

NCEI Customer Engagement Initiatives to Guide Opportunities for Innovation

CCRC

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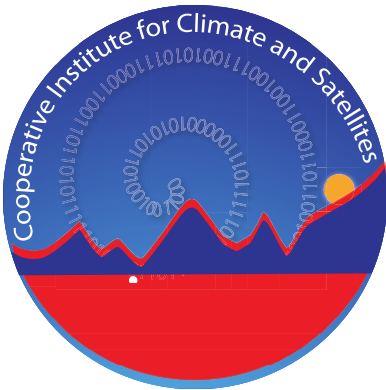
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ncei.noaa.gov

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Topics

- **About NOAA NCEI and Information Services**
- **Examples of Engagement Progress**
- **Looking Ahead**

About Me: Research at NCEI



- NOAA cooperative research institute, located with the NOAA NCEI in Asheville, NC
- Hosted by NC State University for the University of North Carolina System, under the NCSU Office of Research, Innovation and Economic Development
- Team of 35+ experts in various aspects of environmental data and information services
- Support innovative and interdisciplinary research to operations activities in NOAA and NCEI mission goals

NOAA NCEI

- Responsible for hosting and providing access to one of the most significant archives on Earth, with comprehensive oceanic, atmospheric, and geophysical data
- From the depths of the ocean to the surface of the sun and from million-year-old sediment records to near real-time satellite images
- Nation's leading authority for environmental information



