2016 Workshop: Optical Calibration and Data Analysis

Long title
Calibration and analysis techniques for passive optical and lidar observations
CEDAR-GEM
Conveners
S. Nossal
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Description

Accurate calibration is important for inter-comparison of observations, data/model comparisons, and long-term investigations. We invite discussion on a broad range of topics relating to passive optical and lidar observations and their analysis. Possible topics include absolute and relative intensity calibration, wavelength calibration, spatial scale determination, error analysis, correction for scattering within the lower atmosphere, isolation of atmospheric lines of interest, flat field techniques, spectral fitting approaches, and analysis of long term data sets. In addition to reporting progress on calibration and analysis techniques, this workshop provides an opportunity to discuss challenges and gain feedback from other workshop participants. We encourage hands-on demonstrations. In addition, we welcome modelers to discuss use of observations for model-data comparisons, and associated questions and challenges for model validation. We welcome and encourage presentations by students.

Presentations:

Brian Harding: Ground-based Thermospheric Wind Measurements: Sensitivity to Tropospheric Scattering

Derek Gardner: Progress on a Noise Amplitude Band-Rejection Filter for Spatial Heterodyne Spectroscopy

Mark Conde: Three-dimensional geo-location of high-altitude targets using ground-based photographic triangulation

Manbharat Singh Dhadly: Cross-comparison between neutral wind data sets from ground- and space-based instruments

Edwin Mierkiewicz: An introduction to INSpIRe

Susan Nossal: Observed increase in the Wisconsin Northern hemisphere hydrogen emission data set

Justification

Accurate calibration, analysis, and error assessment provides the foundation for data that can be used to address a range of CEDAR and GEM strategic science topics, including coupling in the interaction region between the Earth’s atmosphere and the near space environment, lower-upper atmospheric coupling, Sun-Earth interactions, investigation of atmospheric dynamics through combination of observations such as wind measurements, and long-term climatology observations.

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