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Numerical Modelling of the Tropical Maritime Continent Thunderstorm (Hector) During ACTIVE

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The maritime continent convection is directly associated with global climate variations. In the past decades, more attention has been drawn to its feedback and representation in the global scale model as well as its cloud resolving modelling. During November-March, in particular during transition season, such convection, known as Hector locally, can be detected on 65%-90% of days (Keenan et al., 1990) over Melville and Bathurst Islands (Tiwi islands) north of Australian mainland.

Case studies show on an island scale ($\sim$100 km) sea breeze interactions are very complex (Carbone et al., 2000). The convection is controlled by local interactions between prevailing winds, the diurnal heating cycle and topography (Holland and Keenan, 1980). For ACTIVE cases, we used a cloud resolving model – Weather Research and Foreast model to simulate the genesis and evolvement of the Hector storm. We found that even with the current state-of-the-art model, real surface characteristics and meteorological analysis from advanced centres, the predictability of the storm is still low. However, if we incorporated more mesoscale information in the model, e.g. directly or indirectly using the local radiosonde data, the predictability of the storm can be improved. During the workshop, we will show these results and the indirect effect of aerosol on tropical deep convection.