



2019-2022 NWS STRATEGIC PLAN STATUS UPDATE

Highlighting achievements and progress toward the NWS's strategic objectives and metrics in fiscal years 2019 and 2020

Released September 2020



NOAA's
National Weather Service

Director's Message

The [National Weather Service 2019-2022 Strategic Plan](#) has guided our activities and priorities over the last two years. In this status update, I am happy to share with you key accomplishments and metrics over that time period, mapped to specific goals and objectives in our strategic plan.

The NWS continues to make great strides towards our vision of building a Weather-Ready Nation. Over the last decade, we have transformed our agency to one that fully embraces impact-based decision support services (IDSS) to core partners and outreach to communities and the public. Through this transformation, we are fully realizing our mission by connecting our forecasts and warnings to decisions that save lives and protect property. I am elated that our employees and our partners have strongly embraced this change, and I believe we have become world leaders in our ability to provide IDSS for a range of weather, water, and climate events.

Yet, we are only part of the way through our strategic plan. Over the next few years, we will work to modernize our forecast process and build the capabilities needed to deliver more systematic IDSS. For instance, we are using a community-modeling framework to re-imagine our suite of numerical models. We are deploying new tools to improve collaboration across the NWS, and we are partnering with NOAA's Office of Oceanic and Atmospheric Research and the academic community to bring new forecasting science and technology, such as Forecasting a Continuum of Environmental Threats (FACETs), to operations. We are also building partnerships with the Weather, Water, and Climate Enterprise to develop new capabilities and improve our ability to effectively reach the public with our forecasts and warnings. You will see the beginning steps of these efforts reflected in this document, but I anticipate it may be a few more years before we are able to fully reap the benefits of these advancements.

We are making progress on these strategic initiatives, while at the same time ensuring accurate and actionable forecasts and warnings go out “on time, every time” for the full range of hazards for which we are responsible. We are doing this amidst a pandemic which has required us to adjust our operations on the fly. We have also witnessed acts of violence and racism that have affected us on a personal level. The ONLY way we are able to meet our mission every day, while still making progress towards the future, is through the professionalism and dedication of our forecasters, our technicians, our scientists, our engineers, our administrative personnel, and our managers. I owe each NWS employee a sincere THANK YOU for your continued efforts to ensure the safety of the American people from weather, water, and climate events during these challenging times.

Dr. Louis W. Uccellini
Assistant Administrator for Weather Services,
National Oceanic and Atmospheric Administration
Director, National Weather Service



2019-2022 Strategic Plan

Vision

A Weather-Ready Nation: Society is prepared for and responds to weather, water, and climate-dependent events.

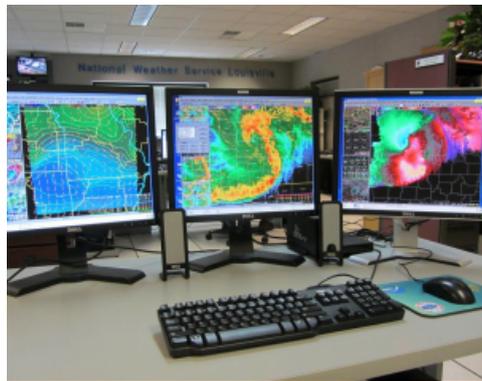
Mission

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



Goal 1

Reduce the impacts of weather, water, and climate events by transforming the way people receive, understand, and act on information.



Goal 2

Harness cutting-edge science, technology, and engineering to provide the best observations, forecasts, and warnings.



Goal 3

Evolve the NWS to excel in the face of change through investment in our people, partnerships, and organizational performance.

Core Principles

Our people drive our success; we are dedicated to our science-based service to the Nation.
We provide the best forecasts possible, connecting them to decisions that reduce impacts.
We cannot do it alone; teamwork and partnerships are essential for success.
We strive for excellence, continuously improving our science and engineering for mission performance.

