The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national weather, water and climate database, which can be used by other governmental agencies, the private sector, the public, and the global community. The NWS is part of the National Oceanic and Atmospheric Administration (NOAA), an agency of the U.S. Department of Commerce.

The NWS operates 13 regional hydrologic centers across the U.S. known as River Forecast Centers (RFCs). NWS RFCs prepare river and flood forecasts and other hydrologic information. Most of this information is distributed to the public and other users directly through the internet and/or through the national network of 122 NWS Weather Forecast Offices (WFOs).

A critical function of all RFCs is to prepare hydrologic forecasts during floods. These "flood forecasts" provide the expected crests (maximum height) rivers will reach at specific forecast points and the expected time of occurrence. Flood forecasts also indicate the approximate times when flooding will begin and end at each forecast point based on a predetermined "flood stage" unique to each forecast point. The NWS considers flood stage to be the level at which property damage begins or access roads become inundated.

Other RFC activities include the issuance of daily river stage and streamflow forecasts, longer-range probabilistic river forecasts, and rainfall and drought data and information. This information aids in the optimum management of water resources used for home and industry, power generation, recreation, agriculture, flood control, transportation/navigation, fisheries management, and others. RFCs also produce "flash flood guidance," which estimates how much rain must fall in certain time periods for small stream flooding to begin.
Middle Atlantic River Forecast Center

Our Location

The MARFC is collocated with the Central Pennsylvania NWS Weather Forecast Office at Penn State University's Innovation Park complex in State College, PA. Our office location is at Harrisburg, PA, in January 1996.

Our History

MARFC's most important resource—our staff—is comprised of 16 people with varied backgrounds in hydrology, meteorology, engineering, information technology, and other disciplines. We are open 365 days a year from 6 a.m. to 11 p.m., except during flood events when we implement 24-hour operations.

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SUSQUEHANNA FLOOD FORECASTING INITIATIVE

Recognizing the need for the protection and management of water resources, the Susquehanna River Basin Commission (SRBC) was established in 1971. Shortly thereafter, flooding from Agnes in 1972 made it evident that flood forecasting services could be enhanced in the Susquehanna basin. To this end, the SRBC helped establish the Susquehanna Flood Forecasting Initiative, which allowed for the expansion of the hydrologic-gaging network in the 1980s. This enhanced network is maintained primarily by the U.S. Geological Survey (USGS). Today, the SRBC coordinates a committee comprised of numerous federal and state organizations. The committee operates and maintains what is now considered to be one of the nation's best flood forecast and warning systems.

Our Key Functions and Services

River flood forecasting is essential to the NWS mission of saving lives and reducing property damage. Heavy rainfall can result in river flooding during any month of the year in our service area. To predict floods, the MARFC utilizes the NWS River Forecast System (NWRFS), a complex hydrologic model comprised of a series of computer-based hydrologic applications and mathematical calculations. Observed, estimated and predicted hydrometeorological data are used as input to the model, while the output are hydrographs, which estimate future river stages for more than 155 locations throughout our service area. These hydrographs help our hydrologists predict how high a river will get at specific locations and when water levels will begin to recede. Our flood forecasts are sent to seven NWS WFOs, which fine tune the forecasts, if necessary, before disseminating the information to the public and other users through NOAA Weather Radio All Hazards, the internet, television, commercial radio and local emergency management agencies.

Our Future

MARFC is always working to improve and expand its services to our customers. Additional AHPS enhancements include expanding short-term probabilistic forecasts and flood inundation maps. Other future activities include enhancing flood guidance, increasing data and information exchange with partners, implementing probabilistic river forecasts, improving flood forecasting services, expanding GIS mapping capabilities, and exploring and implementing new and improved hydrologic modeling techniques.

Our Additional Activities

Other functions of our center include issuing routine river forecasts, flash flood and headwater guidance, winter/spring flood potential outlooks, drought guidance, five-day significant flood outlooks, multi-sensor precipitation estimates and precipitation departure information. We also develop and maintain hydrologic computer systems, calibrate hydrologic models, provide hydro-meteorological research and participate in educational outreach. Our information also helps support ecosystem management programs such as the State of Maryland's Shellfish Haying Program, the State of New Jersey's Man Made M onitoring Program, and the State of Pennsylvania's Black Fly Suppression Program. We cooperate with numerous federal, state, and local government agencies and private organizations, including other N OAA agencies, the USGS, the U.S. Army Corps of Engineers, both the Susquehanna and Delaware River Basin Commissions, the Interstate Commission on the Delaware River Basin, and academic organizations.