

## Single Column Model Driving Datasets from MERRA and GEOS-5

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The use of MERRA as driving data for single column model experiments is demonstrated here with several examples and comparisons to in-situ single column forcing data where available. The MERRA-derived single column forcing data generally resemble the in-situ forcing, with a few exceptions over land in summertime that will be elaborated.

The advantages of using MERRA-derived single column driving data include the availability of forcing at any location and for any period in the last 30 years, the explicit identification of the role of analysis increments in the forcing, and the existence of meaningful forcing up to and above the tropopause.

The more modern GEOS-5 Data Assimilation System products offer the possibility of obtaining the needed fields for single column simulations with interactive aerosols. The newer system, which runs with interactive aerosols and assimilates aerosol data, generates the required horizontal advection terms for aerosol constituents and aerosol analysis increments.

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