Delivering the NWS Mission

America experiences some of the world's most extreme and diverse weather, and the NWS continually rises to the challenge to protect lives and property from these hazards through timely and accurate observations, forecasts, outlooks, warnings, and impact-based decision support services (IDSS) to core partners. In 2019 and 2020, the NWS brought to bear its diverse expertise across national, regional, and local forecast offices to accomplish our mission and achieve our vision of a Weather-Ready Nation.

Some examples include:

- In May 2019, for the first time in known history, parts of Southeast Alaska were classified under extreme drought. **The NWS Juneau forecast office provided weekly IDSS briefings to support the Metlakatla Indian Community's efforts to manage their scarce water resources.** The heat also resulted in wildland fires that burned 2.5 million acres. **Incident Meteorologists were deployed and NWS offices in Fairbanks and Anchorage issued over 1000 spot forecasts to assist in the wildfire activities.**



Aaron Jacobs, Senior Service Hydrologist/Meteorologist, talks with partners at the Southeast Alaska Drought Workshop in Juneau (May 2019).

- In 2019, there were 14 weather and climate disaster events with losses exceeding \$1 billion each. Three of these events were related to floods in the Midwest. An extremely wet winter in 2019, combined with persistent springtime rains, frozen ground, and saturated soils caused significant flooding along the Mississippi, Missouri, and Arkansas Rivers. Beginning with a dire spring flood outlook issued by the Climate Prediction Center, and continuing with months-long forecasts and IDSS provided by multiple River Forecast Centers, the National Water Center, and Weather Forecast Offices, **the NWS tirelessly kept the public, water resource managers, and other government agencies informed throughout the flooding season.**
- **Nine NOAA IMETs were deployed to the Australian Bureau of Meteorology (BoM) in Sydney, Melbourne, and Brisbane to assist with the catastrophic Australian bushfires.** Millions of acres burned, destroying 2,000 homes and killing 33 people and approximately one billion animals.



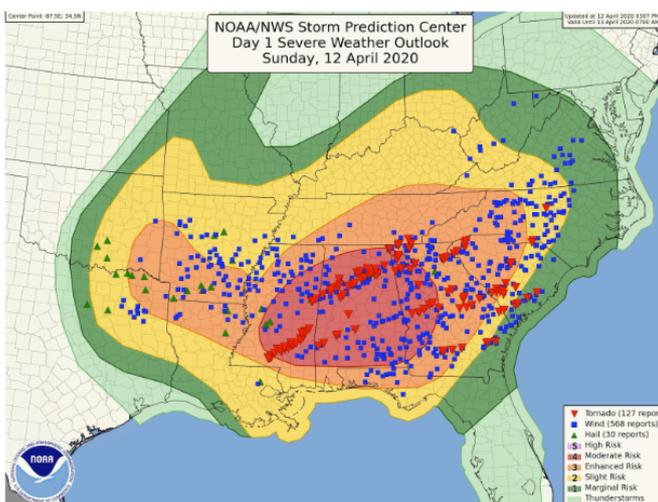
At the Australian Bureau of Meteorology in Sydney, IMET Joe Goudsward (NWS Little Rock, AR) points out potential hazardous weather on a gridded forecast display. IMET Mark Pellerito (NWS Binghamton, NY) on right (January 2020).

Delivering the NWS Mission

- The NWS remained prepared and ready to respond to extreme weather events through the challenges of COVID-19. In April 2020, multiple severe weather outbreaks and flooding events impacted the Southeastern United States. NWS employees in Southern Region offices, the National Storm Prediction Center, and the National Weather Prediction Center, supported by Regional and National HQ, delivered outlooks, watches, and warnings beginning days in advance of each outbreak. IDSS was adapted to a remote environment to provide critical briefings at the local, state, and regional levels. Overall, **NWS offices issued 767 severe weather warnings and received nearly 2000 severe weather reports and 350 tornado reports.** Furthermore, rainfall forecast skill in these events was nearly double that of typical events. With the accurate and consistent messaging of the dangers from both flooding and severe weather, **NWS forecasters gave local officials, first responders, and the public critical advance notice to react and respond to save lives.**
- All offices across the Southeast performed admirably and professionally during a very challenging Hurricane Dorian forecast in August/September 2019. Supported by the National Hurricane Center, which produced accurate track forecasts as Dorian approached Florida and sharply turned to parallel the coast, **NWS provided local, regional, and national IDSS that helped save lives and prevent costly mass evacuations.**



Florida Governor Ron DeSantis (left) is briefed by NHC Hurricane Specialist Unit branch chief Dr. Michael Brennan (right) as NHC Director Ken Graham looks on (August 2019).



