



Sea Surface Temperature by Barnes' interpolation: current stage



UFRJ

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OUTLINE

- **REMO Network;**
- SST Composition;
- Error Estimation ;
- Validation – SST (Results);
- Remarks.



- REMO is a network composed of Petrobras, the Brazilian Navy and four Public Brazilian Universities.

REMO main goals are:

- To develop an assimilative ocean forecast system for the Brazilian continental shelf and slope regions;
- To help environmental authorities in case of oil disasters.

 PETROBRAS - Research Center

 Brazilian Navy – CHM/IEAPM

 Federal University of Rio de Janeiro

 University of São Paulo

 Federal University of Rio Grande

 Federal University of Bahia

The Team

Ph.D: 18

M.Sc.: 8

Bachelor: 9

Technicians/

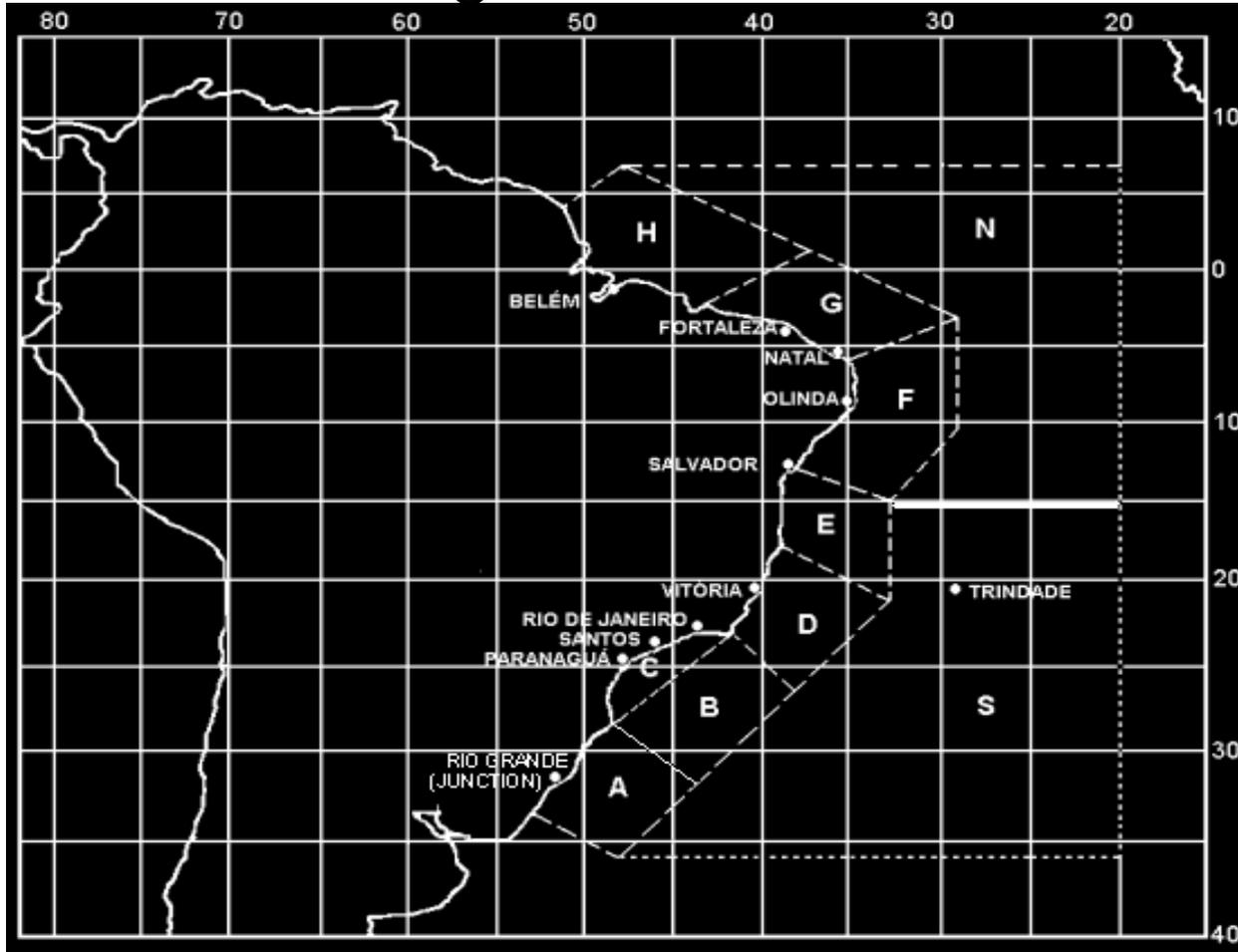
Administrative: 7

Students: 8

≈ 50 people



The Region of interest



METAREA V - Maritime area under Brazilian Navy responsibility for weather and ocean forecast

Computational Resources

High Performance Computer

NETUNO – NCE/UFRJ

Dell Server 256 nodes (2 processors Xeon Quad-core 2.6 GHz e 16 MB RAM) Total: 2048 processor units

