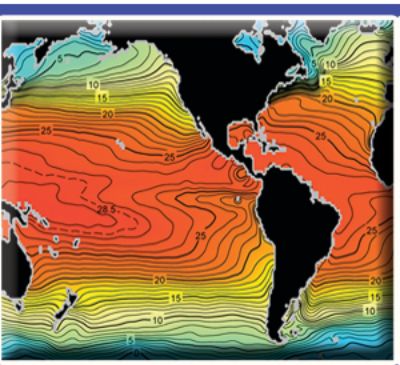
NODC FY 2010 Annual Report



National Oceanographic Data Center

An Ocean of Data & Information...

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Background

The National Oceanographic Data Center (NODC) is the Nation's permanent archive for oceanographic data, ensuring public access to, and 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

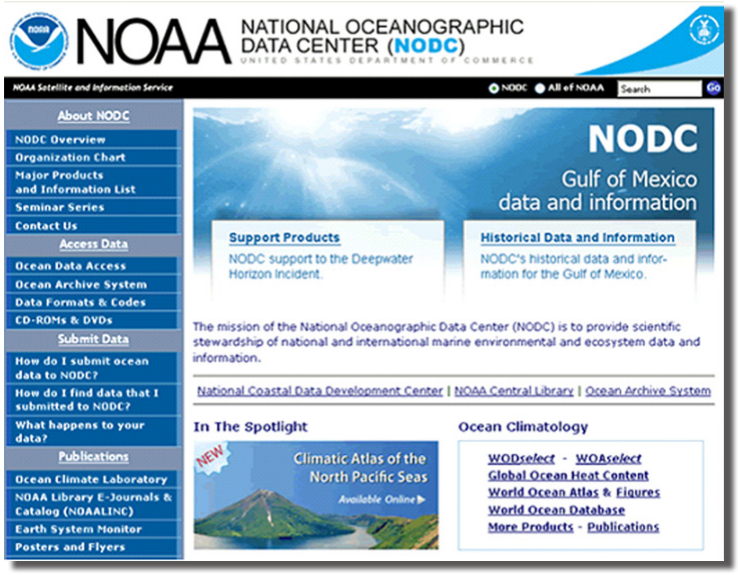
Our Vision: To be recognized as the Nation's premier repository and provider of marine data and information

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

Top FY10 Accomplishments

NODC Provides Support for the Deepwater Horizon (DWH) Oil Spill Incident:

NODC contributed to the overall NOAA response efforts by supplying timely and easy access to data, information, and products. A new support webpage for Gulf of Mexico data and information was created in response to the event. The page includes links to archived DWH data, climatologies, ocean currents data, coastal ecosystems maps, and ocean profile data. NODC also created a historical data page, which highlights all of NODC's data and information from the Gulf of Mexico.



NODC's National Coastal Data Development Center (NCDDC) continues in its support to the Joint Analysis Group (JAG) for Surface and Sub-Surface Oceanography, Oil and Dispersant Data. NCDDC acts as the JAG Team Lead for compiling and processing the data observations, and has created and hosts the JAG website.

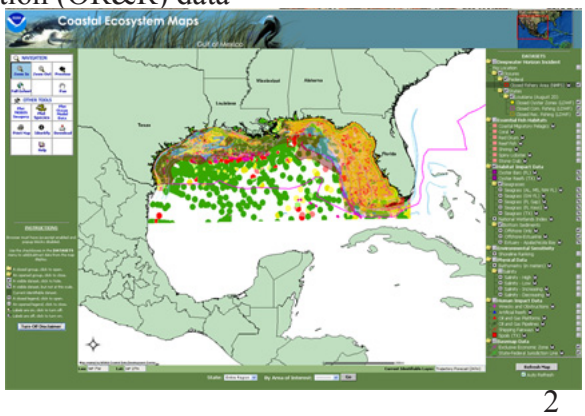
The NOAA Library created a Bibliography on Oil Spill Resources, which was requested over 12,000 times during the month of June.