The NOAA/NWS Storm Prediction Center Day 1 Severe Weather Outlook (April 12, 2020).

"NWS did a good job of letting the counties know as far ahead as possible of the impending storms and what to expect, especially with video calls every day leading up to the storms. The pertinent information put out prior to and during the storms helped us make the decision to open the Walker Valley High School storm ready room, and we actually had a record number utilize the room! We were able to use information from NWS and local TV to activate our local warning system about 10 minutes prior to the full blown warning being issued and I am confident putting out that message early helped to save lives in Bradley County." - **Bradley County, TN Emergency Management Agency in response to the Easter night tornadoes (April 12/13, 2020)**

GOAL 1

REDUCE THE IMPACTS OF WEATHER, WATER, AND CLIMATE EVENTS BY TRANSFORMING THE WAY PEOPLE RECEIVE, UNDERSTAND, AND ACT ON INFORMATION

ACCOMPLISHMENTS

Transformative Impact-Based Decision Support Services (IDSS)

Strategic Plan Objectives 1.1 to 1.4

Developed NWS's first IDSS policy directive to improve consistency of IDSS and transparency to America's Weather Industry, noting areas that NWS will and will not provide IDSS, **along with new toolkits, training, and a prototype core partner survey** to improve the delivery of IDSS.

Expanded the number of **StormReady and TsunamiReady Communities** and **recognized our 10,000th Weather-Ready Nation Ambassador**, continuing to improve community awareness, understanding, preparedness and responsiveness to extreme weather, water, and climate events.

Better Information for Better Decisions

Strategic Plan Objectives 1.5 to 1.9

Completed demonstration of a **National Water Model-based freshwater flood inundation mapping capability** linked to high-resolution stream reaches and **achieved initial operating capability for the National Water Center Water Prediction Operations Division** to improve water-related IDSS.

Looking Ahead:

NWS will expand and operationalize the flood inundation mapping capability to nearly 100% of the continental U.S. population to effectively communicate and mitigate flood impacts and inform evacuations (resource dependent).

Timely and Consistent Messaging

Strategic Plan Objectives 1.10 to 1.13

During multiple severe weather outbreaks in April 2020 and amidst the COVID-19 pandemic, the **collaboration across WFOs, RFCs, NWC, SPC, WPC, and Regional Operations Centers (ROCs) was truly revolutionary**. Working together, whether at home or in the office, **NWS employees provided consistent and accurate messaging and alerts days to minutes before the storms, saving lives**.

This year, **NWS will begin to transition 12 National Center desks to AWIPS**, enabling improved collaboration and situational awareness across all NWS operational offices (delayed due to COVID-19).

GOAL 1

REDUCE THE IMPACTS OF WEATHER, WATER, AND CLIMATE EVENTS BY TRANSFORMING THE WAY PEOPLE RECEIVE, UNDERSTAND, AND ACT ON INFORMATION

EVIDENCE OF PROGRESS

Metric 1

NWS FY19 DOC Agency Priority Goal:

- Deliver an enhanced excessive rainfall outlook product that extends the lead time of high risk productions from two to three days.
- Improve decision support services by demonstrating a new flood inundation mapping (FIM) capability for freshwater, serving at least 8% of the US population.

FY2019 Status 

Complete: Demonstrated new FIM capability for 25M people and operationalized excessive rainfall outlook high risk category out to 3 days.

FY2020 Target 

Expand FIM techniques using National Water Model guidance and Northeast River Forecast Center official forecasts for an additional 15M people.

