

NCEI Overview



Responsible for hosting and providing access to one of the most significant archives on Earth

National Centers for
Environmental Information

September 2024

Russell Vose, Chief
Monitoring and Assessment Branch



NCEI Mission

NCEI provides environmental data, products, and services covering the depths of the ocean to the surface of the sun to drive resilience, prosperity, and equity for current and future generations.

NCEI Vision

A tenacious and trusted leader in environmental information for a rapidly changing world with a focus on driving lasting good across our partnerships, our economy, around the U.S and the world through generations.





Department of Commerce



NOAA

National Oceanic & Atmospheric Administration

NOAA Line Offices

Satellite Data and Information Services

National Marine Fisheries

National Ocean Service

Ocean and Atmospheric Research

National Weather Service

Office of Marine and Aviation Operations

National Environmental Satellite Data and Information Service (NESDIS) Line Office

National Centers for Environmental Information

Satellite Applications & Research

Satellite & Product Operations

Space Weather Observations

Low Earth Orbit Observations

Geostationary Earth Orbit Observations

Systems Architecture & Engineering

Office of Common Services

International & Interagency Affairs

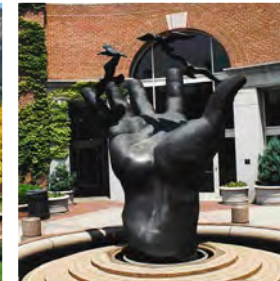
National Centers for Environmental Information (NCEI)



