



ships4sst

shipborne radiometers for sea surface temperature

Status ISFRN and Archive

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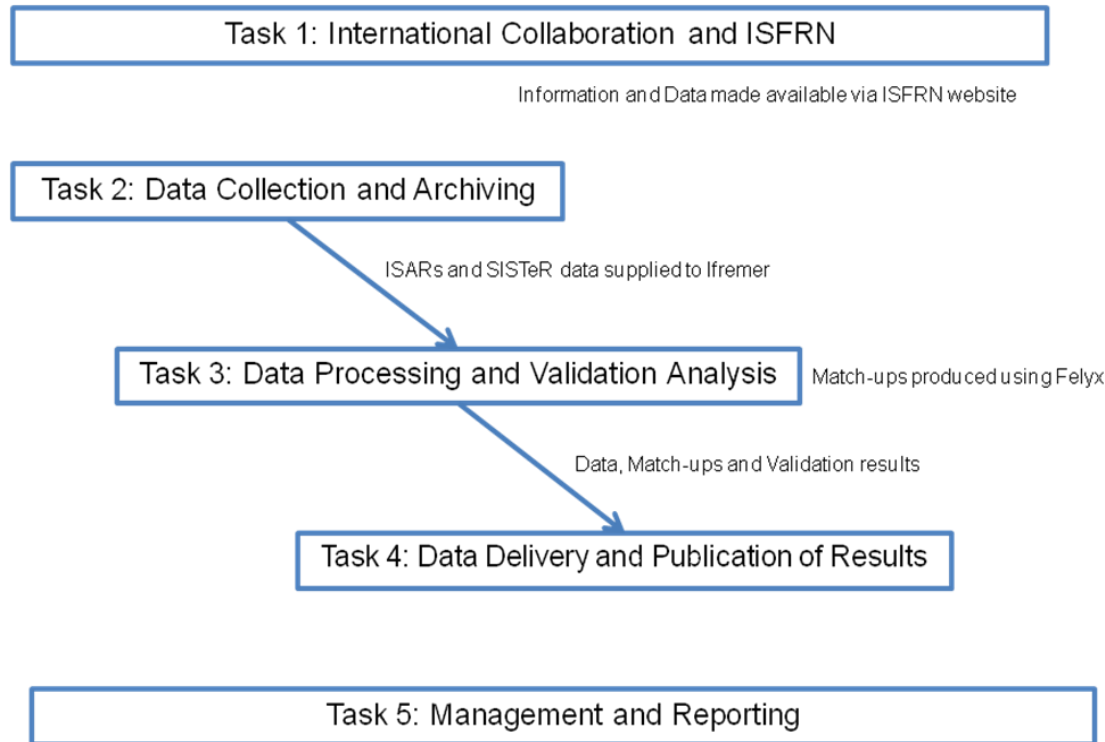
Overview

- Objectives
- Tasks
- International collaboration
- Data Collection
- Archive
- Processing and Validation
- Conclusion

Objectives

- OBJ-1: Validate Sentinel-3A and Sentinel-3B SLSTR L1, L2 and higher order SST products to FRM standards.
- OBJ-2: Maintain and deploy on a continuous basis Thermal Infrared Radiometers (TIR) FRM and necessary supporting instrumentation to validate Sentinel-3 SLSTR SST products.
- OBJ-3: Process, archive and quality control all data following documented FRM procedures that approve their use for FRM satellite validation.
- OBJ-4: Deliver approved data sets and uncertainty budgets to Copernicus and the Sentinel-3 Mission Performance Centre.
- OBJ-5: Collaborate with appropriate International Scientists and Agencies using TIR for satellite validation as an International SST FRM Radiometer Network.
- OBJ-6: Prepare and submit peer-reviewed journal articles.
- OBJ-7: Conduct communications and outreach material promoting Copernicus Sentinel-3 SLSTR and the SLSTR-SST-FRM-Validation project.

Project Tasks



Task 1

- International collaboration
 - RSMAS, CISRO produce L2R data for M-AERI and ISAR
 - ISAR Training
 - Collaboration with South Africa
 - Collaboration on ISAR loan for EarthCARE validation campaign .
 - GHRSSST Task team
 - Inter-comparison at NPL and Boscombe in 2022
- webpage
 - www.ships4sst.org
 - Information, protocols, data format, archive
- Twitter
 - @ships4sst
- Outreach
 - Conferences (GHRSSST, Living Planet, S3VT, EUMETSAT satellite conference)

webpage

ships4sst

Aim Instruments Partners Documents News Services

SHIPBORNE RADIOMETER FOR SEA SURFACE TEMPERATURE

Welcome to the Shipborne Radiometer Network!

The International Sea Surface Temperature (SST) Fiducial Reference Measurement (FRM) Radiometer Network (ISFRN) sets out to develop and promote an international network of ocean and remote sensing scientists who share a particular interest in promoting and improving the use of shipborne infrared radiometers for measuring skin SST at the surface of the ocean, comparable to measurements made by satellite infrared radiometers. This includes operators, designers and builders of such instruments as well as the user of the data.

The scope of the ISFRN activity can cover all aspects of the science and technology of shipborne radiometers used to measure SST. This includes

- exchange of operating advice and information that promote best practice for radiometer deployments,
- establishing protocols for shipborne radiometry including the validation of observations traceable to NMI reference standards,
- agreeing formats for skin SST data retrieved from ship radiometers,
- setting procedures for quality control in order to meet agreed standards of accuracy, and
- provide a single access point of the data collected around the world.