NCDDC, together with the Mississippi/Alabama Sea Grant Program, created the DWH Oil Spill Research and Monitoring Activities Database, a single website for uploading and accessing information about research and monitoring activities related to the DWH oil spill. The database can be found on iGulf.

NCDDC is also providing support through:

- CTD data processing
- Data management for cruises
- Hypoxia Watch
- Support to Environmental Response Management Application (ERMA)
- NMFS planning map
- Daily update from NOAA's Office of Response & Restoration (OR&R) data

NODC integrated DWH oil spill information into the NCDDC Coastal Ecosystems Program-Gulf Coast database. This GIS tool allows for the visualization of data sets on bathymetry, managed species, essential Fish habitat (EFH), oyster reef locations, National Wetlands Index, seagrasses, salinity, and the location of oil and gas platforms and pipelines across the Gulf of Mexico. Users can see where the oil spill occurred in location to other ecosystem data.



This accomplishment benefits the public by providing them with the data and information they need to make educated decisions regarding response and recovery efforts. The successful implementation of the Automated Gulf of Mexico Data and Information Portal provides the public with "one-stop shopping", a single point of entry to near real-time and high quality controlled ocean data in a user friendly and timely manner.

NODC also supported the NOAA Command, "War Room". NODC's DWH Data Manager, Chris Paver, supported David Kennedy with DWH data management issues. His work included: 1) tracing institutions collecting data, 2) ensuring data collected through government and BP funding is made available to the public, and 3) developing Standard Operating Procedures (SOPs) for data contributors to notify the DWH Command when data is collected and when it will be made available.

NODC Provides Support in Haiti Relief Efforts:

NODC provided critical support for recovery efforts in Haiti after the catastrophic 7.0 magnitude earthquake, which took place in January, 2010. NODC's Coastal Data Development Center (NCDDC) was requested by the Naval Oceanographic Office (NAVOCEANO) to host and disseminate Haiti disaster relief products, due to technical problems at NAVOCEANO. The data were transferred to the Northern Gulf Institute's Ecosystem Data Assembly Center (EDAC) website and were available within two hours of the request. Products and services included light detection and ranging survey charts, high resolution harbor bathymetry, and overhead satellite imagery. Charts were used by the U.S. Navy, among others, in order to navigate safely through the debris covering Haiti's ports. NCDDC's work was vital to the Department of Defence first responders, Fleet Survey Teams, the Haitian government, and other foreign government workers.

World Ocean Atlas/ World Ocean Database 2009 Released:

NODC released the *World Ocean Atlas 2009*, (WOA09) one of the most cited works in climate and oceanographic sciences. Preceding versions of this atlas have been cited approximately 400 times per year. The internationally distributed WOA09 includes climatological information involving temperature, salinity, oxygen, and nutrients for the world's oceans at selected standard levels. NODC used global oceanographic profile data from the World Ocean Database 2009 (WOD09), also released during FY10. This database is the largest, most comprehensive collection of scientific information about the oceans with records dating back to the late 1700s. WOD09 provides approximately 9.1 million temperature profiles and 3.5 million salinity reports. It also provides 29 categories of scientific data, including oxygen levels and chemical tracers. The database includes information on gases and isotopes that can be used to trace the movement of ocean currents. NESDIS issued a press release about the newly expanded WOD09. Climate scientists use WOA and WOD to track changing conditions in the ocean climate, adding to the understanding of global climate change.

Access

NODC implemented standard data access protocols and catolog services during FY10. This endeavor will assist NODC in its overarching goal to provide access to the Nation's coastal and ocean data resources by creating a more consistent process for data retrieval and archive.

NCDDC also added new editions to its NOAA Extreme Weather Information Sheets (NEWIS) . There are now twenty sheets, with new editions for Georgia, South Carolina, and North Carolina: 270,000 copies of the NEWIS were available this year. The NOAA Extreme Weather Information Sheet or NEWIS started after Hurricane Katrina when the critical information people needed was not easily available. NCDDC designed NEWIS as a convenient, portable and waterproof information sheet listing phone numbers and websites of government and non-governmental agencies which would be needed in the event of a natural disaster. The public response has been overwhelming, and each January the requests for the new edition begin.