Archive U.S. and International Climate Data

Data spans stone-age to space-age... and across the globe



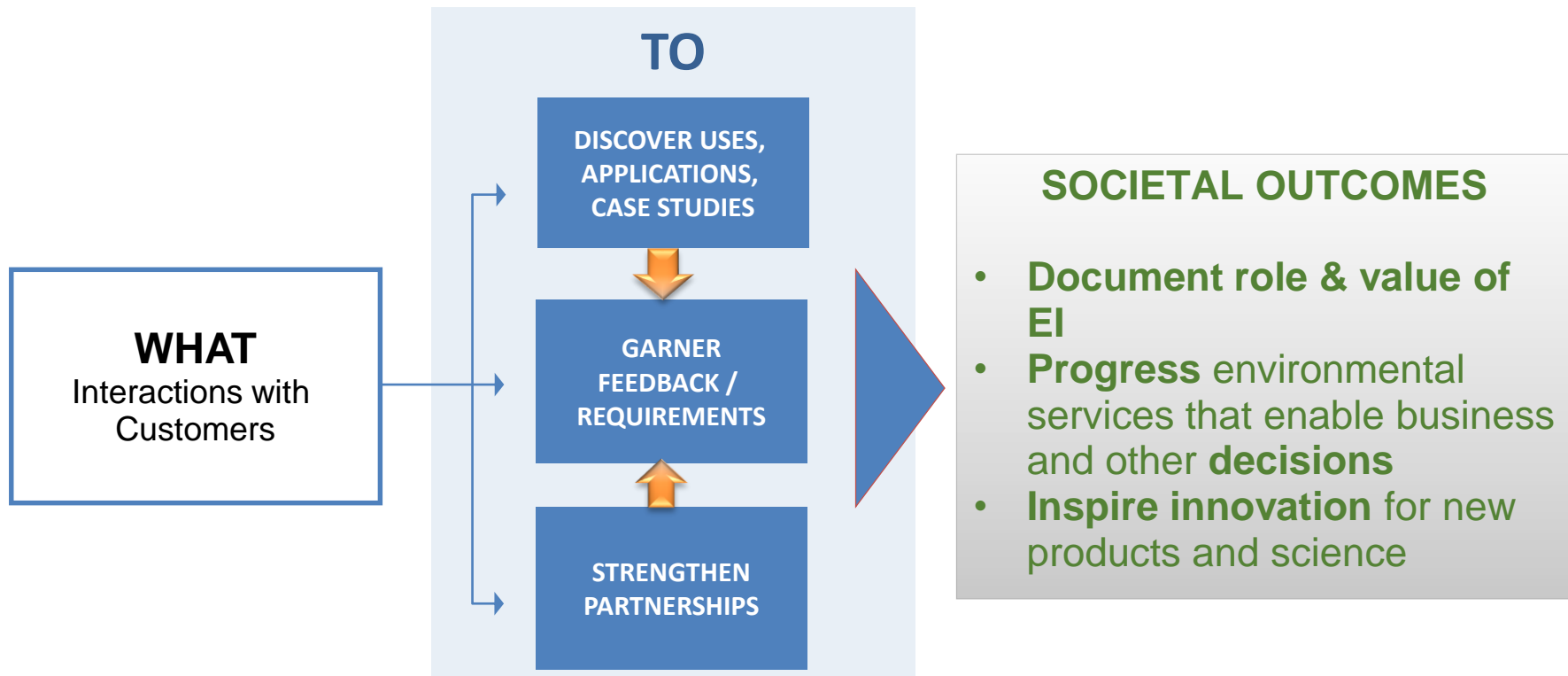
Serving Wide Range of Users

Federal Government
State/Local Government
Consulting Meteorologist
Agriculture
Infrastructure
Utilities
Research
Media
University
Insurance
Engineering
Individual
Legal
Private Business



Supporting NCEI Engagement

NCEI is investing in improving capacity to document customer interactions



The dynamic engagement and services model provides a quantitative basis for understanding and supporting the NCEI value for the Nation, its economy and public services.

NCEI Engagement Team Efforts

- Customer analytics and information
- Value of the Data - Success Story updates
- Unique data usage vignettes from customer service requests
- Customer feedback and new requirements
- Key engagement events
- Upcoming Products and Tools



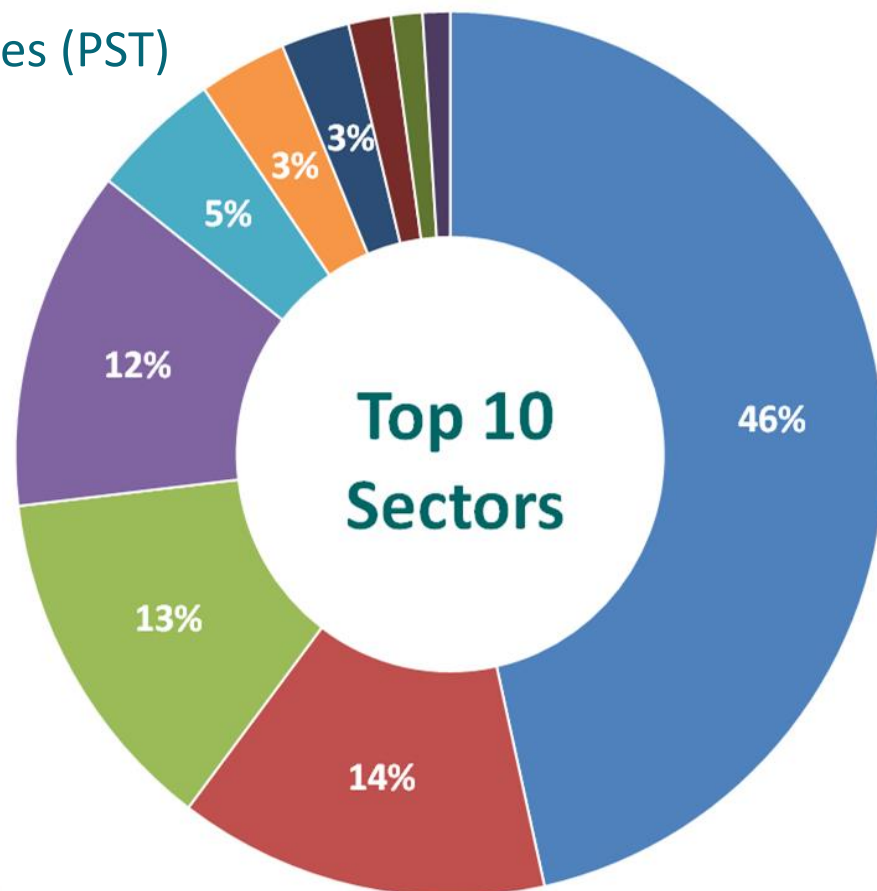
Customer Insights: Who and What

Customers

Information
Services

Top 10 Sectors identified - include PST, Other Services and Public Administration as largest user groups

