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GSDR: A global sub-daily rainfall dataset for understanding extreme precipitation

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Precipitation extremes result in flooding and droughts, causing substantial damages and loss of life. Understanding the variability of precipitation extremes with climate change is challenging, as we do not fully understand processes causing extreme precipitation under current climate variability. The INTENSE project focuses on understanding of the nature and drivers of global sub-daily precipitation extremes and change on societally relevant timescales. As part of this, a global sub-daily precipitation dataset (GSDR) has been collected, containing hourly rainfall data from a wide range of sources (25,000 rain gauges across over 200 territories). The dataset is quality controlled (rule-based open-source methodology, GSDR-QC), combining a number of checks (e.g. neighbouring gauges, known biases and errors, Expert Team on Climate Change Detection and Indices thresholds).

Recent updates to the dataset have been made –including data from 2018-2023 –essential for understanding the current and future impacts of climate change, with current work is focused on the development of a regularly (semi-automated) global dataset, providing an extra decade of GSDR data, particularly relevant for understanding the behaviour of precipitation extremes in a changing climate, at a global scale. A set of global hydroclimatic indices have been produced (GSDRI), characterising key aspects of shorter duration precipitation variability, including intensity, duration and frequency properties, which are publicly available where possible alongside a precipitation climate indices dataset.

VAT

Session

Precipitation and Hydrological Models: Extreme precipitation events

Preferred Contribution Type

Oral Presentation

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