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Precipitation weather regimes associated with four main circulation types in the Mediterranean from 1950 to 2000

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The significant evolution of precipitation of the Mediterranean Basin between 1950 and 2000 (see C. Norrant and A. Douguédroit, Monthly and Daily Precipitation Trends in the Mediterranean (1950-2000), Theor. Appl. Climatol., 2005, 83, 1-4, 89-106) has been explained by four main basic circulation types. Their significant decrease at the monthly and seasonal timescale concern four regions, the Mediterranean Iberia (in October), the Atlantic Iberia (in March), Greece (in January and winter) and the Near East (in winter).
The main circulation types related to these 5 cases have been determined from ACCs on monthly and seasonal precipitation and 500hPa level in the Euro-Atlantic window, each type of data having been simplified before by PCAs. They have been determined by choosing the significantly decreasing scores (one or two) of the CCPs (Canonical Correlation patterns).
The corresponding regimes studied at the daily timescale have been divided into two subsets according to the importance, high or low, of the daily rainfall they bring for the concerned area. They are very much influenced by the physical features of the Mediterranean Basin: the existence of that inland sea which is the Mediterranean, the latitude and the drawing of the coastlines making a difference between coast with or without peninsulas which partitioned the Basin. So a circulation pattern gives rise to several regional weather regimes according to the different areas of the Basin and conversely certain types of weather regimes are linked with different circulation types. In the 5 cases studied as mentioned earlier the number of days with regimes bringing high rain total decreases when the one with low rain total increases.