



Capabilities and Benefits of Coherent Doppler LIDARs for Future Weather Observing Networks

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In order to improve local weather forecasts especially of severe weather events and in complex environments (urban, specific orography...), accurate and high resolved wind measurements are required by numerical weather prediction models. This paper will study the potential use of coherent Doppler LIDARs to cover regional and local areas of interest. The intrinsic performances of Doppler LIDARs like data availability will be firstly presented as well as their technical siting constraints. The capabilities of LIDARs to better monitor severe weather and to improve local weather forecasts by assimilation will be described through a series of trials in Queensland, Australia, in Toulouse, France and in Albany, New York State, USA. The paper will finally highlight the main constraints for building LIDAR observing networks.