Modelling Manus ozone using WRF

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Ozonesondes launched as part of the CAST campaign on Manus Island, Papua New Guinea have been verified. One of the features appearing from the ozonesonde profiles was an episode of anomalously low ozone concentrations in the TTL (12 ppb), which will become the focus of a modelling exercise to ascertain the dynamics that produced these low ozone concentrations.

It is hypothesized that the low ozone was lifted from the lower troposphere to the TTL in a region of deep convection to the east of Manus Island, before advection moves the air parcel over Manus. Using WRF, we want to address the questions of whether the model can replicate the convection in the West Pacific, and how deep the convection is: has the air ascended from within the boundary layer and/or all the way from the surface?

In this presentation, the method used to address these scientific questions will be presented, along with preliminary experimental results and plans for future experiments.