# National Oceanographic Data Center

# Annual Report Fiscal Year 2009

*Serving the Nation Since 1960...*

# National Oceanographic Data Center

Annual Report FY2009


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## Message from the Director

As I look back on this past year, I continue to be impressed by the breadth and depth of the data and information services provided by the National Oceanographic Data Center. NODC serves a highly diversified ocean community ranging from college students and teachers, to meteorologists, oceanographers and resource managers, to sailors planning their voyage (see the section on Communications). This past year was marked by an aggressive campaign to engage with the ocean community both within and outside of NOAA, and to further develop our international relationships. The Data Center increased its interactions with users, strengthened partnerships with national and international organizations, and enhanced its ability to provide data access through new products, tools, and systems. NODC was an active leader or participant in major national and international conferences, workshops and planning meetings. This document provides us with an opportunity to highlight some of our accomplishments during fiscal year 2009 and provides an introduction to the strategies we are implementing during fiscal year 2010. As NOAA moves into Fiscal Year 2010, NODC will continue to provide reliable ocean information and services to assist the Nation in adapting to the many challenges ahead.

The progress NODC made this year was possible because of the outstanding service provided by our team members. The support and partnerships of our constituents has been very valuable in meeting our goals over the past year. From access and archiving, to providing products and tools for data discovery, NODC employees continued to show their dedication and understanding of NOAA's mission with valuable contributions to the Nation.

## Background

The National Oceanographic Data Center (NODC) is the Nation's permanent archive for oceanographic data, ensuring the public access to and the scientific stewardship of the long-term observational record of the global ocean, U.S. coastal waters and their ecosystems. These holdings document the physical and chemical properties of the oceans, currents, and biota as observed from ships, buoys, satellites and other ocean and coastal platforms extending back nearly 150 years. NODC directly supports the National Oceanic and Atmospheric Administration's mission "*To understand and predict changes in Earth's environment and conserve and manage coastal and marine resources to meet our Nation's economic, social, and environmental needs*."

**Our Mission:** ***To provide scientific stewardship of marine data and information***

**Our Vision:** ***To be recognized as the Nation's premier repository and provider of marine data and information***

**Our Service to the Nation:** ***To identify, archive, and disseminate marine data, information, and products useful to the marine community***

## NODC FY 2009 Accomplishments

The following are NODC's accomplishments during Fiscal Year 2009. These accomplishments are associated with each NODC strategic goal.

## NODC Goal 1: A comprehensive ocean archive recognized by data providers and data users.

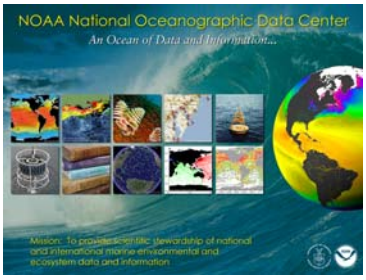
*Under this goal, NODC identifies and acquires coastal and ocean data and information; it automates the ingest of data wherever possible; it leverages national and international data management efforts; and it implements archive activities following the principles of the Open Archive Information System.*

NODC employees received the "**NOAA Regional Collaboration Award, 2006-2008"**. Mary Glackin, Deputy Under Secretary for Oceans and Atmosphere, recognized Russ Beard, Joe Stinus and Hernan Garcia for their significant contributions to NOAA's regional collaboration efforts.

**NODC Wins NOPP Award:** The Multi-sensor Improved Sea Surface Temperatures (MISST) for the Global Ocean Data Assimilation Experiment (GODAE) Project was selected to receive the National Ocean Partnership Program (NOPP) Award for Excellence in Partnering. NODC serves as the long-term stewardship center for the Group for High Resolution Sea Surface Temperature (GHRSST) data, including data produced by the MISST Project.

**NODC coordinated and signed the Jason-2/OSTM Project Agreement** that documents the transmission and stewardship of the data, and monitors the data quality, metadata, and data set attributes. NODC is responsible for meeting the archive requirements for the Jason-2 mission data and products. By ensuring the long-term preservation of these products, we extend the time series of satellite altimetry observations and enable future study and understanding of ocean surface topography as it relates to climate variability and change.

