

CARPATCLIM - high resolution gridded database of the Carpathian Region and calculation of drought indices as a contribution to the European Drought ObservatorySandor Szalai[†]; Jurgen Vogt[†] Szent Istvan University, HungaryLeading author: szalai.sandor@mkk.szie.hu

In the climate and connected sciences, one of the largest problems is the availability of good quality long-term time series of climatological data. This problem is based on the relative small countries in Europe, the difference in measuring systems and data management, as well as in the general problem of data availability. Furthermore, the climatological data management was taken politically as a national task of the individual countries both on the expert and the financial points of view. This approach hindered a powerful international co-operation. However, the development of gridded databases has made considerable progress recently. Global gridded databases have been created earlier, but their spatial resolution is not appropriate for regional and even less for subregional levels. In Europe, EUMETGRID is the biggest attempt to create a European gridded database under the umbrella of EUMETNET, the co-operation of the European Meteorological Services. The main aim of the CARPATCLIM project is to improve the basis of climate data in the Carpathian Region for applied regional climatological studies such as a Climate Atlas and/or drought monitoring. The project will investigate the fine temporal and spatial structure of the climate in the Carpathian Mountains and the Carpathian Basin with unified or at least directly comparable methods. Currently, there is no valid description of the climate of the Carpathian Region. The spatial area of interest includes the Carpathian Mountain Chain (including the Transylvanian Depression), the Carpathian Basin (i.e. the Pannonian Depression), and adjacent areas, necessary to study the climate of the area. This includes part of the territory of the following countries: Bulgaria, Czech Republic, Croatia, Hungary, Moldova, Poland, Romania, Serbia, Slovakia, and Ukraine. For the production of the digital climate atlas, the resulting climatological grids should cover the area between latitudes 50°N and 44°N, and longitudes 17°E and 27°E, approximately. The work is divided into three modules: Module 1: Improve the availability and accessibility of a homogeneous and spatially representative time series of climatological data for the Carpathian Region through data rescue, quality control, and data homogenisation. Module 2: Ensure Carpathian countries data harmonisation with special emphasis on across-country harmonisation and production of gridded climatologies per country. Module 3: Develop a Climate Atlas as a basis for climate assessment and further applied climatological studies, create publicly accessible dedicated web site of the Climate Atlas, including a web map server and data download/access infrastructure, freely available gridded climatological datasets and searchable metadata catalogue for the Climate Atlas. The planned timeframe for the calculation of gridded climatologies is 1961-2010, but the consortium tries to enlarge this period according to the possibilities. At the same time, the European Commissions' Joint Research Centre is developing a prototype of a European Drought Observatory (EDO) until 2012. The Preparatory Action on the Climate in the Carpathian Basin will feed into the development of EDO and its results will serve as an important basis for reliable climate background information in South-East Europe. The climatology to be produced within this service will act as a very valuable base for the derivation of meteorological drought indices for the Carpathian Region. The project will demonstrate this potential by producing meteorological drought indices from the harmonised datasets of this service. A set of meteorological drought indices are proposed to be produced and published within the dedicated web site of the Climate Atlas of the Carpathian Region. Such indices are the SPI, the Palfai Aridity Index, the Reconnaissance Drought Index, Palmer Drought Severity Index, etc. The CARPATCLIM project plans a close co-operation with other initiatives such as EUMETGRID.