

Circulation Type Classifications in Europe – Perspectives from the COST733 Action

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Working Group 1 (WG1) of the COST 733 Action “Harmonisation of weather types classifications in Europe” was set up to prepare a broad inventory of existing weather and circulation classifications (WTC) in Europe, paying particular attention to the specific objectives, methods and potential applications of each classification method. Since the official start date of the Action in September 2005 significant progress has been achieved and, thanks to the international co-operation of scientists from 20 countries, this unique inventory is now complete. Almost one hundred classifications have been documented, covering not only Europe but also other regions of the globe. The WG1A subgroup prepared a glossary of the most important terms relating to WTC methodologies; terms whose meaning can be controversial or may be unclear for the broader audience. Simultaneously, a short overview of circulation patterns in various regions of Europe has been undertaken, showing that there is considerable scope for complexity even on the regional scale.

Following on from the above work, the WG1C subgroup is concentrating on selecting an optimal set of European WTCs that will be investigated further in the COST 733 Action. This subgroup is currently carrying out an iterative process of eliminating WTCs that are either subjective and not available digitally, or too specific to certain applications or contain too many or too few circulation types. The goal is to produce a final list of WTCs which are representative of each of the different approaches (e.g. cluster analysis, PCA, correlation techniques, objectivised subjective WTCs). After this analysis is complete, about 10-15 primary WTCs will remain. Later in the Action, the performance of these methods in categorising daily circulation types from ERA40 re-analysis basis data will be rigorously compared.