A **NODC Working Group was established** in the fall of 2008. Colleagues from both outside of the data center and internal to NODC were invited to discuss current activities and challenges. The group provided perspectives for future directions such as the need for a strategic plan and a public affairs campaign, further development of interactions with major ocean initiatives and programs, identification of users and products, and active engagement with other NESDIS data centers.

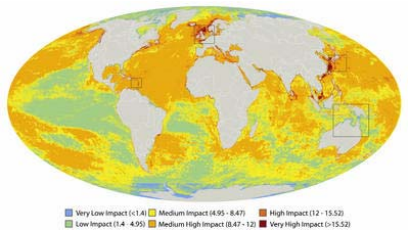



NODC was a leader in the winter 2008 meeting of the Federation of Earth Science Information Partners (ESIP), Washington, DC with NODC Director Margarita Gregg serving on the plenary Data Policy Panel. The NESDIS data centers hosted two NOAA Data User workshop breakouts focused on **data stewardship**. NODC won the ESIP poster award for its poster highlighting several key NODC data sets and activities.

NCDDC received a 2nd Place (as a partner w/NOS) **2009 Gulf Guardian Award** for their support to the Marine Debris Program.

## NODC Goal 2: NODC data used for a multitude of purposes

*Under this goal, NODC provides data discovery protocols for coastal and ocean data; develops tools that support NOAA's requirements for data integration; engages with the data providers to ensure appropriate metadata are submitted; and trains and educates data producers and consumers in metadata production and utilization.*

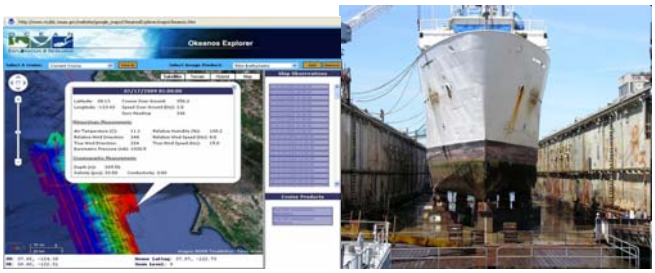



One of approximately 15 layers of ocean information of the new Google Earth's ocean component comes from a paper co-authored by NODC Technical Director Ken Casey "A Global Map of Human Impact on Marine Ecosystems" (*Science*, vol.319, no.5865, pp.948-952)

The Coastal Water Temperature Guide (CWTG) was updated with two new temperature stations in the northeast (Sandy Hook, NJ and Montauk, NY). NODC's Dr. Charles Sun also successfully **added 25 near real-time water temperature stations** deployed by the U.S. National Park Service in the Florida Bay area and the Everglades National Park to the CWTG Web pages.

An **interactive map of the Flower Garden Banks National Marine Sanctuary** developed by the National Coastal Data Development Center (NCDDC) is now available online. NCDDC worked with the Sanctuaries Office to develop an interactive map illustrating geologic banks, buoys, remotely operated vehicle (ROV) dives, and ship operations.

For the first time in the nearly 20-year history of the **AVHRR Pathfinder Program**, data for September of 1981 through January of 1985 from the NOAA-7 Polar-orbiting Operational Environmental Satellite is now available to the public through NODC's data services.

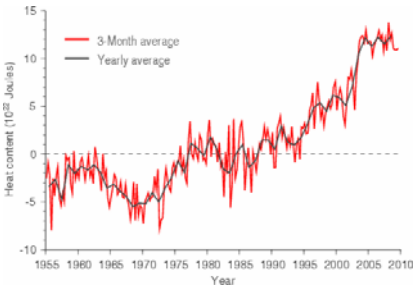



NCDDC operated the OKEANOS EXPLORER's Cruise Information Management System (CIMS), both at sea in the Pacific Ocean and back on land, by supporting the operation remotely. The (CIMS), developed by NCDDC, **standardizes and automates metadata for ocean expeditions**, and provides secure, web-based data entry to digitally document the planning, staging and operations associated with ocean-going expeditions.

NODC's summer interns worked on projects including: the effects of using a climatological silicate vs. observed silicate in the calculation of absolute salinity; various related IT tasks like solving computer problems; carrying out software requests and file procurements for the IT department; working with the Navy Ocean Coastal Model (NCOM) data, and the Cruise Information Management System (CIMS).

