Using Radio Occultation and Dropsondes for Assessing Antarctic NWP model Accuracy

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Changes in the sea ice distribution in Antarctica depend strongly on changes in dynamic forcing by winds, in addition to temperature changes. Modeling this atmosphere-ocean interaction relies heavily on remote sensing observations, with little ability to evaluate their effectiveness, given the sparsity of in-situ data. We are creating a new dataset of stratospheric balloon-borne radio occultation observations for several Antarctic cyclogenesis events where strong winds at the ice edge are expected to have an impact on ice transport. The Concordiasi dropsonde dataset will serve to assess the overall accuracy of several models for these events, in particular, analyses and forecasts from the National Center for Environmental Prediction and the European Center for Medium-range Weather Forecasts. The proof of concept for balloon-borne radio occultation has already been demonstrated. Through further analysis of this dataset, we will be able to determine its utility as an additional resource to assess model accuracy for remote cyclogenesis events in Antarctica.