QUALITY INFORMATION DOCUMENT

For OSI TAC SST product 010-010

Issue: 1.0

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CHANGE RECORD

Issue	Date	§	Description of Change	Author	Validated By
1.0	10/01/2016	All	First version of document for CMEMS V2	J-F Piollé	Bruce Hackett

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I EXECUTIVE SUMMARY

I.1 Products covered by this document

The OSI TAC V3 SST products covered by this document are :

Product Name	Production Unit
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	IFREMER (Brest)

The SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010 is a multi-sensor level 3 gridded product, covering the Global Ocean at 0.1° horizontal resolution. It results from the merging of various satellite SST level 2 data, which have passed a significant number of quality controls, and which have been inter-calibrated through an inter-sensor bias correction procedure, using a median field generated from a set of “best quality” sensors, to provide an estimate of the night time SST based on original SST observations.

I.2 Summary of results

When compared to in-situ SST measurements, the SST products documented show the following results which are consistent with the other SST products generated at Ifremer (like ODYSSEA analyses).

I.3 Estimated Accuracy Numbers

Product Name	Mean difference (K)	RMS difference (K)
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	-0.165	0.521

II PRODUCTION SUBSYSTEM DESCRIPTION

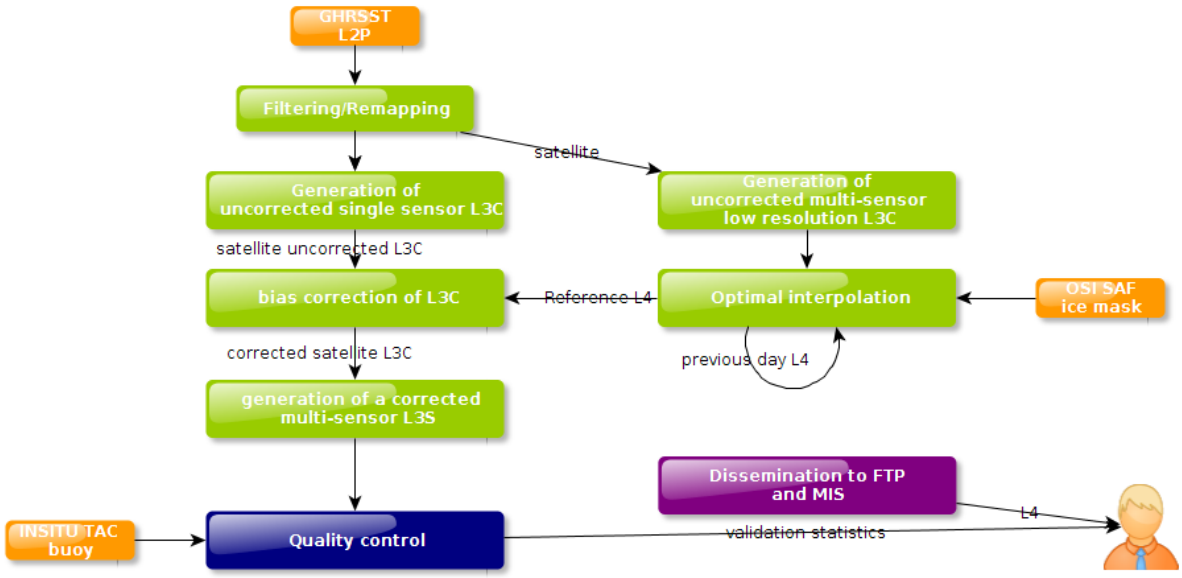

Figure II.5.1 Schematic diagram of the operational processing chain at IFREMER

Figure II.4.1 shows the different steps for the processing of SST products at IFREMER. In the current configuration of the chain, a selection of GHRSST L2P products is used as to build the reference for the bias correction of the other SST sources. More details on each processing step can be found in the corresponding Product User Manual.

III VALIDATION FRAMEWORK

The baseline for the validation of SST TAC products is to use drifting buoy measurements only, as recommended currently by the GHRSST group on satellite SST validation (STVAL). Mean and standard deviation of the departures from drifting buoy SST measurements are computed over pre-defined geographical areas (Figure IV.1.1). Various quality check procedures are applied on drifting buoy measurements by SST TAC Production Units to discard suspect data, using gross error checks and/or blacklists made available by various centres.

