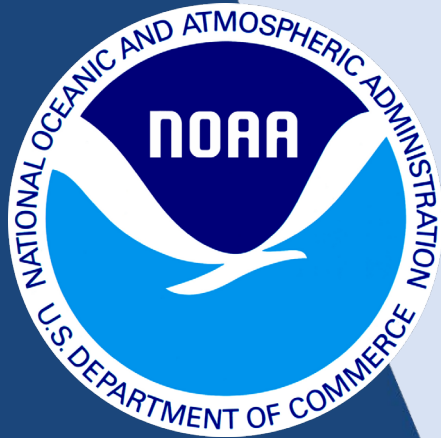




# NOAA Data and Services: Enabling a Climate-Ready Nation

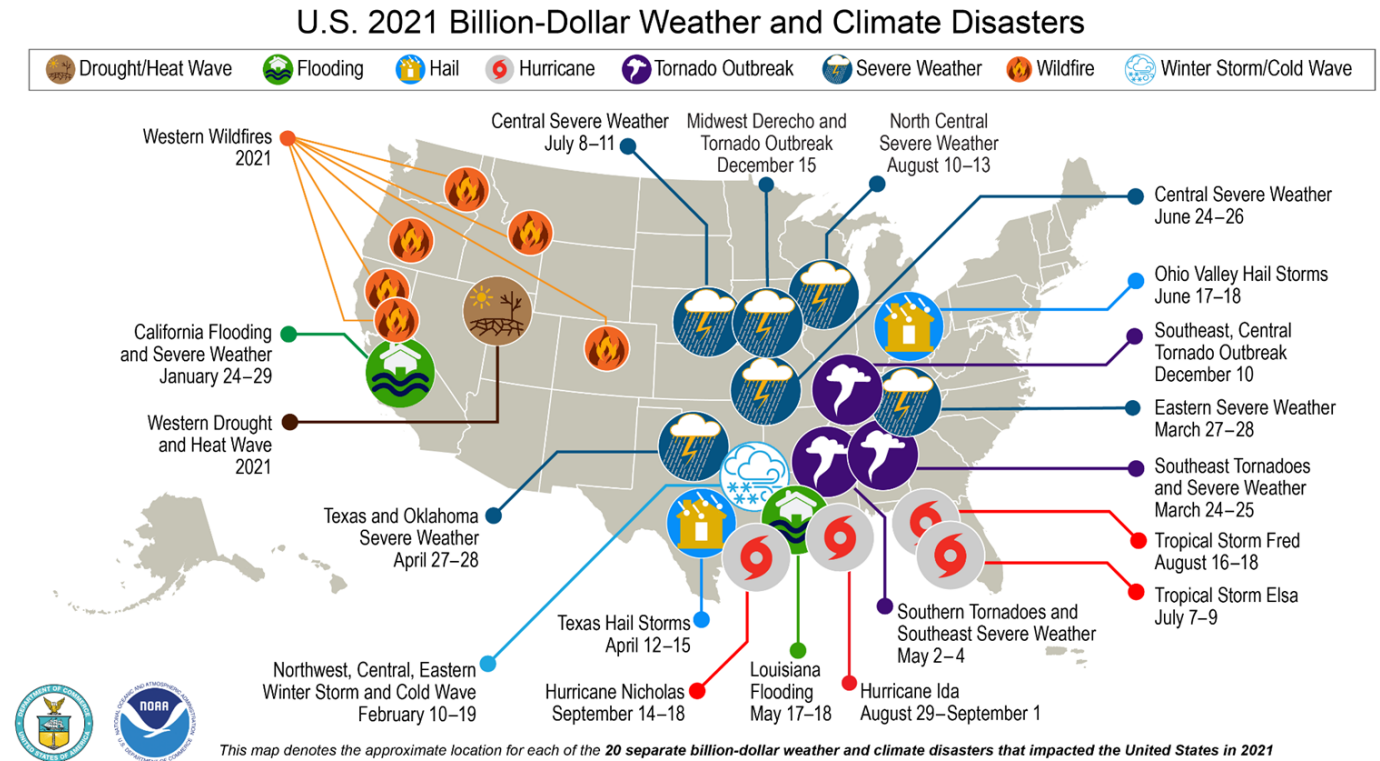