Follow us on Twitter @ships4sst

TAKE A LOOK AT OUR INSTRUMENTS

SERVICES CONTACT

Sign up to the Shipborne-radiometer network

JOIN

Department for Business, Energy & Industrial Strategy

esa European Space Agency

fiducial reference temperature measurements

NERC SCIENCE OF THE ENVIRONMENT

This website is hosted by the National Oceanography Centre (NOC) on behalf of The International Shipborne Radiometer Network

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ISFRN WORKSHOP – Status ISFRN

22. April 2024

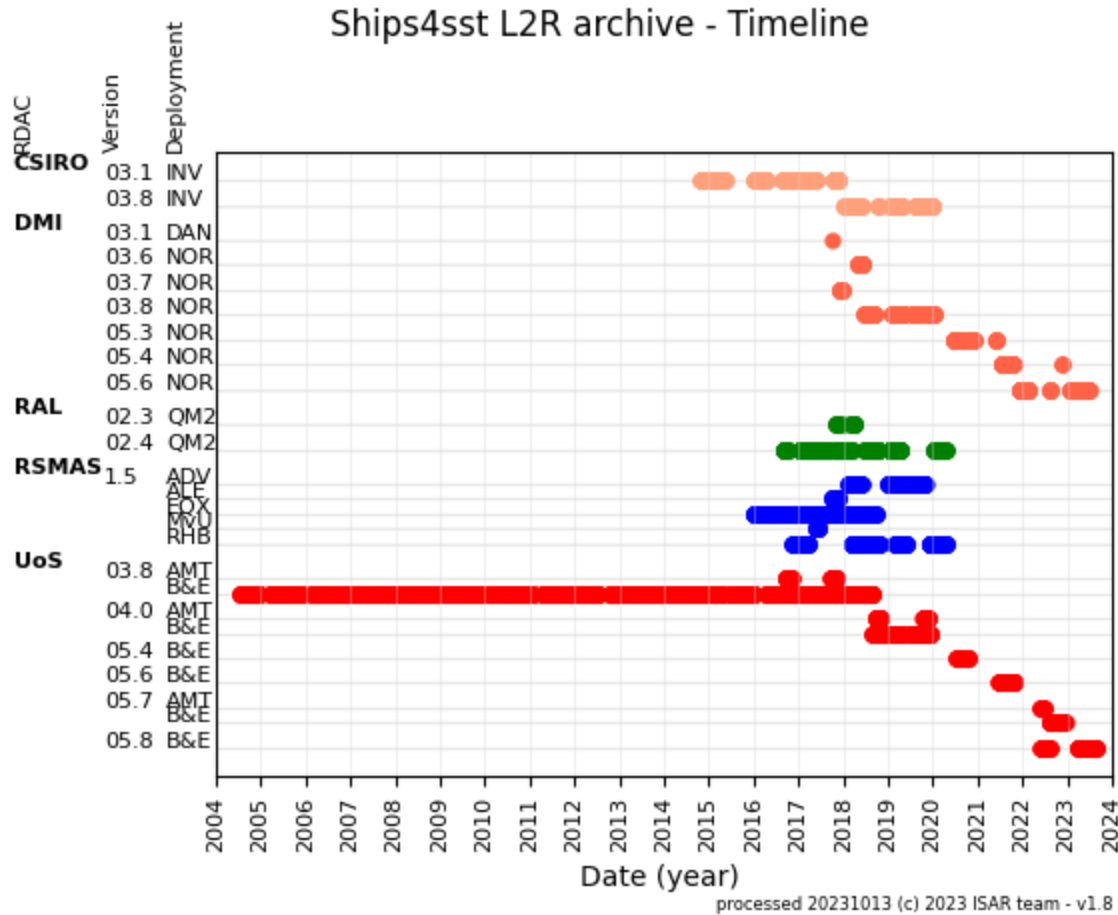
Task 2

- Data Collection
 - UoS – ongoing
 - DMI – ongoing
 - RAL – ongoing

- Archive
 - <ftp.ifremer.fr>
 - Instrument -> RADC-> software version -> year
 - Data

