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Knowledge Data Base of extreme weather events in Europe

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The knowledge data base is a collection of extreme weather events within the region of RA VI of WMO (Europe and Middle East) for the last 50 years. The focal point of the data base is the impact of weather extremes and damage. The input comes from different data collections as the International Disaster Database (EM-DAT), the Dartmouth Flood Observatory (DFO), the archive of extreme weather events of Karlsruhe Institute of Technology (KIT) and GLIDE Number Database. Different raster datasets were used to define the geographical extent of those events. The combination of information as disaster type, geometry, duration, damage, causes, measured extremes and anomalies with geographical information gives the possibility to visualize those events in GIS and to use a spatial search algorithm to detect events in a certain region.

This database will be applied in a Climate Watch System, which has been suggested by the WMO. Climate Watch Systems are early warning systems, which use climate monitoring data and results from long-range forecasts to detect critical weather periods such as heatwave, coldwave, flood, drought, wildfire and others. If the monitoring gives an indication of outstanding weather events and the long-range forecast shows continuation of those events, the knowledge data base can provide information about impact of similar events, hazards and damage in the affected region.

The knowledge data base was developed in the WMO RA VI Pilot Regional Climate Centre on Climate Monitoring (RCC-CM). RCCs are Centres of Excellence that assist National Hydrological and Meteorological Services (NHMS) in a given region to deliver better climate services and products including regional long-range forecasts, and to strengthen their capacity to meet national climate information needs. Access to visualization of the data base for NMHS will be provided by connection to the Web Mapping Service of a geo server.