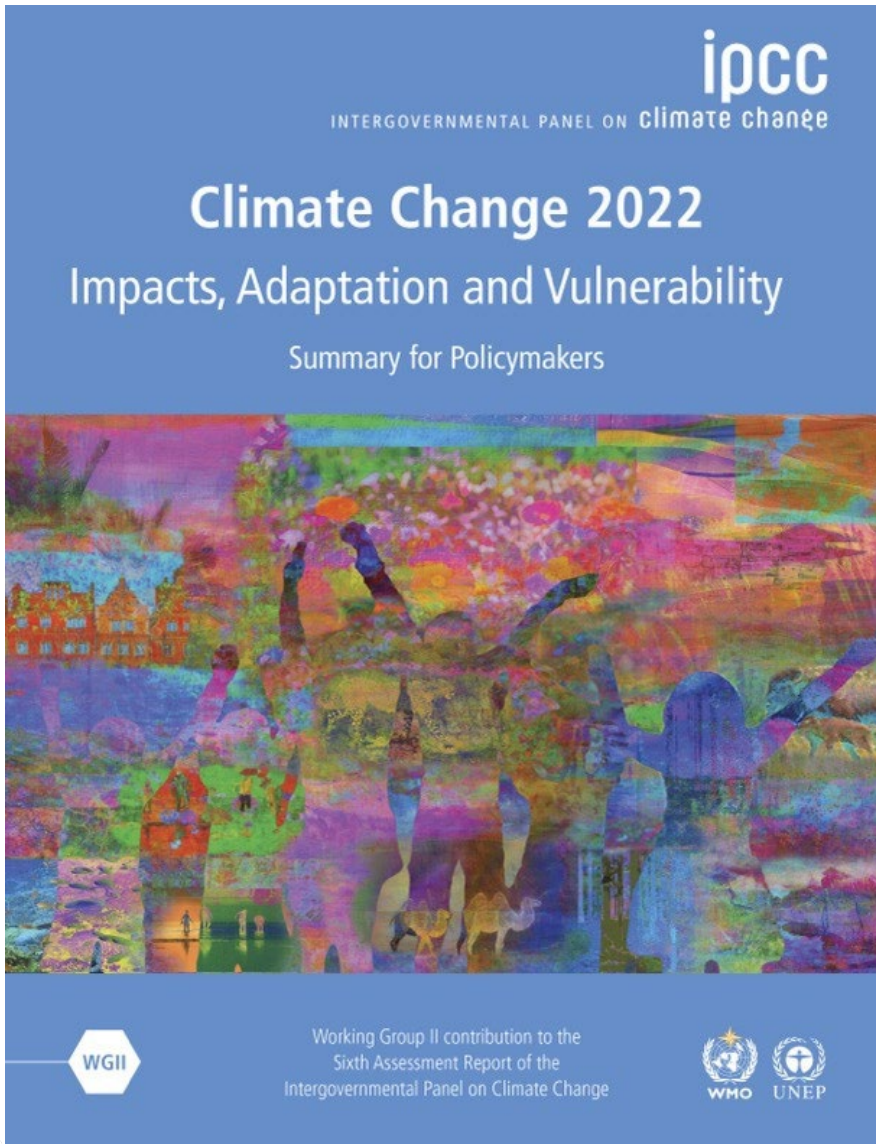
National Environmental  
Satellite, Data, and Information  
Service

