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Automatic quality control of GTS data - surface sea ice temperatures.

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GTS data - especially when drawn directly from the GTS database system - can be of mixed quality. To help improve the quality of GTS data we describe two methods to extract and pinpoint the good surface temperature data from GTS. One method is based on inspecting common-sense properties of the data series, while the other method is based on comparing GTS observations of surface air temperature to observations from space, and from neighboring GTS stations. We find that considerable improvements of GTS data is possible if outliers in residuals are omitted. The residuals are GTS minus satellite, or GTS minus median of GTS neighbors. We discuss how best to employ these methods in view of such data issues as, a) a bias between satellite measurements and GTS data, and b) the fact that some GTS neighbors share outliers, making outlier detection difficult.

We also describe an observation we have made while processing GTS surface sea ice temperatures, namely, that there is a tendency for an increase in GTS temperature anomalies, possibly related to ageing of the stations.