NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
UNITED STATES DEPARTMENT OF COMMERCE

NOAA In Your State

West Virginia

***NOAA** is an agency that enriches life through science. Our reach goes from the surface of the sun to the depths of the ocean floor as we work to keep citizens informed of the changing environment around them. From daily weather forecasts, severe storm warnings, and climate monitoring to fisheries management, coastal restoration and supporting marine commerce, NOAA's products and services support economic vitality and affect more than one-third of America's gross domestic product. NOAA's dedicated scientists use cutting-edge research and high-tech instrumentation to provide citizens, planners, emergency managers and other decision makers with reliable information they need when they need it.*

The following is a summary of NOAA facilities, staff, programs, or activities based in, or focused on, your state or territory: Starting with highlights, then by congressional districts and cities or towns, and then statewide programs.

Highlights of NOAA in West Virginia

NESDIS Consolidated Remote Backup Unit	Fairmont	WV-2
NCEP Weather Supercomputing	Fairmont	WV-2
NOAA Cyber Security Center	Fairmont	WV-2
Bipartisan Infrastructure Law (BIL) / Inflation Reduction Act (IRA) Projects	Project Specific	WV

The state of West Virginia also has a Weather Forecast Office, a Regional Geodetic Adviser, and several observation platforms.

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Weather Forecast Office

Charleston WV-1

National Weather Service (NWS) Weather Forecast Offices (WFO) are staffed 24/7/365 and provide weather, water, and climate forecasts and warnings to residents of West Virginia. There are 122 WFOs nationwide of which one is in West Virginia. Highly trained forecasters issue warnings and forecasts for weather events, including severe thunderstorms, tornadoes, hurricanes, winter storms, floods, and heat waves to the general public, media, emergency management and law enforcement officials, the aviation and marine communities, agricultural interests, businesses, and others. Information is disseminated in many ways, including wireless emergency alerts, social media,weather.gov, and NOAA Weather Radio All Hazards. Each WFO has a Warning Coordination Meteorologist who actively conducts outreach and educational programs that strengthen working relationships with local partners in emergency management, government, the media and academic communities. Forecasters provide Impact-based Decision Support Services (IDSS), both remotely and on-site during critical emergencies such as wildfires, floods, chemical spills, and major recovery efforts. To gather data for forecasting and other purposes, NWS WFO staff monitor, maintain and use Automated Surface Observing Stations and Doppler Weather Radar. In addition to the WFOs, NWS operates specialized national prediction centers and regional headquarters throughout the U.S. for a total of 168 operational units. Over 85% of NWS' workforce is in the field. For current West Virginia weather, visit www.weather.gov and, on the national map, click on the relevant county or district.

WV-1

Charleston

National Weather Service (NWS) - **Weather Forecast Office (WFO)** - See Page 2 for detail.

Chesapeake Bay Region

National Marine Fisheries Service (NMFS) - Chesapeake Bay Watershed Education and Training Program

The NOAA Bay Watershed Education and Training (B-WET) program is a competitive grants program that provides funding for locally relevant environmental education projects for K-12 audiences. The NOAA Chesapeake Bay Office, a division of NOAA Fisheries' Office of Habitat Conservation, administers B-WET grants for the Chesapeake Bay watershed on behalf of the NOAA Office of Education. The Chesapeake B-WET program recognizes that knowledge and commitment built from firsthand experience, especially in the context of one's community and culture, is essential for achieving environmental stewardship. Chesapeake B-WET regional grant competitions are responsive to local education and environmental priorities and are supportive of partnerships between school districts and community organizations and institutions that are run by and/or serve marginalized groups, particularly minority communities. School district implementation grants are available to school districts with 25% or more landmass in the Chesapeake Bay watershed. State-level capacity building grants are typically available on an every-other-year basis. Please see the funding opportunities for specifics.

WV-2

Elkins

Office of Oceanic and Atmospheric Research (OAR) - U.S. Climate Reference Network

The US Climate Reference Network (USCRN) is an operationally viable research network of more than 138 climate stations that are deployed nationwide. Data from the USCRN are used in various climate monitoring activities and for placing current climate anomalies into an historical perspective. The USCRN provides the United States with a reference network that contributes to an International network under the auspices of the Global Climate Observing System (GCOS). ARL/ATDD manage the USCRN in partnership with NOAA's NESDIS/NCEI.