March 21, 2022

**Dr. Stephen Volz**

*NOAA Assistant Secretary of Commerce for Environmental  
Observation and Prediction (Acting), NESDIS Assistant  
Administrator for Satellite and Information Services*

# Why Now? More Storms, More Severity



# NOAA Mission: Science - Services - Stewardship

- NOAA, NASA, and other federal agency climate **Science** is the foundation for smart policy, and decision-making in a changing world.
- NOAA delivers climate **Services** to federal agencies, states, tribes, communities, and businesses across America, helping people protect themselves and their livelihoods in a changing world.
- NOAA's climate **Stewardship** protects our lands, waters, resources, and people.





# NOAA Priorities

*Science, Service and Stewardship*



## Climate

Establish that NOAA is the authoritative source for climate products and services that can be applied to a diverse range of missions.



## Balance

Advance NOAA's complementary work on environmental stewardship and economic development with a particular focus on the New Blue Economy.



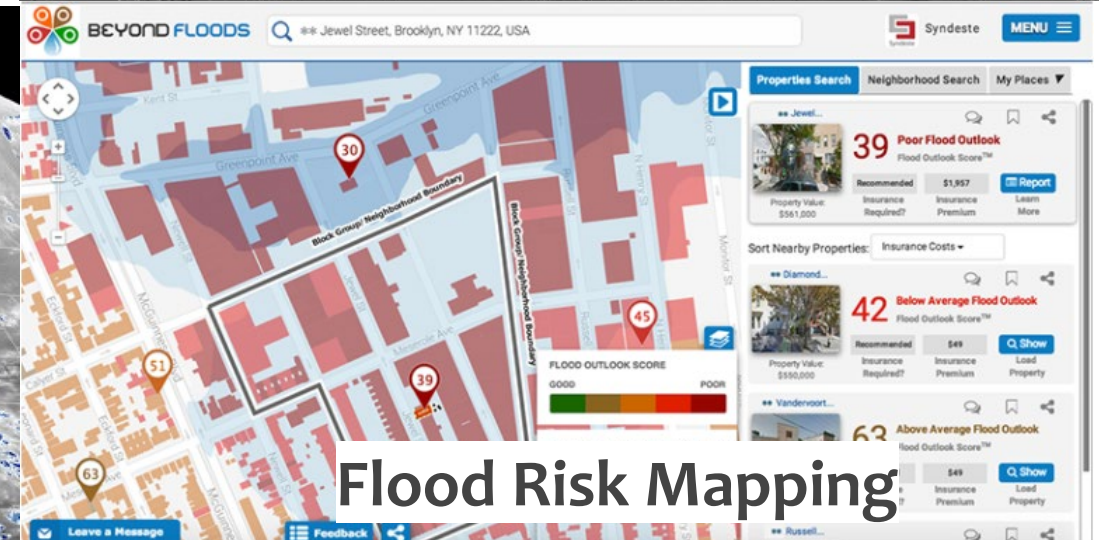
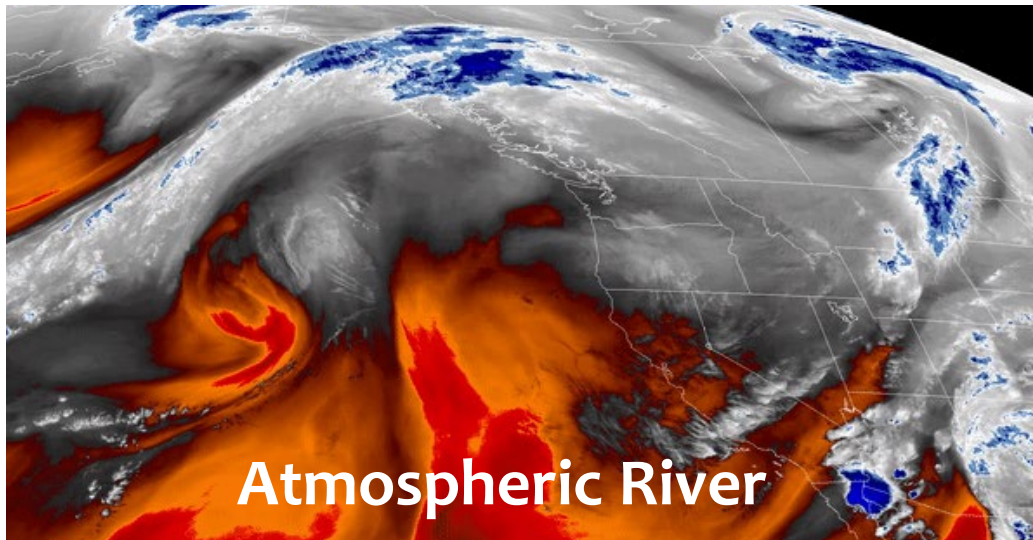
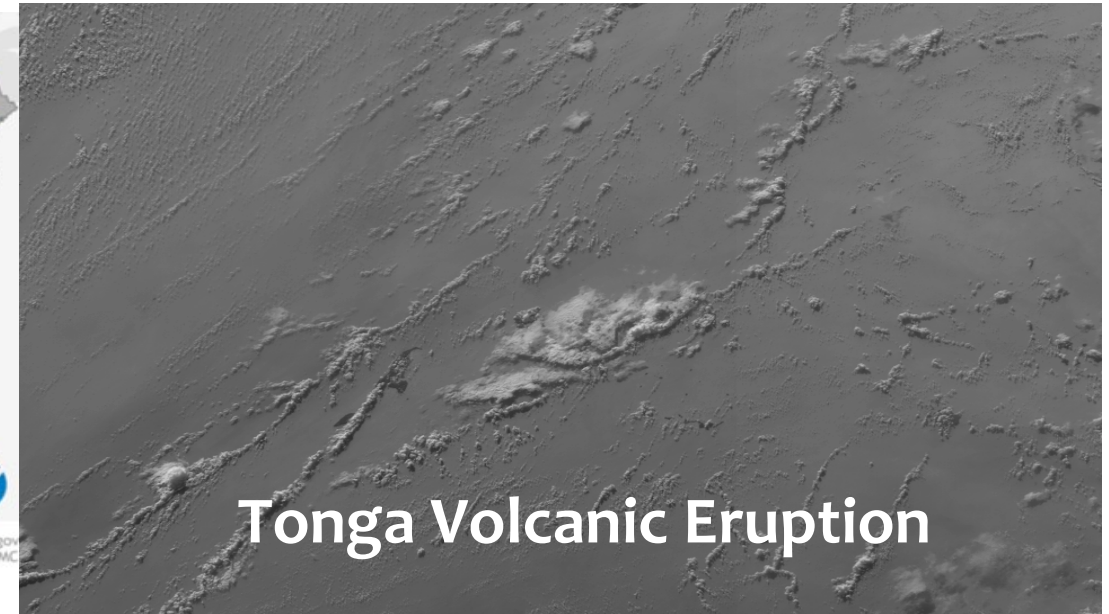
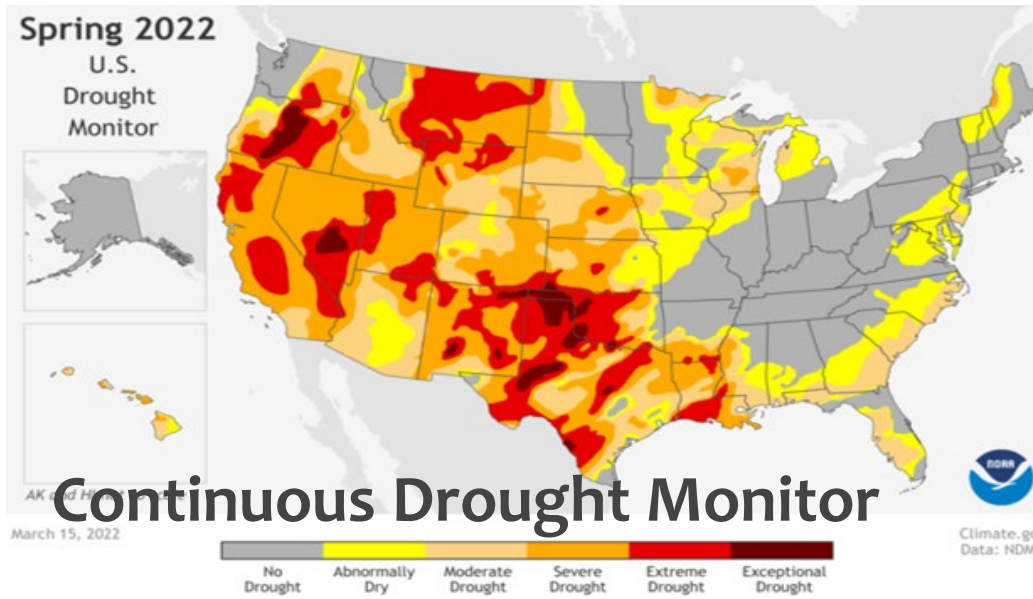
## Equity

