

Introduction

The Operational Sea Surface Temperature and Ice Analysis (OSTIA) system produces two daily SST products in near real time:

- Foundation sea surface temperature (SST) on a 0.05° grid (Donlon et al., 2012; Good et al., 2020) from satellite and in situ data;
- Hourly average skin SST on a 0.25° grid (While et al., 2017) based on satellite data.

The GHRSSST multi-product ensemble (GMPE; Martin et al. 2012) is also generated each day to facilitate intercomparisons between SST analyses produced around the world.

Configurations of the processing system are used to generate historical reprocessed datasets. Most recently, a new foundation SST product spanning late-1981 to 2018 has been produced for the Copernicus Marine Environment Monitoring Service (CMEMS). See 'How to get the data' on the right for information on other reprocessed data.

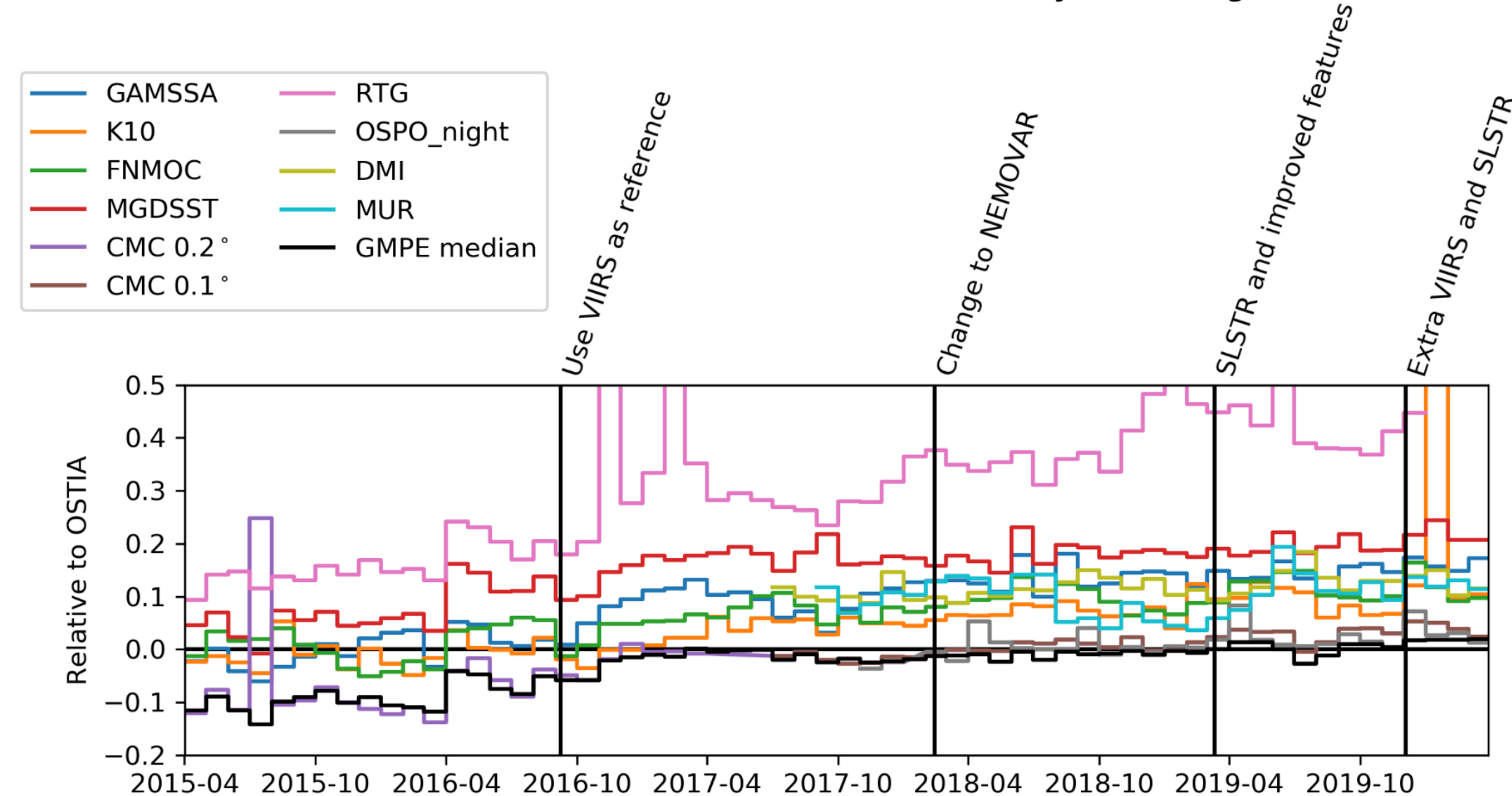
The OSTIA system has changed significantly over the last four years with a further development planned for later in 2020. These changes and their impacts are described in this poster.

Past developments

The OSTIA foundation SST production has undergone significant recent change. In September 2016, night time VIIRS SSTs replaced a subset of MetOp-B AVHRR as the satellite reference data (see also Future Developments on the right). In February 2018 the NEMOVAR variational data assimilation scheme was introduced as the method used to generate the analyses. Further changes were made in March 2019, when the feature resolution of the analyses was improved (Fiedler et al., 2019) and Sentinel 3A SLSTR began to be used. In December 2019, NOAA-20 VIIRS and Sentinel 3B SLSTR were introduced.