NODC has provided enhanced access for Jason-2 data. Through documentation and internet accessibility for the Ocean Surface Topography Mission (OSTM), Jason-2 products have been enhanced with associated imagery for climate change studies. The Jason-2 satellite launched in June 2008 and is the latest in a series of ocean altimeter missions designed to observe ocean circulation, sea level rise, and wave heights.

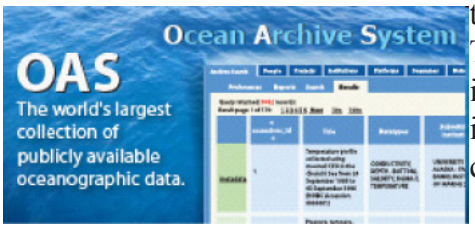
NCDDC created a new website integrating time series of very high resolution satellite imagery, which supports the 24 NOAA Fisheries Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) projects. This site will provide easy access for NOAA employees involved with the CWPPRA projects, as well as others interested in this endeavor.

The NOAA Library developed a web page entitled, "Resources on TIROS and Satellite Meteorology" in support of the 50th Anniversary of TIROS I satellite, launched April 1, 1960. It displays 284 full-text documents, over 530 photos, and a selection of related videos. This web page is a great historical reference for satellite related information.

Archive

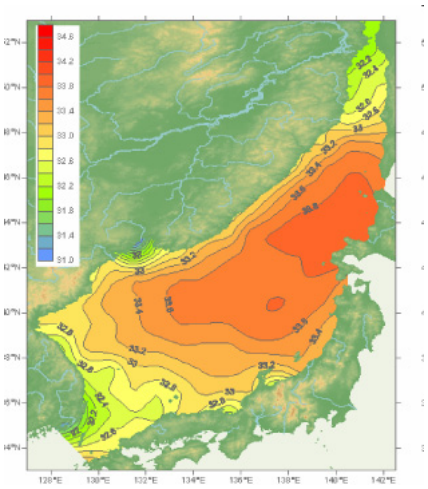
NODC Archivist Don Collins was selected as part of the Expert Team on Data Management Practices (ETDMP) for the "Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM)": This team manages the process of adopting and documenting international standards and best practices to be used in data management, and reviews and assesses the effectiveness of end-to-end data management practices.

NODC implemented an improved Ocean Archive System (OAS). The OAS searches the original datasets as they were submitted to the data center. The new version includes a "Free Text" search, with automatic queries for highly requested datasets, an improved web interface to the archive collection, and new metadata level indicators. These improvements will allow for easier access to NODC's coastal and ocean data resources.



NODC provided automated archiving and dissemination of shipboard data from the Shipboard Automated Meteorological and Oceanographic System (SAMOS) project, in partnership with the University of Florida. NODC strives to provide for coordinated data management for coastal data, throughout its partnerships.

Assessment

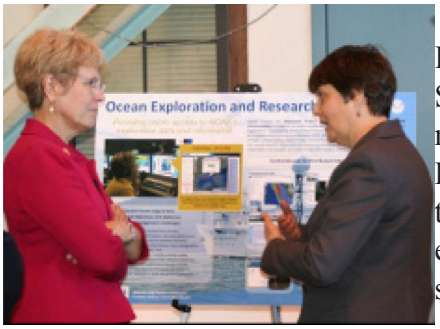


NODC provided leadership, staff, and support in several NOAA initiatives by representing NESDIS on the Strategic Energy Review Team, Coastal and Marine Spatial Planning Team, NOAA OCRM Enterprise Core Team, and NOAA Goal Teams, as well as being involved in 5 of the 9 Ocean Policy Priority Objective Teams (POTS). NODC's expertise is used to assess the data and information needs of the greater NOAA community.

The International Ocean Atlas and Information Series, v.12, Climatic Atlas of the North Pacific Seas 2009: Bering Sea, Sea of Okhotsk, and Sea of Japan was released. The Atlas contains monthly climatic charts of temperature, salinity, and oxygen at the sea surface and at standard depth levels for the Bering Sea, Sea of Okhotsk, and Sea of Japan. NODC's Ocean Climate Lab continues to assess global oceanographic data in response to the needs of our constituents.

