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Modelling the Interaction between Tibet and Climate and Biosphere during the Cenozoic.

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The Cenozoic uplift history of Tibet and its impact on the Asian monsoon and vegetation is complex. The building of the Tibetan Plateau is not a simple story of the rise of a single geological entity driven by the relentless northward passage of India as depicted in numerous modelling exercises, but was a complex process involving a succession of collisions of several Gondwanan terranes with Asia. The talk will review our current understanding of the uplift history of Tibet and show new climate model simulations of how Tibet has influenced climate, vegetation and biodiversity in the region. We make use of isotope-enabled Earth System models, as well as high resolution models to show that the complex history of Tibet has important consequences for understanding the evolution of both the summer and winter Asian monsoon. We show that post-Oligocene growth of north and north-eastern Tibet is crucial for the evolution of vegetation and biodiversity in the region by altering the strength of the winter monsoon system over Asia.