Geophysical Research Abstracts
Vol. 20, EGU2018-16536, 2018
EGU General Assembly 2018


# Quercus pollen in the air, determination of its sources and transport through the atmosphere of Mexico City

Maria del Carmen Calderon-Ezquerro (1), Benjamin Martinez-Lopez (1), Cesar Guerrero-Guerra (1), Erika Lopez-Espinosa (1), and William Cabos (2)

(1) Center for Atmospheric Sciences, UNAM, Mexico City, Mexico (danae@atmosfera.unam.mx), (2) University of Alcala, Alcala de Henares, Spain (william.cabos@uah.es)

Quercus pollen in the air, determination of its sources and transport through the atmosphere of Mexico City

Pollen allergies have a remarkable clinical impact all over world. Quercus pollen is the main allergen in many parts of world. Due to the health impacts caused by exposure to oak pollen, the objectives of this study are to characterize the aerobiological behaviour of Quercus pollen, to determine its potential sources as well as their transport through the atmosphere of Mexico City and surrounding areas during the period of January 2012 to June 2015. Airborne Quercus pollen monitoring was carried out simultaneously in 5 zones of Mexico City. The percentage of Quercus pollen of the total pollen collected from the air showed that the highest concentration in each monitoring station was reached in 2014, followed by 2012. The annual seasonal variation indicated that flowering and pollen emission into the atmosphere began between February and March. The maximum concentration of Quercus pollen was reached at Cuajimalpa. In 2012, the amount of pollen grains was distributed in March and April more or less uniformly, while in 2014, the largest amount of pollen was concentrated in March. In 2012 and 2014, years with the highest pollen concentrations, their corresponding intraday variations were quite similar, with a low relative maximum in the morning and the highest concentrations in the evening. The largest values were recorded in 2014, and these can be explained by two processes. In the afternoon, pollen from secondary sources is carried by converging southwesterly winds, increasing the pollen concentration in Cuajimalpa. In the evening, advection of pollen from primary sources by northwesterly winds seems to be a key mechanism associated with the absolute maximum registered in that year.