Items of Interest

Throughout FY10, NODC developed and maintained a secure, reliable, technically robust operating environment to support the NOAA mission goals and ensure the highest data quality for the public. This has been achieved by challenging and expanding the core competencies of all NODC personnel; interacting 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.



In January, Dr. Jane Lubchenco visited the NOAA entities at the Stennis Space Center. This included a visit to the National Coastal Data Development Center (NCDDC). Dr. Lubchenco was presented with the Marine Spatial Planning aspects of Ocean National Operational Model Archive and Distribution System (OceanNomads) and NCDDC's Ocean Exploration and Research efforts. NODC's outreach efforts begin with the internal NOAA community, specifically NOAA leadership.

NCDDC's Russ Beard participated in NOAA Day on Capitol Hill, by presenting the data management aspects of "Integrated Ecosystem Assessments: Moving From Ecosystem Science to Ecosystem Action" at NOAA: Where Science Meets Service and Stewardship during the 4th Annual NOAA Day on Capitol Hill-Briefing Series.

NODC established an internal Mentoring Program; this informal, skills-based program is designed to help foster employee professional growth and achievement. The idea of the program is to provide opportunities to develop specific technical and non-technical professional skills.

NCDDC has also continued with its Northern Gulf Institute (NGI) Diversity Internship program. This program introduces the next generation of scientists to public service as an exciting scientific educational opportunity for undergraduate and graduate students. These internships provide career exploration in a variety of fields studied by NOAA and NGI scientists. There is an emphasis on students from communities and institutions in the Northern Gulf of Mexico region, and individuals from demographic groups underrepresented in the NOAA workforce are especially encouraged to apply. Interns work with leading scientists and experts in their fields at their respective research institutions and laboratories while participating in locally relevant research.

NCDDC enhanced their social media presence by adding restoration project videos to YouTube. Two restoration project videos were uploaded by NCDDC. The projects took place along the Louisiana coastline at Big Island

Mining within the Atchafalaya Bay and the other in East Timbalier Island. These videos help to show the public some of the work that NOAA/NODC is involved in

NODC continues to inform the national and international community on NOAA activities through the Earth System Monitor publication. During this past year, issue topics included: America's coasts, data stewardship, and program planning and integration. The Program Planning and Integration issue of the ESM was downloaded a record 20,163 times in July. This broke the previous record by almost 7,000 downloads.

Path Toward Achieving Our Vision/ Key Focus Areas for FY11

During FY11, 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. NODC supports NOAA's Next Generation Strategic Plan and NOAA's Annual Guidance Memorandum priorities. The data center plans for its accomplishments by establishing milestones, keeping in line with NOAA's performance measures.

Science and Technology

An Integrated Environmental Modeling System

NODC plans to strengthen its scientific presence by providing web based access to a variety of ocean model output and related observational data, along with tools to evaluate and utilize these models.

A Holistic Understanding of the Earth System; and Climate: Improved Scientific Understanding of the Changing Climate System

NODC supports this NOAA priority through expanding their quality control of seasonal temperature and salinity fields to deeper depths. The center will provide high resolution temperature and salinity climatologies.

Engagement

Integrated Services; and Organization and Administration: A Modern IT Infrastructure for Scientific Enterprise

NODC will continue to improve internal business operations and services through enhanced access and use of environmental data through data storage and access solutions, integration of systems, and long-term stewardship. NODC intends to increase its total data archive volume by 10% over the fiscal year.

Engagement: An Engaged and Educated Public

NODC continues to improve internal business operations and services. A Transition Plan will be developed for the NOAA Central Library (and Regional Libraries) for its move to the NOAA Chief Information Office (CIO). NODC will sustain its work toward increasing awareness of the library resources, and will maintain the NGI Internship Program.

Climate

Improved Scientific Understanding of the Changing Climate System

NODC will continue to support the Deepwater Horizon Oil Spill incident by focusing its efforts on the Gulf of Mexico and by providing access to DWH data and information in a variety of user friendly formats.

