



NASA African Monsoon Multidisciplinary Analyses (NAMMA) Mission

The NASA African Monsoon Multidisciplinary Activities (NAMMA) mission was a major 2006 field campaign based in the Cape Verde Islands, 350 miles off the coast of Senegal, designed to study tropical storm systems and the genesis process for hurricanes. The mission was designed to characterize the evolution and structure of African Easterly Waves (AEWs) and mesoscale convective systems over continental western Africa, the formation and evolution of tropical hurricanes in the eastern and central Atlantic, the composition and structure of the Saharan Air Layer, and whether aerosols affect cloud precipitation and influence cyclone development.

NAMMA utilized the NASA DC-8 research aircraft, with a total of 10 instruments and nearly 100 scientists in the field to sample tropical storm systems and provide valuable data to validate NASA's earth science satellites. The DC-8 was also flown in coordination with NASA's TOGA research weather radar, balloon soundings, and the SMART-COMMIT mobile research ground stations, measuring chemical, optical, microphysical, and radiative properties of the atmosphere.

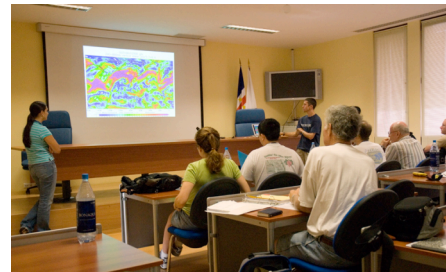
Some noteworthy highlights of the 30-day mission:

- NASA conducted 13 science flights that sampled seven major waves/circulations, including what is thought to be the genesis of tropical systems Debby, Ernesto, Gordon, and Helene, from mid-August to mid-September of 2006.
- NASA flew a number of dedicated missions studying cloud microphysics and the Saharan Air Layer. The influence of the SAL and its associated mid-level jet will be studied for years to come with data never before available to the science community.
- NASA provided tropical system formation data which was passed to NOAA for further definition and study as the systems moved west toward the Caribbean and the North American continent.

The Earth Science Division played a major role in this deployment. The deployment was managed by the Earth Science Project Office, which provided overall project management and logistics for the mission, including the set-up of four separate operational sites. In addition, three of the science instruments on the DC-8 were led by Ames Principal Investigators: the Diode Laser Hygrometer, the Meteorological Measurement System, and the Carbon monoxide By Attenuation of Laser Transmission (COBALT) instrument. In addition, excellent photo and video coverage of the mission was provided by the Ames Video Production Group of Public Affairs.



NASA DC-8 aircraft on the ramp at the Amilcar Cabral International airport, Sal Island, Cape Verde.



The NAMMA science team receives a weather briefing by the forecast team. Daily weather forecasts are used in the field to help select the appropriate flight plan and operational constraints.

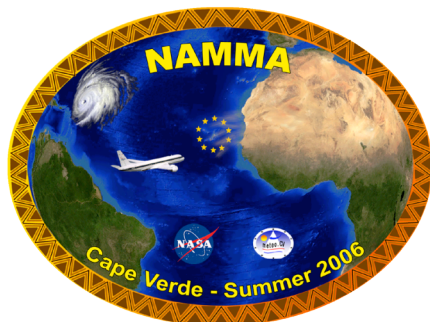
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Due to the current media interest in global climate change and the events of the 2005 hurricane season, this mission received extensive media coverage. Subsequent to a NASA news release and press conference on July 26, 2006, the story received wide coverage in all 50 states and around the world, especially from Web and print media, including the New York Times, USA Today, and the Washington Post. A profile of the mission was also featured on National Public Radio. International coverage included stories from Australia, Canada, Cape Verde, China, Denmark, Germany, India, Kazakhstan, Malaysia, Netherlands, Nigeria, Portugal, Romania, South Africa, Spain, and the United Kingdom.

The mission was a collaboration between NASA, the National Oceanic and Atmospheric Administration (NOAA) Hurricane Research Division, several universities, the U.S. Air Force, and the Cape Verdean National Institute of Meteorology and Geophysics (INMG). NAMMA was also conducted in close cooperation with the AMMA mission, another major, multi-national (25+ countries) field experiment to study West African monsoons and their effect on water resources and climate in western Africa.

NAMMA was sponsored by the Atmospheric Dynamics and Radiation Sciences programs at NASA Headquarters. Dr. Ramesh Kakar and Dr. Hal Maring are the Headquarters program sponsors.

Data from the mission are being checked, calibrated, and archived in the NAMMA data archive at NASA Marshall. Review of the science data can then begin. The first NAMMA science meeting is scheduled for the Spring of 2007.



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Dr. Jim Podolske of the Atmospheric Science Branch examines laser absorption spectrometer data of water vapor and carbon monoxide during a NAMMA science flight.



Dr. Ed Browell of NASA Langley discusses lidar science on-board the DC-8 with Cape Verdean high school students.