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Drought dynamics and variability over Bundelkhand region of central India: Past, Present and Future

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In the present study, an evaluation of the past, present, and future variability of droughts in the Bundelkhand region of Central India are analyzed. Bundelkhand is a severe drought-prone region with intense water stress, where in the last five years four were drought. Therefore, understanding the drivers of drought over the region and its future projection is quite crucial for regional water management. The assessment has been made by analyzing the observational dataset from 1951-2018 to understand the regional drought dynamics. The future projection is made using a multi-model ensemble from a regional climate model over the CORDEX South-Asia domain under the highest emission scenario. The Standardized Precipitation Index (SPI) and the Standardized Precipitation Evapotranspiration Index (SPEI) indices are used to understand present drought and its future projection. In addition to this, drought driving parameters like precipitation, temperature, sea-surface temperature wind circulation has been assessed to understand the regional drought dynamics. The composite analysis of drought indicates that the moisture-laden low-level jet from the Arabian Sea branch generally weakened compared to Bay of Bengal branch for monsoon season. Teleconnections of drought over Bundelkhand region shows that nearly half of the droughts are linked to El-Nino events that have become stronger in recent past. The model result reveals that regional climate variability is reasonably captured over the region. In addition, we found increasing drought frequency since the beginning of the 21st century. The detailed results from the analysis will be shown briefly in the general assembly.

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