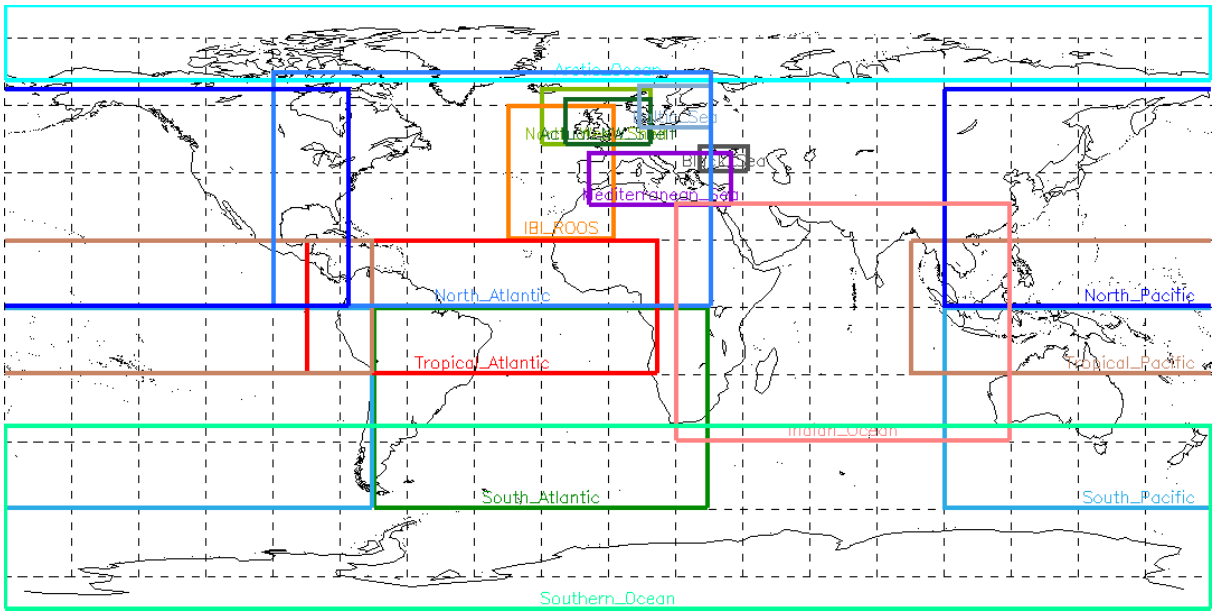

Figure III.1.1 : geographical areas defined by the SST TAC for the computation of validation statistics.

However, for some SST TAC products, the use of drifting buoy measurements has limitations which can affect negatively the significance of these statistics :

- in some parts of the global ocean and in some regional seas, the number of drifting buoy measurements is very low (ex : Mediterranean Sea, Baltic Sea), and even sometimes equal to zero (ex : Black Sea). In these cases, additional statistics can be computed using other data sources (moored buoys, ARGOS floats, AATSR…)

The in situ data are averaged daily over the same pixels as the L3 product grid before comparison. We only keep nighttime measurements top be consistent with the data screening policy for the input satellite data.

IV VALIDATION RESULTS

Product Name	start date	end date	sel. area	parameter	value
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	glo	mean	-0.165
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	glo	stddev	0.521
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	glo	nbsamples	1119260
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Tropical_Atlantic	mean	-0.134
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Tropical_Atlantic	stddev	0.477
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Tropical_Atlantic	nbsamples	96377
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Tropical_Pacific	mean	-0.174
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Tropical_Pacific	stddev	0.397
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Tropical_Pacific	nbsamples	135978
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	North_Pacific	mean	-0.190
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	North_Pacific	stddev	0.534
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	North_Pacific	nbsamples	193408
SST_GLO_SST_L3S_NR	2012-10-01T00:00	2016-01-01T00:00	North_At	mean	-0.194

T_OBSERVATIONS_010_010			lantic		
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	North_Atlantic	stddev	0.515
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	North_Atlantic	nbsamples	488583
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Southern_Ocean	mean	-0.165
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Southern_Ocean	stddev	0.620
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Southern_Ocean	nbsamples	149586
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	North_West_Shelf	mean	-0.205
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	North_West_Shelf	stddev	0.520
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	North_West_Shelf	nbsamples	17903
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	IBI_ROOS	mean	-0.201
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	IBI_ROOS	stddev	0.536
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	IBI_ROOS	nbsamples	66582
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Black_Sea	mean	0.147
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Black_Sea	stddev	0.664
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Black_Sea	nbsamples	410

SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	South_Pacific	mean	-0.150
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	South_Pacific	stddev	0.442
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	South_Pacific	nbsamples	148266
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Baltic_Sea	mean	0.266
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Baltic_Sea	stddev	0.705
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Baltic_Sea	nbsamples	33
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	South_Atlantic	mean	-0.090
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	South_Atlantic	stddev	0.551
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	South_Atlantic	nbsamples	185436
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Actual_NW_Shelf	mean	-0.125
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Actual_NW_Shelf	stddev	0.523
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Actual_NW_Shelf	nbsamples	2006
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Arctic_Ocean	mean	-0.438
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Arctic_Ocean	stddev	0.584
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Arctic_Ocean	nbsamples	15580

SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Land_Lake_River	mean	-0.162
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Land_Lake_River	stddev	0.686
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Land_Lake_River	nbsamples	26
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Indian_Ocean	mean	-0.119
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Indian_Ocean	stddev	0.534
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Indian_Ocean	nbsamples	111793
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Mediterranean_Sea	mean	-0.168
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Mediterranean_Sea	stddev	0.588
SST_GLO_SST_L3S_NRT_OBSERVATIONS_010_010	2012-10-01T00:00	2016-01-01T00:00	Mediterranean_Sea	nbsamples	21621

Table V.5.1 Mean (K), standard deviation (K), and number of match-ups for differences between High Resolution Global SST multi-sensor composite and in-situ SST measurements provided by IN-Situ TAC. The statistics were computed from 2012-01-01 to 2016-01-01.