What Does NOAA's U.S. Weather Research Program Do for the Nation?

The U.S. Weather Research Program (USWRP) has been enabling research on atmospheric phenomena and improvements to weather forecasting since the early 1990s with numerous transitions of research into NOAA’s National Weather Service (NWS) operations and hundreds of peer reviewed publications attributed to the program. Managed in NOAA’s Office of Weather and Air Quality in NOAA’s Office of Oceanic and Atmospheric Research, it supports research needs of the NWS and U.S. Navy with research to operations projects via testbeds and external grants to academia on relevant issues. The emphasis is on projects with a path into operations within 3-5 years, thus represents the future of weather forecasting. Improvements to operational air quality, extreme precipitation, flooding, winter weather, hurricanes, and severe storm forecasting have been enabled by this program.

Research Highlights

**NOAA’s Joint Hurricane Testbed (JHT)**

Testing improvements to hurricane forecasting at the National Hurricane Center and U.S. Navy

JHT operates an open peer-reviewed research competition every 2 years. For the 2013-14 cycle, 7 projects were chosen to support the development of new forecasting tools and improvements to hurricane models. Scientists from Colorado State and Florida State University, the Universities of Miami, Rhode Island, Wisconsin, and North Carolina, and Florida International University will join NOAA scientists in publishing their results in peer-reviewed journals and transitioning the product into National Hurricane Center/Navy operations.

**NOAA’s Hydrometeorological Testbed (HMT)**

Improving flood and extreme precipitation forecasting and winter weather forecasts

In FY13-14, HMT partnered with two Colorado Cooperative Institutes, the University Corporation in Atmospheric Research in Colorado, and NWS branches for modeling, climate, and weather prediction to conduct research and analyses to improve the understanding of extreme precipitation producing atmospheric phenomena and the development of prototype tools for flood and extreme precipitation forecasting. HMT also supported winter weather forecasting improvements via development of new tools and testing them with NWS forecasters.

**NOAA’s Hazardous Weather Testbed (HWT)**

Experimenting with new tools and observations for severe weather forecasting improvements

USWRP funded the enabling infrastructure of HWT during FY13-14 as well as contributed to the development of a new decision support tool for severe weather warnings. HWT tests and evaluates new experimental products in the NWS’s forecaster computer environment by interacting directly with NWS forecasters. USWRP upgraded obsolete equipment and maintained the experimental modeling system that is tested in Spring Experiments.
In FY13-14, USWRP supported 5 research projects on air quality modeling improvements that benefits operational air quality forecasting. New techniques for using air chemistry data in the models are developed and tested in collaboration with partners at NOAA’s Air Resources Laboratory and Earth Systems Research Laboratory’s Physical Sciences Division and Global Sciences Division. This research contributes to improving NWS smoke, dust, and volcanic ash predictions, so people can act to limit the adverse effects on human, surface transportation and aviation.

The Fiscal Year (FY) 2015 President’s Budget Request for USWRP through NOAA’s Office of Oceanic and Atmospheric Research (OAR) is $7.2M. The USWRP FY 2014 actual budget is $4.1M, the FY 2013 actual budget was $3.9M and the FY 2012 actual budget was $4.2M. USWRP sits within the Office of Weather and Air Quality, which is headquartered in Silver Spring, Maryland.

For more information, contact: John Cortinas
National Oceanic and Atmospheric Administration, Office of Weather & Air Quality
SSMC3, 1315 East-West Highway, Room 10342, Silver Spring, MD 20910
Phone: 301.734.1198 Email: John.Cortinas@noaa.gov