Fairmont

National Environmental Satellite, Data, and Information Service (NESDIS) - Consolidated Backup Unit (CBU)

The Geostationary Operational Environmental Satellite-R (GOES-R) and the Joint Polar Satellite System Programs (JPSS) have established a consolidated backup (CBU) facility, which includes antennas for acquiring data and commanding the GOES-R series satellites (first launched in 2016 and 2017) and the Space Weather Follow On-Lagrange (SWFO) Point 1 satellite when launched in 2025. The CBU allows NOAA's Office of Satellite and Production Operations (OSPO) to continue operating the GOES-R and JPSS ground network in the event the primary locations – the NOAA Satellite Operations Facility in Suitland, Md., and the Wallops (Va.) Command and Data Acquisition Station – are disabled. The ground systems for GOES-R and JPSS are composed of computer systems that control the satellites and process data into products that scientists and meteorologists use around the world. The facility is located on leased property in a local high-technology park.

National Environmental Satellite, Data, and Information Service (NESDIS) - Office of Satellite and Product Operations (OSPO)/Office of Common Services (OCS) - Comprehensive Large Array-data Stewardship System (CLASS)

The Comprehensive Large Array Storage System (CLASS) is NOAA's premiere online facility for the distribution of NOAA and US Department of Defense Polar-orbiting Operational Environmental Satellite data, NOAA's Geostationary Operational Environmental Satellite data, and derived data. The CLASS development team is located in Fairmont, WV adjacent to the high-technology park, and NESDIS and National Aeronautics and Space Administration facilities. These on-premises systems are in the process of being decommissioned as CLASS functionality is now fully operational in the cloud.

National Weather Service (NWS) - NCEP Weather Supercomputing

The backup of the NWS weather supercomputing capability is intended to provide the computing and communications equipment needed to assume the workload of the primary supercomputer system in case of system or communication outage. The primary system receives and processes the extensive amounts of environmental data acquired by modernized observing systems, and runs highly sophisticated numerical weather prediction models. Execution of this program promotes public safety and the protection of property by providing the NCEP with the computer systems that are capable of producing more accurate numerical weather prediction (NWP) guidance products for hurricanes, severe thunderstorms, floods, and winter storms.

Office of the Chief Information Officer (OCIO- N-Wave NOAA Science Network

N-Wave is NOAA's science network connecting NOAA, academic, and state research network communities to data and resources needed to advance environmental science.

Office of the Chief Information Officer (OCIO) - High Performance Computing and Communications
The Office of the Chief Information Officer manages research and development high performance computing for weather and climate modeling, research, and predictions, supporting improvements in areas such as the prediction of severe weather, seasonal prediction of temperature and precipitation, and forecasting the next Sandy-like storm.

Office of Oceanic and Atmospheric Research (OAR) - NOAA High-Performance Computing
A high performance computer, located at the NOAA Environmental Security Computing Center (NESCC) in Fairmont, West Virginia, allows Geophysical Fluid Dynamics Laboratory (GFDL) researchers to develop and refine advanced weather models. Named Hera, this high-performance computer replaced Theia in Summer 2019.

Office of the Chief Information Officer (OCIO) - NOAA Cyber Security Center
The NOAA Cyber Security Center (NCSC) provides 24x7 security operations, incident response, and enterprise security services to the Department of Commerce and NOAA programs and missions across the entire nation as well as internationally. The cutting-edge NCSC provides monitoring, analysis and appropriate escalation of information security events to protect and ensure the confidentiality, integrity, availability and compliance of the information technology enterprise. The NCSC has approximately 50 personnel, both Federal Government and Contract employees. The majority are located in Fairmont, West Virginia at the Robert H. Mollohan Research Center at the West Virginia High-Tech Center (WVHTC).

Office of the Chief Information Officer (OCIO) - Service Delivery Division
The Service Delivery Division provides a suite of IT services to support NOAA's mission. Our work includes IT infrastructure design and maintenance, network and server management and administration, desktop configuration and maintenance, application and system design and implementation, and IT security.

WV-2
Monongalia
Office of Education — Environmental Literacy Program
The Environmental Literacy Program (ELP), administered by NOAA's Office of Education, provides grants and support for formal (K-12) and informal education to advance the agency's mission. In West Virginia, ELP funded a project by the West Virginia University Research Corporation in Monongalia County. The project aims to engage with high school-aged youth, their teachers, and communities through the Preparing Agents of Change for Tomorrow (PACT): Building Youth Confidence and Capacity for Climate Resilient Futures in Appalachia project. This three-year project informed by NOAA's Community Resilience Theory of Change and Climate Resilience Toolkit will cultivate the next generation of problem solvers through a dynamic social and active learning curriculum focused on the fundamentals of disaster and resilience literacy and community resilience planning that is theoretically grounded in intergenerational learning - the transfer of knowledge, attitudes, and behavior from children to parents - where youth can foster collective concern, behavior, and action amongst themselves, their parents, and communities.