Asheville, NC
Headquarters



Boulder, CO



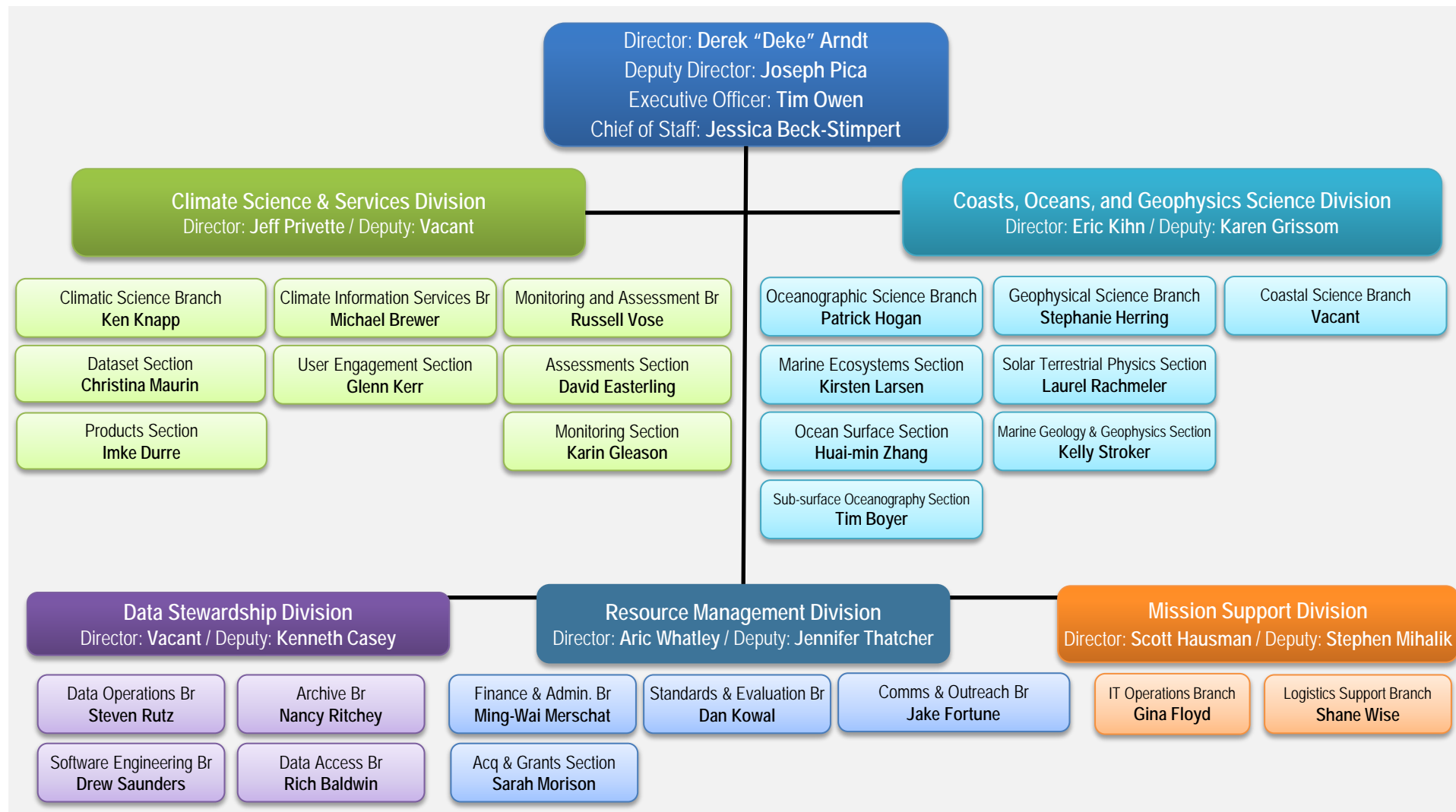
Silver Spring, MD



Stennis, MS

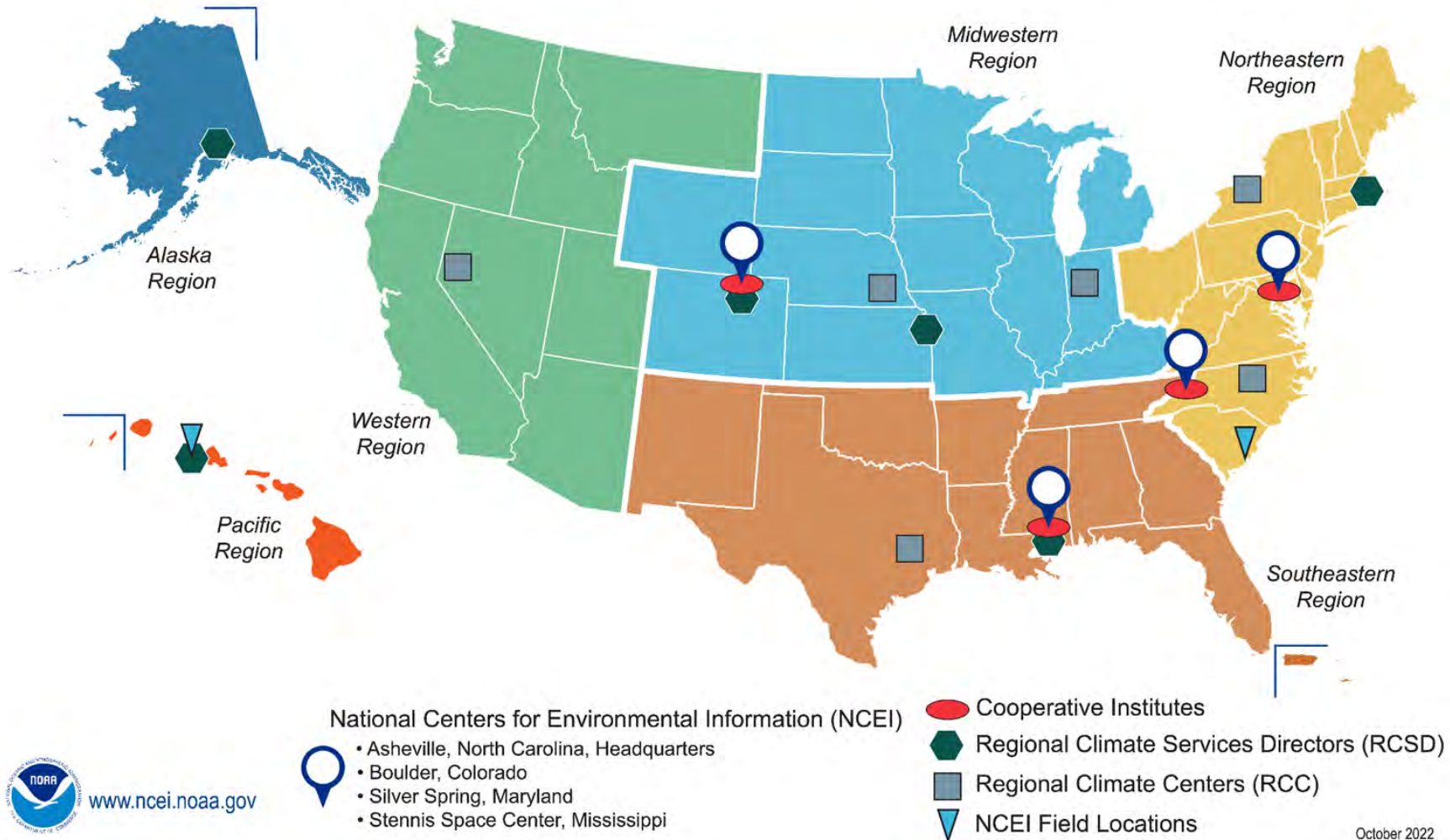


NCEI's Organizational Structure



NCEI's Nationwide Presence

National Centers for Environmental Information (NCEI)



www.ncei.noaa.gov



NCEI's Organizational Culture

- **INTEGRITY**
We hold the public's trust by demonstrating ethical behavior in all aspects of our operations
- **TEAMWORK**
We cultivate cohesive, highly functioning teams
- **AGILITY**
We embrace and rapidly respond to change



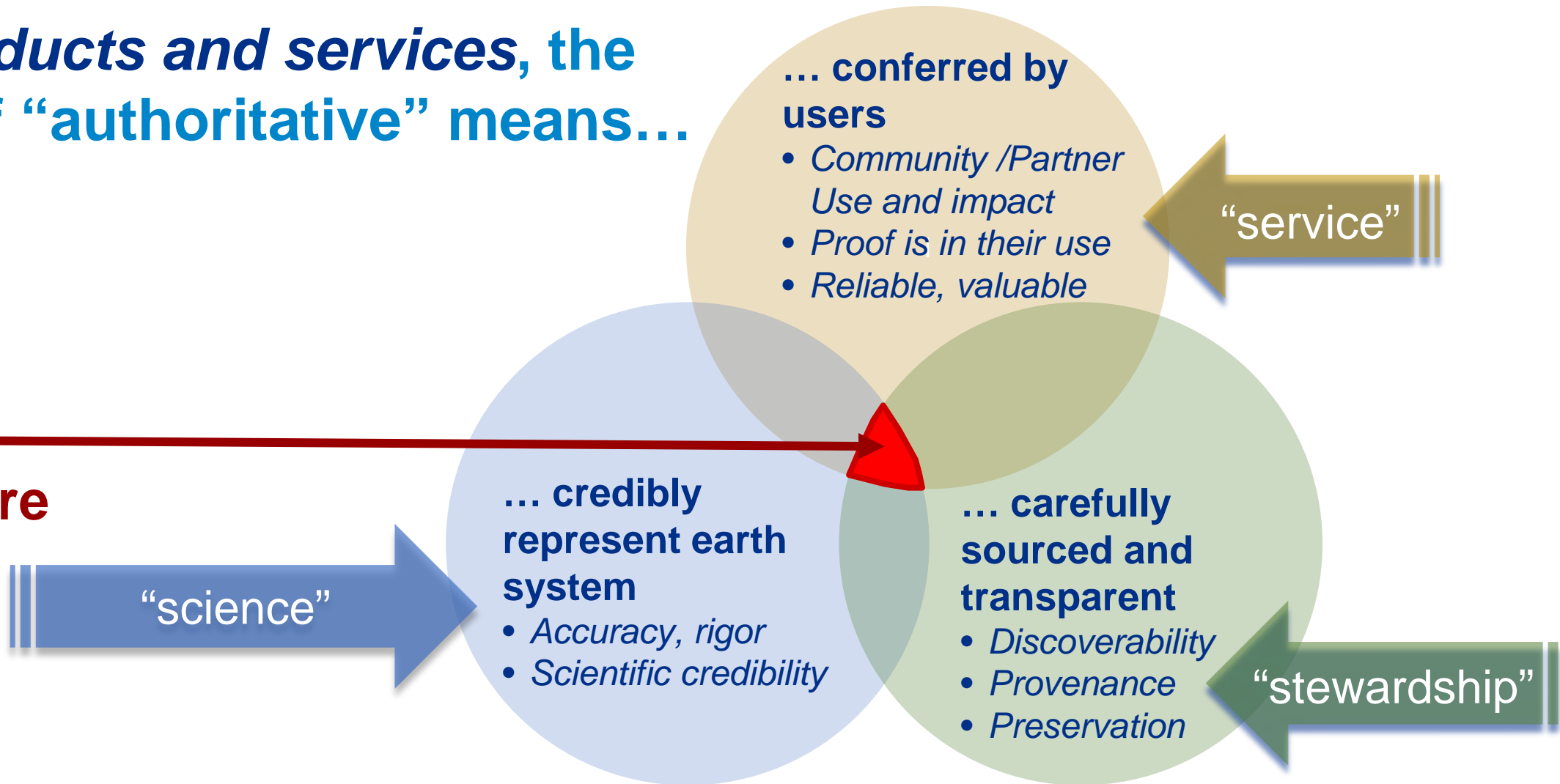
Stakeholders

- International
- Federal
- DOC/NOAA
- State/Local
- Academic
- NGOs
- Private Sector

NCEI's Authoritative Information

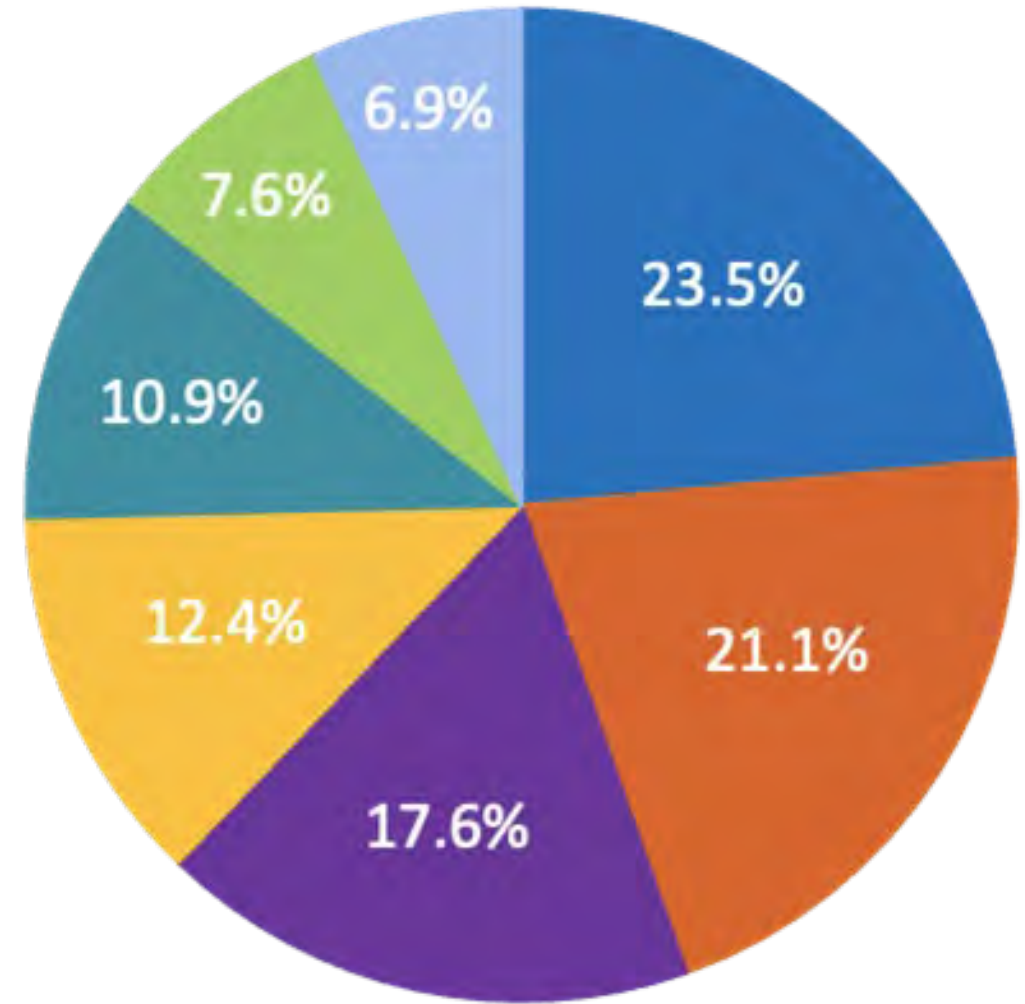
“For *products and services*, the notion of “authoritative” means...