## NODC Goal 3: NODC products recognized as authoritative data records

*Under this goal, NODC works with the ocean science community to develop products based on user requirements; develops ocean climatologies of key ocean variables with increasingly higher spatial and temporal resolution; will develop coastal climatologies for key climate, ecosystems, commerce, transportation, and weather applications; and leverage expertise in the ocean and coastal communities, particularly the academic community, to build quality products*




The warming of the global ocean was captured in the publication, "**Global Ocean Heat Content 1955-2007"** (Levitus et al., *Geophysical Research Letters*). The results, based on NODC's long term archive of ocean data, shows a strong interdecadal variability of global ocean heat content. The linear trend on ocean heat content remained similar to earlier estimates.

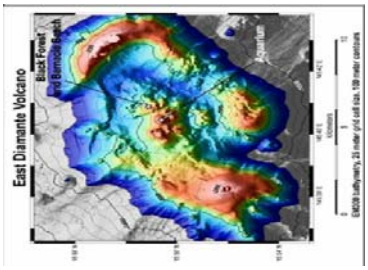
NODC's newest contributions to climate understanding at regional scales include "**The Climatic Atlas of the Sea of Azov 2008**", which contains water temperature and salinity data collected in the Sea of Azov and the Kerch Strait during 1891-2006, and "Mixed layer depth in the Aegean, Marmara, Black and Azov Seas: Part I: General Features" in *The Journal of Marine Systems* (T.P. Boyer).

NODC also contributed to our **understanding of the impact of climate change on ecosystems** with the publication, "A map of human impacts to a "pristine" coral reef ecosystem, the Papahānaumokuākea Marine National Monument" (K.S. Casey, NODC Technical Director, is one of the authors in the journal *Coral Reefs*). The paper uses the NODC Coral Reef Temperature Anomaly Database (CoRTAD) as one of its analysis layers.

**"Barents Sea Multidecadal Variability**" was accepted by the Journal *Geophysical Research Letters.* The figure shows the time series (1900-2006) of annual mean water temperature for the 100-150 m layer of the Barents Sea as a black line. There is substantial scientific interest on multidecadal climate system variability and its relation to global warming.

## NODC Goal 4: NOAA staff using the NOAA Central and Regional Libraries as sources for information and research support

*Under this goal, NODC meets the expanding needs for information services; maintains, preserves, and protects library collections; will build a NOAA-wide institutional repository to provide access to, and archive NOAA's electronic publications; and will expand desktop access to journals, databases, e-books, and other online services across NOAA.*




New NOAA Photo Library Albums were created in the NOAA Central Library. Among them include themes such as the Caribbean Sea, Vertebrates and Invertebrates, and "Voyage to the Inner Space", which includes bathymetric maps.

A global collaborative website, Protect Planet Ocean, featuring **MPA tropical content provided by the NOAA Library** was launched in October 2008. This website was launched at the International Union for Conservation of Nature (IUCN) World Conservation Congress in Spain.

## NODC Cross-Cutting Functions

*Under NODC's cross cutting functions, NODC develops and maintains a secure, reliable, technically robust operating environment to support the NOAA mission goals and ensure accessibility and the highest data quality for the public. This is achieved through implementing processes that challenge and expand the core competencies of all NODC personnel; leveraging the capabilities of NODC employees across organizational structures within NODC, NESDIS, and NOAA; interaction with data users through our services and communications; increasing the efficiency of NODC's financial, acquisition, and administrative functions; and maintenance and support of network connectivity, email, and Web servers.*

**NODC contributes to hurricane preparedness** in the Gulf States through the publication and distribution of the NOAA Extreme Weather Information Sheets (NEWIS). These one-page documents contain critical phone numbers and Web site information that residents can use during potentially life-threatening weather emergencies for the coastal communities of Texas, Louisiana, Mississippi, Alabama, and Florida. NEWIS was created by personnel at NODC's National Coastal Data Development Center, located at the Stennis Space Center on the Mississippi Gulf Coast. The idea grew out of the Center's experiences after Hurricane Katrina.