FY2021 Target 

Complete FIM demonstration downstream from a subset of additional official forecast locations throughout the continental U.S. for an additional 75M people.

Metric 2

Initiate an experimental IDSS customer experience index that assesses engagement and relationships with core partners based on foundational NWS products and services, including qualities such as trust, reliability, consistency, understandability, accuracy, timeliness, and actionability.

FY2019 Status

Piloted an IDSS Core Partner Survey in Central and Southern Region.

FY2020 Target 

Incorporate additional customer experience qualities in the IDSS Core Partner Survey and expand pilot to all six regions.

FY2021 Target 

Finalize IDSS Core Partner Survey; conduct survey on a regular basis; use results to design and prioritize product and service improvements.

Metric 3

Recognize new and renewed StormReady Communities and TsunamiReady Communities.*

FY2019 Status

StormReady Target: 100 Actual: 131

TsunamiReady Target: 50 Actual: 60

FY2020 Targets 

StormReady Communities: 100

TsunamiReady Communities: 50

FY2021 Targets 

StormReady Communities: 100

TsunamiReady Communities: 50

* The metric refers to the number of new or renewed communities in that fiscal year.

GOAL 1

REDUCE THE IMPACTS OF WEATHER, WATER, AND CLIMATE EVENTS BY TRANSFORMING THE WAY PEOPLE RECEIVE, UNDERSTAND, AND ACT ON INFORMATION

EVIDENCE OF PROGRESS (CONT.)

Metric 4

Evaluate and improve the reach of NWS forecasts, warnings, and preparedness information through social media.

FY2019
Status

 FY2020
Target

 FY2021
Target

NWS is still in the process of designing social media metrics

Metric 5

Maintain a high American Customer Satisfaction Index score for the NWS.*

FY2019
Status

 FY2020
Target

 FY2021
Target

Target: 80
Actual: 86

Target: 80

Target: 80

* The Customer Satisfaction Index (CSI) score is calculated as a weighted average of three survey questions that measure different aspects of satisfaction with NWS services. American Customer Satisfaction Index (ACSI) researchers use proprietary software technology to estimate the weighting. The three questions include the overall satisfaction of NWS services, expectations of service, and a comparison to an ideal organization. Indices are reported on a 0 to 100 scale.

Metric 6

Improve Heidke Skill Score for Subseasonal Week 3-4 Temperature.*

FY2019
Status

 FY2020
Target

 FY2021
Target

Target: 35
Actual: 40

Target: 36

Target: 36

* Temperature outlooks are used by sectors of the U.S. economy, such as energy, agriculture, transportation, etc. as one factor in resource decision making. Temperature outlooks are reported as the probability of temperature being above normal or below normal or, where no definite guidance can be provided, equal chances. This is the cumulative skill calculated for regions where predictions are made.

GOAL 2

HARNESS CUTTING-EDGE SCIENCE, TECHNOLOGY, AND ENGINEERING TO PROVIDE THE BEST OBSERVATIONS, FORECASTS, AND WARNINGS

ACCOMPLISHMENTS

Advanced Models

Strategic Plan Objectives 2.1 to 2.3

Released Global Forecast System (GFS v15) supported code to the public on GitHub as a critical step towards making future NWS models community-based, and **upgraded the GFS with a new dynamic core (FV3)** to improve medium-range forecasts of precipitation, severe weather, and tropical cyclones.

Implemented NBM v3.2 into operations as a starting point for NWS forecast operations and **released a developmental version of NBM v4.0**, which will use more than 170 forecast inputs to generate probabilistic forecasts for a larger suite of meteorological elements.

Integrated Observations

Strategic Plan Objectives 2.4 to 2.5

Continued progress in NEXRAD and ASOS Service Life Extension Programs to ensure operations of our foundational observing assets, and **completed installation of all 12 autolaunchers in Alaska**, increasing reliability and availability of radiosonde observations in the region.

