



NOAA Research in Pennsylvania



PA-1 through 21 (Statewide)

Climate and Global Change Program

NOAA is responsible for providing climate information to the nation in order to prepare and protect climate sensitive sectors of society and the economy. To carry out this mission, NOAA's Climate and Global Change Program conducts focused scientific research to understand and predict variations of climate. The Program is comprised of a number of research elements, each focusing on a specific aspect of climate variability. Taken together, this research contributes to improved predictions and assessments of the effects of climate variability and change on different environments over a continuum of time scales from season to season, year to year, and over the course of a decade and beyond. This research is accomplished through the strong support of the academic and private sectors, as well as NOAA and other federal laboratories. In FY 2001, NOAA's Climate and Global Change Program provided approximately \$425,700 in support of climate research in the State of Pennsylvania. For more information please visit <http://www.ogp.noaa.gov>

PA- 2 and 21 (Based in Philadelphia and Erie - Serves entire Pennsylvania coastal zone)

National Sea Grant College Program Pennsylvania Sea Grant

Pennsylvania Sea Grant is a statewide program of research, education, and extension services that works to promote the wise use of marine resources. A goal for the program is to increase public awareness of coastal issues, both environmental and economic. The program works through extension, communication, education and applied research activities, thereby improving the overall environmental and economic health of Pennsylvania's coastal regions. The geographic focus for Pennsylvania Sea Grant consists of two major Pennsylvania watersheds: 1) The Lake Erie watershed, including Presque Isle, Presque Isle Bay, Lake Erie, and the upland areas of the watershed (This region incorporates 63 miles of coastline including Presque Isle State Park.); and 2) The Delaware Estuary watershed, including the 57-mile stretch of coastline that lies within Bucks, Philadelphia, and Delaware Counties. The coastal zone in this region varies from one-eighth mile wide in urban areas like Philadelphia to over three and a half miles in Bucks County and extends to the boundary with New Jersey in the middle of the Delaware River. As an outreach program, Pennsylvania Sea Grant focuses its efforts in four areas, extension: developing and addressing lists of priority environmental and economic issues in conjunction with regional advisory councils; education: developing coastal-related curricula, out-of-class experiences and other environmental awareness-raising programs; applied Research: developing and supporting small, applied research projects that support extension activities; and communications: developing outlets for dissemination of extension, education, and applied research information. In FY 2001, Pennsylvania Sea Grant projects received approximately \$168,000 in funding from the National Sea Grant College Program. For more information please visit <http://www.pserie.psu.edu/seagrant/seagindex.htm>

PA-5 (Pine Grove Mills)

**Air Resources Laboratory
Surface Radiation Measurement Network**

The Air Resources Laboratory operates six stations as part of its surface radiation measurement network (SURFRAD). One of these stations is located on the Pennsylvania State University agricultural research farm near Pine Grove Mills, approximately six miles from State College. The station instruments support regional and global weather and climate research with accurate, continuous, long-term measurements of the surface radiation budget over the United States. Solar radiation is the driving energy for geophysical and biological processes that control weather and affect planetary life; understanding the global surface energy budget is therefore key to understanding climate and the environmental consequences to agriculture and other statewide concerns. Because it is impractical to cover the whole earth with monitoring stations, the answer to global coverage lies in reliable satellite-based observations. Accurate and precise ground-based measurements across a range of climate regions are essential to refine and verify the satellite observations. These ground-based measurements also support special research projects on radiation and climate processes in the Pennsylvania region and serve as important verification for weather forecasts. For more information, please visit <http://www.srrb.noaa.gov>

PA-5 (State College)

**Air Resources Laboratory
Atmospheric Integrated Research Monitoring Network**

The AIRMoN, or Atmospheric Integrated Research Monitoring Network, is an array of sampling stations designed to quantify the extent to which changes in emissions affect air quality and deposition. NOAA's Air Resources Laboratory operates both elements of the network, AIRMoN-Wet and AIRMoN-Dry. AIRMoN-Wet collects data on the deposition of pollutants that occurs with precipitation. Daily samples of precipitation are collected at 10 stations throughout the country and then sent to a single central laboratory for chemical analysis. An AIRMoN-Wet station is located near State College. The Air Resources Laboratory's Atmospheric Turbulence and Diffusion Division in Oak Ridge, Tennessee operates the second element of the network, AIRMoN-Dry. The goal of AIRMoN-Dry is to identify and understand the processes that cause the deposition of atmospheric pollutants without the presence of precipitation in order to quantify dry deposition rates at locations where direct measurement is not possible. An AIRMoN-Dry station is also located near State College. Prime users of these data include ecologists, agriculturists, foresters, and power companies affected by Clean Air Act legislation. For more information please visit <http://www.arl.noaa.gov>