Task 2

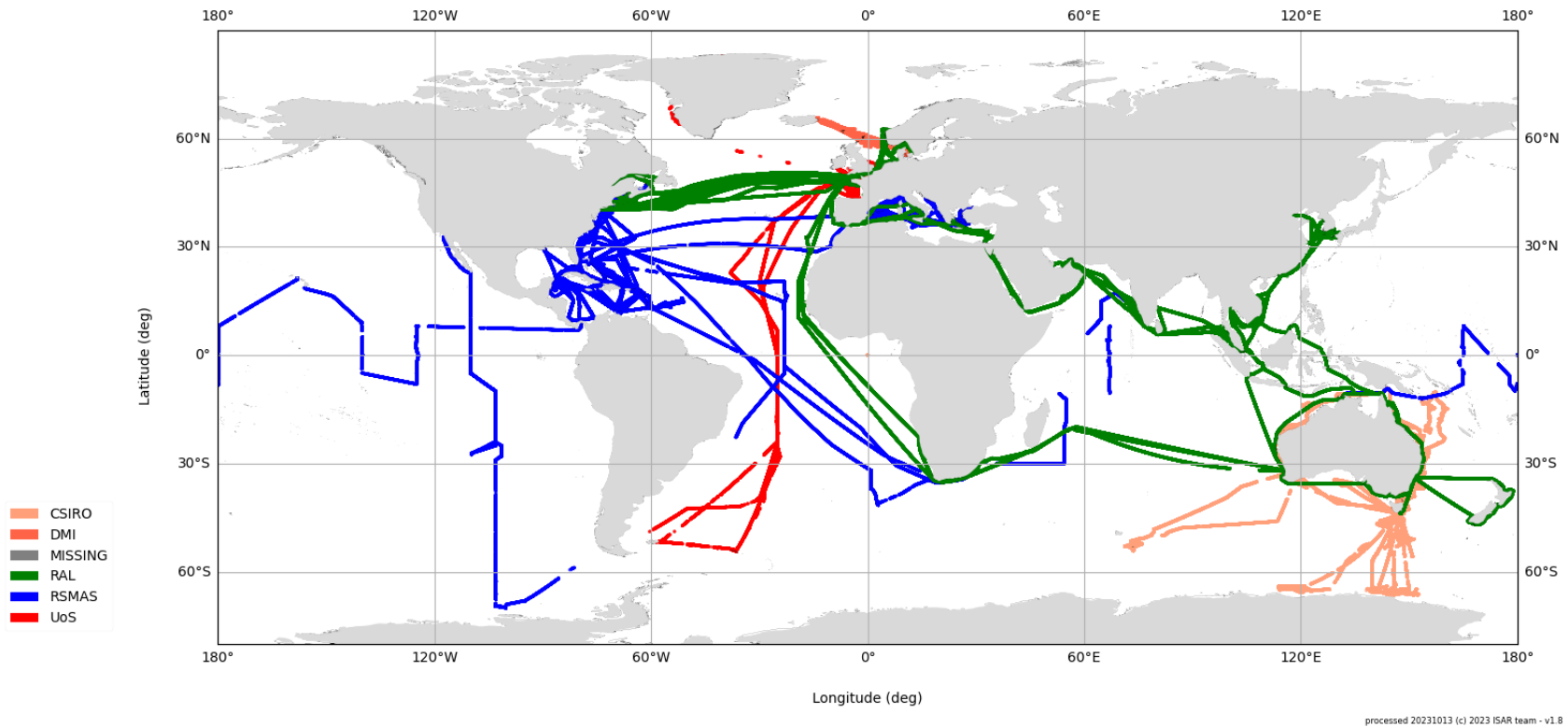
- Archive



Task 2

- Archive

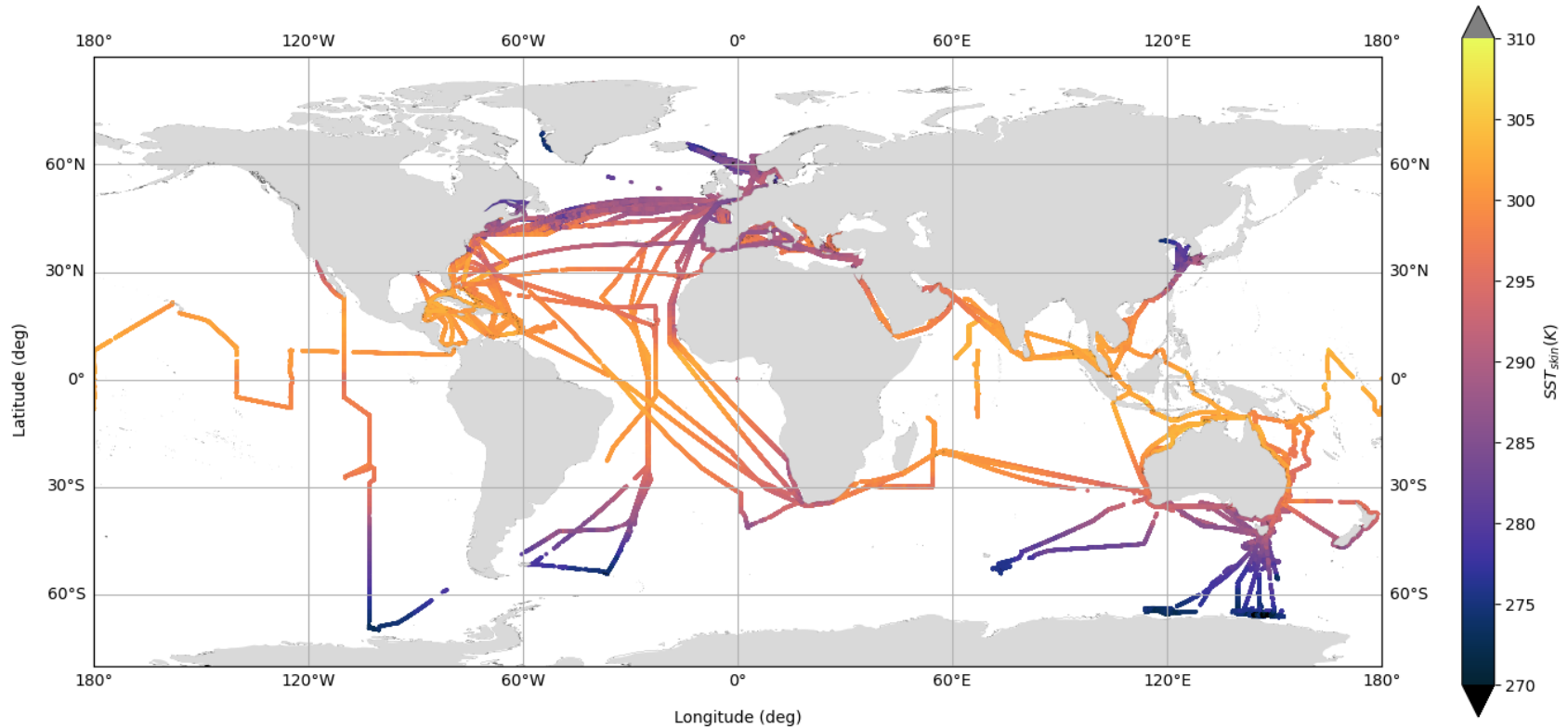
Ships4sst L2R archive - RDAC



Task 2

- Archive

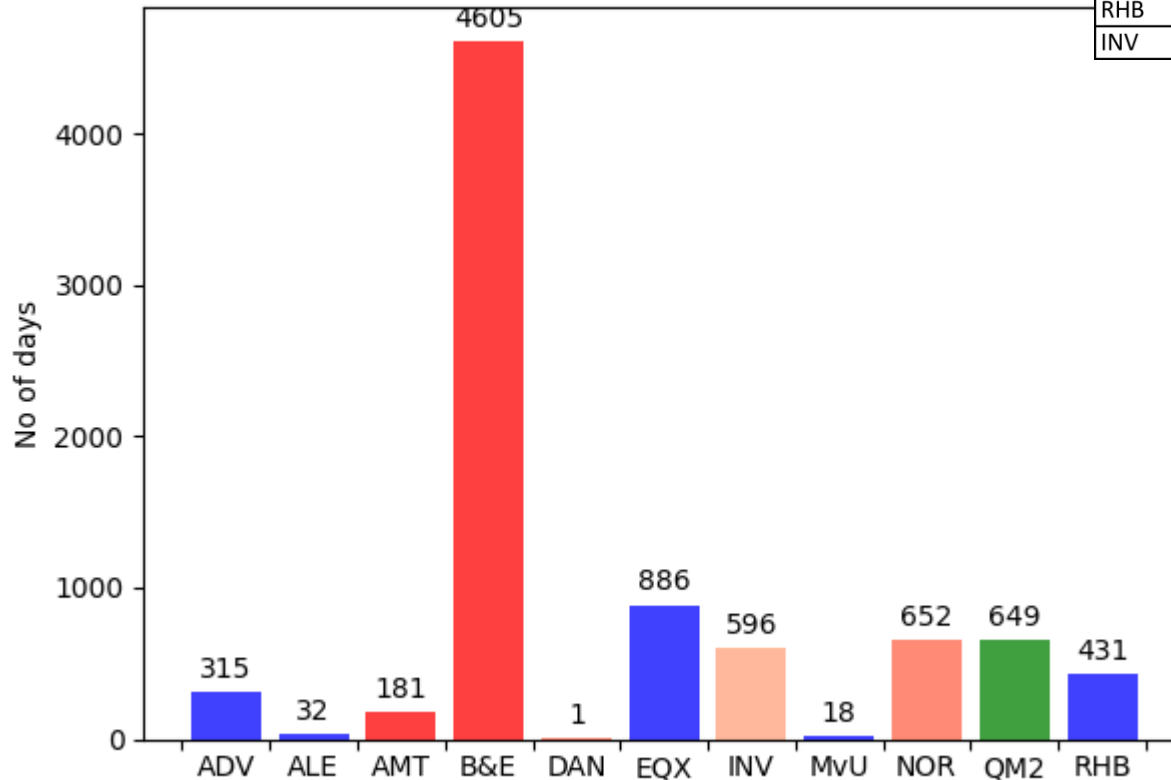
Ships4sst L2R archive - SST



Archive – days of data / route

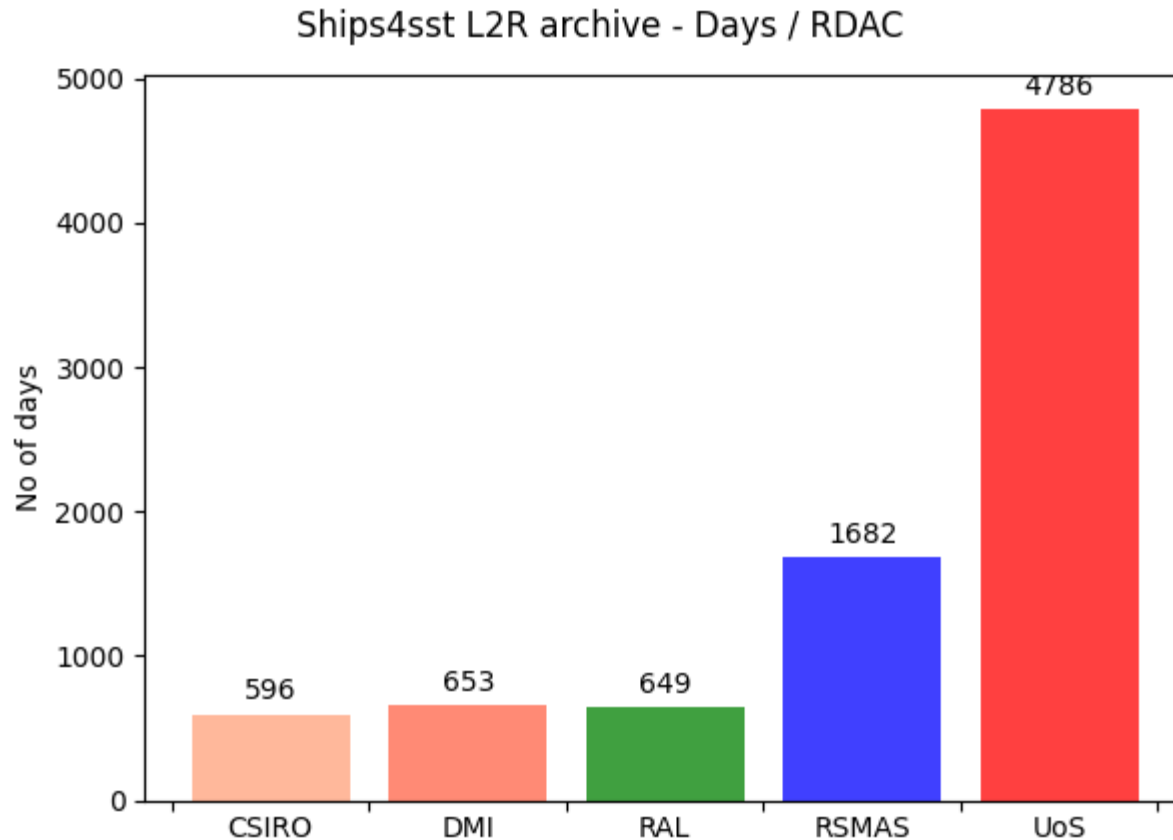
Abbreviation	Ships name	Operator
ADV	MV Adventure of the Seas	RSMAS
ALE	MV Allure of the Seas	RSMAS
DCY	RRS Discovery	UoS
EQX	MV Celebrity Equinox	RSMAS
JCR	RRS James Clark Ross	UoS
NOR	M/V Norrana	DMI
PtA	MV Pont Aven	UoS
QM2	MV Queen Mary 2	RAL
MaU	RV Minerva Uno	RSMAS
RHB	RV Ronald H. Brown	RSMAS
INV	RV Investigator	CSIRO

