

ABSTRACT

The main focus of this manuscript is to build a methodology to evaluate and validate chemistry-transport models as applied to the operational forecasts of regional and continental air quality.

The work is based on the MOCAGE model ( Large-scale Atmospheric Chemistry Model) dealing both with routine daily forecasts performed from 2001 to 2005 and with ESQUIF and ESCOMPTE campaigns. In addition to simulating the mean behaviour, the methodology presented here places emphasis on reproducing extreme events and also the spatial and temporal variability. Lastly, quantitative relationships between air quality forecasts and meteorological forecasts are studied. It appears that the quality of the chemical forecasts at the seasonal and national scale is mainly driven at first order by the synoptic scale of the meteorological forcing.

---

KEYWORDS : air quality - multi-scale deterministic forecast - validation -  
spatial and temporal variability