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# NRL WindSat Experiment Launches January 6



*Note:After several launch attempts were scrubbed between mid-December and early January, the Coriolis mission was successfully launched on Monday, January 6 at 9:18 a.m. EST.*

A government and industry team launched the Coriolis mission today from Vandenberg Air Force Base, California, aboard a Titan II Space Launch Vehicle. The Air Force Coriolis mission will fly the Naval Research Laboratory's (NRL's) WindSat microwave polarimetric radiometer and Air Force Solar Mass Ejection Imager in a low Earth, sun synchronous orbit.

NRL's WindSat radiometer will provide important meteorological information on wind speed and direction at or near the surface of the ocean and the Air Force Solar Mass Ejection Imager will provide valuable early warning of coronal mass ejections that affect communications and power distribution systems here on earth.

WindSat was developed by NRL, under the sponsorship of the National Polar-orbiting Operational Environmental Satellite System (NPOESS) Integrated Program Office (IPO). Polarimetric radiometry characterizes the polarization properties of the surface emission from the ocean surface. NRL's WindSat experiment will enable measurement of the ocean surface wind speed and direction for the first time with a radiometer system. The experiment will demonstrate the viability of using polarimetry to passively measure the wind vector from space and then provide usable tactical information to Navy units. WindSat will also help reduce risks associated with NPOESS by proving the concept of using a space-based radiometer for measuring ocean surface wind speed and direction.

Previous airborne experiments have demonstrated that the microwave emission from the ocean surface varies based on wind speed and wind direction. The measurements from these earlier experiments have been used to retrieve the ocean surface wind vector. WindSat will be able to extract the brightness temperature data from the microwave energy emitted by the ocean and generate data products that are downlinked to users on the ground in real time.

WindSat's expected applications are wide ranging. In addition to furnishing the Navy with unique sensors and proof of concept for use on future NPOESS satellites, WindSat will provide real-time on-scene tactical support and battlespace awareness that is critical in situations such as with precision guided munitions; avoidance of nuclear biological and chemical agents; ship routing and tropical cyclone avoidance; and, search and rescue operations.

At NRL, the development of WindSat was a combined effort involving researchers from the Remote Sensing Division and the Naval Center for Space Technology.

Coriolis WindSat Brochure (PDF)
WindSat spins in NRL test (Quicktime)

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