

NAVAL METEOROLOGY AND OCEANOGRAPHY COMMAND: ENHANCING AIR STATION AVIATION WEATHER FORECASTING

Story by George Lammons

Photos by MC2 Robert M. Schalk

In the early days of Naval Aviation, pilots exclusively received their preflight weather briefs face-to-face from Navy weather forecasters located at Navy airfields throughout the world. Thanks to 21st century technologies, the requirement for routine face-to-face preflight weather briefs is beginning to go the way of the biplane and the dirigible, allowing the Naval Meteorology and Oceanography Command (NMOC) to shift resources toward warfighting capabilities needed in other mission areas.

Charged with forecasting the weather for Navy operations, the NMOC provides Naval Aviation-specific services at air stations and airfields, such as generating weather forecasts for flight safety and navigation; conducting airfield weather observations; and issuing severe weather warnings for airfield safety. Although the mission has stayed the same, the method has evolved. Forecasters operating from strategically located hubs utilize advanced computer communications technology to gather data from remote locations, and can generate weather forecasts for any region in the world. Forecasts are distributed electronically wherever they are needed.

All eyes are on the weather at the Naval Aviation Forecast Center watch floor, part of the Naval Meteorology and Oceanography Center in Norfolk, Va. The center handles four sub-regional forecast desks.



Photo courtesy NOAA



“This is the biggest change in our community since we merged Navy meteorology and oceanography,” said RAdm. Timothy McGee, NMOC CO. “We have been talking about moving to a more automated weather forecasting system for years, but the technology simply was not there. Recent technological advances have given us the opportunity to reduce our precious resources in aviation weather while maintaining excellence, and provided us the opportunity to focus our remaining resources on warfighting.”

As part of the technological evolution, the NMOC has embraced the Automated Surface Observation System (ASOS) for Navy airfields within the U.S. The automated system can’t yet meet all of the Federal Aviation Administration requirements for station observations, especially in the area of field visibility and cloud ceiling, so for now military observers remain in

place at all Navy airfields in the U.S. until the function can be contracted out. Overseas, host countries provide official airfield weather observations at co-use airfields.

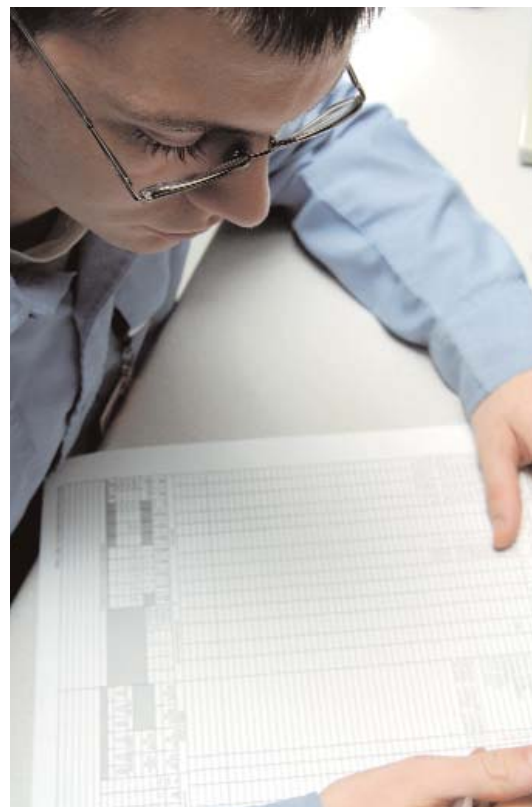
“Our reliability rates for the ASOS sensors on the whole have historically been in the 90 percent rate,” stated Cdr. Brian Brown, director of the NMOC aviation weather enterprise. Upgrades to ASOS, completed in conjunction with the Space and Naval Warfare Systems Center, Charleston, S.C., will better collect station observation data and streamline the collection process, bringing the ASOS reliability rate closer to 100 percent. The upgraded systems will be in line with National Weather Service and FAA systems and report through a common network. However, there will still be a requirement for human observers to collect and report information on current weather conditions, which is vital to pilots and forecasters alike.



