



Intercomparison of satellite ozone measurements using CTM data assimilation system

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Atmospheric ozone plays an important role in terrestrial environment because of its UV absorption effect in the stratosphere and because of its contribution to the greenhouse effect and to photochemistry in the troposphere. Both for environmental reasons and numerical weather predictions, the analysis of global ozone distribution is an important part of several international programs. For instance, measurements of ozone concentrations come from ground based stations, aircrafts and satellites, with their own specification.

Using transport and atmospheric chemistry modeling, data assimilation is the most appropriate way to obtain global ozone fields from all these measurements. Cerfacs and CNRM are working together specifically on variational assimilation of recent satellite chemical observations with a special effort toward ERS-2, ENVISAT and the Odin platforms. Measurements from the different satellite are analyzed separately using the chemistry transport model MOCAGE, a three-dimensionnal model that details photochemical processes and transport on the stratosphere and troposphere. Intercomparison of the various ozone fields obtained after the 3D-FGAT assimilation step and comparison with the total ozone from independent data like TOMS, provide statistical information on analyzed measurements like instrument bias as a function of the latitude.