Statewide
National Marine Fisheries Service (NMFS) - Restoration Center
The NOAA Restoration Center, within the Office of Habitat Conservation, works with partners across the nation to restore habitat to sustain fisheries, recover protected species, and maintain resilient coastal ecosystems and communities. We have over 30 years conducting habitat restoration through competitive funding opportunities and technical assistance. We also work to reverse habitat damage from disasters like oil spills, ship groundings, and severe storms. The Restoration Center provides funding and technical guidance to restore coastal habitat in West Virginia and nationwide. In-stream

restoration has been completed in West Virginia. See the interactive Restoration Atlas to find habitat restoration projects near you. Site visits to see habitat projects may be available in West Virginia, please inquire if interested.

In addition, the Office of Habitat Conservation is responsible for executing an unprecedented $1.4 billion in funding under Bipartisan Infrastructure Law and Inflation Reduction Act for habitat restoration and fish passage. We are working with our partners to do this through our expert technical assistance and four funding competitions: Fish Passage, Tribal Fish Passage, Transformational Habitat Restoration, and Habitat Restoration for Tribes and Underserved Communities. We have funded 214 awards totaling $985M in rounds one and two with more to come in round 3. We are funding work all over the country, explore them on our interactive map.

National Ocean Service (NOS) - Regional Geodetic Advisor
The Regional Geodetic Advisor is a National Ocean Service (NOS) employee that resides in a region and serves as a liaison between the National Geodetic Survey (NGS) and its public, academic and private sector constituents within their assigned region. NGS has a Regional Geodetic Advisor stationed in Columbus, Ohio serving the Appalachian region including West Virginia. The Geodetic Advisor provides training, guidance and assistance to constituents managing geospatial activities that are tied to the National Spatial Reference System (NSRS), the framework and coordinate system for all positioning activities in the Nation. The Geodetic Advisor serves as a subject matter expert in geodesy and regional geodetic issues, collaborating internally across NOS and NOAA to ensure that all regional geospatial activities are properly referenced to the NSRS.

National Weather Service - **NEXRAD (WSR-88D) Systems**
NEXRAD is used to warn the people of the United States about dangerous weather and its location. This radar technology allows meteorologists to warn the public to take shelter with more notice than ever before. The NEXRAD network provides significant improvements in severe weather and flash flood warnings, air traffic safety, flow control for air traffic, resource protection at military bases, and management of water, agriculture, forest, and snow removal. NEXRAD radar has a range of up to 250 nautical miles, and can provide information about wind speed and direction, as well as the location, size, and shape of precipitation. There are 159 operational NEXRAD radar systems deployed throughout the United States and overseas, of which one is in West Virginia.

National Weather Service (NWS) - Automated Surface Observing Systems Stations
The Automated Surface Observing Systems (ASOS) program is a joint effort of the National Weather Service (NWS), the Federal Aviation Administration (FAA), and the Department of Defense (DOD). ASOS serves as the Nation's primary surface weather observing network. ASOS is designed to support weather forecast activities and aviation operations and, at the same time, support the needs of the meteorological, hydrological, and climatological research communities. ASOS works non-stop, updating observations every minute, 24 hours a day, every day of the year observing basic weather elements, such as cloud cover, precipitation, wind, sea level pressure, and conditions, such as rain, snow, freezing rain, thunderstorms, and fog. There are ten ASOS stations in West Virginia.

National Weather Service (NWS) - Cooperative Observer Program Sites
The National Weather Service (NWS) Cooperative Observer Program (COOP) is truly the Nation's weather and climate observing network of, by and for the people. More than 10,000 volunteers take observations on farms, in urban and suburban areas, National Parks, seashores, and mountaintops. The data are representative of where people live, work and play. The COOP was formally created in 1890 under the NWS Organic Act to provide observational meteorological data, usually consisting of daily maximum and minimum temperatures, snowfall, and 24-hour precipitation totals, required to define the climate of the United States and to help measure long-term climate changes, and to provide observational

meteorological data in near real-time to support forecast, warning and other public service programs of the NWS. The data are also used by other federal (including the Department of Homeland Security), state and local entities, as well as private companies (such as the energy and insurance industries). In some cases, the data are used to make billions of dollars' worth of decisions. For example, the energy sector uses COOP data to calculate the Heating and Cooling Degree Days which are used to determine individuals' energy bills monthly. There are 117 COOP sites in West Virginia.