NCEI:
Aim here



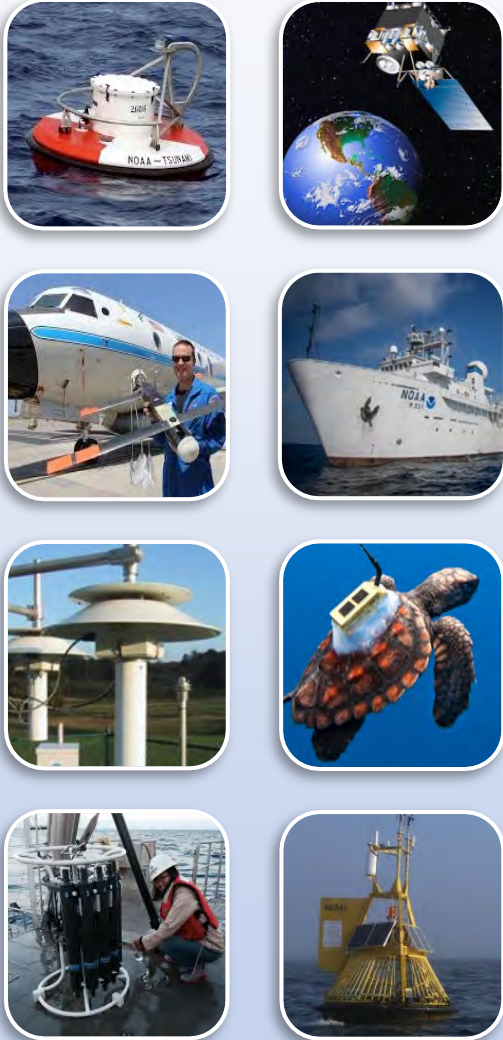
NCEI's Stakeholders by Sector

- Science, Technology, and Engineering
- Ecosystems (Agriculture/Aquaculture)
- Transportation and Infrastructure
- Energy
- Insurance, Finance, and Legal
- Health and Emergency Management
- Higher Education



NCEI's Gig: Turning Observations into Information

NOAA Observing Systems



Research-quality products for decision making

Climate & Weather

- Climate Assessments
- Climate Normals
- Billion \$ Disasters
- Drought Monitoring

Oceans & Coasts

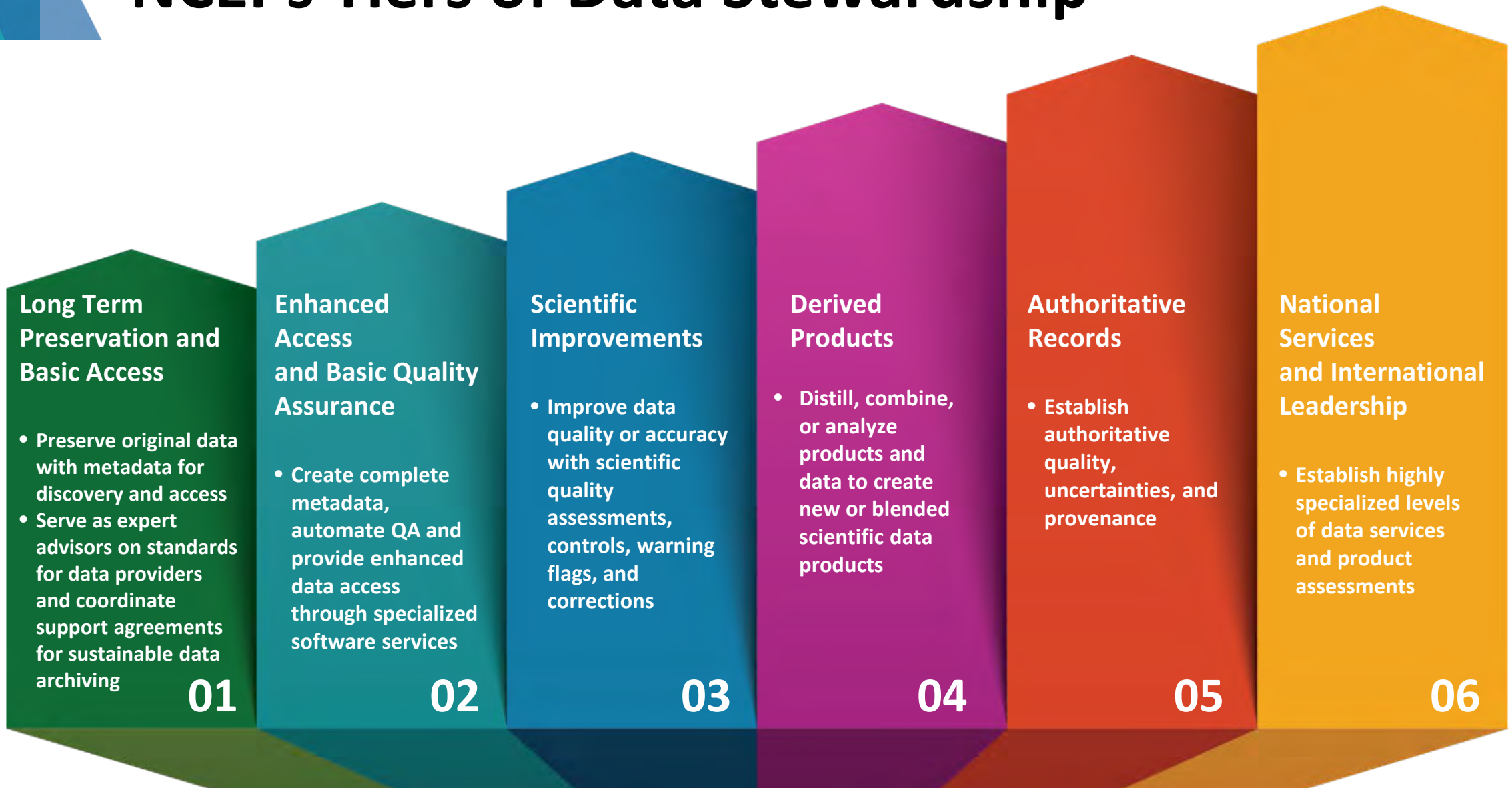
- Tsunami Warning
- Coastal Digital Elevation Models
- Extended Continental Shelf
- World Ocean Database

