

FAA William J. Hughes Technical Center

Aviation Weather Development Facility (AWDF)

The Aviation Weather Development Facility (AWDF) was established at the FAA William J. Hughes Technical Center in 1995.

Its mission is to provide an integrated central facility for the development and evaluation of future aviation weather systems and products. This facility provides a means for users to independently evaluate systems and products in an environment that is devoid of distractions, and free from any influence and bias. The facility supports the AUA-400 Weather and Flight Service Systems (FSS) Integrated Product Team (IPT) programs, which include the following: Integrated Terminal Weather System (ITWS), Aviation Weather Research (AWR), Weather and Radar Processor (WARP), AWOS Data Acquisition System (ADAS), and Weather Message Switching Center Replacement (WMSCR). The facility also supports the AND-420 Windshear and Radar Product Team (PT) programs including, Weather System Processor (WSP) and Low-Level Windshear Alert System (LLWAS).



The AWR program supports research and development efforts for weather-related products at the National Center for Atmospheric Research (NCAR), National Oceanic and Atmospheric Administration (NOAA), Forecast Systems Laboratory (FSL), Aviation Weather Center (AWC), National Severe Storms Laboratory (NSSL), and Massachusetts Institute of Technology/Lincoln Laboratory (MIT/LL). Results from the FSL/NCAR/NSSL/LL developments are evaluated at the AWDF. Typically, these AWR products are graphical renderings of weather information and are geared toward aviation users, including pilots and air traffic controllers. Examples of these AWR products evaluated in the AWDF include the Weather Support to Deicing Decision-Making (WSDDM) system and the Terminal Area and National Convective Weather Growth and Decay (G&D) product. AWDF evaluations are from an engineering, meteorological, and user perspective. Results of the evaluations are presented to the AWR program office to aid in development of future improvements, as well as ideas for new weather products. The feedback provided is expected to benefit future FAA weather systems by providing descriptions, specification, and software code for products evaluated and approved by the user community.





An expansion of the AWDF is planned for fiscal year 1999 and includes the Production WARP and WSP programs. This laboratory will be responsible for the testing requirements and technical support of the program's existing and future interfaces. Capabilities of the lab will include direct interfaces to NEXRAD/WSR-88D, FAA Telecommunications Satellite (FAATSAT), WMSCR via the Technical Center's NAS Digital Interchange Network (NADIN), NAS Infrastructure Management System (NIMS), Coded Time Source (CTS), and the ADAS. This configuration will allow the Technical Center's WARP system to communicate with all of its NAS interfaces and to disseminate and display Next Generation Weather Radar (NEXRAD, WSR-88D) products to the DSR. Test and interface certification tools will also be developed in the laboratory.



Future interface developments are also planned for ITWS and new AWR capabilities. The ITWS program is currently supported via networked workstations and display systems fed from the MIT/LL facility in Massachusetts. These displays incorporate live data from numerous sensors to integrate microburst, windshear, and other weather phenomena for use by air traffic controllers. The workstations depict the weather environment at the Air Traffic Control Towers (ATCTs) at Memphis, TN; Orlando, FL; Dallas/Fort Worth, TX; and the New York Metroplex.



A complete ITWS system will be installed for Operational Test and Evaluation (OT&E) late 1999. Weather systems, including LLWAS, ADAS, and the NADIN as well as the Terminal Doppler Weather Radar (TDWR), Airport Surveillance Radar Model #9 (ASR-9), and NEXRAD, inputs will be available to the ITWS during its OT&E period. Future interface capabilities with other NAS systems are expected as Pre-Planned Product Improvement (P3I).

For additional information regarding the Aviation Weather Development Facility, contact:

Communication/Navigation/Surveillance Engineering and Test Division, Weather Branch

Federal Aviation Administration
William J. Hughes Technical Center
Atlantic City International Airport, NJ 08405
Phone: (609) 485-5308
Fax: (609) 485-4035
<http://wx.aw.tc.faa.gov>