Exhibit equity in how we build and provide services. Within NOAA, we will promote diversity, equity, inclusion and accessibility in the workforce. Externally, we will provide equitable access to our products and services.

[noaa.gov/our-mission-and-vision](https://noaa.gov/our-mission-and-vision)



# NOAA is the Authoritative Source for Operational U.S. Environmental Information...



Flood Risk Mapping

# ... With a Global Perspective.

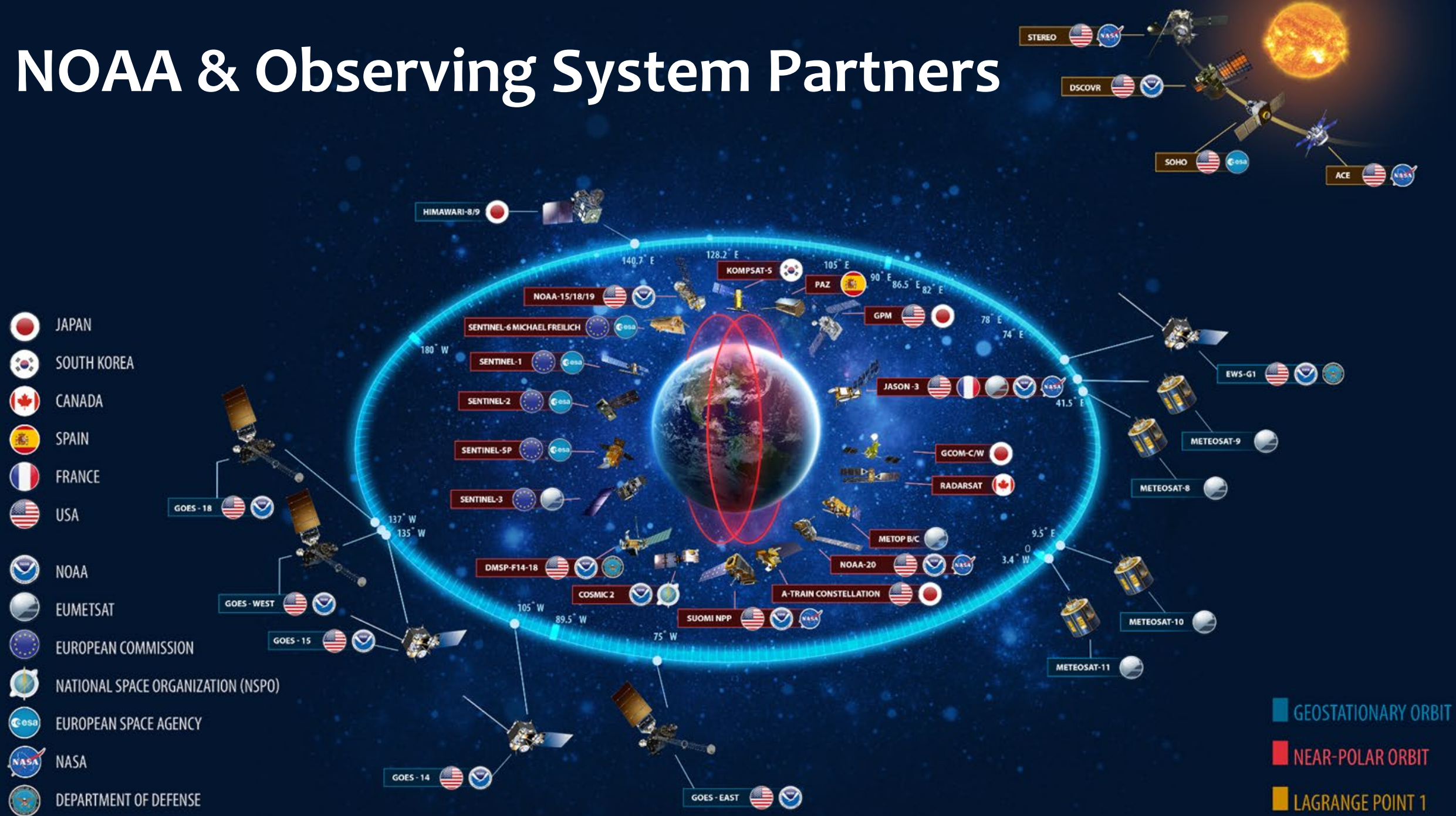
## Our aspiration

Provide a truly integrated digital understanding of our earth environment that can evolve quickly to meet changing user expectations by leveraging our own capabilities and partnerships

