



Sensors

Turbulence & Vortex Detection System

Detects turbulence and vortices in aircraft front-flight-path

NASA Langley Research Center has developed an aircraft based turbulence & vortex detection system. Turbulence and vortices in the front-flight-path are very dangerous for airplanes. Especially when an airplane is approaching the airfield to land, the altitude near the airfield is very low and the vortices and air turbulence near the ground can cause the airplane to become unstable. Because the vortices and turbulence are just an irregular motion of transparent air, visual detection is very difficult. The NASA Langley invention is designed to detect the irregular motion of transparent air in the front-flight-path from a few hundred meters to kilometers.

BENEFITS

- Addresses a pressing concern in aviation safety

technology solution

NASA Technology Transfer Program

Bringing NASA Technology Down to Earth

THE TECHNOLOGY

This invention is an aircraft-mounted system where a single source of coherent radiation is attached to the aircraft and split into two beams which are oriented at a narrow angle to one another to form a cross pattern. The beams cross at a distance well forward and slightly below the aircraft to detect clear air turbulence and vortices that can pose a flight hazard. The use of an optical telescopic interferometric system and associated electronics detects and enhances the interference pattern of the intersecting light beams, as well as removing any images of the moving ground seen by the telescope.

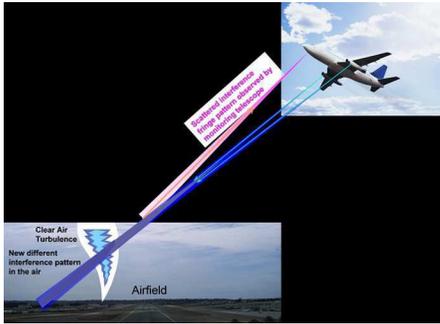


Image of technology in use.

APPLICATIONS

The technology has several potential applications:

➤ Aerospace

PUBLICATIONS

Patent No: 8,913,124



National Aeronautics and Space Administration

The Technology Gateway

Langley Research Center

Mail Stop 151
Hampton, VA 23681
757-864-1178
LARC-DL-technologygateway@mail.nasa.gov

<http://technology.nasa.gov/>

www.nasa.gov

NP-2015-06-1926-HQ

NASA's Technology Transfer Program pursues the widest possible applications of agency technology to benefit US citizens. Through partnerships and licensing agreements with industry, the program ensures that NASA's investments in pioneering research find secondary uses that benefit the economy, create jobs, and improve quality of life.

LAR-17555-1