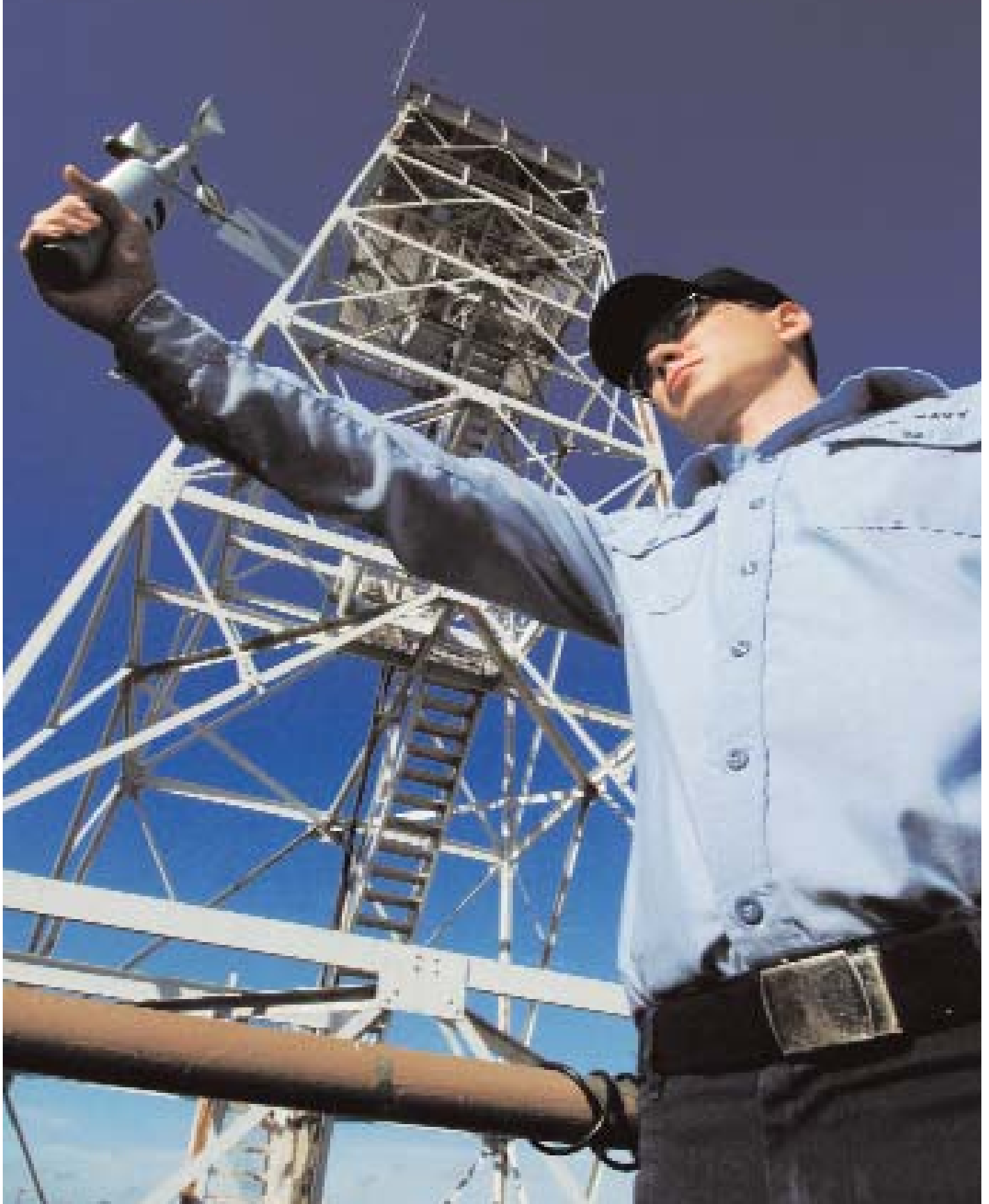
Above, AG1 James Neurohr and Ltjg. Christine Ney stand watch on the Naval Maritime Forecast Activity floor at the Naval Meteorology and Oceanography Center. Right, AG3 Adam Smith takes an hourly observation for Chambers Field, Norfolk, Va.