Assessments and Mitigation and Adaptation
NODC will support the implementation of NOAA's Climate Service by completing an intial needs assessment for sustainability of marine ecosystems.

Oceans
Improved Understanding of Ecosystems
NODC will continue to support the DWH Incident by focusing on the Gulf of Mexico and will construct and validate fine spatial and temporal regional climatologies.

Coasts
Comprehensive Ocean and Coastal Planning and Management; Resilient Coastal Communities
In support of the NOAA Coastal goal, the data center will enhance its interaction with data users through communication, providing an increased awareness of its services.

Organization and Administration
A Modern IT Infrastructure for a Scientific Enterprise
NODC supports NOAA's priority to continuously improve internal business operations and services, while striving to increase the Nation's awareness of the National Oceanographic Data Center. NODC develops and maintains a secure, reliable, and technically robust operating environment.

NODC Employees

FY 10 Certificates of Appreciation & Awards

NODC Employee of the Season, Fall 2009: Jacqueline Rauenzahn
NODC Employee of the Season Winter 2010: Mary Lou Cumberpatch
NODC Employee of the Season, Spring 2010: Christopher Paver
NODC Employee of the Season, Summer 2010: Dr. A. Rost Parsons

Certificates of Appreciation:

Daniel A. Cassana, For Your Generous Commitment of Time & Technical Expertise for the Following: CWIP Seminar, Earned Value Management (EVM) Training Seminar, Management Analysis and Reporting System (MARS) Training.

Andy Allegra, Bryan Stephenson, Kelly Logan, Melanie Hamilton, Meilin Chen, John Relph, and John Carroll, For the DWH Website - An Easy, Appealing and Comprehensive Gateway to NODC's DWH Resources

Anna Fiolek, Kathy Kelly, Jennifer Taylor, Kelly Logan, Sheri Phillips, Neal Kaske and Skip Theberge, "2009 Year of Darwin: Discovering Darwin at NOAA Central Library" Exhibit and Bibliography

Sheri Phillips, Kelly Logan, and Andy Allegra, For the New NODC Maxatrax Graphic

Sheri Phillips, Michele Newlin, Andy Allegra, Tom Ryan, Rost Parsons, Olga Baranova, Jaqueline Rauenzahn and Jonathan Blythe, Poster for Ocean Sciences "Challenges in the Scientific Stewardship of Marine Biological Data"

FY2010 Publications

"V.V. Gopalakrishna, F.Durand, K.Nisha, M.Lengaigne, T.P.Boyer, J.Costa, R.R.Rao, M. Ravichandran, S.Amrithash, L.John, K.Girish, C.Ravichandran, V.Suneel, 2010, "Observed intra-seasonal to interannual variability of the upper ocean thermal structure in the southeastern Arabian Sea during 2002–2008", *Deep Sea Research I*, doi:10.1016/j.dsr.2010.03.010"

S. Levitus, G. Matishov, D. Seidov, and I. Smolyar, 2009, "Barents Sea Multidecadal Variability", *Geophysical Research Letters*.

W. D. Gardner, M. Jo Richardson, A. P. Karageorgis, E. Krasakopoulou, Y. B. Son, A. V. Mishonov. "Measuring Particulate Organic Carbon (POC) in the Eastern Mediterranean from Satellites", Abstract submitted to 2010 Ocean Science meeting, Portland, OR, control ID: 743041.

Baker-Yeboah, S, D A Byrne and D R Watts, "Observations of mesoscale eddies in the South Atlantic Cape Basin: A characterization of baroclinic and deep barotropic eddy variability", *Journal of Geophysical Research*, 2010JC006236

T. Brandon, K. Casey, P.Cornillon, R. Evans, "The Past, Present, and Future of the AVHRR Pathfinder SST Program", *Oceans from Space, Revisited*.

W. D. Gardner; M. J. Richardson; A. P. Karageorgis; E. Krasakopoulou; Y. B. Son; and A. V. Mishonov, "Measuring Particulate Organic Carbon (POC) in the Eastern Mediterranean from Satellites", Combining water column data with sediment trap and satellite observations for improved marine carbon export estimates, Bergen, Norway 23-26 June 2010.

