



Improving Forecasts and Nowcasts at High Latitudes

Best practices for predicting the ocean state indicate that assimilation of data is necessary to have the most accurate estimate possible. Using a methodology of Observed System Simulation Experiments (OSSEs), the data assimilation system used by the US Navy was analyzed to determine how high latitude estimates can be improved. Results indicate that satellite altimetry data are being discarded unnecessarily at high latitudes, due to assumptions based on midlatitude perspectives. Given the understanding that salinity stratification sometimes dominates at high latitudes, operational forecasting can give improved results. However, the accuracy of these results depends heavily on the climatology and covariances used to translate sea surface anomalies into synthetic T and S profiles. If the climatology is outdated and does not reflect the current state of the ocean in the Arctic regions, the synthetic profiles will include these outdated assumptions, and will not accurately represent the current ocean state. Thus a focus on better climatologies at high latitudes is also important for moving forward.

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