



## **Are there weekly cycles in occurrence frequencies of large-scale atmospheric circulation types?**

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Weekly cycles in varying meteorological surface parameters (temperature, precipitation) have been analysed in numerous studies. Corresponding weekly periodicities in large-scale atmospheric circulation dynamics on the other hand have only rarely been investigated so far.

In this contribution the existence of weekly cycles of large-scale atmospheric circulation type frequencies is analysed on the basis of a comprehensive set of circulation type classifications that is available from the EU COST action 733 "Harmonisation and Applications of Weather Type Classifications for European regions". The data set comprises more than 400 variants of objectively derived circulation type classifications for 12 spatial domains embedded into the greater North Atlantic European region. All classifications are based on daily (12 UTC) gridded MSLP data from the ERA40 reanalysis data set for the period 1957 to 2002.

Occurrence frequencies of each circulation type have been calculated for each weekday and chi-square goodness-of-fit tests have been applied to test the null hypothesis that daily occurrence frequencies of circulation types are uniformly distributed. For circulation types for which the null hypothesis of uniform distribution of daily occurrences has to be rejected the weekdays with maximum and minimum frequencies are determined. In a subsequent step it is investigated in how far circulation types from different circulation type classifications reflecting comparable circulation structures exhibit concurrent locations of their respective frequency maxima and minima.

Based on preliminary results it can be stated that (1) only a minor fraction of circulation types show significant deviations from uniform distribution at the 5% level of significance and (2) that the locations of maximum and minimum frequencies during the week are varying between comparable circulation types resulting from different classification methods.