



An assessment of global meteorological droughts based on HAPPI experiments

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Droughts caused water shortages could lead to serious consequences on the socioeconomic and environmental well-being. In the context of changing climate, droughts monitoring, attributions and impact assessments have been performed using observations (e.g., Sun et al., 2012; Zhang et al., 2016) and climate model projections (e.g., Liu et al., 2016, 2017); with expectation that such scientific knowledge would feed into long-term adaptation and mitigation plans to tackle potentially unfavorable future drought impacts in a warming world. Inspired by the 2015 Paris Agreement, the HAPPI (Half a degree Additional warming, Projections, Prognosis and Impacts) experiments were set up to better inform international policymakers about the socioeconomic and environmental impacts under less severe global warming conditions. This study aims to understand the potential shift in meteorological droughts from the past into the future on a global scale. Based on the HAPPI data, we evaluate the change in drought related indices (i.e. PET/P, PDSI) from the past to the future scenarios (1.5 and 2 degrees Celsius warming). Here we present some early results (MIROC5 as demonstration) on identified hotspots and discuss the differences in severity of droughts between these warming worlds and associated consequences.

References:

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