The impact of these changes has been assessed using statistics of differences between OSTIA and near-surface Argo data. Other analyses from the GMPE are evaluated in the same way. The plot below shows monthly, global, standard deviations of differences between the analyses and Argo. The OSTIA minus Argo standard deviation is subtracted from each to show the impact of the changes on the relative performance of OSTIA compared to the other analyses.

Standard deviation of differences between SST analyses and Argo data (K)



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The OSTIA team

The team that develops and produces OSTIA currently consists of:

- Simon Good (team leader)
- Chongyuan Mao
- Toby Searle
- Susan Sun
- Mark Worsfold

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How to get the data

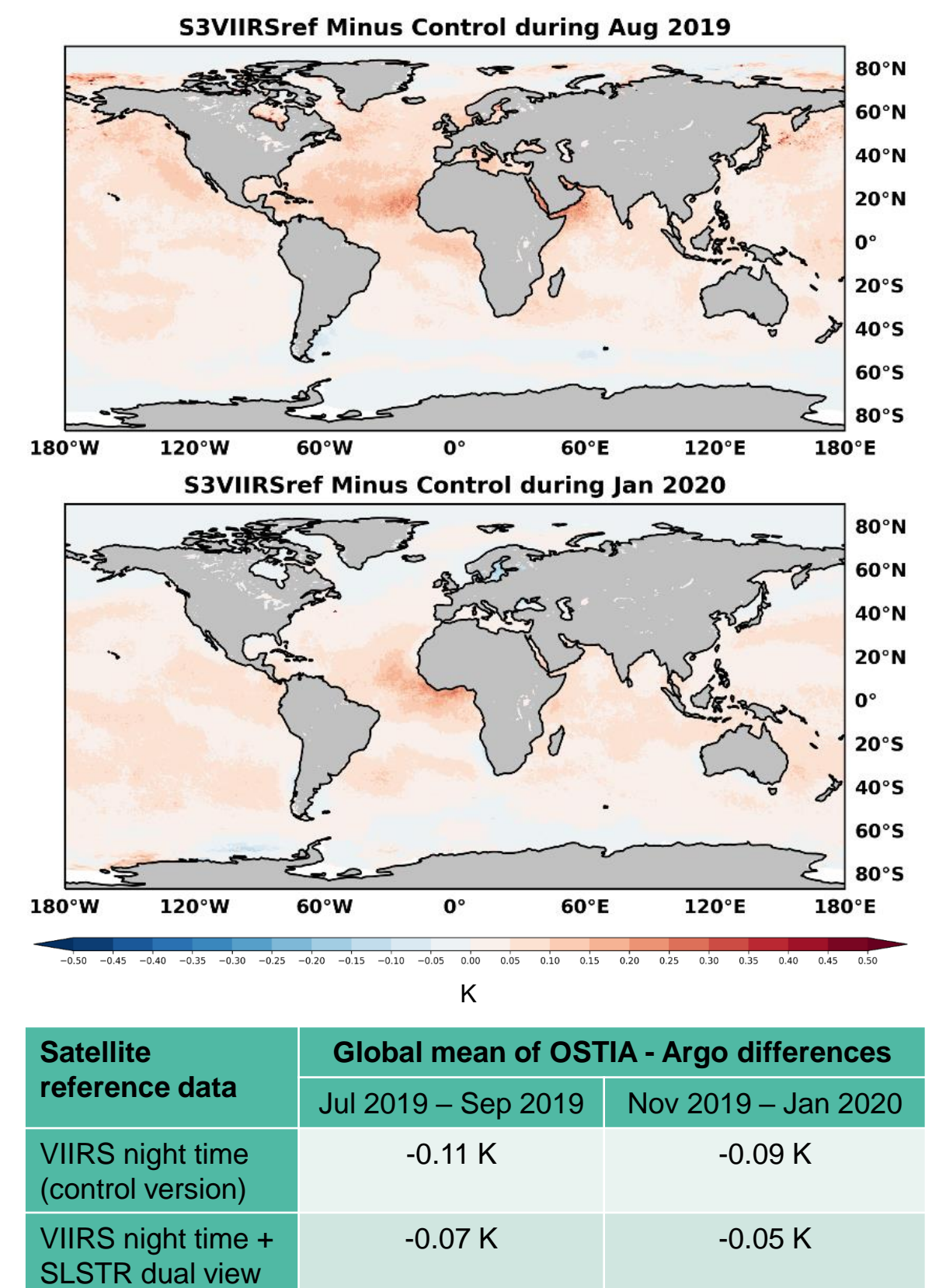
- CMEMS disseminates all types of near real time and reprocessed OSTIA data, including GMPE: <https://marine.copernicus.eu>.
- The PO.DAAC distributes OSTIA foundation SST products: <https://podaac.jpl.nasa.gov>.
- A climate data record (20 cm daily average SST) covering late-1981 to 2016 produced as part of the ESA Climate Change Initiative (CCI) can be found at: <http://cci.esa.int/data>.
- The climate data record and extensions funded by the Copernicus Climate Change Service (C3S) are available at: <https://climate.copernicus.eu>.

Future developments

The OSTIA foundation SST processing uses a reference dataset consisting of in situ observations and a subset of the satellite data that are used in the analyses (currently night time VIIRS) to bias correct the rest of the satellite data.

Later this year, the plan is to add dual view SLSTR data to the reference dataset.

This broadly warms the analyses and reduces a cool bias of OSTIA relative to near-surface Argo data.



References

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