

Potential impact of space-based lidar wind profiles on weather prediction

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Abstract

Observing system simulation experiments (OSSE's) provide an effective means to evaluate the potential impact of a proposed observing system, as well as to determine tradeoffs in their design, and to evaluate data assimilation methodology. Great care must be taken to ensure realism of the OSSE's, and in the interpretation of OSSE results. All of the OSSE's that have been conducted to date have demonstrated tremendous potential for space-based wind profile data to improve atmospheric analyses, forecasts, and research. This has been true for different data assimilation systems, analysis methodology, and model resolutions. OSSE's clearly show much greater potential for observations of the complete wind profile than for single-level wind data or observations of the boundary layer alone.