



On the relationship between surface variables and circulation type classification based upon lagrangian air trajectories

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A new circulation type classification method based upon lagrangian air trajectories was presented in another EGU 2011 abstract entitled: A new circulation type classification based upon clustering of lagrangian air trajectories (identification number EGU2011-267). As a result, this new daily catalog contains information about the air mass properties before they arrive to the target area (trajectory types) for a five-year period (1/12/1999 to 11/30/2004).

In the target region, northwest Iberia Peninsula, there is a relationship between the Lamb circulation frequency and surface climate variables like precipitation and temperature. In order to analyze if this new method is likewise able to distinguish the impact of different types on precipitation and temperature we computed the average rainfall and temperature explained by each category within a class of trajectory types.

Furthermore, several case studies will be presented in order to discuss and compare the trajectory types classification to the Lamb circulation types for a given period. Results show that additional information about a particular synoptic pattern is achieved when using the trajectory types instead of the classical Lamb circulation types. The case studies embrace different synoptic patterns that typically affect the northwest Iberia Peninsula such as: blocking events, heatwaves, coldwaves, cut-off lows, extratropical cyclones and cold fronts.