



## **Deciphering the Old World Drought Atlas: multi-scale fluctuations and their possible explanation**

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During the last several years, there has been growing concern about the effect of global warming on water resources, especially at continental and regional scales. The last IPCC report on extremes suggests that there is medium confidence about an increase in droughts over Europe during the last century. Here we show that in the last 90 years dryness has decreased significantly over much of Europe, resulting in a wet period of unprecedented length over the last millennium. Using the Old World Drought Atlas, the magnitude of past long-term hydroclimatic fluctuations was investigated and three similar intervals in terms of severity and geographical extent were identified. None of them, however, matched the current period in duration. Plausible explanations for this persistent change, such as the intensification of the global hydrological cycle due to temperature increase and the role of atmospheric circulation (the North Atlantic Oscillation) were explored. Even though these factors appear to be correlated to the regional hydroclimatic conditions, these relationships are found to be weak, capturing only a fraction of the observed variability.