



Impact of simulated satellite chemistry data in a CTM: air quality application

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Monitoring the air quality from satellites needs

- an adequate satellite nadir instrument with sufficient sensitivity for measuring the relevant species (O_3 , CO, NO_2 ...) in the troposphere as close as possible to the surface, if possible with sensitivity in the atmospheric boundary layer (ABL) at least for one species (CO for example),
- a measurement cycle sufficiently short to obtain the temporal information related to the species' chemical lifetimes or to the diurnal evolution of the ABL depth as well.

This work aims at defining and confirming the relevant parameters to dimension and optimize satellite instruments for air quality monitoring (measurement errors, revisit time, pixel size ...). Satellite observations are simulated, with a focus on CO and O_3 , using several scenarios including a geostationary one. These simulations are made with the chemistry transport model MOCAGE (MODèle de Chimie Atmosphérique à Grande Echelle) from Météo-France. Then we use the assimilation scheme 3dF-gat (implemented into MOCAGE) to evaluate the impact of simulated satellite data. Preliminary results are presented and discussed.