



## **Nested grid application of a global chemistry model over Europe**

**A. Protonotariou** (1), Philippe Le Sager (2), M. Tombrou (1), C. Giannakopoulos (2)

(1)Department of Applied Physics, University of Athens, Greece, (2) National Observatory of Athens, Greece (aprot@phys.uoa.gr / Fax: +30-210-7295281 / Phone: +30-210-7276837)

This study examines tropospheric ozone, its precursors and CO mixing ratios over Europe during 2001, using a modified version of the global three-dimensional chemical transport model (CTM) GEOS-CHEM. Our approach employs a methodology, identified as a one-way nested grid formulation, to increase the horizontal resolution above the one adopted for the global scale. The nested grid methodology permits the treatment of chemistry over a particular region with relatively high horizontal resolution, while at the same time preserves the interaction of this region with the coarser global environment. The model is initially applied over the whole globe, including the nested domain. Then, the fine-resolution model is run for Europe with boundary conditions from the coarse global simulation. No feedback is applied in the coarse model.

Differences between model results obtained using the  $1^{\circ}\times 1^{\circ}$  nested grid and the  $4^{\circ}\times 5^{\circ}$  coarse grid are discussed. Model calculations are compared to observations collected at sampling stations over Europe.