



Influences of atmospheric indices on iberian winter precipitation

S. Nieto (1), C. Rodríguez-Puebla (2)

(1) Department of Applied Mathematics, University of Salamanca, Spain (sni@usal.es)

(2) Department of Atmospheric Physics, University of Salamanca, Spain (concha@usal.es)

In order to select relevant global variables to predict seasonal precipitation variations we approach the study of the relationship between observations and atmospheric indices. The spatial and temporal patterns of some fields as sea level pressure, geopotential, storm track, jet stream, potential temperature, relative humidity, and solar radiation were obtained from NCEP/NCAR reanalysis data over Europe and part of the North Atlantic. Principal Component Analysis was applied to reduce the dimensionality of the dataset and to find spatial patterns. On the other hand, correlation and spectral analyses were applied to study temporal variability. The conclusion of the study indicates the advisability of using some of the atmospheric indices to predict winter precipitation variations over the Iberian Peninsula, and its relationship to global circulation indices as the Arctic Oscillation, North Atlantic Oscillation or Polar Pattern.