

New automatic weather type classifications at MeteoSwiss

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In January 2011, new automatic weather type classifications have been introduced at MeteoSwiss replacing the manual classifications from the “Alpenwetterstatistik”. Two methods, CAP (Cluster Analysis of Principal Components) and GWT (GrossWetterTypes), have been identified in a MeteoSwiss wide selection process out of the variety of classifications collected within the COST Action 733 "Harmonisation and Applications of Weather Type Classifications for European regions". A large catalogue of classifications provided by COST733 has been analyzed by Schiemann and Frei (2010) in terms of their capability to predict surface climate variations with a special focus on daily precipitation in the Alpine region. Based on the results of this work and the requirements of (potential) users at MeteoSwiss, the two methods mentioned above have been chosen. Due to different needs of the users (e.g. few classes for verification, many classes for climatologic analyses), the methods are calculated with different settings leading to a total of 10 classifications.

The automatic classifications have been re-calculated back to 1957 providing a long homogeneous time series for climatologic analyses. They have been evaluated with respect to their ability to explain surface climate variability of precipitation, temperature and sea level pressure in the Alps. The results can help the users finding a suitable classification for their specific application.

Reference:

Schiemann, R., and C. Frei, 2010: How to quantify the resolution of surface climate by circulation types: An example for Alpine precipitation, *Physics and Chemistry of the Earth*, 35, 403-410, doi:10.1016/j.pce.2009.09.005