

Potential impacts of a space-based Doppler Wind Lidar

G. D. Emmitt, J. Terry and R. Atlas

Abstract

The likelihood of there being a Doppler Wind Lidar (DWL) in space within two years is high, given that the Atmospheric Dynamics Mission (ADM) is expecting to launch in 2008. The ADM DWL will be a large (1.5m) non-scanning instrument and serve as a demonstration of direct detection wind lidar technology in space. The US community is in the planning stages for a DWL that will scan, adaptively target data sensitive areas and use a more modestly sized combination of direct (molecular, mid and upper troposphere) and coherent (cloudy scenes and the atmospheric boundary layer) lidars.

As the planning for DWL mission proceeds, there are several key areas that are being researched that have a major impact on the instrument design and its data utility. This paper will provide an overview of the hybrid DWL concept, an adaptive targeting mission and synergisms with cloud motion vectors and scatterometers. A recent set of experiments addressing the non-scanning vs. scanning concepts have been conducted at GSFC. The results of these experiments using RAOBS will be presented.