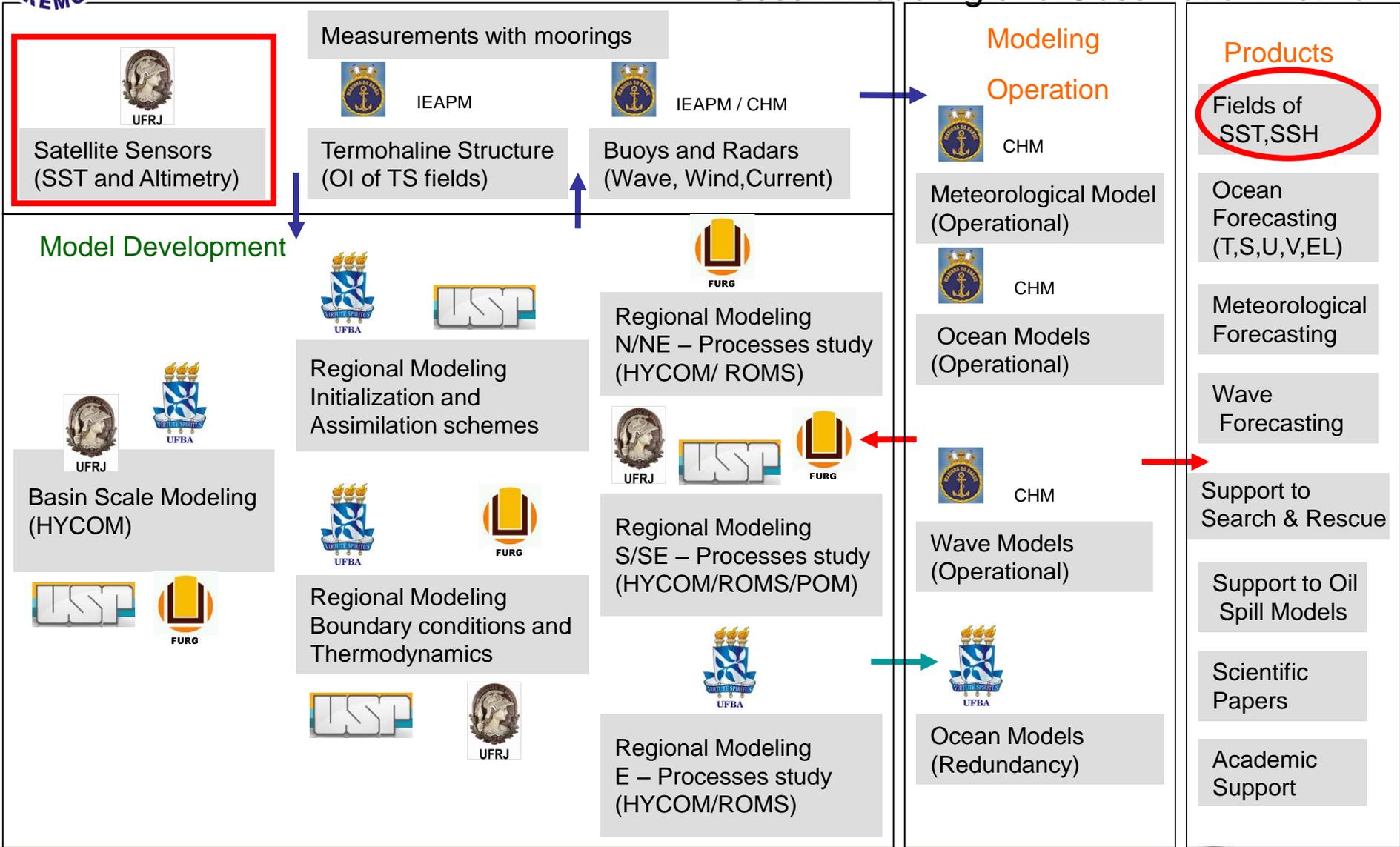


High Performance Computer

SGI Altix ICE 8200 – CHM/Brazilian Navy