Luchin, V., A. Kruts, O. Sokolov, V. Rostov, T. Perunova, E. Zolotukhin, V. Pischalnik, L. Romeiko, V. Hramushin, V. Shustin, Y. Udens, O. Baranova, I. Smolyar, E. Yarosh, 2010: "Climatic Atlas of the North Pacific Seas 2009: Bering Sea, Sea of Okhotsk, and Sea of Japan". V. Akulichev, Yu. Volkov, V. Sapozhnikov, S. Levitus, Eds., World Data Center for Oceanography-Silver Spring, International Ocean Atlas and Information Series, Volume 12, NOAA Atlas NESDIS 67. U.S. Government Printing Office, Washington D.C., 329 pp., CD-ROM.

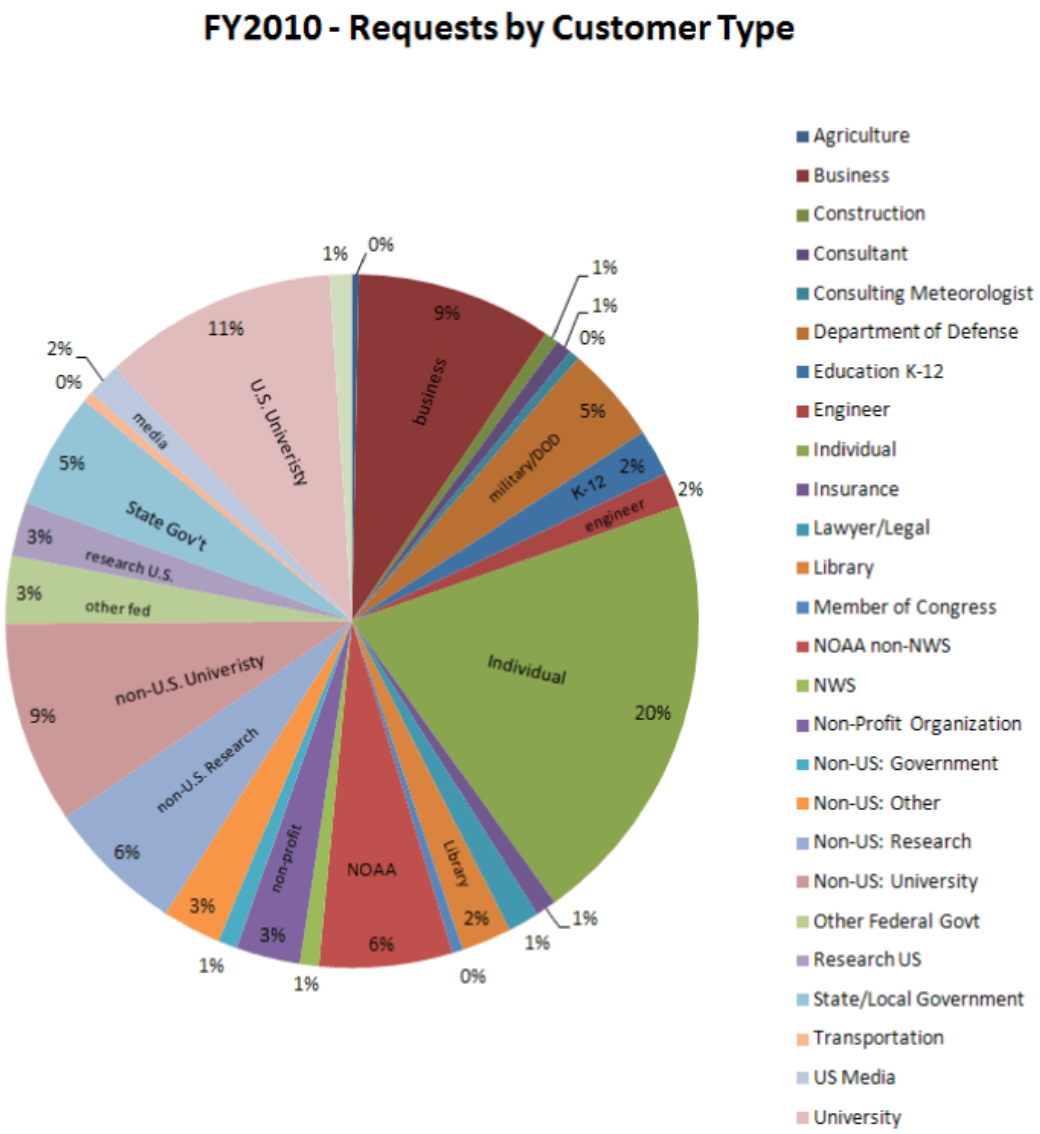
T. Boyer, J. Antonov, O. Baranova, H. Garcia, D. Johnson, R. Locarnini, A. Mishonov, D. Seidov, I. Smolyar, and M. Zweng, 2009: "World Ocean Database 2009, Chapter 1: Introduction", NOAA Atlas NESDIS 66, Ed. S. Levitus, U.S. Gov. Printing Office, Wash., D.C. , 216 pp., DVD.

