2.137 Predictability of wildfires’ impact on air quality: cas study of the summer 2016 in Europe .

Presenting Author:
Solene Turquety, Sorbonne université, Laboratoire de Meteorologie Dynamique LMD-IPSL, Paris, France., solene.turquety@lmd.polytechnique.fr

Co-Authors:
Laurent Menut, CNRS, Ecole Polytechnique, Laboratoire de Meteorologie Dynamique LMD-IPSL, Palaiseau, France.
Sylvain Mailler, ENPC, Ecole Polytechnique, Laboratoire de Meteorologie Dynamique LMD-IPSL, Palaiseau, France.

Abstract:

Wildfires are a significant source of atmospheric pollutants, altering air quality at local to regional scales, intercontinental in the most severe cases. Fire activity being highly variable both temporally and spatially, including this source into air quality forecasting systems requires daily reanalysis of emissions, as well as an estimate of their evolution during the forecast integration time, typically up to 5 days. In this presentation, the predictability of wildfires’ impact on air quality will be discussed based on regional chemistry transport model simulations (CHIMERE), including hourly fire emissions (APIFLAME model), applied to the study of the summer of 2016 in Europe. The year 2016 was close to average for most regions except Portugal, where severe wildfires burned a total area twice larger as the average yearly area burned during the previous decade. Satellite observations are first used to evaluate the emissions (total and temporal variations) as well as the simulated transport pathways (IASI CO, MODIS AOD, CALIOP aerosol backscatter ratio). In particular, the dispersion of the fire plumes and its impact on the simulated influence on atmospheric composition is discussed depending on the resolution used. The predictability of the simulated impact on surface concentrations during a typical forecast integration time is then analysed using meteorological fire risk calculations.