



An air pollution episode in the south-western Iberian Peninsula coming from forest fires

J.A. Adame (1,4), A. Lozano (3), J. Contreras (2), J.P. Bolívar (4), F. Godoy (2) and B. De la Morena (1)

(1) Atmospheric Sounding Station, El Arenosillo – National Institute of Aerospace Technology (INTA). Crta. Huelva Matalascañas, km 34, 21130. Huelva. Spain. adamecj@inta.es (2) Consejería de Medio Ambiente de la Junta de Andalucía. Seville. (3) Empresa de Gestión Medioambiental (EGMASA). (4) Departamento de Física Aplicada. Universidad de Huelva. Campus de El Carmen, s/n. 21007. Huelva.

A high number of fires occurred between 2 to 16 August 2006 in Galicia, a region located in the northwest of Spain. The spatial distribution of fires was detected by the MODIS Rapid Response System which shows fires in the mentioned area with a major number on 7 to 12 August. During this period the Iberian Peninsula was affected for an extensive high pressure system located in the Atlantic Ocean with wind blowing from north and northeast in Galicia area. Due to these meteorological conditions, and according to the pictures of the Naval Research Laboratory and Aerosol Analysis Prediction System (NAPPS) and the Air Quality Forecast Modelling System at BSC, smokes plumes were transported toward the southwest Iberian peninsula in front of Portugal coast.

From 9 August the smokes plumes continue travelling toward the south in the Atlantic Ocean reaching 11 August the Cadiz gulf (southwest of Iberian Peninsula). In the evening 12 August, the air quality stations located at Huelva coastal zone (El Arenosillo, Mazagón and El Carmen) were observed an increase in ozone and CO concentrations, while in Cadiz area (San Fernando and Jerez) were registered 6 hours later. At El Arenosillo was recorded the historical ozone maximum since 1999 with a value of $271 \mu\text{g m}^{-3}$. The daily maximum levels of CO were up 1500 and 1800 $\mu\text{g m}^{-3}$ at San Fernando and El Carmen respectively. Others species such as aerosol

also were increased. Nevertheless, this plume not reached stations located inland, for example Seville stations, only affecting the coastal area. The analysis of a wide set of data including satellite elaborations, transport model simulations, meteorological parameters lead to attribute this air pollution episode to the long range transport of photochemical pollutants produced in the fires of Galicia. Therefore, it is the first event with this origin measured in the studied zone and it can be concluded that emissions from fires in regions to 1000 km of distance may produce air pollution episodes in the southwest of Spain.