Ships4sst L2R archive - Deployment days



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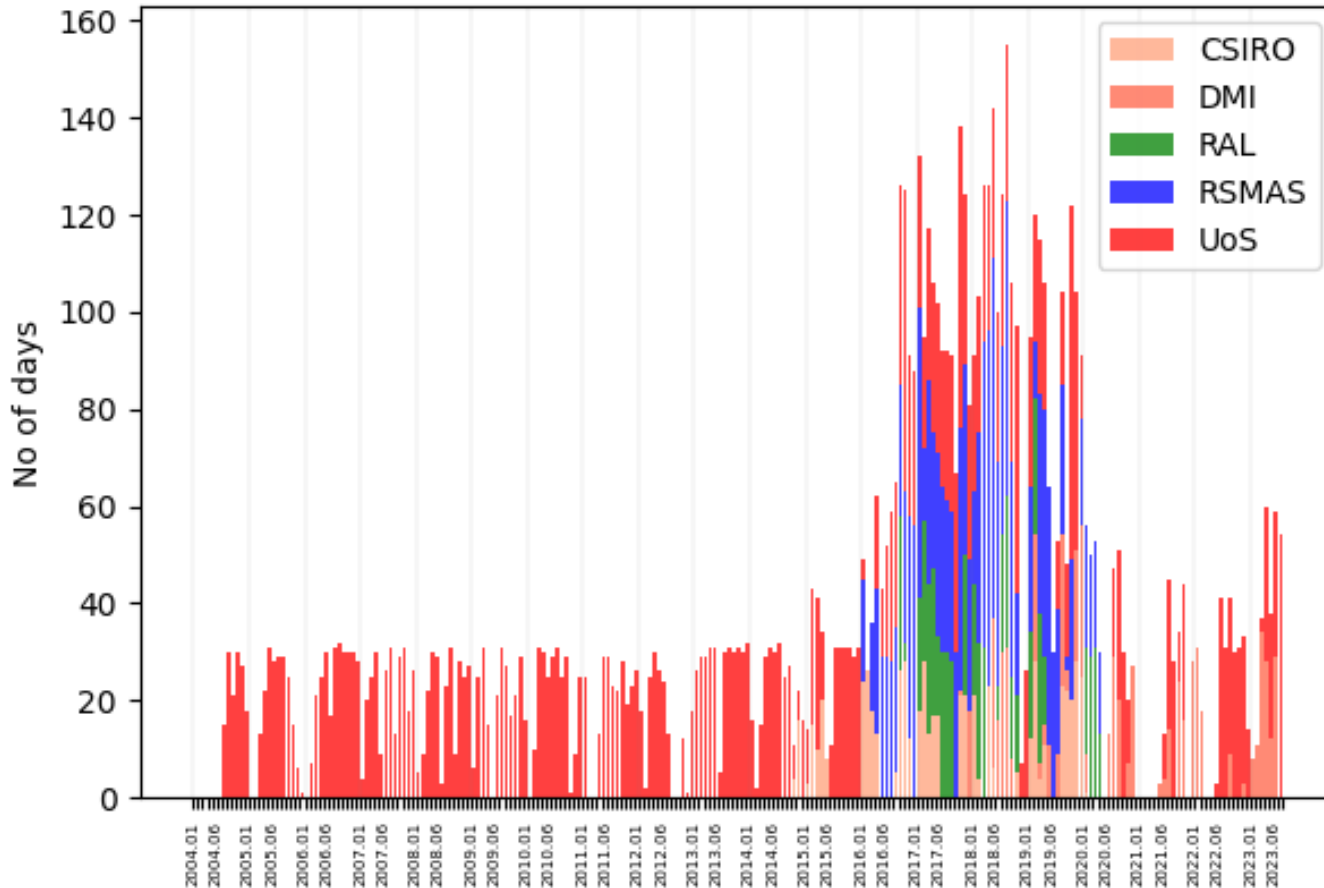
Archive – days of data / RDAC



