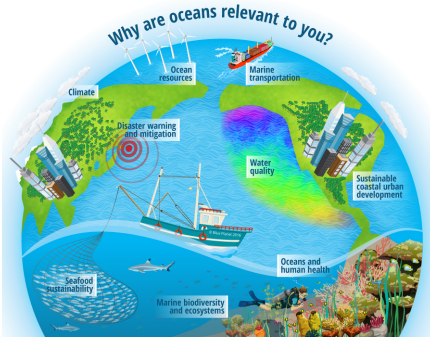
Ocean and Coastal Observations for Societal Benefit

(Contributed by Emily Smail)

Blue Planet is an Initiative of the Group on Earth Observations (GEO). GEO aims to address global challenges and improve decision making by coordinating and developing the Earth observation efforts among participating governments and organizations. The GEO Blue Planet Secretariat is co-hosted by the Satellite Oceanography and Climatology Division (SOCD) at NOAA STAR and Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO). CICS-MD Scientist Emily Smail is the Secretariat's Scientific Coordinator.

The goal of the GEO Blue Planet Initiative is to ensure the sustained development and use of ocean and coastal observations for the benefit of society. We do this by promoting collection of continuous ocean observations, processing of data into information and linking this information with societal needs. The societal needs feed back into ocean observation requirements and enhancement or modification of the ocean observation strategy. This requires close working relationships between scientists who collect ocean observations, those that take these observations and extract information as well as forecast future conditions, and those that use the information and forecasts in the management of our living planet. GEO Blue Planet is a unique network of ocean-observers, social scientists and end-user representatives from a variety of stakeholder groups, including international and regional organizations, NGOs, national institutes, universities and government agencies.

Interested in learning more about or contributing to the work of GEO Blue Planet? Visit our website at www.geoblueplanet.com or email the Secretariat at esmail@umd.edu.

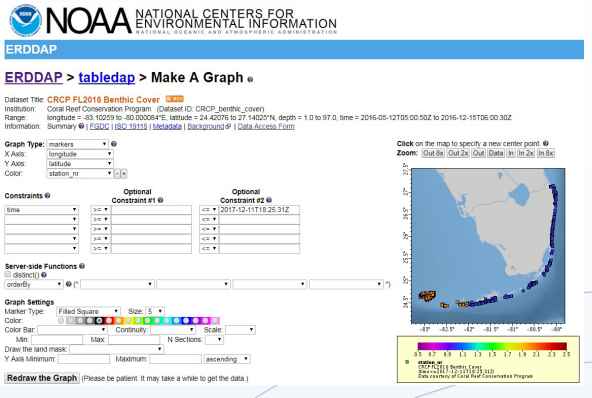


The GEO Blue Planet "globe" designed by Kate Hodge (https://hodgeenvironmental.com.au/)

Increasing Access to Coral Reef Data For Improved Resource Management

(Contributed by Brian Beck)

Coral reefs are one of the most valuable marine ecosystems on the planet and are under increasing threats from climate change, overfishing and land based pollutants. Resource managers have an increasing need to the most recent data to help them determine the status of their reefs. NOAA and CICS-MD scientist are working together to provide quicker and easier access to the latest monitoring data produced by NOAA's Coral Reef Conservation Program (CRCP). Utilizing ERDDAP, a NOAA developed a platform for data web access, NOAA and CICS-MD scientists are working on developing a prototype database of coral and fisheries survey data from Florida for living marine resource managers. These data have already been published on ERDDAP and the scientists are currently working on refining the database to gain the greatest usefulness of the data published.



ERDDAP allows users to quickly subset the data, choose a variety of data formats for download and graphing options for quick looks at the data.

The next step for this research is to work with living marine resource managers to develop a user friendly front end to access the data. The objective is to decrease the amount of time that the resource managers will have to spend obtaining, formatting and analyzing the data, leaving more time for application. Once this process has been completed for the subset of Florida fish and coral survey data, it will be expanded to include all coral and fish surveys for the seven states and territories that the CRCP monitors. Development beyond that will be the roll out of various climate based data sets collected for coral reef monitoring.

CICS-MD BACKGROUND

The Cooperative Institute for Climate and Satellites-Maryland (CICS-MD) is engaged in collaborative research with several NOAA Centers and Laboratories. CICS-MD consists of about 60 scientists that implement the Institute's mission of supporting NOAA's ability to use satellite observations and Earth System models to advance the national climate mission. Full information, including our research topics, is available at cicsmd.umd.edu.

NOAA SPONSORS

- Center for Satellite Applications and Research (STAR)/National Environmental Satellite, Data and Information Service (NESDIS)
- Climate Prediction Center/National Centers for Environmental Prediction/National Weather Service
- National Centers for Environmental Information/NESDIS (NCEI)
- Air Resources Laboratory/Office of Oceanic and Atmospheric Research

Dr. E. Hugo Berbery, CICS-MD Director
Debra Baker, CICS-MD Coordinator

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