PA-9 (Hawk Run)

**Forecast Systems Laboratory
GPS Meteorological Observing System**

NOAA's Forecast Systems Laboratory (FSL) operates a rapidly expanding network of GPS Meteorological (GPS-Met) Observing Systems to monitor the total quantity of precipitable water vapor in the atmosphere. Currently, there are 93 systems over the contiguous 48 states and Alaska,

and plans are being made to extend these observations to Hawaii, Puerto Rico, the Caribbean Islands, and Central America. Water vapor is an important but under-observed component of the atmosphere that plays a major role in severe weather events and the global climate system. GPS-Met systems provide accurate water vapor measurements under all weather conditions, including thick cloud cover and precipitation, and do so at very low cost. The network is being developed by FSL in cooperation with federal, state and local government agencies, universities, and the private sector. The GPS stations provide high-accuracy surveying and navigation services for National defense, automated agriculture, safe land and marine transportation, government infrastructure management, and 911 emergency response services. Fortuitously, these systems can also be used for meteorology with the addition of surface weather sensors. GPS-Met systems located in Pennsylvania include one site operated by the U.S. Department of Transportation near Hawk Run. For more information please visit <http://www.gpsmet.noaa.gov/jsp/index.jsp>

PA-21 (coastal waters)

Great Lakes Environmental Research Laboratory Great Lakes Research

The Great Lakes Environmental Research Laboratory (GLERL) carries out research and provides scientific products, expertise, and services required for effective management and protection of Great Lakes and coastal ecosystems. As part of the mission of NOAA and the U.S. Department of Commerce, GLERL science provides for protection of life and property, economic well-being, and sustained ecosystem health. With a wide array of scientific disciplines on staff, and an ecosystem-level focus, GLERL contributes unique capabilities in support of intelligent and cost-effective Great Lakes and coastal resource management. GLERL is pursuing focused research in areas including aquatic contaminants and biogeochemistry; invasive species, ecosystem dynamics and long-term monitoring. A number of GLERL projects have a basin-wide scope. These include: CoastWatch, Impacts of Climate Change, Water Resources Research, and Physical Processes including wind-driven waves, currents, seiches, storm surges, sediment transport and deposition, and lake bathymetry. In a new and unique effort started in February 2001, GLERL now has a Great Lakes Sea Grant Extension Agent onsite to support and promote increased communication and cooperation among GLERL and the seven Great Lakes Sea Grant Programs in the region, including the Pennsylvania Sea Grant program. By making GLERL scientific products, services, and expertise more widely available to the extensive Great Lakes Sea Grant Network, the agent can rely on the Network's vast outreach, communications, and education infrastructure to furnish constituents with a wider information base. For more information please visit <http://www.glerl.noaa.gov>

PA-21 (Lake Erie)

National Undersea Research Program National Undersea Research Center for the Northeastern United States and Great Lakes

The National Undersea Research Center for the Northeastern United States and Great Lakes is located at the University of Connecticut, Avery Point in Groton, Connecticut. It is one of six regional centers supported by the National Undersea Research Program (NURP). The Center supports and conducts undersea research in the waters off the northeast coast of the United States and the Great

Lakes. The center provides science and operational support (occupied submersibles, remotely operated vehicles and mixed gas diving technologies) and funding for reviewed projects within this region. The Center supports research on the physical, chemical, and biological factors controlling the cycling and fates of organic contaminants and heavy metals (trace metals) at the sediment/water interface and their ultimate impacts on biological productivity. Also receiving special attention are the habitat characteristics controlling the recruitment and population dynamics of recreational and commercial species of fish, including "pest" species. The FY 2001 funding for the Center totaled \$1.36 million. For more information please visit <http://www.nurc.uconn.edu>

For further information about these and other NOAA programs, please contact NOAA's Office of Legislative Affairs at (202) 482-4981.

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