



On the applicability of subjective and objective circulation classifications in synoptic-climatological investigations

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A large number of classifications of circulation patterns have been produced and collected within the COST733 Action “Harmonization and Applications of Weather Types Classifications for European Regions.” The classifications differ in the degree of their subjectivity / objectivity, the classification method used, and the number of types. The majority of objective classifications are performed for sea level pressure as the classified variable and for 12 European regions. This contribution analyzes how well the circulation classifications stratify temperature and precipitation across Europe. The degree of stratification is quantified by conducting the Kolmogorov-Smirnov goodness-of-fit test between the distribution conditioned by a particular circulation type and the unconditional distribution. As the climate data, over 90 station series from the ECA&D database have been used. The results are sensitive to the number of classes (classifications with a lower number of classes tending to yield a better stratification) and do indeed differ among various types of classification methods. The subjective Hess&Brezowsky and Peczely catalogues, as well as the objectivized version of the former, perform surprisingly well in this contest.