

Application of Doppler wind lidar observations to hurricane analysis and prediction

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Abstract

One of the most important applications of a space-based Doppler Wind Lidar (DWL) would be to improve atmospheric analyses and weather forecasting. Since the mid-1980s, Observing System Simulation Experiments (OSSEs) have been conducted to evaluate the potential impact of space-based DWL data on numerical weather prediction (NWP). All of these OSSEs have shown significant beneficial impact on global analyses and forecasts. In more recent years, a limited number of experiments have been conducted to evaluate the potential impact of DWL data on hurricane forecasting and also to begin to evaluate the impact of real airborne DWL observations. These latest studies suggest that DWL can complement existing hurricane observations effectively and have the potential to contribute to improved hurricane track and intensity forecasting.