NODC implemented a **new User Services and Communications Team** which focused on customer service and outreach. Throughout the fiscal year, NODC answered 888 requests for oceanographic data and information. The efficiency of this service has been greatly increased, with all responses being made within a 48-72 hour period, while the compilation of more difficult data sets were completed within one week.

NODC continues to **inform the national and international community on NOAA ocean activities through the *Earth System Monitor* publication**. During this past year, issue topics included: an "Ocean Theme" based on observations from ships, satellites and buoys with Dr. Richard Spinrad (AA OAR) as author for the lead article, a "Hidden Gems within NESDIS" theme with the NESDIS Data Directors as lead authors, and a theme for how "NOAA Fisheries Supports Healthy Marine Ecosystems" led by Dr. James Balsiger (NMFS).

Internationally, NODC was an active participant in a wide range of meetings. NODC shared its scientific expertise when oceanographer Tim Boyer visited various research institutions in India in order to resolve XBT biases found in some of the oceanographic instrument databases. NODC Technical Director, Dr. Ken Casey, participated in the North Pacific Marine Sciences Organization (PICES) International Summer School in Satellite Oceanography for the Earth Environment. NODC also visited scientists and data managers in South Korea and Canada.

NODC hosted numerous visitors this year. This included the Library Director of Norway, members of the South Scientific Center of the Russian Academy of Sciences and Shirshov's Institute of Oceanology, Russia, and the Taiwan Ocean Research Institute (TORI). The center also hosted the National Marine Data and Information Service and the State Oceanographic Administration from the People's Republic of China in a joint panel meeting for data and information.

NODC increased its engagement in the area of information management with the selection of NODC Librarian Linda Pikula as Chair of the International Oceanographic Data and Information Exchange (IODE). Operational oceanography took another step forward when Dr. Charles Sun, brought three more countries into the Global Temperature-Salinity Profile Program (GTSPP).

## Path towards Achieving Our Vision - Key Focus Areas for FY2010

During FY10, NODC will focus on the activities associated with its core requirements for access, archive, and scientific stewardship of marine data. These activities will be guided by a strategic plan that incorporates input across NOAA, the external community, and other federal partners. Parallel to this plan is the development of a three year road map to implement the strategic plan taking into account emerging requirements. Key to these activities is the development of performance measures for each major goal of the office.

The NODC goal for a **comprehensive archive recognized by data providers and data users** will be met by increasing the amount of data ingested annually and placed in the archives from satellites and in situ data. This will be accomplished by increasing the number of NODC relationships with data producers as documented in Submission Information Forms; working with data producers in preparing a guide to metadata and other information to facilitate automated acquisition and ingest; automation of the ingest of data wherever possible, and decrease in mean time between data reception at NODC and data availability online.

NODC's goal for **data used for a multitude of purposes** is a priority in FY10. NODC will focus on developing discovery and access tools for the easy access to the NODC archive, it will increase the number of web applications/tools and GIS applications developed to support ecosystem observing systems, engage with the data providers to ensure appropriate metadata are submitted; and train and educate data producers and consumers in metadata production and utilization.

NODC's role as scientific stewards for the data and associated goal for NODC products to be recognized as **authoritative data records** will be furthered by publishing two additional global and regional atlases and providing quarterly updates of the ocean heat content time series and World Ocean Database.

NODC will work with the NOAA councils to develop funding priorities and needs for NOAA-wide information resources in order to support its goal for **staff using the NOAA Central and Regional Libraries as sources for information and research support**

NODC depends on its workforce and in FY10 we will focus on training both internally and externally. Internally, NODC will implement an informal mentoring program tailored after the NMFS Northwest Fisheries Science Center. In addition, NODC will increase the number of participating NGI internship students from 10 in FY09 to 12 for FY10. The data center will also support the NODC Communications Team through tracking customer requests, attending scientific meetings, enhancing our web presence, generating publications and other outreach activities.

These activities will not be possible without NODC's ability to recertify its IT networks. NODC will continue to advance its goal of secure access to its data holdings.

## NODC Employees

***Department of Commerce Awards***

NODC's Skip Theberge of the NOAA Central Library Received a Department of Commerce Group Gold Medal for Leadership Award "For the design, development and opening with the Smithsonian Institution of the Sant Ocean Hall, the national exhibition on the global ocean."

