

Operational SST Processing at NCDC

Introduction: There are two products being produced operationally at NCDC. One is the monthly Extended Reconstruction SST (ERSST) on a 2° spatial grid. An extension of the ERSST processing is the merging of ERSST and Global Historical Climate Network (GHCN) land surface temperatures to produce a monthly global Merged Land-Ocean Surface Temperature (MLOST) product on a 5° spatial grid. It should be noted unlike the ocean temperatures, the GHCN data is air temperature over land and not land itself, so the two quantities are not exactly the equivalent. The second SST product is a daily optimum interpolation (OI) SST analysis which uses in situ and satellite (both infrared and microwave) data. The OI SST analyses are updated daily on a 1/4° spatial grid. The ERSST analyses are produced from 1854 to present, but operationally, updates begin from 1981. The Merged Surface Temperatures are produced from 1880 to present. The Daily OI SST analyses are now produced from September 1981 to present. The two SST analyses are available in NetCDF and through NOMADS and the Live Access Server (LAS).

Progress: ERSST.v3b is the current operational version. In ERSST v3b, input satellite data was removed from the analysis to keep the product consistent with previous climate assessments based on in situ data only. Although, the satellite data were corrected with respect to the in situ data, a very small residual cold bias remained at high southern latitudes where in situ data were sparse. This is now under study. All other versions (v2 and v3) are no longer distributed, but are still produced in-house for diagnostic testing. The MetOffice is coming out with new bias corrections after 1941. Preparations are being made to test their proposed adjustments.

The version 2 Daily OI OI analysis extends backward in time to September 1, 1981 with the addition of NOAA-7 to the Pathfinder satellite data from the University of Miami.

Transition: The quasi-operational (dependent on one person) v3b ERSST production is still being run, but in parallel, a more portable and truly operational version is being developed with documentation available in an experimental internal wiki (<https://local.ncdc.noaa.gov/wiki/index.php/ERSST:Overview>). Each ERSST program now has a detailed header in ROBODoc format. By running the software, a hyperlinked document is created from the headers. A flow chart showing the inputs and outputs of each code has also been made. The documented v3b has been checked in for SVN configuration control, while the older v2 and v3 have been checked in without documentation. For ERSST v3b, the removal of hardcoded paths is ongoing, as part of the effort to ultimately migrate to a transportable group-access directory. For MLOST and OISST, documentation is also proceeding, but ERSST is leading the way. A submission agreement is underway to add ERSST to CLASS.

Budget:	FY 2010
Salaries (including benefits)	
Ethan Shepherd (10 months)	80K

TOTAL NCDC	80K