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Abstract: **NCEI-TSG: A Global in situ Sea-surface Salinity and Temperature Database of Thermosalinograph (TSG) Observations**

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The NOAA National Centers for Environmental Information (NCEI) has constructed a Global Thermosalinograph Database (NCEI-TSG) to facilitate access to these in situ sea-surface salinity and temperature measurements. This database provides a comprehensive set of quality-controlled in situ sea-surface salinity (SSS) and temperature (SST) measurements collected from over 300 vessels during the period 1989 to the present. Compared to other TSG datasets, these data have several advantages. 1) The NCEI-TSG is the world's most complete TSG dataset, containing all data from the different TSG data assembly centers, e.g. COAPS (SAMOS), IODE (GOSUD) and AOML, with more historical data from NCEI's archive to be added. 2) When different versions of a dataset are available, the dataset with the highest resolution is always chosen. 3) All data are converted to a common NetCDF format, employing enhanced metadata, following ACDD and CF conventions, to increase the overall quality and searchability of both the data and metadata. 4) All data are processed using the same 11-step quality control procedures and criteria and flagged using a two-level flag system to provide a well-organized, uniformly quality-controlled TSG dataset for the user community. The NCEI-TSG, a unique dataset for in situ sea-surface observations, serves as a significant resource for establishing match-ups with satellite SST and SSS observations for validation and comparisons. The NCEI-TSG database will significantly contribute to the in situ component of the NOAA Satellite SSS Quality Monitor (4SQM) project (under development). This dataset facilitates assessments of global SST and SSS variability and the analysis of patterns and trends at various regional and temporal scales, enabling new insights in climate change, the global water cycle, air-sea interaction, etc. The NCEI-TSG database is freely accessible

via the NCEI website (<http://data.nodc.noaa.gov/cgi-bin/iso?id=gov.noaa.nodc:0156189>) and will be maintained with newly received TSG data, as well as further expanded with more historical data from NCEI's archive.