The ASSET analyses intercomparison project: Assimilation into a GCM

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Brief Abstract:

ASSET (Assimilation of Envisat data) is a EU-funded project, whose objectives are: (1) assess the strategies for exploiting research satellite data by the Numerical Weather Prediction (NWP) community, and (2) investigate the distribution and variability of atmospheric chemical species by exploiting research satellite data. To address these objectives, ASSET will assimilate Envisat observations and produce quality-controlled analyses of ozone and other species using a variety of assimilation models and techniques. To evaluate these analyses and the different assimilation approaches, ASSET will carry out an analyses intercomparison project for the period 1st July – 30th November 2003:

1) **Separate assessments of each model / data product:** Assimilation groups will describe the impact of Envisat data on their analyses. Retrieval teams can validate their data.
2) **Intercomparison of analysis ozone,** to be extended to other species where possible.
3) **Report on distribution and variability of photochemical species**: This will make use of information from the assimilation of Envisat NOy observations, stratospheric aerosol analyses, tropospheric photochemical analyses, and ozone analyses.
4) **Report on linear ozone photochemistry:** Based on comparisons in 1) and 2) above, the Cariolle linear chemistry scheme, and variants thereof, will be evaluated against observational data and Chemistry Transport Models (CTMs).

This presentation will provide preliminary results from assimilation experiments, including variants of the Cariolle scheme, done at DARC with the Met Office troposphere-stratosphere assimilation system. These experiments will address points 1), 2) and 4) above. There will also be a discussion of how the results from the intercomparison will help address a number of key questions in the assimilation of chemical constituents, and will contribute toward improving our understanding of climate-chemistry feedbacks in the Earth System.