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Mediterranean-Atlantic SST common oscillatory modes

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We study the relationship between the SST variability patterns of the Atlantic Ocean and the Mediterranean Sea, on annual to decadal scales. To this end we have analyzed, using Multi-channel Singular Spectral Analysis (M-SSA), a monthly SST data set, covering the period 1871-2001. This methodology allows finding common oscillatory modes between multiple variables. Results show the existence of a set of oscillatory modes with periods around 13.7, 7.5 and 3.6 years in both the Atlantic and Mediterranean SST, being the 3.6 years mode the most important. Also, an analysis of the temperature and precipitation of the eastern Iberian Peninsula region shows a considerable amount of variance around this 3.6 years period. The existence of this oscillation in both the Atlantic Ocean and Mediterranean Sea suggests that the Atlantic Ocean, besides the Indian Ocean, may play an important role in the well established ENSO-Mediterranean climate relationship.