



CSSP MESETA : Simulation of the East Asian Summer Monsoon with idealized Tibetan Plateau orography

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Contrary to the traditional view on monsoon dynamics, recent modelling studies have shown that orographic blocking from the Himalayas is perhaps more important than the elevated heating from the Tibetan Plateau (TP) in maintaining the South Asian summer monsoon (SASM). For the East Asian summer monsoon (EASM), the mechanism is less clear. The CSSP MESETA project aims to further investigate the TP's orographic forcing on the dynamic and thermodynamic structures of regional and downstream climate.

Using the UK Met Office HadGEM3 model in its atmosphere only configuration, various experiments with idealised orography were performed to assess the orographic forcing exerted by the TP, Himalayas (HM) and Iranian Plateau (IP). Our results confirm that elevated heating from the TP is indeed not required to maintain the SASM while the HM and IP are both important in sheltering the Indian landmass from the cooler extratropical airmass. Meanwhile, the EASM weakens in all simulations that removed the TP. Whether this is due to the lack of elevated heating or orographic blocking will be the focus of future investigation. This work contributes to the goals of the Global Monsoon Model Intercomparison Project (GMMIP), an endorsed component of CMIP6.