Systems, Technologies, and Tools

Strategic Plan Objectives 2.6 to 2.9

Enhanced the communication of weather hazards and warnings to the public by upgrading Wireless Emergency Alerts (WEA) capabilities through expanded character limits and the inclusion of Spanish language messages.

Looking Ahead:

NWS will continue to shore up critical NWSSchat and evaluate future technologies to improve collaboration within NWS and communication with core partners.

Research to Operations and Operations to Research (R2O/O2R)

Strategic Plan Objectives 2.10 to 2.11

This year, **NWS will complete deployment of Hazard Services for hydrologic hazards to all WFOs**, streamlining hazard generation for flood threats and providing the technological foundation for improving hazard collaboration across the NWS.

This year, **NWS will upgrade the Multi-Radar/Multi-Sensor (MRMS) System**, an important tool to improve our situational awareness of hazardous weather, by expanding coverage to OCONUS regions, operationally implementing the ProbSevere model algorithm, and improving precipitation estimates through dual-pol radar algorithms and models.

GOAL 2

HARNESS CUTTING-EDGE SCIENCE, TECHNOLOGY, AND ENGINEERING TO PROVIDE THE BEST OBSERVATIONS, FORECASTS, AND WARNINGS

EVIDENCE OF PROGRESS

Metric 7

Improve the useful forecast lead time* for the GFS and the Global Ensemble Forecast System (GEFS).

FY2019 Status	FY2020 Targets	FY2021 Targets
GFS target: 8.4 GFS actual: 8.4	GFS: 8.5	GFS: 8.5
GEFS target: 9.5 GEFS actual: 9.8	GEFS: 9.6	GEFS: 9.6

* Units are measured in days. The metric is computed as a three-year moving average and is based on the 500 hPa anomaly correlation.

Metric 8

Develop a NOAA Global Ocean Observing Systems index to measure the relative health of NOAA's ocean observational infrastructure and improve availability and accuracy in collaboration with other NOAA Line Offices.

FY2019 Status	FY2020 Target	FY2021 Target
NOAA, in collaboration with the NWS and other Line Offices, has discontinued this metric.		

Metric 9

Maintain operational availability (up-time) of key weather, water, and climate information and forecasts to partners and the public through the Integrated Dissemination Program (IDP).

FY2019 Status	FY2020 Target	FY2021 Target
Target: 99% Actual: 99.6%	Target: 99%	Target: 99%

GOAL 3

EVOLVE THE NWS TO EXCEL IN THE FACE OF CHANGE THROUGH INVESTMENT IN OUR PEOPLE, PARTNERSHIPS, AND ORGANIZATIONAL PERFORMANCE

ACCOMPLISHMENTS

Workforce for the Future

Strategic Plan Objectives 3.1 to 3.4

Developed an **organizational health and culture action plan** based on employee feedback and surveys including FEVS, and **established multiple cross-NWS culture teams** reaching employees in more than 40 NWS offices, with the goal of improving organizational health and culture across the NWS.

Our **Equal Opportunity and Diversity Management Division** is conducting a series of **“Can We Talk?” webinars** to provide an opportunity for NWS employees to express, in a safe environment, how they were affected by recent events and the ensuing social unrest around racism.

Organizational Alignment

Strategic Plan Objectives 3.5 to 3.7

Implemented the **GS 5-12 Career Progression Program**, creating a new, longer career ladder progression for meteorologists, streamlining entry-level hiring and establishing a competency-based program for promotion.

The NWS is **developing a new collaborative forecast process to produce a single NWS Quantitative Precipitation Forecast**, paving the way for the development of future collaborative forecast processes in other service areas (delayed by operational constraints and COVID-19).

Essential Enterprise Partnerships

Strategic Plan Objectives 3.8 to 3.9

Conducted 2-3 partner meetings and workshops per year to identify opportunities for partnering with the weather, water, and climate enterprise and **built an enterprise partner database** to track external partner interactions and foster relationship building.

