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Drought vulnerability assessment for the agriculture: a case study for the west part of Slovenia

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One of the main aspects of drought adaptation and planning is the assessment of vulnerability. Since agriculture is the primary sector affected by drought and is directly dependent on water availability, we have started with a pilot project in an important agricultural area in the west part of Slovenia.

The project is a part of the activities of the Drought Management Centre for Southeastern Europe - DMCSEE. Drought in this area often results in significant economic, environmental, and social impacts. The significance of the impacts of drought on the agricultural sector is assessed taking into account the severity of the drought (magnitude and duration of the drought episode) and the vulnerability of the agricultural system. For that purpose we have developed a general method which can be used as a preliminary tool for assessing drought vulnerability in agriculture and that could be applied on the entire Southeastern Europe region.
The approach was based on impact assessment and vulnerability model supported by geographic information system (GIS) software. We found out that factors influencing drought vulnerability were numerous, and the model application might depend on data availability. We have used appropriate and available digital data layers for climate, pedology, solar radiation, land use, irrigation infrastructure and other factors.

The final product is a categorical map of agricultural drought vulnerability for the study area, which synthesizes a variety of data and serves as an indicator of areas deserving a detailed drought risk evaluation. It could aid regional decision makers in identifying appropriate mitigation and adaptation actions before the next drought event, lessen impacts of that event and allow sustainable development of the sector.