NOAA Next Generation Strategic Plan

**NOAA’s Mission:**

**Science, Service & Stewardship**

To understand and predict changes in climate, weather, oceans, and coasts.
To share that knowledge and information with others, and
To conserve and manage coastal and marine ecosystems and resources

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**NOAA’s Vision of the Future:**

**Resilient Ecosystems, Communities & Economies**

- Healthy ecosystems, communities, and economies that are resilient in the face of change
  - Resilient coastal communities
  - Ocean and coastal planning, management
  - Safe, sound, efficient marine transportation
  - Improved coastal water quality
  - Safe, sound Arctic access, management
  - Improved understanding of ecosystems
  - Recovered, healthy species
  - Healthy habitats sustain resources, communities
  - Sustainable fisheries, safe seafood

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**Science & Technology Enterprise**

- A holistic understanding of the earth system through research
- Accurate, reliable data from integrated Earth observations
- An integrated environmental modeling system

**Engagement Enterprise**

- An engaged, educated public for informed environmental decisions
- Integrated services for evolving demands of regional stakeholders
- International partnerships and policy leadership

**Organization & Administration Enterprise**

- Diverse, evolving workforce
- Modern information technology
- Modern, safe, sustainable facilities
- A high performing organization
NWS Strategic Plan

Mission
Provide weather, water, and climate data, forecasts and warnings for the protection of life and property and enhancement of the national economy

Vision
A Weather-Ready Nation: Society is Prepared for and Responds to Weather-Dependent Events

Weather-Ready Nation GOALS

Goal 1. Improve weather decision services for events that threaten lives and livelihood

Goal 2. Deliver a broad suite of improved water forecasting services to support management of the Nation’s water supply

Goal 3. Enhance climate services to help communities, businesses, and governments understand and adapt to climate-related risks

Goal 4. Improve sector-relevant information in support of economic productivity

Goal 5. Enable integrated environmental forecast services supporting healthy communities and ecosystems

Goal 6. Sustain a highly-skilled, professional workforce equipped with the training, tools, and infrastructure to meet our mission
Building a Weather-Ready Nation

*Becoming a Weather-Ready Nation is about building community resilience in the face of increasing vulnerability to extreme weather.*

NOAA’s NWS is
- Moving from product services to decision support services
- Improving technology to track and forecast storms with longer lead times
- Expanding its dissemination efforts to achieve far-reaching national preparedness for weather events
Building a WRN - Roadmap

Flexible response to meet contingencies

- Provide superior decision support and foundational information services
  - NWS uses unique, local relationships with Core Partners to help them to better prepare our communities for extraordinary events

- Invest in Science and Technology
  - NWS uses state-of-the-art technology and cutting-edge science to provide the best service possible

- Empower our workforce
  - Workforce is trained and equipped to meet America’s evolving needs
  - Emergency Response Specialists (ERS) are accessible on-site and through remote technologies to provide Impact-based Decision Support Services (IDSS)
Impact-Based Decision Support Services (IDSS)

Helping America make better preparedness and response decisions in the face of weather and climate events

- NWS provides relevant information and interpretative services to enable core partners’ decisions when weather, water, or climate has a direct impact on the protection of lives and livelihoods*

- Additional forecast information on the climate scale (at least a year into the future) will also be included to facilitate IDSS on seasonal projections of weather such as hurricanes, severe weather, winter weather, and flooding*

* From NWS Weather-Ready Nation Roadmap
NOAA works nationally and internationally, but most climate decisions are local or regional, and NOAA is structured to have multiple entry points at regional, state, and local levels.
NWS Climate Services

- Ensure climate quality of weather records
  - Applying 10 Principles of Climate Monitoring
  - CoCoRaHS coordination in WFO
  - Network of Networks

- Climate Product Development and Delivery
  - Coordination on State Climate Extremes and other questions
  - Local and national products delivery
  - WFO / SC office coordination on services

- Developing common knowledge of climate information applications
  - Climate Predication Application Science Workshop
  - Climate Diagnostics and Prediction Workshop

- Use of common tools for consistency of climate services
  - ACIS (xmACIS, SCACIS, NOWData)
  - LCAT

- Information exchange
LCAT uses principles of Artificial Intelligence to connect humans with computing capability to apply data and scientific techniques.