- Professional, Scientific, & Technical Services (PST)
- Other Services
- Public Administration
- Educational Services
- All Other
- Finance & Insurance
- Construction
- Foreign - 2%
- Manufacturing - 1%
- Information - 1%



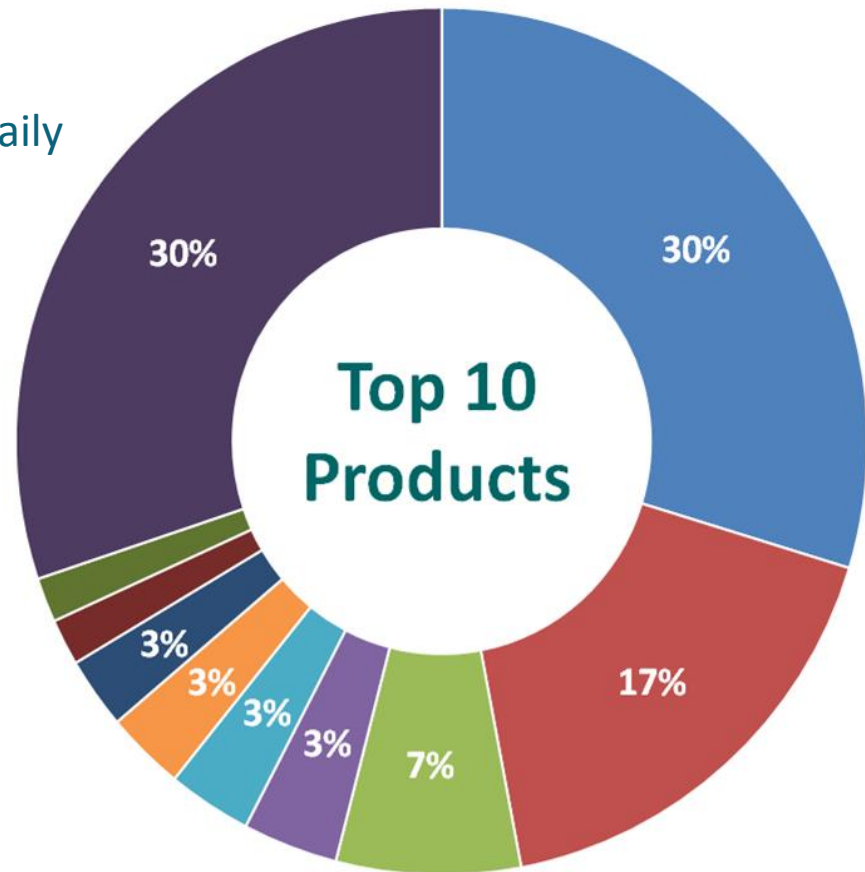
Customer Insights

Customers

Information
Services

Top 10 Products identified - include LCD, GHCN- Daily, and ISD

- Local Climatological Data (LCD)
- Global Historical Climatological Data (GHCN) - Daily
- Integrated Surface Data (ISD)
- Service Record Retention System (SRRS)
- Global Summary of the Month (GSOM)
- Cooperative Observation Data (COOP)
- Storm Events Database - 2%
- Normals - 2%
- Radar Level III - 2%
- All Other



Documenting How NCEI Provides Socio-Economic Benefits

- Businesses: Economic Vitality
- Communities: Quality of Life
- Infrastructure: Security and Resilience
- Energy: Production, Conservation, Use
- Environment: Agricultural and Biodiversity



Approach to Our Analysis

MEASURING THE NATION'S ECONOMY: AN INDUSTRY PERSPECTIVE A Primer on BEA's Industry Accounts



NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM

United States, 2017

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET



Topics
Population, Economy

You are here: [Census.gov](#) > [Business & Industry](#) > [NAICS](#) > [NAICS Search/Tools](#)

North American Industry Classification System

[Main](#) | [History](#) | [Development Partners](#) | [Federal Register Notices](#) | [NAPCS](#) | [FAQs](#)

NAICS Search:

Enter keyword or 2-6 digit code

[2017 NAICS Search](#)

Enter keyword or 2-6 digit code

[2012 NAICS Search](#)

Enter keyword or 2-6 digit code

[2007 NAICS Search](#)

Reference Files

- 2017 NAICS
- 2012 NAICS
- 2007 NAICS
- 2002 NAICS
- 1997 NAICS
- Concordances
- Downloadable Files
- NAICS Update Process Fact Sheet [PDF, 90KB]

Contact Us

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2017 NAICS

The following table provides detailed information on the structure of NAICS.