processed 20231013 (c) 2023 ISAR team - v1.8

Archive – days of data/ month/ RDAC

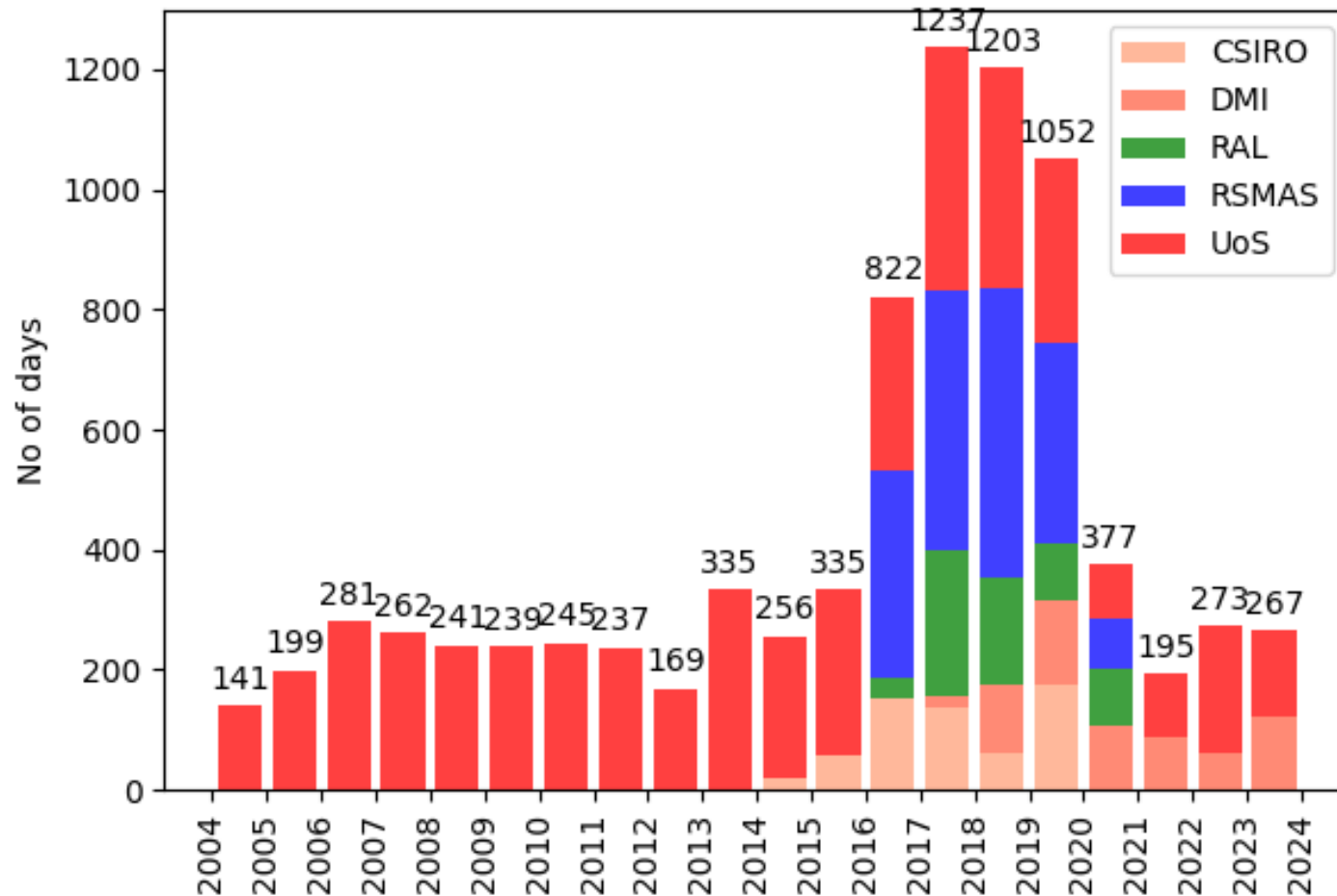
Ships4sst L2R archive - Days / RDAC



processed 20231013 (c) 2023 ISAR team - v1.8

Archive – days of data/ year/ RDAC

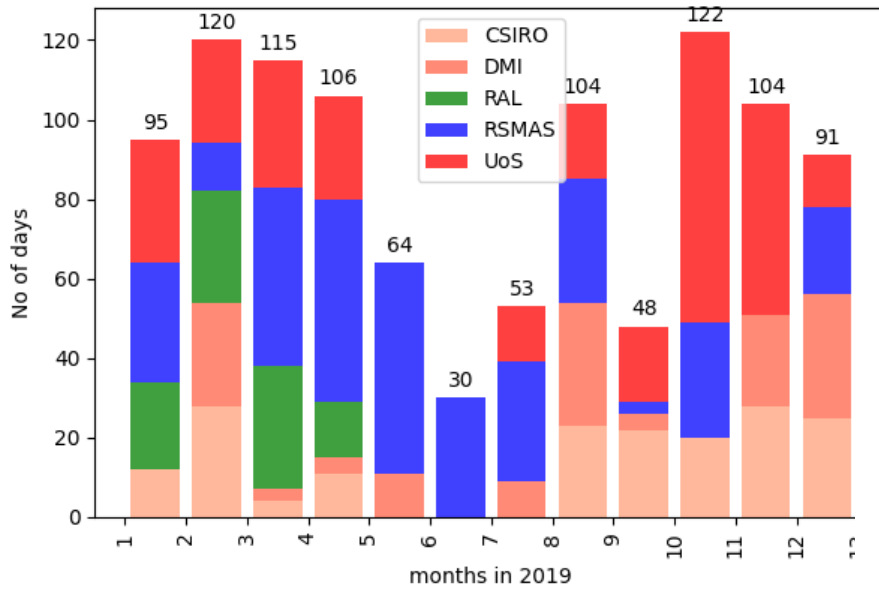
Ships4sst L2R archive - Days of SST annual



processed 20231013 (c) 2023 ISAR team - v1.8

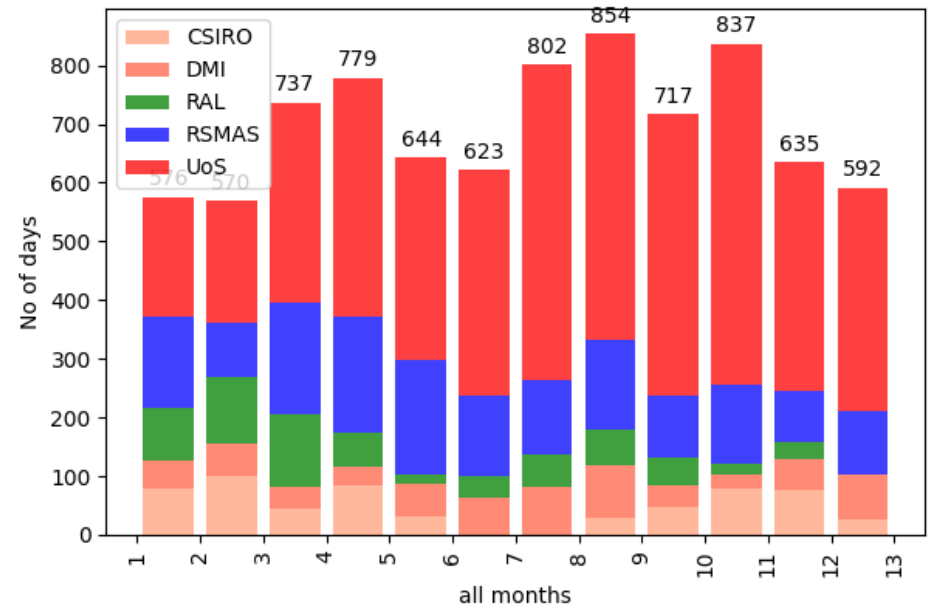
Archive – SST (days) / month (year)/ RDAC

