Multisensor Assimilation for Aerosol forecasting

Laaziz El Amraoui and Matthieu Plu

Météo-France, CNRM/GMGEC/PLASMA, Toulouse, France (laaziz.elamraoui@meteo.fr)

Atmospheric aerosols are of natural and anthropogenic origin. They are the subject of many researches because of their involvement particularly in the climate system and the air quality standards with significant induced effects on human health. Regional air quality is particularly affected by local anthropogenic aerosols as well as the long-range transport of desert dust, biomass fires or volcanic ash.

The MOCAGE model is able to describe the three-dimensional evolution of several types of primary and secondary aerosols involved in the definition of air quality standards. The MOCAGE model is also coupled to an assimilation system capable of assimilating the Aerosol Optical Depth (AOD) or lidar profiles in order to better constrain the three-dimensional distribution of the total aerosol concentration.

The objective of this contribution is to evaluate the ability of different aerosol products from multisensor instruments (AOD and lidar profiles) assimilated individually or in synergy to improve the three-dimensional concentration of the aerosol and particularly the air quality at local scale.