Geophysics

- Space Weather
- World Magnetic Model



NCEI's Tiers of Data Stewardship



Climate Information to Inform the Future



Climate at a Glance



Billion-Dollar Disasters



U.S. Drought Monitor



Regional Snowfall Index



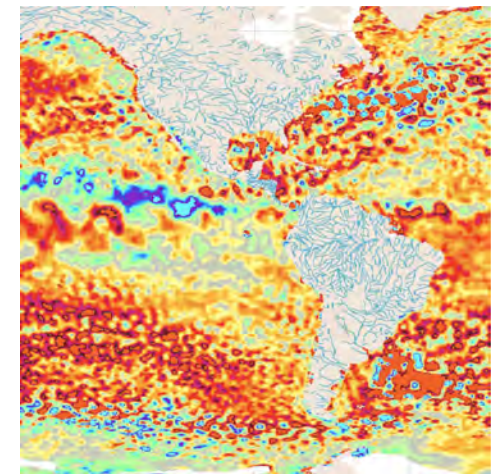
Tornado Climatology



Hourly Precipitation Data



Climate Extremes Index



Blended Sea Winds



Satellite CDRs (Ken)

Home / Products / Climate Data Records

Climate Data Records

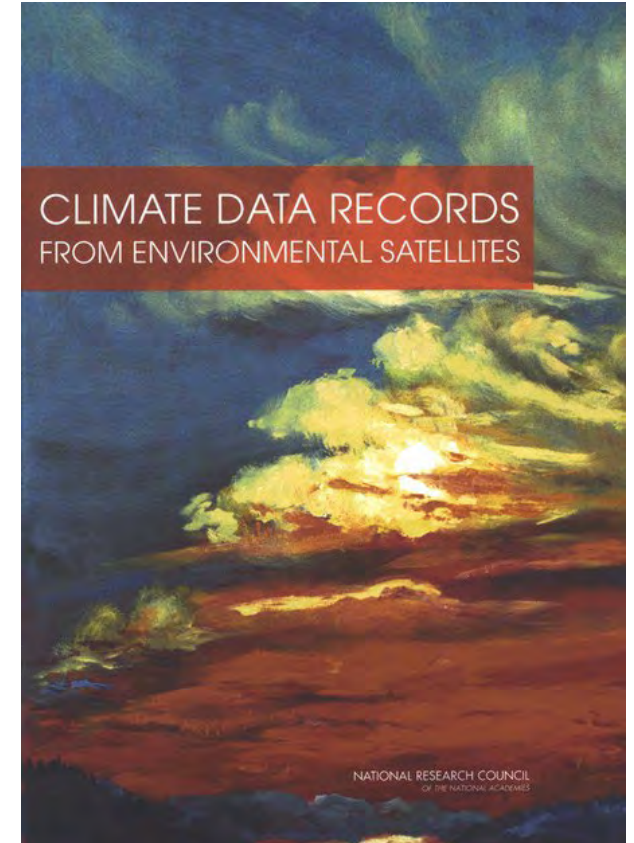
NOAA Climate Data Records (CDRs) can be used to manage natural resources and agriculture, measure environmental impacts on human health and community preparedness, and inform policy development and decision making for other sectors and interest groups.

What are CDRs?

CDRs are robust, sustainable, and scientifically sound climate records that provide trustworthy information on how, where, and to what extent the land, oceans, atmosphere and ice sheets are changing. These datasets are thoroughly vetted time series measurements with the longevity, consistency, and continuity to assess and measure climate variability and change. NOAA CDRs are vetted using standards established by the [National Research Council \(NRC\)](#).

NOAA CDRs are systematically generated and routinely assessed for quality. The first step in establishing an operational CDR includes public posting of the source code that generated the CDR dataset, the dataset itself, and supporting documentation through a six-phase Research-to-Operations process that is described in the Developers Guidelines.

- Fundamental CDRs contain sensor data (e.g., calibrated radiances)
- Thematic CDRs depict geophysical variables (e.g., precipitation)
- There are about 40 CDRs at NCEI



2004 National Academies Report

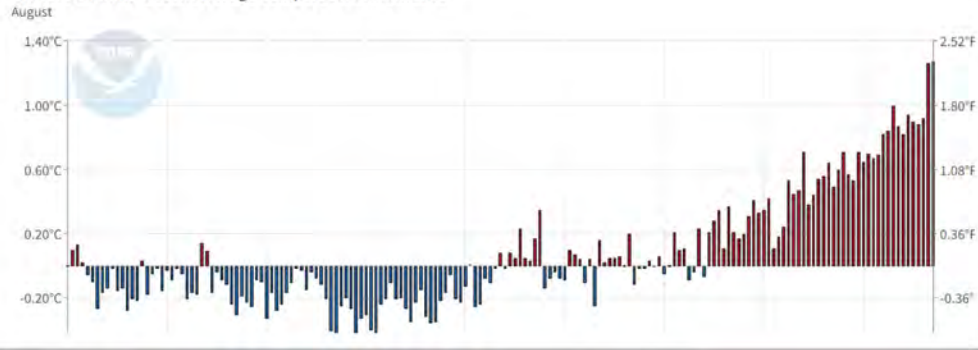


Climate Monitoring (Karin)

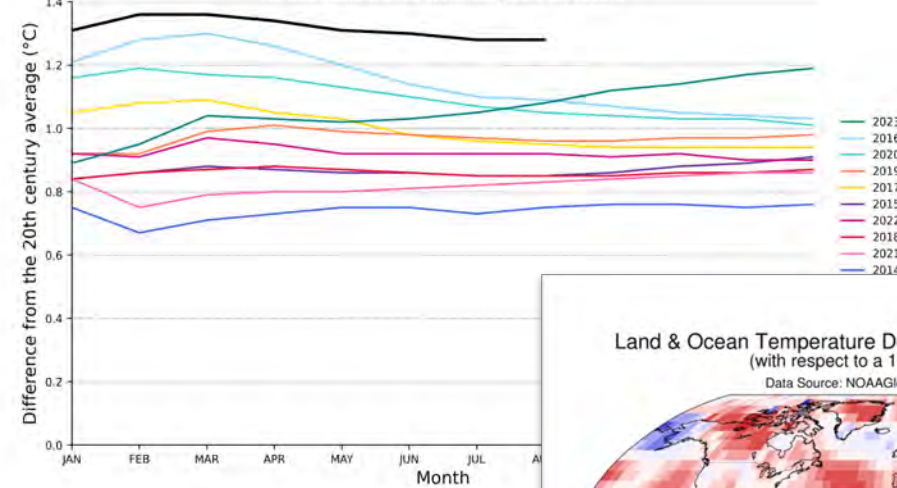
August 2024

The August global surface temperature was 1.27°C (2.29°F) above the 20th-century average of 15.6°C (60.1°F), making it the warmest August on record. This was 0.01°C (0.02°F) above the previous August record set last year, and the 15th consecutive month of record high global temperatures. August 2024 marked the 46th consecutive August (since 1979) with temperatures at least nominally above the 20th-century average.