Sector	Description
11	Agriculture, Forestry, Fishing and Hunting
21	Mining, Quarrying, and Oil and Gas Extraction
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information
52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Food Services
81	Other Services (except Public Administration)
92	Public Administration

Example - Value of NCEI CWC Information

Finance & Insurance - Sector Informational Sheet

At a Glance

- NOAA National Centers for Environmental Information (NCEI) offers relevant climate and weather data from NOAA satellite, radar, and in situ observing systems that support a range of transactions in the finance and insurance sector.
- The performance of U.S. financial and insurance markets, a \$1.5 trillion economic sector, is influenced by climate and weather events including hurricanes, tornadoes, floods, and extreme heat and cold.
- The financial sector relies on NCEI's climate and weather data and information to determine insurance premiums and payouts for losses due to extreme events and to inform investment decisions.

Applications

- Catastrophe Models, Insurance, and Reinsurance
- Energy Trading



NOAA National Centers for Environmental Information **FINANCE & INSURANCE**

At a Glance

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Sector Overview

Finance and insurance, the leading global economic sector, is a major driver of U.S. economic activity and employment. In 2017, finance and insurance accounted for 7.5% of the U.S. Gross Domestic Product (GDP), equating to \$1.5 trillion.

A range of factors influence the performance of this sector, including climate and weather. Extreme events like hurricanes directly impact physical assets and investments, disrupt revenue generation, workforce productivity, and earnings. Slow-onset risks like increasing temperature and water scarcity affect the productivity of resource-dependent industries and investments.

Financial services regularly turn to NCEI to understand the impact of climate and weather on the economy and to drive transactions.



“NCEI data is invaluable to the reinsurance industry, and it would be really hard to put a tangible price tag on it. Everything that is being compiled and maintained [by NCEI] is the foundation for so many transactions in the financial sector that, without it, we would lose literally billions of dollars of economic activity in the United States.”


— Mark Rose, Senior Meteorologist, Munich Re North America

United States Department of Commerce | NOAA National Centers for Environmental Information | www.ncei.noaa.gov

Select Applications of NCEI's Data in Finance and Insurance

Catastrophe Models, Insurance, and Reinsurance

Reinsurance simply put, is insurance for insurance companies. To accurately price risk, reinsurance companies, brokers, and intermediaries develop per-segment, catastrophe (CAT) models to estimate potential economic losses from extreme weather events including hurricanes, tornadoes, floods, wildfires, and hail. Reinsurance companies depend on NCEI's hurricane track, severe weather, daily temperature and precipitation data to develop and validate CAT models and set premiums accurately. NCEI's information, along with other industry-specific data, enables catastrophe model development and therefore the service provided by insurance and reinsurance.




U.S. 2017 Billion Dollar Weather and Climate Disasters

Image: NCEI's U.S. Billion Dollar Weather and Climate Disasters is a quarterly publication that highlights U.S. climate and weather events that have at least \$1 billion in economic impacts. The publication is a valuable resource for insurance companies and other stakeholders to understand how these events would drive losses under present day exposure.

Investments in Weather-Sensitive Industries

Investment funds and equity firms rely on a range of NCEI products to understand how weather influences macroeconomic factors, company performance, and product sales. For example, as part of a due diligence process in reviewing potential investments, Charlotte, North Carolina-based equity firm, Kilgerman Equity Partners, sought to understand how weather and winter storms correlate to the performance of an automotive repair company. They joined NCEI's Regional Snowfall Index (RSI) against the company's revenue over a multi-year period to see how closely they aligned. The analysis confirmed the expectation that the company performs best during winter and hibernating winter-averse conditions. As weather is so closely tied to the company's performance, NCEI's information is critical to the annual investment decision worth tens of millions of dollars.



