

# Development of SST and sea-ice datasets

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Atmospheric analysis and re-analysis systems require fields of sea-ice and SST as boundary conditions. These fields are built from in-situ and satellite observations, and have many of the same problems as the analyses themselves. To make the datasets we collect observations from ships, buoys, satellites and ice charts, quality control them, adjust them to remove biases, interpolate values for times and locations where there are no observations, and merge SST and sea-ice consistently. SST observations from ships, buoys and satellites are not directly compatible, as each platform has its own biases, and correcting for the effects of changes in the observing system is an important source of uncertainty in the results. Sea-ice measurements have similar problems, different satellite retrieval methods give different results, and older data from ice charts is different again.

Our current dataset (HadISST) provides best-estimate SST and sea-ice fields on a 1x1 degree grid for each month since 1870. We are working towards a new version of the dataset which will be based on better in-situ and satellite data (and so more accurate), will be available on a range of space and time resolutions, and will come with comprehensive uncertainty estimates - so it is clear where the data are well constrained by the available observations, and where they are less certain.