Global Land and Ocean Average Temperature Anomalies

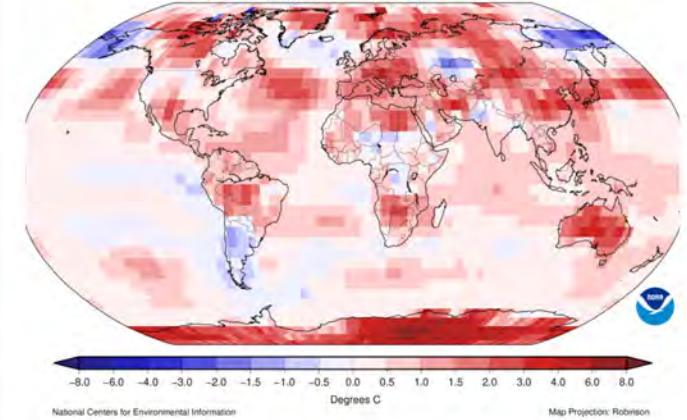


Global Year-to-Date Temperature Anomalies for 2024 and the 10-warmest years on record



Land & Ocean Temperature Departure from Average Aug 2024 (with respect to a 1991-2020 base period)

Data Source: NOAAGlobalTemp v6.0.0-20240908



National Centers for Environmental Information
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Climate at a Glance

Search Monitoring Products

Home / Climate Monitoring / Climate at a Glance

September U.S. Release: Tue, 8 Oct 2024, 11:00 AM

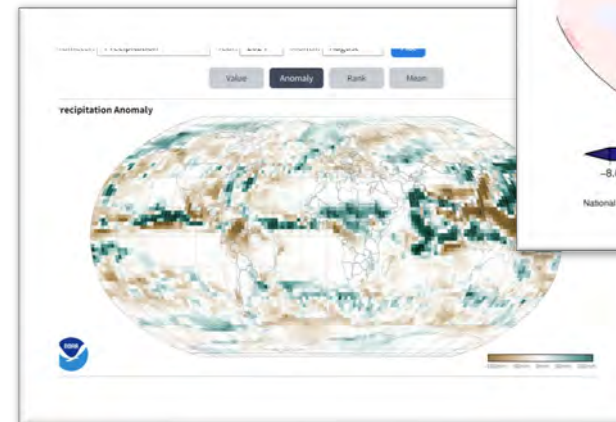
Globe Nation Region State Division County City

Mapping Time Series Rankings Haywoods Data Info

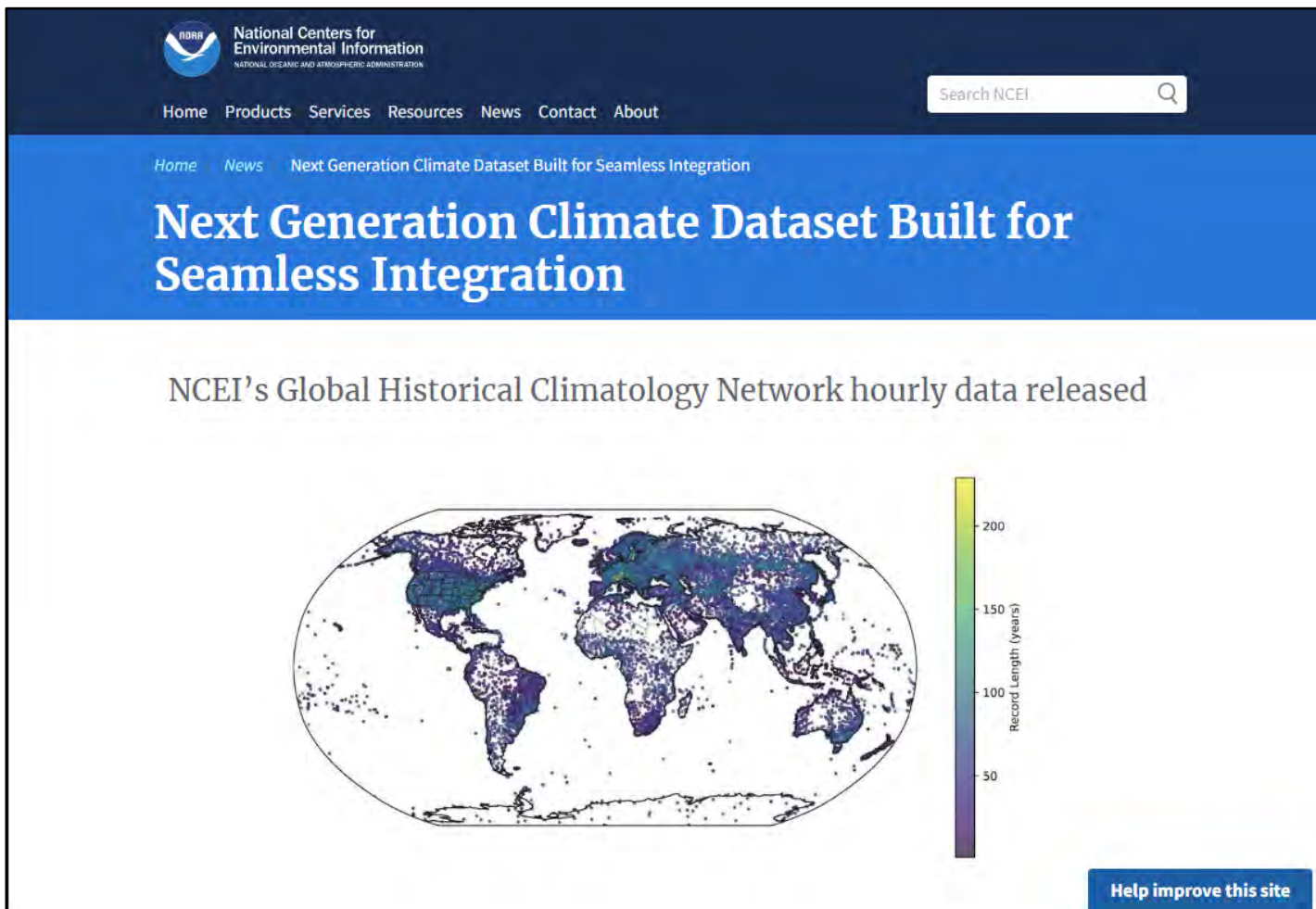
Global Mapping Global Time Series Global Rankings Global Haywood Global Data Info

Launch Launch Launch Launch Launch

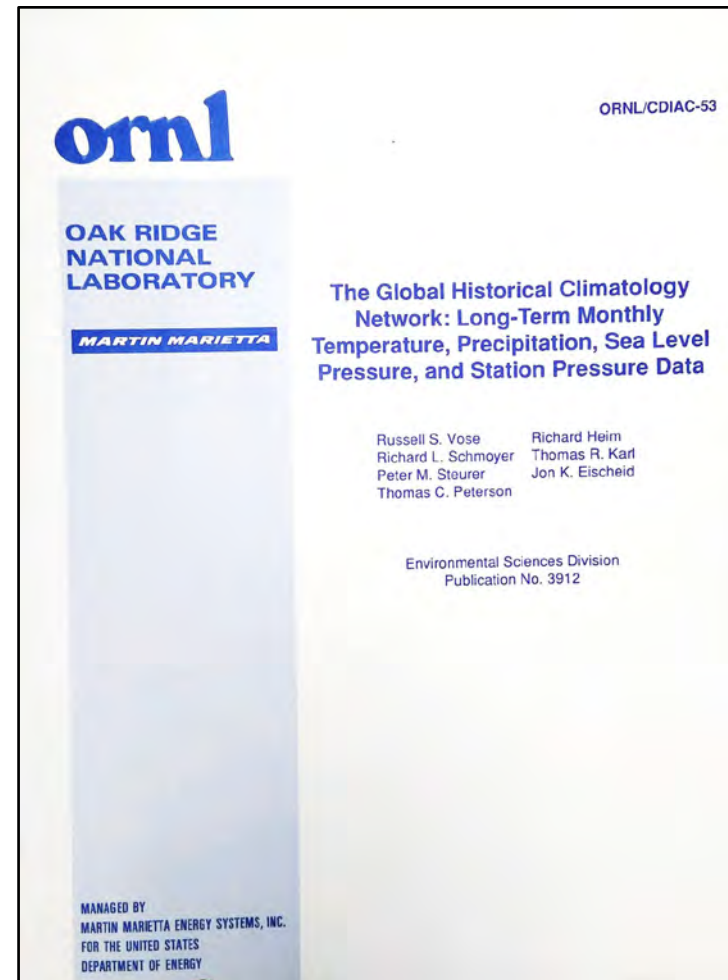
Global Background U.S. Background



Flagship Datasets (Matt)



The screenshot shows the NCEI website header with the NOAA logo and navigation links. The main content area features a blue banner with the title "Next Generation Climate Dataset Built for Seamless Integration". Below this, a headline reads "NCEI's Global Historical Climatology Network hourly data released". A world map is displayed with a color scale for "Record Length (years)" ranging from 50 to 200. A "Help improve this site" button is visible in the bottom right corner.