Ships4sst L2R archive - Days of SST by month



processed 20220906 (c) 2022 ISAR team - v1.7

Ships4sst L2R archive - Days of SST by month



processed 20231013 (c) 2023 ISAR team - v1.8



1.2 COMMON FILE NAME ISSUES:

- Files uploaded compressed, either each file or multiple together in one compressed file. Does not work, because the archive ingestions system expects plain netcdf files.
- Date without time in the file name. i.e. 20180112 instead of 20180112012423
- Missing the <Additional Segregator> which is used for deployment information. While it says additional in [1] it is a compulsory field in the file name.
- Adding extra fields in the file name (e.g. partxx). Adding extra fields, on top of the above mentioned ones, will break the automated ingestions and is not compliant with the L2R specification.

2. RE-ISSUING DATA FILES:

If data providers want to re-issue files for whatever reason please read carefully the two sections below.

2.1 SAME FILE VERSION NUMBER

If the file name is exactly the same as the file name already submitted, please contact ships4sst (w.wimmer@soton.ac.uk) or the archive (lean.francois.piolle@ifremer.fr) before uploading any data. Because there is no difference in the file name the automated ingestion system does not know what to do and files will not get updated. In general this should be avoided and new files should have a new file version number.

2.2 DIFFERENT FILE VERSION NUMBER

New data files with a different file version number (table 1.1, row 9) from the previous data file can be uploaded without any notification. The automated ingestion system is set up to deal with multiple file version numbers.

3. REMOVING FILES

IF data providers discover that files have data issues and they want them removed, please contact ships4sst (w.wimmer@soton.ac.uk) or the archive (lean.francois.piolle@ifremer.fr) . The archive currently has no automated process for removing data.

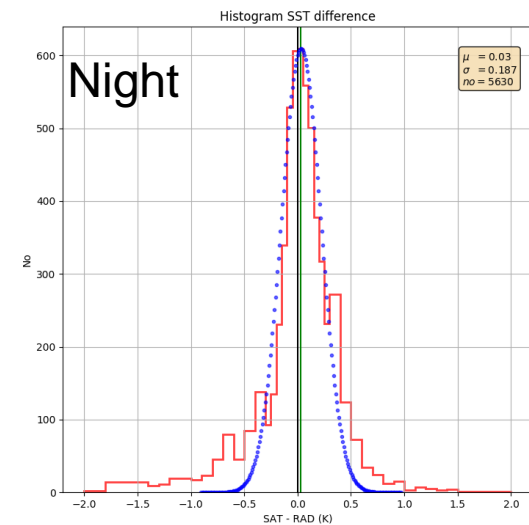
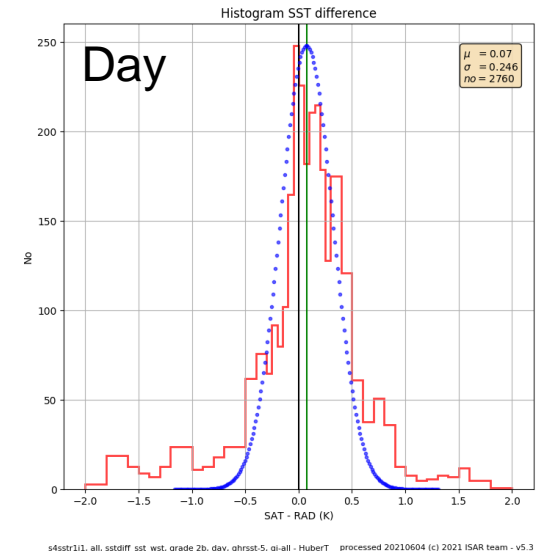
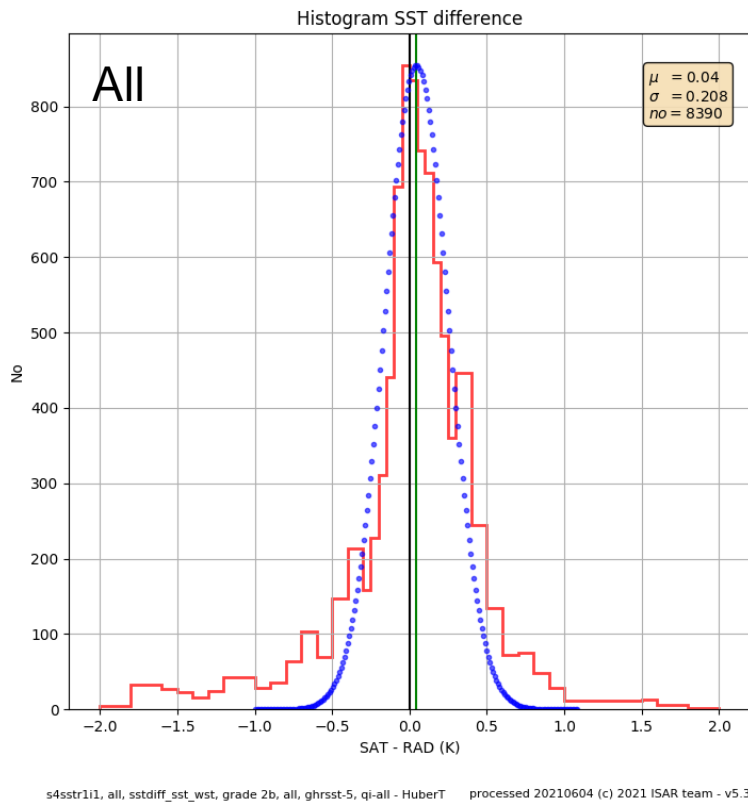
Task 3

