

The impact of climate change on droughts at a basin scale on Crete

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For a basin on the isle of Crete future changes in drought characteristics have been assessed by projecting changes in sbw , soil moisture and lower groundwater reservoir volume with respect to a threshold level (the level that these parameters values exceeded 80% of the time). This was done for three global climate models (GCM's) and two greenhouse gas emission scenarios (SRES B1 as the lower, and SRES A2 as the higher limit scenario). Results show a decrease in precipitation and an increase in temperature from 2001 to 2100, resulting in 18-56% decrease of sbw , 15-34% decrease of soil moisture and 22-65% decrease of groundwater reservoir volume (lower and upper values for B1 and A2, respectively).

For A2 scenario, it was found that drought events number increases from 2001 to 2100 up to 98%, 109% and 81% for sbw , soil moisture and groundwater respectively, when using the 80% threshold level. B1 scenario provided "milder" conditions, with a drought events number increase of 56%, 92% and 34% in sbw , soil moisture and groundwater respectively.

Drought deficit volumes were projected to increase up to 10-19%, 2-33% and 26-22% in snow, soil moisture and groundwater (lower and upper values for B1 and A2, respectively).

Source: Vrochidou et al, 2012. Journal of Hydrology, <http://dx.doi.org/10.1016/j.jhydrol.2012.10.046>.

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