The report cover features the ORNL logo and the title "The Global Historical Climatology Network: Long-Term Monthly Temperature, Precipitation, Sea Level Pressure, and Station Pressure Data". It lists authors: Russell S. Vose, Richard Heim, Richard L. Schmoyer, Thomas R. Karl, Peter M. Staurer, Jon K. Eischeid, and Thomas C. Peterson. The report is published by the Environmental Sciences Division, ORNL/CDIAC-53, and is managed by Martin Marietta Energy Systems, Inc. for the U.S. Department of Energy. Publication No. 3912.



Climate Engine / Drought.gov (Steve)

The screenshot shows the Drought.gov website homepage. At the top left are the NOAA and NIDIS logos, with the text "Drought.gov National Integrated Drought Information System". A search bar and social media icons are on the right. A navigation menu includes "Data and Maps", "By Sector", "By Location", "Research and Learn", "About", and "News and Events". The main content area features a large background image of a forest with a text overlay: "Missouri River Basin Drought May Persist, Worsen Through September Amid Warm, Dry Conditions". Below this is a sub-headline: "Drought conditions deteriorated in many areas of the basin over June-August, especially in the western half of the basin. Learn more in this drought status update." To the right, under "FEATURED NEWS AND ARTICLES", are three links: "NIDIS Invests Up to \$4M to Support Drought Assessment in Changing Climate", "Drought Update for Pacific Northwest: August 29", and "21st-Century Droughts Are Transforming Ecosystems". At the bottom, there is a section titled "How is drought affecting your neighborhood?" with a search input field. Below that is a section "Advancing Drought Science and Preparedness Across the Nation" with a brief description of NIDIS and a "Help Improve This Site" button.

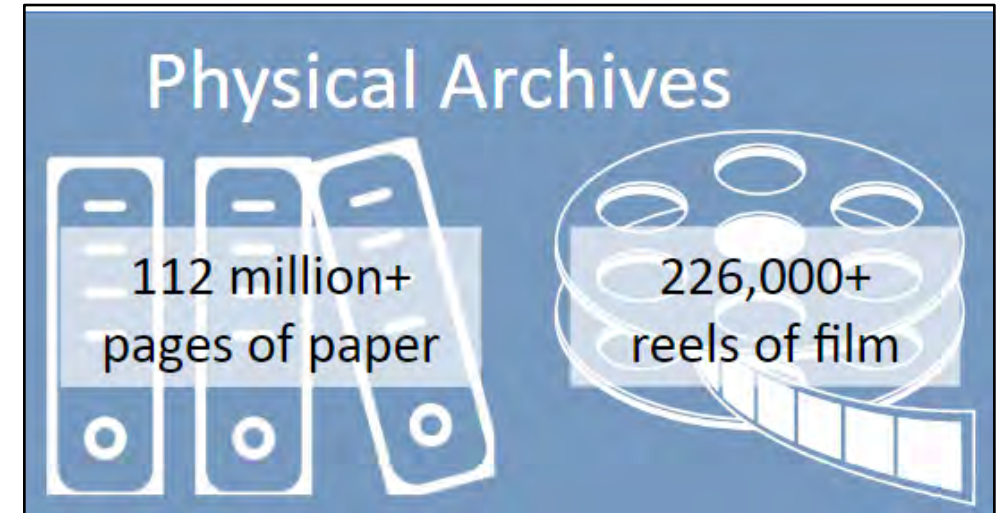
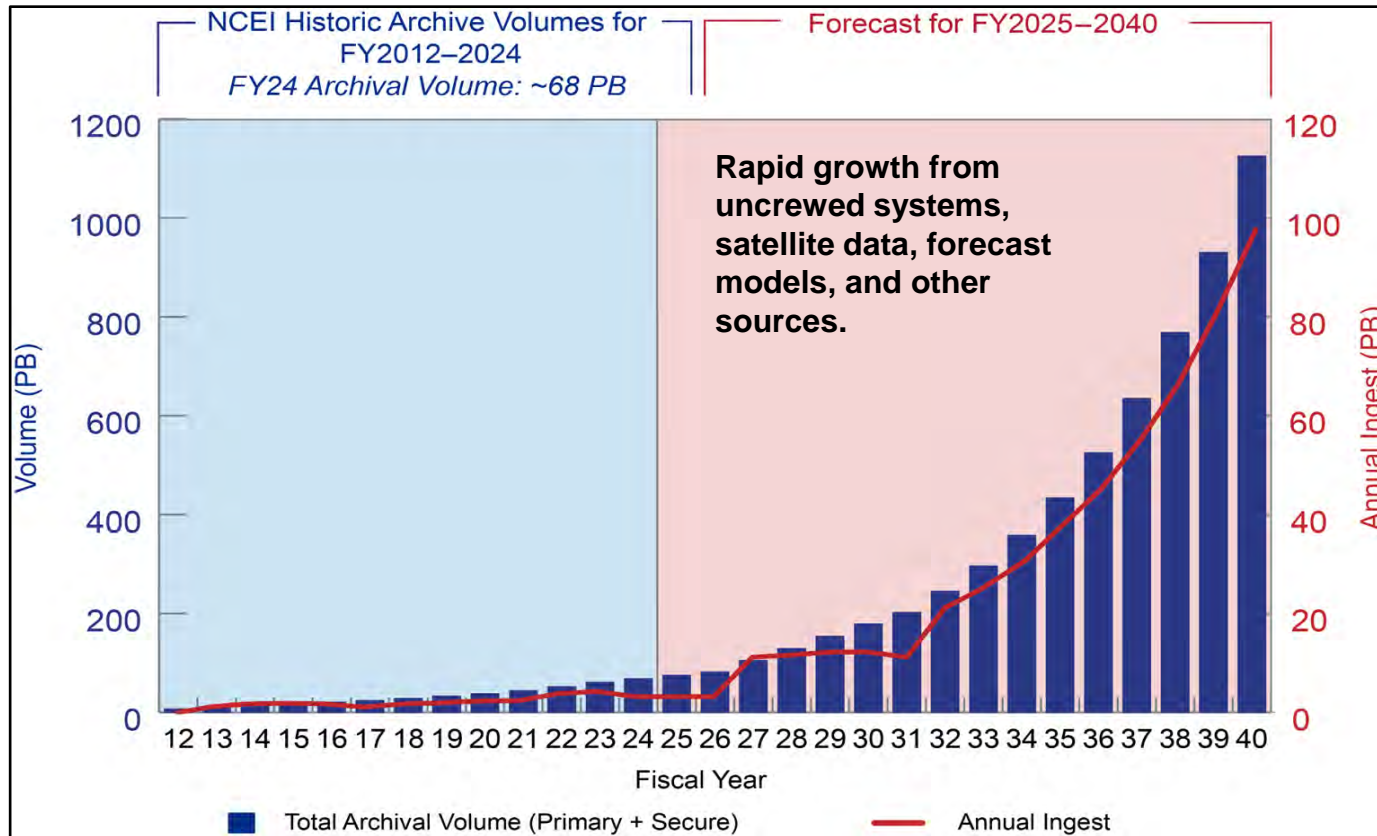
The screenshot shows the "Current Conditions and Outlooks" section of the U.S. Drought Monitor website. It features a map titled "Seasonal (3-Month) Drought Outlook" of the United States. The map is color-coded to show drought intensity, with yellow representing Abnormally Dry (D0) and orange/red representing Moderate (D1), Severe (D2), and Extreme (D3) drought. A legend on the right provides the following data:

U.S. Drought Monitor Category	% of U.S.
D0 - Abnormally Dry	29.6%
D1 - Moderate Drought	19.9%
D2 - Severe Drought	6.8%
D3 - Extreme Drought	4.3%

Below the legend is a "Help Improve This Site" button. The map also includes a text box explaining that the U.S. Drought Monitor depicts the location and intensity of drought across the country using 5 classifications: Abnormally Dry (D0), showing areas that may be going into or are coming out of drought, and four levels of drought (D1-D4). The source is cited as "Source(s): NDMC, NOAA, USDA".



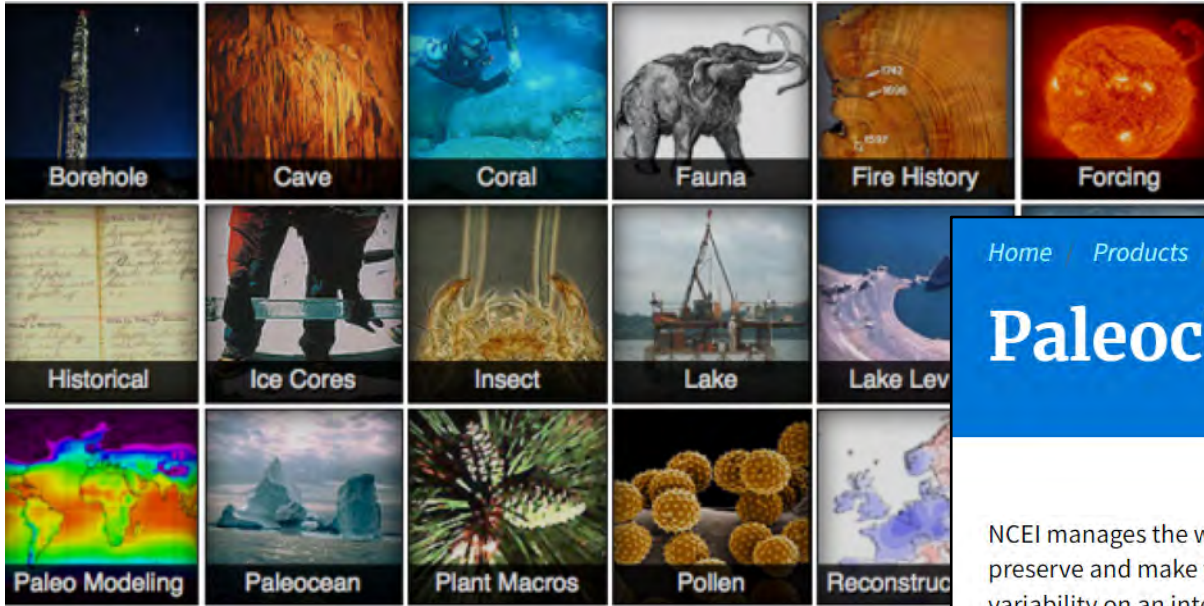
Climate Data Rescue (Jason)



But there is a critical role for this

This gets a lot of the attention

Best Practices for Making Data FAIR (Carrie)



Paleoclimatology Interactive Map

Select study locations by region, proximity to a point, or text-based attributes.

Launch Interactive Map

Paleo Data Search

Search all paleoclimatology datasets and analyses available from NCEI and the World Data Service for Paleoclimatology.

Launch Search Tool

Home / Products / Paleoclimatology

Paleoclimatology

NCEI manages the world's largest archive of climate and paleoclimatology data. Our mission is to preserve and make this data and information available in order to understand and model environmental variability on an interannual to millennial time scale. The Paleoclimatology team operates the World Data Service for Paleoclimatology and an Applied Research Service for Paleoclimatology, and partners with national and international science initiatives around the world to expand the use of paleoclimatology data.

Paleoclimatology data are derived from natural sources such as tree rings, ice cores, corals, stalagmites, and ocean and lake sediments. These proxy climate data extend the weather and climate information archive by hundreds to millions of years. The data include geophysical or biological measurement time series and some reconstructed climate variables such as temperature and precipitation. Scientists use paleoclimatology data and information to understand natural climate variability and future climate change.

 **F**indable

 **A**ccessible

 **I**nteroperable

 **R**eusable





Biden-Harris Administration invests \$85M for Industry Proving Grounds program to strengthen climate resilience through Investing in America agenda



Industry Proving Ground Sectors

Finance & Reinsurance



Retail

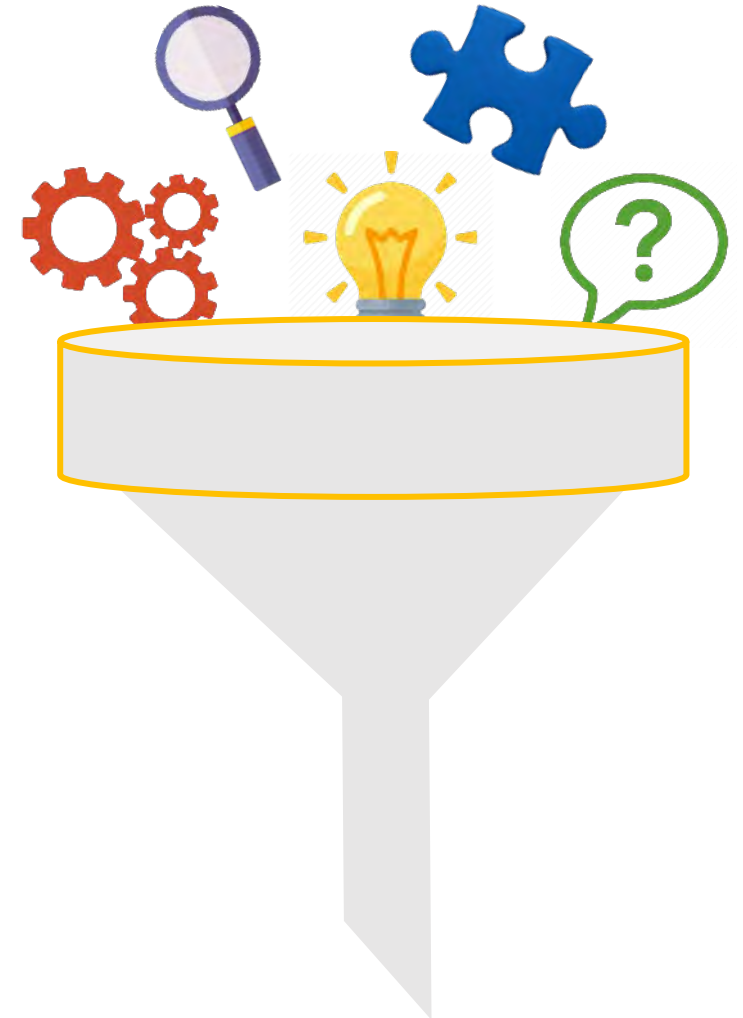


Architecture & Engineering



Common Themes

- Provide information and products in an easy to use format
 - **Don't make me be a climate scientist**
- Improve access by establishing a central repository for prioritized information
 - **Don't give me the kitchen sink**
- Co-develop new information to help with decision making
 - **Don't treat me like a loading dock**

