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Extending the performances of stratospheric aerosol characterization in the 2002-2011 period through data merging of GOMOS and OSIRIS measurements

Christine Bingen (1), Charles Robert (1), Filip Vanhellemont (1), Nina Mateshvili (1), Emmanuel Dekemper (1), Didier Fussen (1), and Adam Bourassa (2)

(1) Belgian Institute for Space Aeronomy, Brussels, Belgium (Christine.Bingen@aeronomie.be), (2) University of Saskatchewan, Saskatoon, Canada

Stratospheric extinction and size information are two important aerosol parameters used to model the role of stratospheric aerosols in the atmospheric system, and to assess the respective importance of volcanic and anthropogenic aerosols.

Since the historical aerosol minimum in 1998-2000, several remote sensing experiments have provided radiative aerosol measurements, using various and often challenging measurement principles, and, for each of them, a specific set of spectral channels. This results in a rich patchwork of spectral information presenting gaps and discontinuities in space, time, and wavelength.

Acquiring aerosol size information on a global scale is a very challenging task. Such information can be retrieved by radial inversion of the extinction spectrum, but this task is often a struggle due to the reduced number of spectral channels and mainly to a limitation of the spectral range.

Combining aerosol radiative measurements from multiple remote experiments seems to be a promising way to provide modellers with an improved characterization of the aerosol extinction and size information they need. This work presents the current status of the development of merged aerosol datasets from the GOMOS and OSIRIS experiments.

After presenting the methodology used for the data merging, we will present the latest results obtained in this study and show how the performances of the merged dataset can improve with respect to the ones of each of the individual retrievals.