



Middle atmosphere monitoring and dynamical coupling mechanisms: Ground-based lidar and satellite instruments synergy

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The long-term cooling of the middle atmosphere as well as the atmospheric response to solar activity, result to radiative forcing, ozone chemistry and many dynamical feedbacks. The long-term monitoring as well as process studies require both ground-based and satellite observations. Temperature lidar provide reliable data, and long enough data series to evaluate satellite information and the quality of the measurement continuity from space while satellites allow to estimate the representativeness and sampling effects associated with lidar series.

Planetary waves (and associated stratospheric warming) and mesospheric inversions induce the largest variability in this domain. However, atmospheric tides are also an important issue for both long-term monitoring and vertical coupling processes. Tides are investigated with lidar in the frame of the CAWSES tidal campaigns that are compared with different models such as dynamical, CTM, and CCM and SABER satellite. Comparisons show good agreements with models on the vertical and temporal behavior with however some differences on waves amplitudes.