Whether generated through the ASOS or via humans located on site, weather observations flow to the forecasting hubs along with satellite and radar data and numerical weather prediction model runs. Navy civilian and military weather forecasters interpret this data to produce all forecasts needed for a particular region. Much of the aviation forecasters' work is for standard or routine routes, from point to point or within the airfield's local area. Forecasters may provide "canned" forecasts for those areas as a routine procedure and update them every two hours, or can prepare custom forecasts for specific missions.

Pilots view forecasts or weather briefs over the internet via the Flight Weather Briefer, a system developed by the Naval Oceanographic Office, the NMOC's largest subordinate. The pilot enters the route or flight data and the system transmits a request to the appropriate forecasting activity. Forecasters prepare and return the forecast using the same system. Pilots also can receive forecasts via fax. For those who have neither web nor fax, pilots can receive briefs from forecasters over the telephone using a toll-free number, 24/7.



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Even with technological advances, the human factor remains vital to weather forecasting, as AG3 Adam Smith observes wind speed and direction using a hand-held anemometer.



Above, left to right, Thomas Tews, AGC Michael Kotyk, and Bob Wright stand watch at the Aviation Duty Officer's Desk at the Naval Aviation Forecast Center in Norfolk, Va. Facing page, IT1 Olivia Davis troubleshoots AG1 Terrence Green's computer on the Naval Maritime Forecast Activity watch floor.

The evolution toward automation and the use of advanced computer technologies to generate and distribute forecasts from remote locations has allowed the NMOC to change from a group of regional subordinate activities to a matrixed framework arranged along warfighting lines. Previously structured within six regional forecasting centers, four regional aviation forecasting facilities, and more than 20 aviation forecasting detachments, the aviation weather forecasters are now consolidated in three forecasting activities around the globe. The Naval Aviation

Forecasting Center in Norfolk, Va., the largest of the former regional centers, serves as the main operational hub for the Aviation Directorate and services the 22 airfields within the U.S. and Guantanamo Bay, Cuba. The Naval Aviation Forecasting Detachment on Sembach AB, Germany, is collocated with the Air Force 21st Operational Weather Squadron, giving the Defense Department a single joint forecasting hub for all of Europe. Another naval aviation forecasting detachment is located at NAF Atsugi, Japan, which is the home of a forward-deployed air wing.



This restructuring, which has allowed the NMOC to achieve a 30 percent manpower reduction in its aviation weather enterprise so far, should be completed by 2007. In the meantime, there are still a few forecasters working in the legacy regional facilities and detachments, but manpower numbers at those places will decline as sailors finish tours. There is also a small group of civilian forecasters working daytime hours Monday through Friday at NAS Lemoore, Calif.; Corpus Christi, Tex.; Pensacola, Fla.; and Whiting Field, Fla., in addition to two military forecasters at NAS Oceana, Va., and three at NSA Bahrain. Forecasters remain at the five CONUS bases due to their unique requirements, as either the bases for large numbers of tactical aircraft or as bases at which student pilot primary training is conducted.

For all the changes, the community has merely found another way to effectively accomplish the same missions, only more efficiently. For pilots, the only difference is the form of the support. "Weather forecasts are more reliable than they have ever been, even with fewer people tied to that effort. With the level of sophistication in weather forecasting today, the continuing improvement through research, not only in the technology but also in the models and the understanding of the atmosphere, we have every expectation that weather forecasting will only get better," McGee concluded. ✈

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