**Employee of the Season**

John Relph – Fall 2008
Joseph Shirley – Winter 2009
Michele Newlin – Spring 2009
Barbara Ambrose – Summer 2009

**FY 09 Certificates of Appreciation & Awards**

***Service to the Community***

Angela Sallis for her Enthusiasm and Professional Contributions to the *Gulf of Mexico Coastal Ocean Observing System (GCOOS)* Regional Association Education and Outreach Council

Queen Jones (NESDIS Assistant Coordinator), Cheryl Ingram (NODC Chairperson), Igor Smolyar (Key Person), Linda Salyers (Key Person), Margaret Eggleston (Key Person), and Julie Bosch (Key Person) for your Participation in the 2008 NODC *Combined Federal Campaign*

Angela Sallis On Behalf of the NOAA *Office of Education* for Her Can-Do Spirit and Determination, "She Epitomizes the Very Best of NOAA"

Sheri Phillips, Shannon Niou, Cynthia Ziegler, Kelly Logan, Christopher Paver, Zachary Bronder, Sean Moore, Hernan Garcia, Sarah O'Connor, Cheryl Ingram, Bhaskar Mylavarapu, Helen Gibson, Anna Fiolek, Mary Hollinger, Olga Baranova, Linda Salyers, Tess Brandon,Donald Collins, Thomas Ryan and Margaret Eggleston for their Contributions to the *NODC Diversity/Halloween Potluck* – October 2008

Bill Burton, Mike Chepurin, David Teferi, Jefferson Ogata and Cynthia Zeigler Recognized by Mary Kicza for Outstanding Support to the Second Annual NOAA-Sponsored *CEOS-GEO Remapping Conference*

Sheri Phillips, Shannon Niou, Cynthia Ziegler, Kelly Logan, Christopher Paver, Zachary Bronder, Sean Moore, Hernan Garcia, Sarah O'Connor, Cheryl Ingram, Queen Jones, Bhaskar Mylavarapu, Linda Salyer, Anna Fiolek, Thelma Johnson, and Margaret Eggleston For their Contributions to the *NODC Holiday Team Building Event* – December 2008

Brenda Robinson, Cheryl Ingram, Cynthia Ziegler, Diana Abney, Jacqueline Shapo, Kelly Logan, Li Zang, Linda Salyers, Mary Lou Cumberpatch, Sarah O'Connor, Shannon Niou, Steve Quillen, Tess Brandon, Thelma Johnson, and Zachary Bronder for Participation in *Bring Your Daughters and Sons to Work Day*

***Helping NODC meet its goals***

Tim Boyer, Kenneth Casey, Donald Collins, and John Relph for *Automating the Ingest* and Archive of Complex Environmental Data Sets from the Woods Hole Oceanographic Institution (WHOI)

Jefferson Ogata, Joseph Shirley, Bill Burton, Mike Chepurin and John Relph For Critical and Timely Support to *NODC IT Operation* during the AC System Failures on February 16, 2009 and March 30, 2009

George Sinclair, Cheryl Ingram and Cynthia Zeigler for Developing a *Baseline NODC Archive and Backup Media* Inventory and an Automated Process for Updates

Barbara Ambrose for the Beautiful *Design of NODC's New Certificates* of Appreciation that Capture Many Aspects of Our Coastal and Ocean Mission

Omar Selehdar for Teamwork and Accuracy on a unique Special Project that *inventoried the NOAA Heritage Assets* of the NOAA Central Library

***New Faces for FY2009***

Michele Newlin, Chief of Staff - OC
Meilin Chen, Physical Oceanographer – OC1
Jacqueline Shapo Rauenzahn, CoRIS Operations Manager – OC1
Zachary Bronder, Programmer/Analyst – OC1
David Teferi, System Administrator – OC3
Amy Haase, Physical Oceanographer – OC5
Philip Cantin, General Dynamics – OC6
McKinley Freeman, General Dynamics – OC6
Viki Goff, General Dynamics – OC6
Bracey Summers, General Dynamics – OC6
Chris Jeffery, NRC Post Doctoral Candidate – OC1

