



# NASA's Applied Meteorology Unit

*Bridging the Gap Between Research and Operations*



*The AMU is co-located with Range Weather Operations at Cape Canaveral Air Force Station, Fla., and tasks range from evaluating data from a weather sensor system to analysis of numerical weather prediction models.*

**E**NSCO's team of meteorologists develops, evaluates and transitions new technologies into operations for weather support to America's space program.

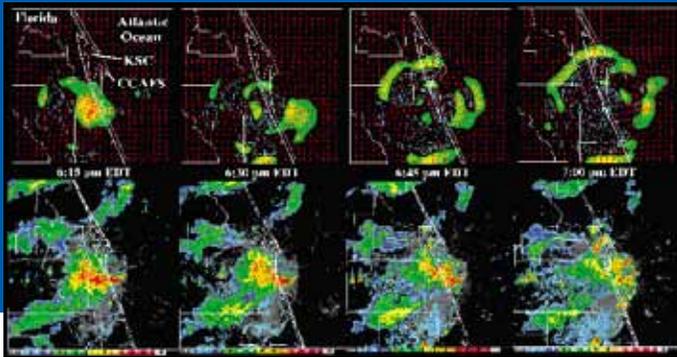
The Applied Meteorology Unit (AMU) has been staffed by ENSCO, Inc. employees since its inception in 1991. The AMU, jointly sponsored by NASA, the United States Air Force, and the National Weather Service, provides technology development, evaluation and transition services to improve weather support for space flight, the military, and commercial spaceport operations at Kennedy Space Center and Cape Canaveral Air Force Station, Fla., Wallops Flight Facility, Va., and Vandenberg Air Force Base, Calif.

## **Bridging research and operations**

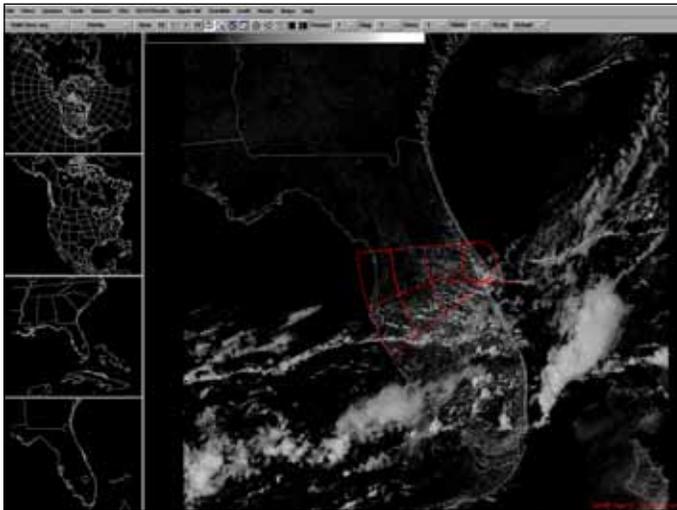
The AMU is a bridge between the meteorological research community and operational forecasters at the 45th Weather Squadron, 30th Operational Support Squadron Weather Flight, Spaceflight Meteorology Group, NASA Wallops Flight Facility, and the Melbourne, Fla., National Weather Service office. AMU scientists work with both researchers and forecasters to evaluate new and emerging technologies in an operational setting, develop procedures for implementing new technologies, and help identify new solutions to operational forecasting problems. In addition, the AMU provides expert technical assistance to operations in real time, as requested.

The AMU shares the results of their efforts with numerous agencies through quarterly reports and participates in ongoing technical interchanges as the need arises. Organizations involved in data and informational exchanges with the AMU include national laboratories, government agencies, universities and private companies.

**The AMU develops products that assimilate new weather technologies to increase safety, reduce cost, and lessen weather impacts for space operations.**



The AMU-developed system for integrating radar information and data sets to give the forecaster a conceptualization of thunderstorm activity.



The AMU-developed forecaster decision aid, used for assessing the movement of thunderstorm anvil clouds, allows for improved forecasts of the threat of triggered lightning to space launch and landing vehicles.

## Products

The AMU develops products that exploit weather technology to increase safety, reduce cost, and lessen weather impacts to space operations such as:

- Applications that deliver more precise forecasts of the location and timing of weather hazards
- Methods to optimize the use of sensors
- More capable local numerical weather forecast systems tailored to operational requirements
- Techniques to improve the quality, accuracy and utility of locally collected data

## Tools used by the AMU in the execution of tasks

- Local and national data sets
- State-of-the-art computing hardware
- Sophisticated software packages
- Rigorous and effective analysis techniques

## AWARDS

1995	2005
KSC Small Business of the Year Award to the AMU contractor, ENSCO, Inc., for the quality of its work.	NASA KSC Launch Director's Award to AMU team member for the Return-to-Flight Shuttle Imaging Satellite Overlay tool.  Two NASA Space Act Awards for developing:
1996	<ul style="list-style-type: none"> <li>• A contour error map algorithm to compare forecast model to observed data of sea breezes.</li> <li>• A quality control algorithm for the network of five 915-MHz profilers on the Eastern Range.</li> </ul> Three USAF 45th Space Wing Awards for: <ul style="list-style-type: none"> <li>• Developing and implementing three new lightning decision aids for the Space Shuttle Return-to-Flight.</li> <li>• Developing a model to forecast the probability of at least three ascent imaging cameras having a view of the shuttle unobstructed by cloud.</li> <li>• Weather support improvement for low temperature advisories, lightning support, and Space Shuttle Return-to-Flight.</li> </ul>
1999	
Astronaut Silver Snoopy Award to AMU team member for work in developing the MIDDS Menu System.	
2000	2006
KSC Center Director's Silver Dollar Award to two AMU team members for support during the Airborne Field Mill Experiment.	National Weather Association Larry R. Johnson Special Award for 15-year history of outstanding improvements to weather support for the space program.
2001	2007
NASA Space Act Awards for AMU research on upper air wind change characteristics and mesoscale model configuration and evaluation.	NASA Space Act Award for development of a graphical anvil forecast tool.  NASA Space Act Award for development of a graphical tool that determines the effect of clouds on the Shuttle Imaging System.  NASA Group Achievement Award for delivering the Shuttle Imaging Analysis Tool supporting a KSC High Priority Technology need.  NASA Group Achievement Award for the development of the Homeland Security Presidential Directive 12 compliant IT security plan for the AMU.
2003	2010
NASA Space Act Award for the configuration and implementation of a real-time high-resolution weather analysis system to support Florida space operations.	NASA Space Act Award for development of a lightning climatology for East-Central Florida airfields, including the SLF.  NASA Group Achievement Award for significant improvement to weather support for the space program, resulting in safer, less expensive, and more efficient launch, landing and ground processing operations.
2004	
NASA KSC Group Achievement Award for outstanding achievement in the preparation and implementation of Safety and Mission Success Week activities.  NASA KSC Group Achievement Award for developing an operational climatological weather data assessment tool for the 45th Space Wing - "A masterpiece of technical communication."	



800-ENSCO-VA  
info@ensco.com  
www.ensco.com/weather