



Record dry summer in 2015 challenges precipitation projections in Central Europe

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Central Europe was characterized by a humid-temperate climate in the 20th century. Climate change projections suggest that climate in this area will shift towards warmer temperatures by the end of the 21st century, while projected precipitation changes are highly uncertain. Here we show that the 2015 summer rainfall was the lowest on record since 1901 in Central Europe, and that climate models that perform best over the historical time period do not capture 2015-like conditions in the 2001-2030 time period, while models that do capture this event project stronger drying trends in the 21st century. Analyses of precipitation and derived soil moisture reveal that the 2015 event was drier than both the recent 2003 or 2010 extreme summers in Central Europe. Additionally, satellite-derived anomalies of vegetation greenness indicate larger impacts of the 2015 summer on the biosphere compared to these previous events. In terms of precipitation and temperature anomalies, the 2015 summer in Central Europe is found to lie between historical climate in the region and that characteristic of the Mediterranean area. This drought illustrates that potential future drying trends have severe implications and could be stronger than commonly assumed from the entire IPCC AR5 model ensemble.