## FY2009 Publications


Blower, J.D., Hankin, S.C., Keeley, S., Pouliquen, J. de la Beaujardiere,Vanden Berghe, E., Reed, G., Blanc, F., Gregg, M.C., Fredericks, J., Snowden, D. "Ocean Data Dissemination: New Challenges for Data Integration" in *Proceedings of OceanObs'09: Sustained Ocean Observations and Information for Society (Vol. 2),* Venice, Italy, 21-25 September 2009

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Fredericks, J.J., Botts, M., Cook, T., Bosch, J. "Integrating Standards in Data QA/QC Into OpenGeospatial Consortium Sensor Observation Services". Proceedings, OCEANS ´09 IEEE Bremen. Bremen, Germany. May 11–14, 2009.

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Matishov, G., D. Matishov, G. Gargopa, L. Dashkevich, S. Berdnikov, V. Kulygin, O. Arkhipova, A. Chikin, I. Shabas, O. Baranova, I. Smolyar, 2009: "Climatic Atlas of the Sea of Azov 2008, G. Matishov, S. Levitus, Eds., World Data Center for Oceanography-Silver Spring, *International Ocean Atlas and Information Series, Volume 11, NOAA Atlas NESDIS 65*. U.S. Government Printing Office, Washington D.C., 148 pp., CD-ROM.

O'Connor S., Newlin M., Remer D., Collins D., Picciolo A., Shao G., Wright R., Phillips S., and Bronder Z. 2009. "Responding to the Coral Reef User Community: NOAA Coral Reef Information System (CoRIS) Regional Data Portals." Poster Session - Coastal Zone '09, Boston, MA, July 19-23, 2009.

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Son, Y. B., W.D. Gardner, A.V. Mishonov, and M.J. Richardson, 2009: "Model-based remote sensing algorithms for particulate organic carbon (POC) in the North-eastern Gulf of Mexico", *Journal of Earth System Science*, 118 (1), 1-10.

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Vance, Tiffany C., Mesick, S.M., Reusser, D. "HabitatSpace – Describing Three-Dimensional Marine Essential Fish Habitat" In Proceedings of the American Association of Geographers Annual Meeting. March, 2009. San Francisco, CA.

**Accepted for Publication**

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Mize J.,Roby, E., Martinolich, K., Collazo, L.,Sallis D.E. (2009). Automated Metadata Generation Using Extensible Markup Language (XML) Techniques. NOAA Technical Memorandum NODC-NCDDC-1, National Coastal Data Development Center, Stennis Space Center, MS 39529.

Selig, E.R., K.S. Casey, and J.F. Bruno (2009), New insights into global patterns of ocean temperature anomalies: implications for coral reef health and management, *Global Ecology and Biogeography*, in press.

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## 2009 NODC Products and Information

