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A newly developed multi-scale three-dimensional variational data assimilation (MS-3DVAR) system has been employed to deal with multiple spatial scales in high resolution regional models and observations, and thus to more effectively assimilate multi-satellite altimetry data alongside sparse in-stiu observations, shore-based high-frequency radar velocities, and satellite sea surface temperatures (SSTs). Leveraging the capability developed to assimilate a variety of observations, a set of observing system experiments (OSEs) have been conducted to quantify the impact of the existing multi-satellite altimetry observations on ocean eddy representation and prediction on top of other available observations within the framework of an advanced observing system for the California coastal ocean and during the Salinity Processes in the Upper Ocean Regional Study (SPURS) field campaign in the North Atlantic Ocean. The result demonstrates a significant impact and provides insights in how the assimilation of multi-satellite altimetry improves the representation and prediction of meso-scale eddies.
OSTS session
Near Real Time Products and Applications and Multi-Mission, Multi-Sensor Observations
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