Regional Snowfall Index 2016


Image: Investment funders and equity investors rely on NCEI's Regional Snowfall Index (RSI) to understand how weather affects overall economic activity and company-specific performance. The RSI categorizes snowfall on a 1-5 severity scale, factoring spatial extent, snowfall totals, and population data.

Energy Trading

Energy is traded on the market just like any other commodity. Energy traders rely on NCEI's model data to speculate how weather will affect energy demand and make decisions to buy, sell, and trade natural gas and power on the market. NCEI's archived model data and analysis data are used to compare deviations from average climatic conditions on a global grid. These deviations are compared against real-time model outputs to understand how demand may be influenced in the 1- to 15-day range or the day to six-week range. The market for natural gas and electricity has soared in recent decades as markets have matured and investors recognize how correlations in investments. The global revenue for energy trading and risk management is estimated at a \$1.22 trillion and is growing at a rate of 2.32% per year.

NOAA National Centers for Environmental Information (NCEI), part of the U.S. Department of Commerce, provides access to one of the most useful and active archives of comprehensive oceanic, atmospheric, and geophysical data on Earth. From the depths of the ocean to the surface of the sun and from million-year-old ice cores to near-real-time satellite images, NCEI hosts over 37 petabytes of data. Public and private sectors rely on NCEI's authoritative and trusted information to create economic opportunity, mitigate climate- and weather-related losses, and preserve ecological resources.

For more information about NCEI, please contact:
828-271-1480 ncei@noaa.gov
www.ncei.noaa.gov

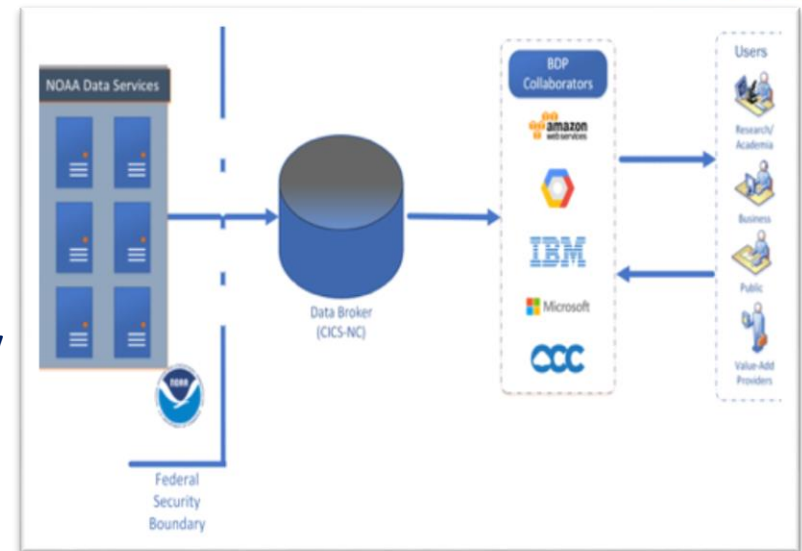


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Advancing Efforts in Research and Innovation

- Support improvements in access for NCEI's data and product holdings
 - Data Stewardship Maturity Matrix
 - NOAA's Big Data Project
- Support innovative research to improve the quality of *in situ* and satellite observations and share the information regarding the Earth's climate
- Support interagency activities for global, national and regional assessments of climate change
 - [USGCRP Climate Science Special](#)
 - Vol. 1 of 4th National Climate Assessment:
 - USGCRP 4th National Climate Assessment is scheduled for release in late 2018
- Prepare the next generation of climate scientists, engineers and technicians



<https://ncics.org/data/noaa-big-data-project/>



Summary and Looking Ahead

- Improving methods to document uses, applications, requirements and value of environmental information across select sectors, formally and informally
- Building internal capacity at the moment
- As well – we conduct interdisciplinary outreach activities to reach K-12 and other general public outreach



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 - www.NCEI.noaa.gov/customer-support
 - www.NCEI.noaa.gov/data-access
 - www.NCEI.noaa.gov/contact
 - www.NCEI.noaa.gov/success

NCEI Environmental Data Archive Volume

Increasing Data Volumes from Station, Model, Radar, and Satellite Sources

