



CIRCULATION PATTERN CLASSIFICATION FOR CLIMATE CHANGE STUDIES

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Several circulation pattern classifications developed for different European regions were compared regarding their mutual dependence. Circulation pattern (CP) classifications, both subjective and objective, for the British Isles, Germany and Greece were taken into account. Statistical tests were applied in order to investigate the relationships between each pair of CP classifications. It was found that each pair of classifications can not be considered to be independent. Time dependence of the relationship between CP classifications shows anomalous behavior only when one of the classifications is subjective. This can be due to a gradual change in the methodology. Thus, one should use these classifications for climate evolution studies with care. Results showing the inter-dependence of different CP classifications were motivation for developing one classification which would be valid in every European region. For this purpose an objective and automated classification was applied. By means of daily 700 hPa data, 13 CPs were defined which explain the variability of local precipitation in 27 stations spread over the whole of Europe. The validation of this classification proved that there is almost no information lost when comparing this classification with local classifications. Based on this classification method the air pressure outputs from Global Circulation Models will be classified. Subsequently the classified circulation patterns will be used for climate change studies. For this purpose statistical downscaling of precipitation will be applied.