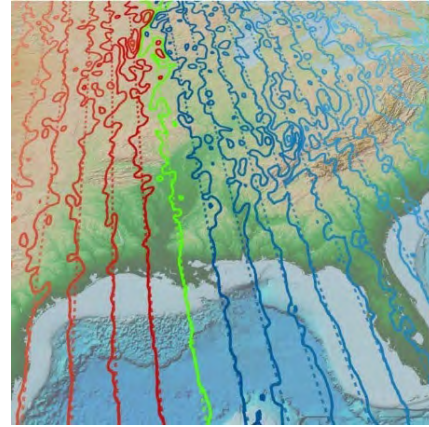


Coast, Oceans, and Geophysics

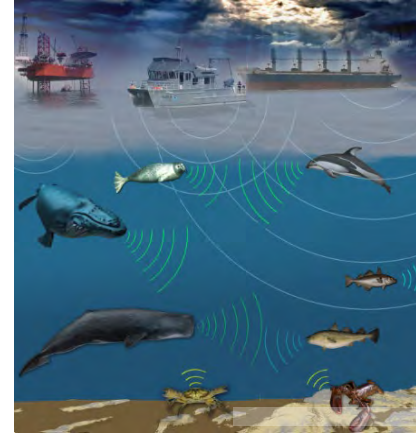
Providing data and information from the Sun to Earth's seafloor



Ocean Exploration
Digital Atlas



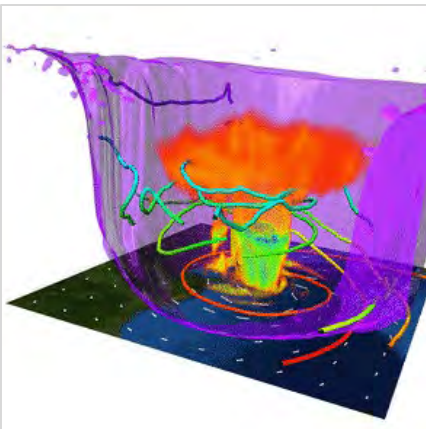
Enhanced Magnetic
Model



Passive Acoustics



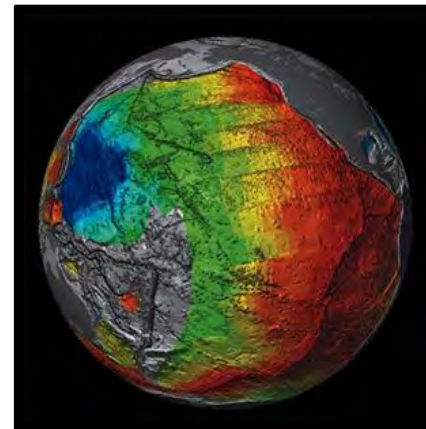
Gulf of Mexico Data
Atlas



Model
Reanalysis



Deep Sea Corals Data
Portal



Bathymetry and
Global Relief



World Ocean
Database



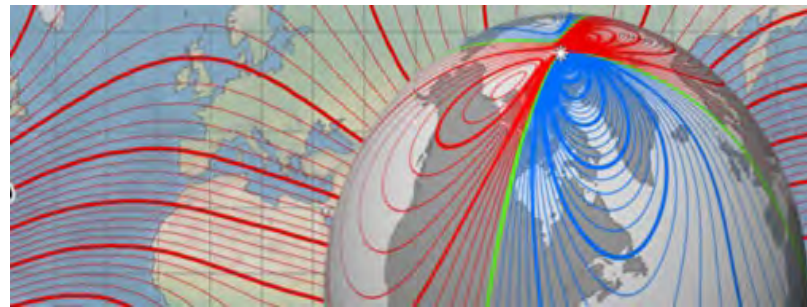
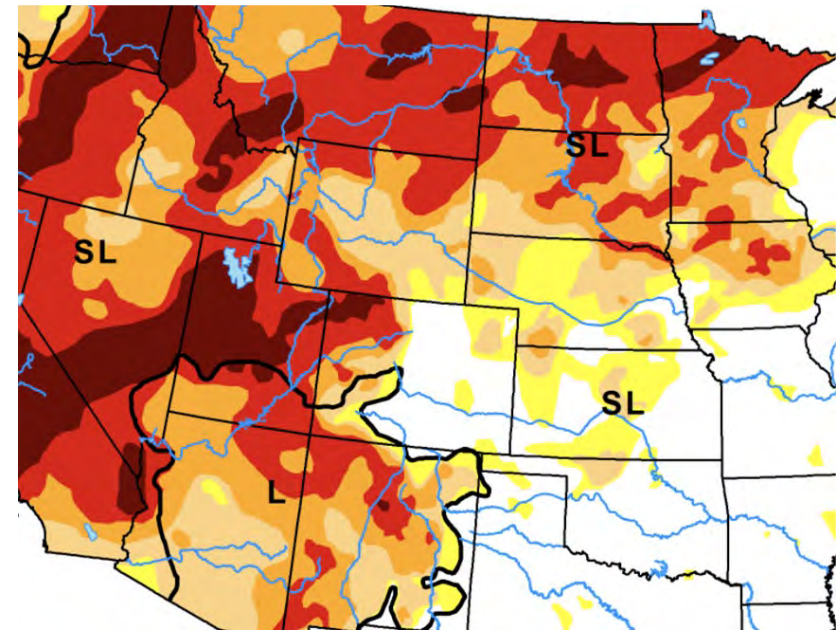
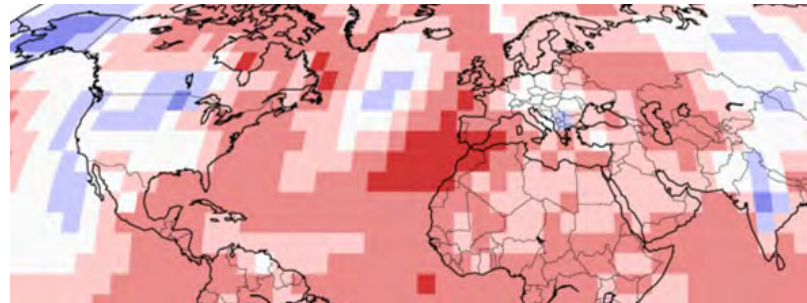
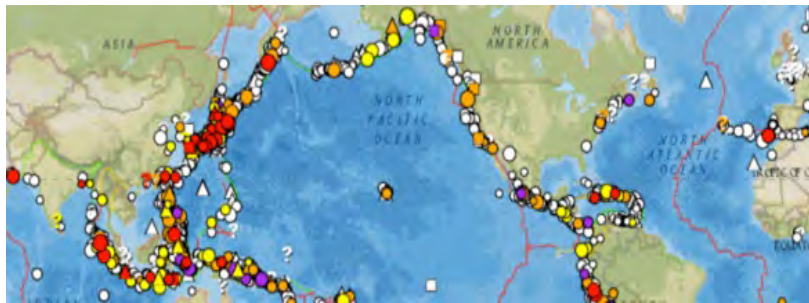
NCEI's Value to the Nation

Range of Products

- Time scale: Hourly to Decadal
- Geographic scale: Local to Global

Technical Expertise

- Aerosols to Coastal Inundation
- Drought Monitoring to Ocean Surface Winds
- Paleoclimatology to US/Global Climate Monitoring



Learn More: www.ncei.noaa.gov

National Centers for Environmental Information

About NCEI

Our Products

Looking for Data?

Access Data

Archive Data

Recent Weather

Search for recent weather data in your area. Weather forecasts are available through the [National Weather Service](#).



Enter a Location

Search

Help