| Product | Description | Location |
|---|---|---|
| *NOAA Mission Goal: Weather & Water* | | |
| NOAA Extreme Weather Information Sheets (NEWIS) | Contains valuable state and local emergency numbers, NOAA websites, media outlets, and evacuation information for residents. | http://www.ncddc.noaa.gov/activities/noaa-extreme-weather-information-sheet-newis/view |
| NODC Coastal Water Temperature Guide (CWTG) | Near real-time temperatures from NOAA's tidal stations and moored buoys. | http://www.nodc.noaa.gov/dsdt/cwtg/aboutCWTG.html |
| *NOAA Mission Goal: Ecosystem* | | |
| Ocean Exploration Digital Atlas | Selected data from NOAA's Ocean Exploration expeditions. | http://www.ncddc.noaa.gov/interactivemaps/oceanexploration-digital-atlas-north-atlantic |
| *NOAA Mission Goal: Climate* | | |
| Global Temperature Salinity Profile Program (GTSPP) | A cooperative international project with Canada's Marine Environmental Data Service (MEDS), GTSPP is a global ocean Temperature-Salinity resource with timely, high quality data. | http://www.nodc.noaa.gov/GTSPP/gtspp-home.html |
| Global Argo Data Repository | Argo daily data include real-time and delayed-mode profiles of ocean temperature and salinity measured by the Argo profiling floats. | http://www.nodc.noaa.gov/argo/latest_data.html |
| World Ocean Database | Global scientifically quality-controlled ocean profile and plankton data that includes measured variables gathered since 1773. | http://www.nodc.noaa.gov/OC5/WOD/pr_wod.html |
| World Ocean Atlas Series | Contains objectively analyzed climatological fields of *in situ* temperature, salinity, oxygen, and other measured variables at standard depth levels. | http://www.nodc.noaa.gov/OC5/WOA05/pr_woa05.html |
| 4 km Pathfinder Data | Extension of and improvement on sea surface temperature (SST) fields from the older NOAA/NASA AVHRR Oceans Pathfinder project. | http://pathfinder.nodc.noaa.gov/ |
| Group for High Resolution SST (GHRSST) | Individual and multi-sensor blended SST products with high accuracy and fine spatial resolution. | http://ghrsst.nodc.noaa.gov/ |
| NODC Altimeter Archive | Altimeter data and products from the Geosat and Jason-2 Missions. | http://www.nodc.noaa.gov/SatelliteData |
| NOAA Ocean Data Education (NODE) Effort | Educational materials that deliver scientific data and information to the classroom. Current modules include Sea Level, El Nino, and Water Quality. | http://dataintheclassroom.org/ |
| *NOAA Mission Goal: Commerce & Transportation* | | |
| NOAA Marine Environmental Buoy Database | Official archive of historical wind, wave, and other marine data collected by the NOAA National Data Buoy Center (NDBC). | http://www.nodc.noaa.gov/BUOY/buoy.html |
| *NOAA Mission Goal: Cross-cutting Products* | | |
| NOAA Photo Library | Contains over 32,000 images & photos which capture the work, observations, and studies of NOAA employees. | http://www.photolib.noaa.gov/ |
| Earth System Monitor | Free publication that reports on NOAA environmental data and information programs, projects, and activities. | http://www.nodc.noaa.gov/ESM/ |
| NOAA Library Website: Ask-A-Librarian & Full-Text Digital Collections | Provides a gateway to the public as a rich collection of online resources, digital historical documents and maps. Public can ask questions about any NOAA related subject. | http://www.lib.noaa.gov/ http://www.lib.noaa.gov/askref.html http://www.lib.noaa.gov/collections/imgdocmaps/index.html |
| Ocean Archive System | World's largest oceanographic archive. | http://www.nodc.noaa.gov/search/prod/ |

# NODC Communications

## Notable Customer Comments and Requests

*Because of the increased customer service efforts, NODC has been able to identify who our customers are and what they are looking for. Some of the more interesting requests and enthusiastic comments can be found here.*

"I appreciate the info you gave me so much. I am so grateful. I got all the information I needed to complete my project and remembered to cite the websites you gave me! Thanks so much again." – From a college student (SUNY)

"Absolutely fantastic!", was the comment from the Senior Collections Manager at the Peabody Museum of Natural History, Yale University, when we were able to provide him with the Robert H. Parker Benthic Ecology data from the 1960s.

A specialized US Air Force test organization that has some maritime items entering the developmental test phase needed help finding extreme environmental conditions to perform their tests. For example, water temperature less than 32 degrees, and another spot greater than 90 degrees.

Chief meteorologist from NBC in Augusta, Georgia, contacted NODC for wind and wave data of South America. After successfully answering his request, the customer said, "This points me in the right direction, and I think my viewers will be pleased. Thanks so very much for your rapid response and help. I appreciate it!"

From a fellow NOAA employee, Weather Forecast Office, NJ…"Just wanted to thank you all for your efforts today. Your site is terrific and used all the time in this office."

NODC's User Services team provided wave climatology to a customer who was developing a pre-sail route to sail his family to the Bahamas from Florida around the Thanksgiving holiday.

A high school biology teacher contacted User Services to find monthly water temperature data dating back 25 years for the southern California coast. The teacher is also trying to incorporate lessons in data discovery by allowing the students to download the data themselves from the World Ocean Database.

From the James J. Howard Marine Sciences Lab in Highlands, NJ, the customer responded graciously, "WOW what a fast and thorough response. Thank you so much!"

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SSMC 3, 4th Floor
1315 East West Highway
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NOAA Central Library
SSMC 3, 2nd Floor
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# *An Ocean of Data and Information*