Harmonization of aerosol inversion products from AERONET and SKYNET sun-sky radiometer observations with GRASP algorithm

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The aerosol microphysical and optical properties from ground-based sun-sky radiometer observations such as AERONET [1] and SKYNET [2] are indispensable for the satellite development, calibration and evaluation. The networks have developed independently with different hardware and retrieval algorithms (e.g., radiative transfer, numerical implementation of inversion), whereas instrument and algorithm conception are the same. Hence, main differences from the aerosol optical properties retrieved by the two networks are due to a large number of reasons: instrumental issues, calibration procedures, methods of inversions of raw data and divergence in their input parameters. This study introduced the generalized retrieval algorithm GRASP [3] to figure out the differences on hardware and to obtain homogeneous products, which realized to process both instruments with the same auxiliary data including surface assumption and molecular scattering.

In this talk, we summarize the differences of both network operations including measurement variables, auxiliary data, and retrieval algorithms and discuss the differences on retrievals from both network observations with GRASP algorithm.

References

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