**NESDIS**  
*Reimagined*



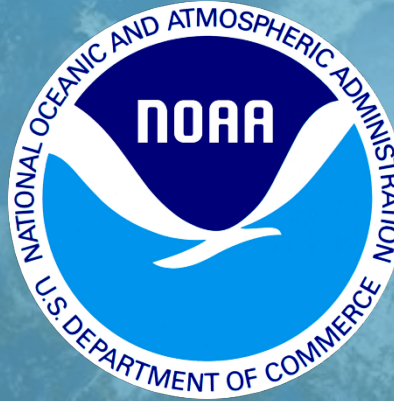
# NOAA & Observing System Partners





# Making Data Useful

## Earth Observing Systems



## Scientific Data Stewardship

## Authoritative Products for Decision-Making

Snowfall  
Impact  
Index  
FEMA

Tsunami  
Warning  
Emergency  
Managers

Heating &  
Cooling  
Degree Days  
Energy Sector

Hurricane  
Tracks  
Emergency  
Planners

Coastal Digital  
Elevation  
Models  
Hazard  
Mitigation

Solar  
Activity/Sun  
Spots  
Power  
Distribution

Annual State  
of the Climate  
Reports  
Decision  
Makers

Global & U.S.  
Climate  
Summaries  
Numerous  
Sectors

Temperature &  
Precipitation  
Outlooks  
Agriculture

IPCC & National  
Climate  
Assessments  
Gov't  
Policymakers

Billion \$  
Disasters,  
Climate  
Extremes Index  
Insurance

Climate  
Normals  
Construction,  
Infrastructure,  
Agriculture



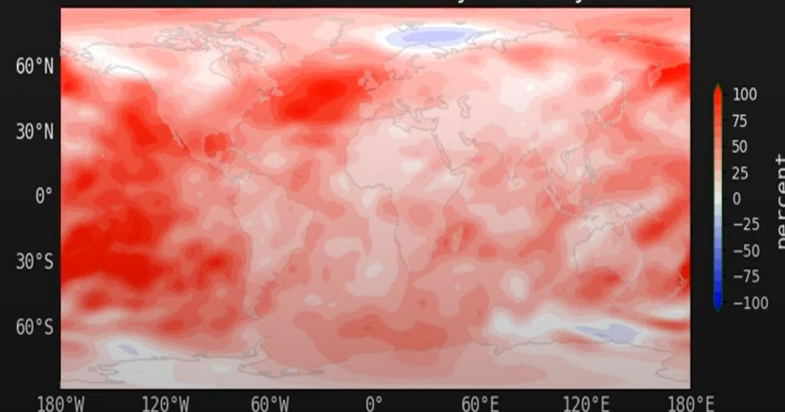
# NOAA and the DOC Have An Additional Space Weather and SSA Mission

- NOAA is responsible for monitoring our space weather as well as terrestrial weather
  - We use observations from NASA, NOAA, and ESA,
  - Apply models developed by NOAA, NASA and academic partners
- NOAA & the DOC are responsible for the provision of civilian Space Situational Awareness (SSA) “traffic monitoring” in the future
- **We need more and better observations, and better models and forecasts to meet the need!**

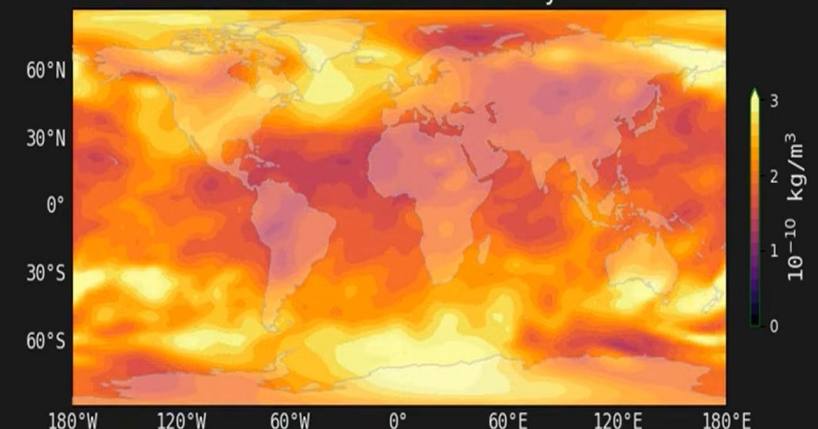
- SpaceX lost 38/49 Starlink satellites launched Feb 3
  - Due to increased drag during orbit raising
- Geomagnetic storms (G1) on Feb 3-4.
  - Watch for G1 on Feb 3 was issued Jan 31, then later cancelled on Feb 2



