Lockheed Martin WindTracer Provides Wake Vortex Detection Tracking At German Airport

Laser Radar System Used in the CREDOS Project of EUROCONTROL

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The U.S. Federal Aviation Administration (FAA) is loaning a Lockheed MartinWindTracer(R) Doppler lidar system to the European Commission's CREDOS project (Crosswind Reduced Separations for Departure Operations) for research on wake turbulence created by departing aircraft.

Developed and produced by Lockheed Martin Coherent Technologies, a Lockheed Martin center of excellence for laser radar, the WindTracer has been installed at the Frankfurt International Airport in Germany and will collect wind and wake vortex research data for approximately six months. Collected in an unattended mode, the data from the lidar system may enhance both the safety and number of aircraft taking off in crosswinds. In addition, the WindTracer is providing new high-resolution crosswind profiles.

"The WindTracer will detect wake vortices during departures to predict movement and persistence," said Andrew Harvey, CREDOS project coordinator. "The use of the WindTracer lidar for data collection at Frankfurt will support the safety case for reducing minimum separations for departure traffic under appropriate crosswind conditions."

The WindTracer works by sending out pulses of eye-safe infrared laser light that reflect off of naturally-occurring particulates in the wind and wake flow field. The movement of these particulates alters the frequency of the light that is scattered back to the sensor. By properly processing the return signal, the WindTracer is able to detect the wind shift and isolate it from the unique flow patterns produced by the wake vortices.

"We welcome the opportunity to deploy the WindTracer system to meet EUROCONTROL's wake vortex monitoring requirements," said Dr. Stephen Hannon, Products Group director for Lockheed Martin Coherent Technologies. "The WindTracer has successfully served as a key element of the FAA and NASA wake programs over the past several years."

EUROCONTROL is the European Organization for the Safety of Air Navigation and is co-coordinating CREDOS, a three-year project funded by the European Commission. The aim of this program is to research the feasibility of the use of reduced separations for aircraft departures under precise meteorological conditions. The project is performed by a consortium of 11 European partners with the WindTracer contribution by the FAA.

The John A. Volpe National Transportation Systems Center, part of the U.S. Department of Transportation's Research and Innovative Technology Administration, will provide data analysis and support resources for the WindTracer deployment. Local support of the deployment will also be provided by DFS (Deutsche Flugsicherung GmbH) and Fraport AG.

Headquartered in Bethesda, Md., Lockheed Martin employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The corporation reported 2006 sales of $39.6 billion.

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