## Progress in simulating the Asian summer monsoon and its variability

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The Asian summer monsoon is a complex large-scale climate phenomenon whose simulation has proved a challenge for modellers for several decades. Many studies have shown sensitivity to convection and boundary layer parametrisation, cloud microphysics and land surface properties, as well as model resolution. We present results from various experiments with the MetUM aimed at understanding and reducing systematic errors in the monsoon simulation. Idealised sensitivity experiments shed light on the major forcing regions, such as orographic forcing from the Himalayas, the Tibetan plateau and the western Ghats, land-sea contrasts between the Indian peninsula and the surrounding ocean, and sea surface temperature forcing from the Arabian Sea, Bay of Bengal and the equatorial Indian Ocean. Regional modelling with appropriate choice of lateral boundaries helps to isolate particular regional influences. Analysis of the impact of changes to convection and cloud parametrisations provides insight into how problems with the precipitation distribution are related to the assumptions made and the way in which such processes are represented.