

SEQUENTIAL CHEMICAL DATA ASSIMILATION IN THE ATMOSPHERIC CHEMISTRY MODEL MOCAGE

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The quantity and variety of atmospheric observations of chemical constituents are strongly increasing, both through in situ measurements and remote-sensing. This is an incentive for the development of data assimilation systems within atmospheric chemistry models, as well for the initialization of simulations as for inverse modeling. MOCAGE is a new 3D chemical transport model dedicated to the numerical simulation of the interactions between dynamical, physical and chemical processes in the lower stratosphere and in the troposphere. It is based upon the REPROBUS model and can be run in both forced or coupled modes with the ARPEGE NWP/GCM. Another aspect is the possibility to use nested domains (from the global scale to the meso-scale) for scale effects and regional studies. The development of a variational chemical data assimilation scheme for MOCAGE has begun in the framework of the PALM system of CERFACS, but we are also developing sequential data assimilation, both for diagnostics and preliminary studies. We show here results obtained with sequential data assimilation schemes of increasing complexity. We have focused on the global domain of MOCAGE, using ozone observations from the MOZAIC database. The results suggest an important sensitivity of the assimilation increments to the hypotheses made in building the assimilation schemes.