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## Meso-scale weather systems and their interaction in the Tibetan Plateau region

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Meso-scale weather systems have been identified as major precipitation bearing systems in the Tibetan Plateau (TP) region. They can pose a risk for people's life and livelihoods, by causing flooding, extreme winds and heavy rainfall in the populous downstream regions. As local hydroclimatic conditions and large-scale atmospheric circulation patterns change with global warming, it is important to understand the role of such weather systems and the associated precipitation-producing mechanisms for the regional water cycle. Two important systems which are often named in this context are meso-scale convective systems (MCSs) and Tibetan Plateau vortices (TPVs). MCSs are recognized as cloud clusters that produce large areas of heavy rainfall, while TPVs refer to frequently occurring meso-scale cyclonic vortices around 500 hPa that are initiated over the TP. Only few studies have looked at the relationship between the dynamical disturbances like TPVs and observations of MCSs. We present here the key characteristics of MCSs as observed by satellite observations from the past two decades and compare it to the key characteristics of TPVs identified by minima in relative vorticity in reanalysis data. Further, we explore in what way TPVs and MCSs are linked to each other by focusing on the most extreme cases of both systems. Finally, we discuss the role of large-scale circulation for both TPVs and MCSs and suggest that future research about extreme precipitation around the TP region should focus more on the mechanisms that link together both systems.