- Data processing and validation
 - Felyx MDB generation at Ifremer/EUMETSAT
 - SLSTR L1b and L2 data within 400x400 pixels of matchup
 - L2R data within 6hrs of matchup
 - MDB analysis tool
 - Uses Wimmer et.al 2012 approach
 - All SST fields
 - 2019 (WST and D3, D2,N3,N2)
 - See validation talk

Wimmer, W., Robinson, I. S., & Donlon, C. J. (2012). [Long-term validation of AATSR SST data products using shipborne radiometry in the Bay of Biscay and English Channel](#). *Remote Sensing of Environment*, 116, 17-31. DOI: [10.1016/j.rse.2011.03.022](https://doi.org/10.1016/j.rse.2011.03.022)

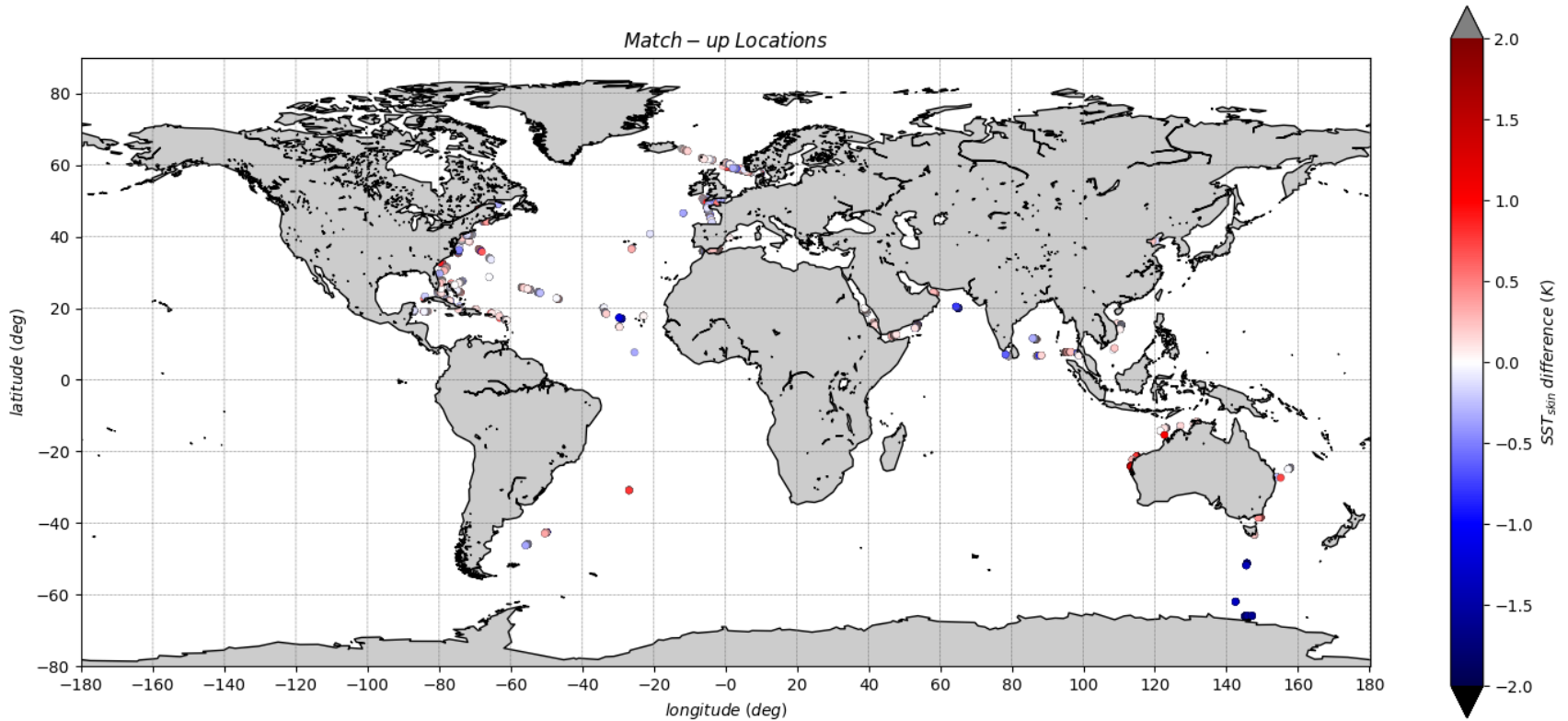
Task 3

2019 - CV 5 - S3A



Task 3

WST - 2019 - CV 5 - S3A



Task 4

- Data Delivery
 - On archive

- Publications
 - Papers in preparation
 - The International SST FRM Radiometer Network
 - SISTeR
 - SLSTR validation using ships4SST data, including high latitudes.
 - Conferences
 - GHRSSST
 - Living Planet
 - S3VT
 - CIMR from Science to Operations
 - TRUSTED workshop

Conclusion

- International Collaboration
 - Good progress
- Data Collection
 - Issues due to COVID-19
- Archive
 - Partners data (RAL, DMI, UoS)
 - M-AERI and CISRO ISAR data
- Data Processing and Validation
 - Very good WST results
 - Results for D3, D2, N3, N2 (see validation talk)
- GHR SST Task Team