Sea Surface Temperature

ESSENTIAL CLIMATE VARIABLE (ECV) FACTSHEET

GLOBAL CLIMATE OBSERVING SYSTEM
KEEPING WATCH OVER OUR CLIMATE

WMO IOC International Science Council UN environment

ECV IN BRIEF

Domain: Ocean
Subdomain: Physical
Scientific Area: Energy and Temperature
Products: Sea Surface Temperature

Sea Surface Temperature

Sea-surface temperature (SST) is a vital component of the climate system as it exerts a major influence on the exchanges of energy, momentum and gases between the ocean and atmosphere. SST largely controls the atmospheric response to the ocean at both weather and climate time scales. Daily variations in SST can exceed 3 degrees Celsius and could alter the surface energy budget by more than 10 Wm-2 over the tropics and subtropics. Therefore, the SST and horizontal gradients in SST are also important for coupling with the atmosphere for sub-seasonal to seasonal prediction timescales. The spatial patterns of SST reveal the structure of the underlying ocean dynamics, such as, ocean fronts, eddies, coastal upwelling and exchanges between the coastal shelf and open ocean.

ECV Product[1]

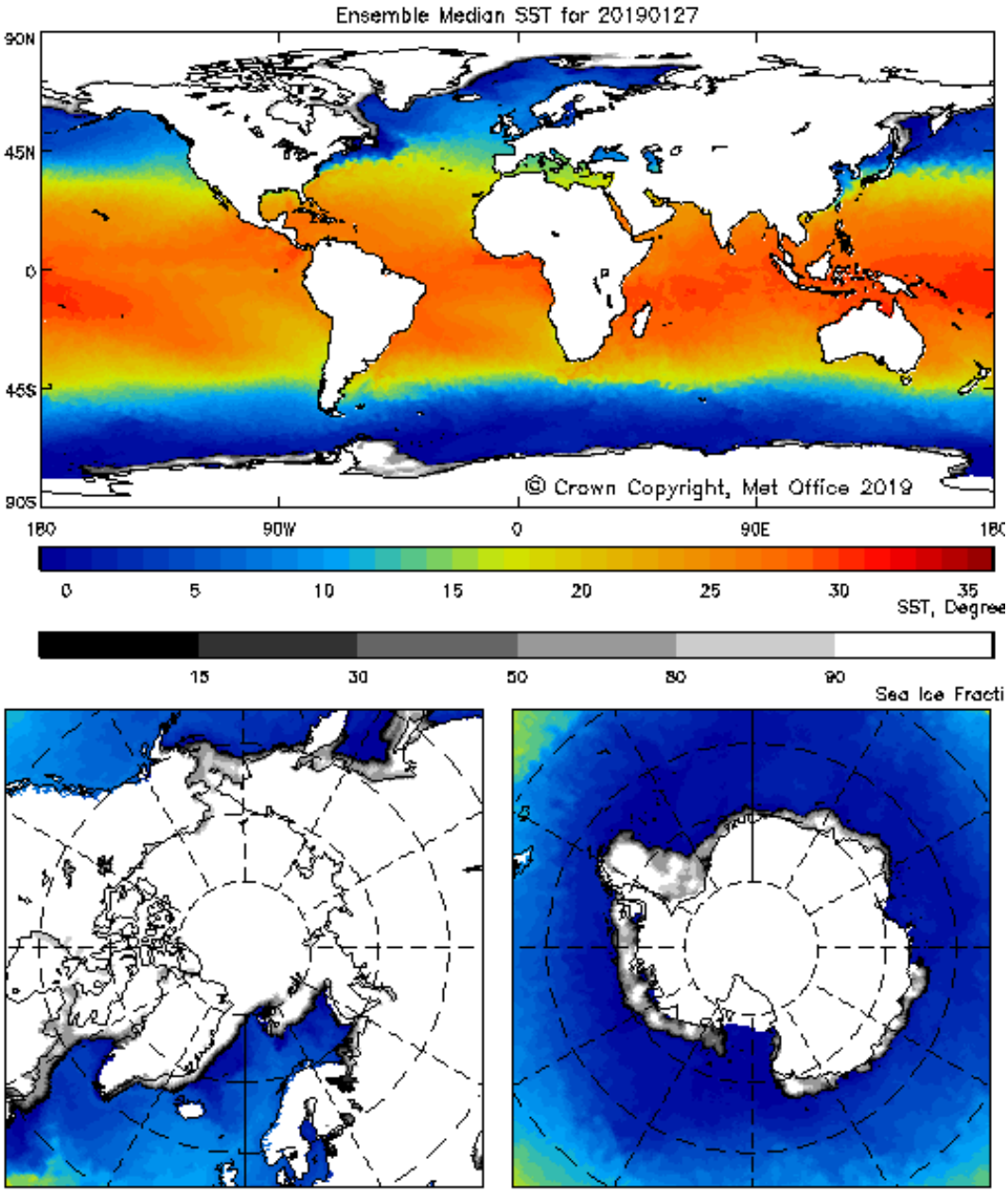
PRODUCT	DEFINITION	REQUIREMENTS				
		FREQUENCY	RESOLUTION	REQUIRED MEASUREMENT UNCERTAINTY	STABILITY	STANDARDS/ REFERENCES
SEA SURFACE TEMPERATURE	Radiative skin sea surface temperature, or Bulk sea surface temperature at Stated depth	Hourly to weekly	1-100 km	0.1 K over 100 km scales	< 0.03 K over 100 km scales	See EOV Specification at www.goosocean.org/eov

Data Sources[2]

[1] Current Products and Requirements as in the Implementation Plan 2016 (GCOS-200). GCOS is reviewing and will update the requirements as part of their contribution to the UNFCCC Global Stocktake. More information on: climatedata.wmo.int.

- Group for High Resolution Sea Surface Temperature: https://www.ghrsst.org/

Ensemble Median SST



Ensemble Median Sea Surface Temperature for 29/01/2019.
Source: www.ghrsst.org.
Each day the GHRSST Multi-product Ensemble (GMPE) experiment, coordinated by the GHRSST Inter-Calibration TAG (IC-TAG), produces a median SST map and associated standard deviation map using SST analysis data collected over the last 24 hour period (i.e. yesterday). Thus, the nominal analysis time for the GMPE median ensemble SST is 12:00Z for the previous day (i.e., T-1). The image data sets are updated each day ~13:30Z.
The GMPE median ensemble SST map is computed as a median average using a variety of GHRSST L4 analysis products after their differing analysis grids have been homogenised by area averaging onto a standard 0.5° lat/lon grid. Although several analyses provide greater coverage (such as large lakes) the median-ensemble SST coverage is restricted by the use of the OSTIA analysis land mask.

The GMPE median ensemble SST is currently derived using the following inputs:
Met Office OSTIA SST analysis, NCEP RTG_SST_HR SST analysis, NAVOCEANO NAVO K10 SST observations, JMA MGDSST SST analysis, RSS RSS MW Fusion SST analysis, RSS RSS MW+IR Fusion SST analysis, FNMOC GHRSST-PP SST and sea Ice analysis, Ifremer ODYSSEA SST analysis, NOAA AVHRR OI (Reynolds), Meterological Service of Canada (CMC) 1/3 degree SST analysis, BMRC GAMSSA SST analysis

[2] This list provides sources for openly accessible data sets with worldwide coverage for which metadata is available. It is curated by the respective GCOS ECV Steward(s) and reflects the status as of 01/2019. The list does not claim to be complete. Anyone with a suitable dataset who would like it to be added to this list should contact GCOS.