# Ensemble optimal interpolation SST analysis system based on the EnKF-C System

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**Abstract**

A new experimental global, Sea Surface Temperature (SST) analysis system ("GSAS") is presented, based on public, Ensemble Kalman Filter data assimilation C code (EnKF-C; Sakov, 2018) developed by the Bureau of Meteorology (BoM) under the Bluelink Project. The GSAS system uses the Ensemble Optimal Interpolation (EnOI) method. It uses the previous analysis as the background field, and implicitly calculates covariances from a static ensemble of SST fields, based on the operational ocean forecasting system OceanMAPS. The system covers the region 75°S to 75°N and produces daily foundation SST analyses on a 0.1° x 0.1° rectangular grid, by assimilating global infrared and microwave satellite SST data streams from Suomi-NPP, GCOM-W, METOP-A/B and NOAA-18/19 polar-orbiting satellites.

The advantages of using the EnOI GSAS system for SST analysis will be outlined, including anisotropic covariance, computational efficiency, use of superobservations to handle different resolution input products, and the ability to account for observation error. Comparisons will be shown between GSAS and the BoM and Canadian Meteorological Centre (CMC) operational daily, optimal interpolation SST analyses.

# References

Sakov, Pavel 2018: EnKF-C User Guide, version 1.68.8, June 19, 2014 – February 7, 2018 (https://github.com/sakov/enkf-c)