

Including uncertainties of sea surface temperature in an ensemble Kalman filter

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Sea-surface temperature (SST) plays an important role in tropical cyclone (TC) lifecycle evolution, but often the uncertainties in SST estimates are not considered in the ensemble Kalman filter (EnKF). The lack of uncertainties in SST generally results in the lack of ensemble spread in the atmospheric states near the sea surface, particularly for temperature and moisture. In this study, the uncertainties of SST are included by adding ensemble perturbations to the SST field, and the impact of the SST perturbations is investigated using the local ensemble transform Kalman filter (LETKF) with the Weather Research and Forecasting (WRF) model in the case of Typhoon Sinlaku (2008).

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