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The use of bending angles from the series of Global Navigation Satellite System Radio Occultations (GNSS-RO) is a recognized high performer in the global Numerical Weather Prediction (NWP) system of the Navy, Navy Atmospheric Global Environmental Model (NAVGEM). Currently, the bending angles are assimilated as individual occultation points to account for tangent point drift, and further the observation error model has a latitudinal dependence of magnitude and tapering in the vertical. This observation error model was derived from statistics from the assimilation system itself. Important diagnostics are the monitoring of the observation minus simulation from background (O-B) and the observation minus analysis (O-A); the Forecast Sensitivity to Observation Impact (FSOI); and standard forecast metrics. Future work is focused on promoting GNSS-RO assimilation to the operational data assimilation for the mesoscale system Coupled Ocean Atmosphere Mesoscale Prediction System (COAMPS), the inclusion of an observation error model based on the humidity profiles from the model itself, and to use a 2D forward operator and associated data assimilation. Lastly, the GNSS-RO is used to help assess the impact of new sensors and techniques for the data assimilation system, and in model development, as it is an important unbiased baseline which can help determine the benefit of changes to the system.
OSTS session
Regional and Global CAL/VAL for Assembling a Climate Data Record