How is the temperature in my town changing?

Data: Homogenized station maximum temperature
Analysis: best practices for trend; rate of change
Output: statistics, plots, metadata

Should we expect floods during La Nina events?

Data: Homogenized precipitation and river flow
Analysis: composites, risk assessment
Output: statistics, plots, metadata

How severe is the drought in my region this year?

Data: Drought indices
Analysis: time series analysis
Output: statistics, plots, metadata

Which climate model performs best in my region?

Data: Reanalysis and GCM fields
Analysis: downscaling, sensitivity tests
Output: statistics, plots, metadata

What are the projections for climate in my region?

Data: GCM outputs
Analysis: downscaling
Output: statistics, plots, metadata
LCAT
nws.weather.gov/lcat/
Pilot Projects

• NWS Operations Center (NOC)
  - NWS Headquarters, Silver Spring, MD

• Regional Operations Center (ROC)
  - Southern Region Headquarters, Fort Worth, TX
Pilot Projects

• **IDSS in a Coastal Environment** WFO New Orleans, LA
  - Supporting operation of 7 major ports and river transportation, outdoor activities (Navy Week, Super Bowl, Mardi Gras, etc.), clean up and recovery of HAZMATs incidents
  - Providing planning and operations support, training emergency managers
  - Local climate data and forecasts guide advance preparedness with weather information updates minimizing the potential impacts

• **Integrated Environmental Studies** WFO Tampa, FL
  - Provide operational decision support services for emergency responders
  - Local climatological data of extreme weather events and climate outlooks guide decisions on timing of algal bloom, environmental conditions for oysters and shellfish, citrus growing and vegetable farming, freshwater availability

• **Mesoscale Meteorology Science to Ops.** Charleston, WV
  - Prototype operational applications of emerging mesoscale meteorology and modeling research, deploy enhanced web-based geospatial display of mesoscale forecasts, exploit emerging storm-scale model capabilities to improve severe local storm and flash flood warnings
  - Local climatology information of storms and severe weather events will guide advance planning and preparations
Examples

- **Ecosystem DSS:** Algal blooms and red tide are frequently associated with increased discharge of fresh water from rivers into the Gulf of Mexico.
  - *Climate products:* used in combination with ENSO conditions/forecasts and subsequent monthly composites to provide input or DSS with regard to increased probability or decreased probability of the occurrence of these algal blooms and red tide months in advance. This would be based on the probabilities of above/below normal precipitation in the river basins.

- **Ecosystem DSS:** Drought and resultant decreased stream flow along the rivers in Texas, Louisiana, Mississippi, Alabama, and Florida results in decreased flow of fresh water into the Gulf of Mexico. In turn, this leads to increased salinity levels in the bays and estuaries where oysters develop.
  - *Climate products:* used in combination with ENSO conditions/forecasts and resultant increased/decreased probabilities for extreme wet or dry anomalies and extreme cold or hot anomalies during the growing season will be extremely valuable.

- **Ecosystem DSS:** Abnormally cold outbreaks near the coast can result in fish kills and increased stress in these shallow waters.
  - *Climate products:* segregate ENSO conditions/events are more apt to occur. These can stress in these shallow waters.

- **Agriculture DSS:** The Florida peninsula accounts for the bulk of the winter time fruit and vegetables grown in the United States. In fact, 69% of total US orange production and 66% of US grapefruit production comes from Florida. Florida is also the second leading state in the USA with 11% of the fresh market vegetable production is valued at $1.145B.
  - *Climate products:* correlating ENSO conditions with probabilities for extreme wet or dry and growing season will be extremely valuable.
Support

- Training modules
- Online guidance
- Dynamic interpretations
- Help documents

We use “3H” approach:
- Head — provide scientifically-sound information
- Hand — provide application examples, guidance
- Heart — show compassion / make it easy