



## **Characterization of synoptic weather regimes over Senegal during the summer monsoon through self-organizing maps**

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Self-organizing maps (SOM) have been used to define and analyze the properties of synoptic scale weather regimes over the Senegal during the summer monsoon season over the period 1979-1990 by using NCEP2 atmospheric reanalyzes. The variable used to perform this investigation is the wind vector at 700 hPa. Different pre-processings of the data have been tested (EOF filtering, with and without the seasonal cycle, including complementary variables). An Ascendant Hierarchical Classification is then applied on the SOM to define ten weather regimes patterns at 700 hPa. The modulation of low-levels monsoon winds, precipitable water height and precipitation associated with each of these weather regimes are examined. The occurrences of these regimes along the seasonal cycle, the transitions from one regime to the other, and their interannual variability are also investigated.