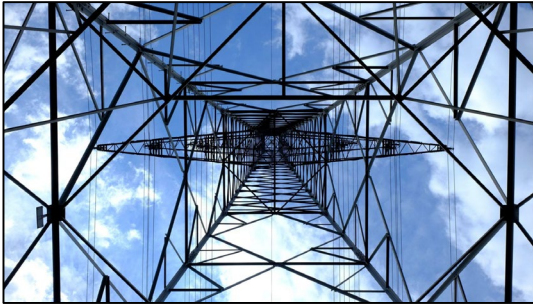
210km Neutral Density Anomaly



210km Neutral Density



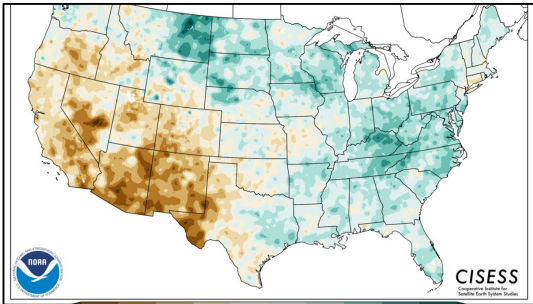
# Value of Our Info: the Energy Sector



## Avoiding Liabilities from Extreme Events

A California utility company partnered with the National Center for Environmental Information (NCEI)'s Western Regional Climate Center, among others, to create a fire hazard index.

**Impact: \$2b in liabilities  
(for one California utility  
during 2007 fires)**



## Forecasting Energy Demand

Energy companies rely on historical sources from NCEI to predict future energy demand. These sources include the Climate Normals and Automated Surface Observing System.

**Impact: climate/  
weather are costliest  
variables to the  
\$295b U.S. energy  
system (GDP, 2017)**



## An “Observational Portal”

Says one meteorological scientist at IBM's The Weather Company: “NCEI – it's my observation portal. I need these data to be able to create the types of [energy] diagnostics that we produce.”



# Value of Our Info: the Fishing Sector



## Saving on Fuel Costs

Fishing forecast products save fishers time and fuel costs and improve catches, making for a more successful fishing trip.

**Impact: >\$12k/year in fuel savings  
(for one Gulf fisher)**



## Optimizing Operations

Third-party fishing forecast services use NCEI Gulf of Mexico Data Atlas and bathymetric data to create reports for fishers to optimize operations and excursions.

**Impact: \$500k in added value  
(for one Florida forecaster)**



## Putting Food on the Table

Says one fishing vessel captain: “Ninety percent of the fish live in ten percent of the ocean... so you really need to know where to place your bet before going offshore.”

**Impact: >\$4m in annual revenue  
(for one New Jersey fisher)**

# Value of Our Info: the Agricultural Sector



## Conagra Brands, Inc.

The consumer packaged goods holding company uses NOAA's State of the Climate reports to generate sales reports. For one supermarket chain, above average January temperatures cost the company more than \$100,000 in revenue.

**Impact:**  
**>\$100k**  
**in losses**



## Adapt-N

NCEI climate and weather data power the Adapt-N tool to help farmers apply just the right amount of fertilizer. On average, Adapt-N saves farmers \$30 per acre.

**Impact: \$27k in**  
**savings per 1k acre**  
**farm per year**  
**(average)**



## Reducing Environmental Impact

Fifty percent of nitrogen used to fertilize corn crops is lost due to poor management and is leached into the waterways or escapes into the atmosphere as a potent greenhouse gas.

**Impact: \$1.7b**  
**cost/year to remove**  
**nitrates due to**  
**fertilizer pollution**  
**from U.S. drinking**  
**water supply**





# Value of Our Info: the Insurance Sector



## Ridgmont Equity Partners

The private equity firm used NCEI's Regional Snowfall Index to understand how snowfall affects overall economic activity and company-specific performance.

**Impact: Ridgmont understood the conditions in which its company best performed**



## Energy Trading

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.