NODC Communications

Notable Customer Comments and Requests

- State Medical Examiners Office of Delaware asked for various oceanographic parameters: water temperature, currents, water chemistry, depth, etc... in hopes of solving a re-opened case involving a body being found offshore, in Bethany Beach, DE.
- Comment from a NMFS Protected Resources Division Employee: "Thank you so much for your help - you have no idea how helpful this was!"
- Comment from a satisfied customer, "Thanks so much. It's exactly what I am seeking. Your instructions were perfect."
- A customer contacted NODC for historical water temperature data that he could use on his fishing show. He also mentioned that he links to the CWTG on the show's website.
- A customer contacted NODC looking for water temperature data so that he could plot the change of water temperature as the oil plumes move through the Gulf of Mexico.
- An investigator called NODC looking for tidal data for the Hudson River for June of 1997.
- NODC was contacted by the US Coast Guard looking for information on the NOAA Ports System in Texas in response to an incident which occurred in its nearby waters.
- Sample responses from satisfied customers: "Thanks a lot for your detailed answer!", "Thanks for the quick response and the information. I'll check that out.", "Thank you so much! You have added a great deal of real information to our study of physics and you make us proud to know we are on the leading edge."
- Internal Request from the Office of Coast Survey, requesting salinity data for the inner harbor area around Charleston, SC. The customer responded, "This will be very helpful and I appreciate the links and instructions."
- Comment from satisfied customer, "I am writing this letter to express my thanks for your help. I am sure the information offered in your letter will be very helpful for me. I hope that I could write to you if I need your help in the future. Thank you very much again."
- "THANK YOU ever so much for your assistance. The links you have provided open other possibilities to find the data I'm looking to obtain. Again, THANK YOU."

Agriculture	4
Business	113
Construction	8
Consultant	9
Consulting Meteorologist	6
Department of Defense	56
Education K-12	27
Engineer	20
Individual	253
Insurance	12
Lawyer/Legal	18
Library	29
Member of Congress	6
NOAA non-NWS	77
NWS	11
Non-Profit Organization	37
Non-US: Government	11
Non-US: Other	34
Non-US: Research	79
Non-US: University	117
Other Federal Govt	39
Research US	31
State/Local Government	67
Transportation	6
US Media	20
University	135
Utilities	13
TOTAL	1238



In FY10, 100% of all customer requests were answered and all correspondence logged in the NESDIS e-Business system. NODC's customer service requests, via email and telephone, increased by 39.4% from FY09. This number of 1,238 requests is three times as many requests since 2000.

{The above statistics are only direct requests to User Services personnel that came in by email, phone, fax, or letter and do not reflect our online data downloads, which was approximately 56 TBs for fiscal year 2010, and continues to grow.}

NODC's Mission Statement:
To Provide Scientific Stewardship of Marine Data & Information

National Oceanographic Data Center

For more information, please visit www.nodc.noaa.gov