National Weather Service (NWS) - NOAA Weather Radio All Hazards Transmitters
NOAA Weather Radio All Hazards (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest National Weather Service (NWS) forecast office. NWR broadcasts official NWS warnings, watches, forecasts and other hazard information 24 hours a day, 7 days a week. Working with the Federal Communication Commission's (FCC) Emergency Alert System, NWR is an "All Hazards" radio network, making it the single source for comprehensive weather and emergency information. In conjunction with federal, state, and local emergency managers and other public officials, NWR also broadcasts warning and post-event information for all types of hazards – including natural (such as earthquakes or avalanches), environmental (such as chemical releases or oil spills), and public safety (such as AMBER alerts or 911 Telephone outages). Known as the "Voice of NOAA's National Weather Service," NWR is provided as a public service by the NWS. NWR includes 1,100 transmitters covering all 50 states, adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands, and the U.S. Pacific Territories. There are 12 NWR transmitters in West Virginia.

Office of Oceanic and Atmospheric Research (OAR) - Sustained Carbonate Chemistry Observation Moorings
The Carbonate Chemistry Observing Mooring network is a sustained investment in ocean chemistry observing networks in U.S. waters and abroad. There are currently 19 buoys in coastal, open-ocean and coral reef waters that contribute to this network. The time series created from these moorings are key to understanding how ocean chemistry is changing over time in these ecosystems by providing continuous and long-term observations of ocean conditions. These buoys are seated in three locations in Alaska (Gulf of Alaska, Papa, Bering Sea), two in California (California Current Ecosystem 1 & 2), one in the Chesapeake Bay (DE, MD, NY, PA, VA, WV), Coastal Mississippi (MS), Florida (Cheeca Rocks), Georgia (Grays Reef), Oregon (Newport Hydrographic Line), Maine (Gulf of Maine), and Washington (Cha'ba in La Push).

National Ocean Service (NOS) - Students for Zero Waste Week
Students are inviting their local communities to "Go Green and Think Blue" by joining them in the annual *Students for Zero Waste Week campaign*. During this campaign led by the Office of National Marine Sanctuaries, students focus on reducing land-based waste in order to protect the health of local marine environments. These young leaders are raising awareness of how single-use plastic and other types of litter affect the health of local watersheds, national marine sanctuaries, and the ocean. In addition, some schools are looking at ways to reduce their energy use on campus with hopes of raising awareness of how the burning of fossil fuels also impacts the health of the ocean.

National Ocean Service (NOS) - NOAA Ocean Guardian Youth Ambassador Program
Youth aged 13-18 from across the United States and its territories that are committed to ocean conservation and stewardship of our blue planet can apply to become a NOAA Ocean Guardian Youth Ambassador. This year-long program looks for enthusiastic youth with new ideas and a unique perspective who want to learn more about America's underwater treasures and share their passion with others. Youth learn how to become a leader at their school or in their local community to make a difference in the conservation of the ocean through marine protected areas.

Bipartisan Infrastructure Law (BIL) / Inflation Reduction Act (IRA) Projects

The National Oceanic and Atmospheric Administration (NOAA) was entrusted with billions of supplemental federal funding dollars with passage of the Bipartisan Infrastructure Law on November 15, 2021 and the Inflation Reduction Act on August 16, 2022. This historic infrastructure funding has been invested in communities across the nation to build resilience in the face of climate change. NOAA distributed funding to communities, tribal, state and local governments, higher education programs, businesses, non-profit organizations, and facilities in need. NOAA funded billions of dollars in grants and cooperative agreements across the country to fund projects that enhance climate resilience, restore coastal and marine habitats, improve safety, and create jobs. For an interactive map of NOAA BIL and IRA investments in your state, visit https://www.noaa.gov/bil-ira-awards-explorer.

BIL

Machine Intelligence for Space Weather (MINTS), $153,960

Space weather data-driven ML approaches have been shown to outperform statistical and physics-based approaches in many settings. However, ML results in the literature have historically been difficult to reproduce when the code or datasets are not available, and the runtime environment is not well documented. NextGen Federal Systems (NextGen), a Small Business Concern (SBC), is excited to propose a powerful software package, coupled database, and a machine-learning (ML) workflow to support streamlined evaluation and research-to-operations (R2O) of space weather ML models and techniques.