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Assessing the impact of systematic biases in detection of soil moisture change across Australia

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Understanding the behaviour of soil moisture is essential for hydrological assessments, and a range of applications including agricultural planning and fire control. Detection of change due to rising greenhouse gas emissions is a critical area of research across the world, and is the focus of this presentation. Previous research of detection and attribution of soil moisture change has been limited by biased model simulations and the poor spatial-temporal coverage of observational data. In this study, we assess the importance of removing systematic biases in general circulation model simulations adopting AWRA-L (Australian Water Resource Assessment landscape model) soil moisture as a surrogate of observed soil moisture. The study thus assesses the impact bias correction plays on past Detection and Attribution exercises in hydrology and elsewhere, and whether removing such biases is critical to arriving at meaningful conclusions.