**Impact: a <\$1b soaring energy trading and risk management market**



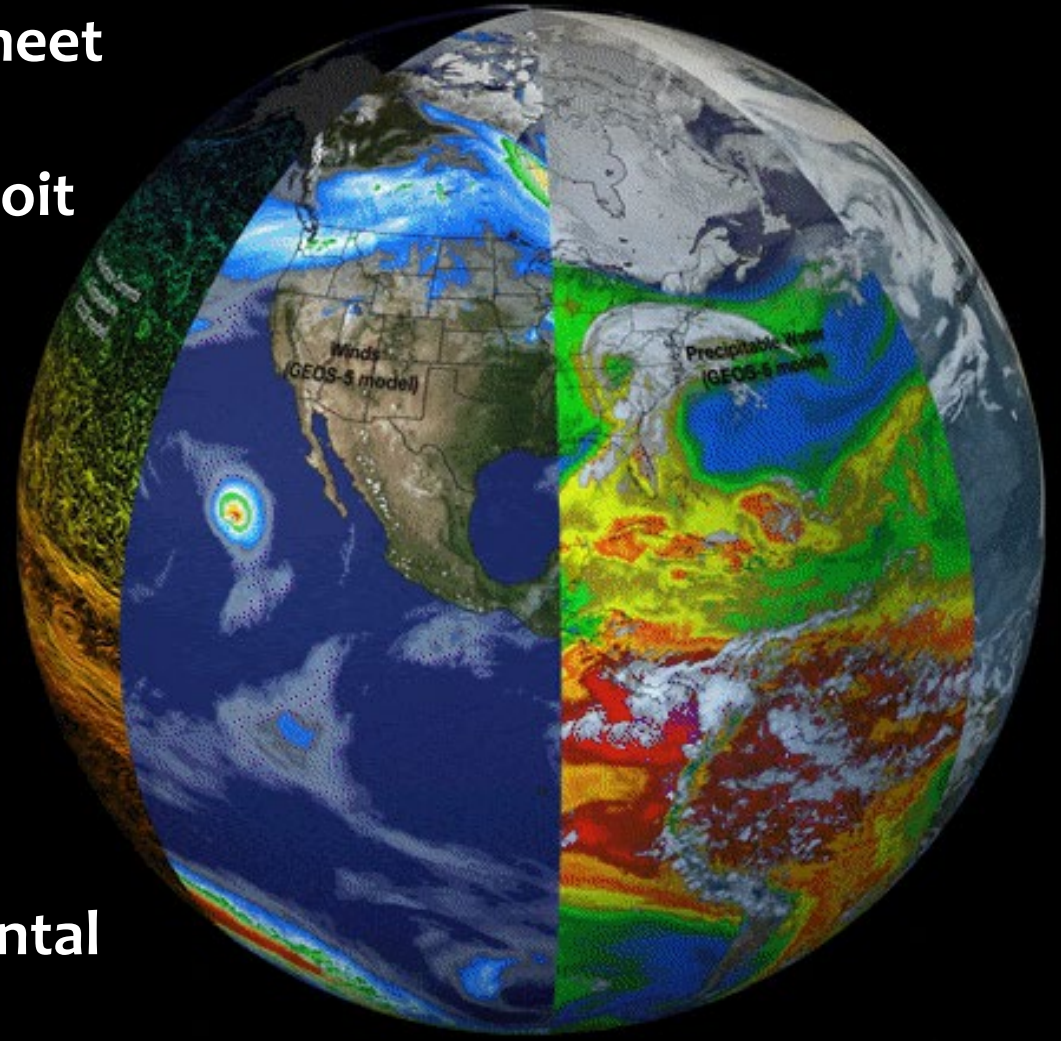
## Reinsurance Companies

These firms depend on NCEI's hurricane track, severe weather, and daily temperature and precipitation data to develop and validate peril-specific catastrophe models and set premiums.

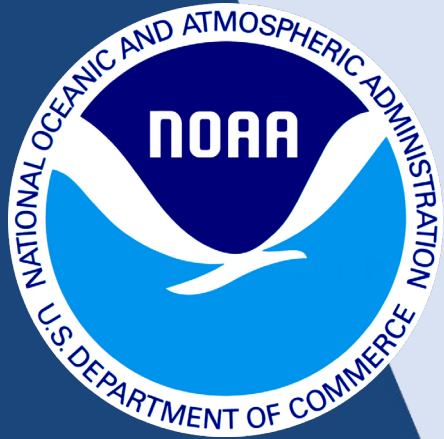
**Impact: Reinsurers usually bear around 65% of insured losses when a large natural disaster occurs**

# NOAA is Enabling a Climate-Ready Nation

- Engaging our users to better understand and meet their needs
- Working with NASA and other partners to exploit new observations and understanding to improve the quality of our information
- Working with commercial partners to exploit new and emerging technologies in new observing systems and refreshing Information Technology
- Maintaining and growing commercial and international partnerships to deliver a resilient and high-performing observing system
- Meeting the increasing demand for environmental information and data products in a rapidly changing world







# Thank you!

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