



## Spatial differences in drought vulnerability

M. Perćec Tadić, K. Cindić, M. Gajić-Čapka, and K. Zaninović

Meteorological and Hydrological Service of Croatia, Research and Development Division, Zagreb, Croatia  
(melita.percec.tadic@cirus.dhz.hr)

Drought causes the highest economic losses among all hydro-meteorological events in Croatia. It is the most frequent hazard, which produces the highest damages in the agricultural sector. The climate assessment in Croatia according to the aridity index (defined as the ratio of precipitation and potential evapotranspiration) shows that the susceptibility to desertification is present in the warm part of the year and it is mostly pronounced in the Adriatic region and the eastern Croatia lowland. The evidence of more frequent extreme drought events in the last decade is apparent. These facts were motivation to study the drought risk assessment in Croatia. One step in this issue is the construction of the vulnerability map. This map is a complex combination of the geomorphologic and climatological inputs (maps) that are presumed to be natural factors which modify the amount of moisture in the soil. In this study, the first version of the vulnerability map is followed by the updated one that additionally includes the soil types and the land use classes. The first input considered is the geomorphologic slope angle calculated from the digital elevation model (DEM). The SRTM DEM of 100 m resolution is used. The steeper slopes are more likely to lose water and to become dryer. The second climatological parameter, the solar irradiation map, gives for the territory of Croatia the maximum irradiation on the coast. The next meteorological parameter that influences the drought vulnerability is precipitation which is in this assessment included through the precipitation variability expressed by the coefficient of variation. Larger precipitation variability is related with the higher drought vulnerability. The preliminary results for Croatia, according to the recommended procedure in the framework of Drought Management Centre for Southeastern Europe (DMCSEE project), show the most sensitive areas to drought in the southern Adriatic coast and eastern continental lowland.