Geophysical Research Abstracts
Vol. 15, EGU2013-5473, 2013
EGU General Assembly 2013

Do low-frequency climate patterns affect chemical deposition in the NE coast of the Iberian Peninsula?

Anna Avila, Rebeca Izquierdo, and Marta Alarcón
Universidad Autonoma de Barcelona, CREAF, Bellaterra, Spain (anna.avila@uab.es, +34 93 581-4151)

Atmospheric deposition to land and aquatic surfaces depends on the atmospheric gas/aerosol loads and on precipitation amount (which is a major vehicle for scavenging and depositing atmospheric material). Climate variability patterns (NAO, WO and WeMO) have been found to affect precipitation quantity in the Mediterranean fringe of the Iberian Peninsula, and this can have an influence on precipitation chemistry and the deposition of atmospheric elements. Also the air mass flow imposed by these teleconnections can influence the frequency of transport from different sources which have different emission characteristics (predominance of natural emissions or anthropogenic pollutants). Thus, modifications in the wind circulation and precipitation patterns related to these climate variability modes can determine the chemistry of precipitation and the atmospheric deposition loads of different elements.

Here we analyse the effect of NAO, WO and WeMO climatic variability patterns on precipitation amount and atmospheric deposition of major elements (Na, Ca, Mg, K, NH4, NO_3, SO4, Cl and alkalinity) in Catalonia (NE Spain) where precipitation chemistry has been analyzed at 5 sites for periods of 16 - 25 years. The purpose of this work is to analyze to which extent the amount of precipitation and of chemical deposition is determined by the aforementioned climate variability modes.