Business Operations

Strategic Plan Objectives 3.10 to 3.16

Awarded contracts for the execution of tenant improvements, facility upgrades, and relocations at 5+ NWS facilities.

GOAL 3

EVOLVE THE NWS TO EXCEL IN THE FACE OF CHANGE THROUGH INVESTMENT IN OUR PEOPLE, PARTNERSHIPS, AND ORGANIZATIONAL PERFORMANCE

EVIDENCE OF PROGRESS

Metric 10

Improve Employee Engagement Index and New Inclusion Quotient Index scores in the Federal Employee Viewpoint Survey.*

* Scores refer to the percent of positive responses to each question. Actuals represent the increase in scores compared with the previous year.

FY2019 Status

Target:
Increase in scores from 2018.

Employee Engagement:
+3.5 % points
New Inclusion Quotient:
+3.3 % points

FY2020 Target

Target:
Increase in scores from 2019.

NWS will also conduct an Organizational Health Index (OHI) assessment in FY20 to gather additional data and inform action plans.

FY2021 Target

Target:
Increase in scores from 2020.

Metric 11

Reduce NWS vacancy rate (%).*

* The vacancy rate is measured by the number of positions based on a requirements baseline last established in 2017 minus the number of onboard employees divided by the number of positions based on the 2017 requirements baseline (excluding Pathways and reimbursable employees), as measured in pay period 19. Next year, NWS will adjust this metric to also include onboard strength based on NWS positions supported by our appropriation.

FY2019 Status

Target: <10%
Actual: 9.17%

FY2020 Target

Target: <9.5%

FY2021 Target

Target: <9.0%

Metric 12

Sustain and grow the number of employees that have completed the 7 core IDSS classes required to become Deployment-Ready.*

* Actuals and targets refer to the number of employees completing the training in a given fiscal year. Official deployment-ready metrics are not yet in place, but will be developed by FY22. To be recognized as deployment-ready, employees must also complete an IDSS Deployment-Ready taskbook and be evaluated, in addition to completing PCUs 1-7. The entire set of courses was finalized and released in December 2017 and 58 employees completed the training in FY18. Over time, the number of employees completing the training each year will reach a lower steady state as new employees are trained and replace employees that separate from the organization.

FY2019 Status

Target: 200
Actual: 219

FY2020 Target

Target: 200

FY2021 Target

Target: 200

GOAL 3

EVOLVE THE NWS TO EXCEL IN THE FACE OF CHANGE THROUGH INVESTMENT IN OUR PEOPLE, PARTNERSHIPS, AND ORGANIZATIONAL PERFORMANCE

EVIDENCE OF PROGRESS (CONT.)

Metric 13

Conduct one economic valuation study every other year across different NWS service areas to assess the economic impact of forecasts and decision support to the Nation.

FY2019 Status



Published [BAMS article](#) in 2019 based on 2017/2018 study on social and economic effects of severe winter storms in New York.

FY2020 Target

AMS Policy Program to complete a NOAA-funded study on the weather, water, and climate value chain and economic benefits of earth system observations, science, and services.

FY2021 Target

Complete report for "Developing a Systematic Approach for Estimating the Economic and Social Benefits of National Weather Service Products and Services with a Pilot Application to Impact Based Decision Support Services."

Additionally, the [October issue of the Bulletin of the American Meteorological Society \(BAMS\)](#) features an article authored by **NWS Director, Dr. Louis Uccellini**, and **Office of Organizational Excellence Deputy Director, Dr. John Ten Hoeve**, with the cover art designed by the NWS Communications Division. Entitled "Evolving the National Weather Service to Build a Weather-Ready Nation: Connecting Observations, Forecasts, and Warnings to Decision-Makers through Impact-Based Decision Support Services," the article focuses on **how the agency is evolving to meet America's growing and changing needs for weather information and forecasts.**



Note: Metrics to track progress towards Goals 1-3 are outlined in Appendix B of the [NWS Strategic Plan](#). NWS also tracks and reports on a number of operational metrics as part of the Government Performance and Results Act (GPRA) requirements, not included here.