SGI Server 32 nodes (2 processors Xeon Quad-core 3 GHz e 16 MB RAM) Total: 256 processor units

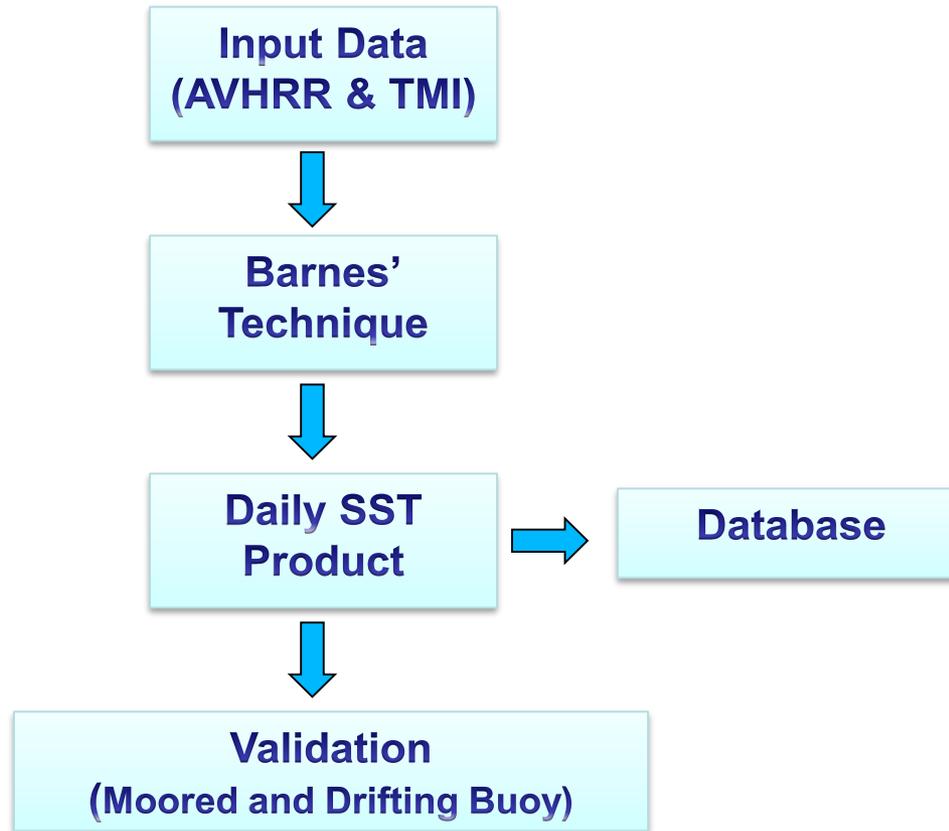




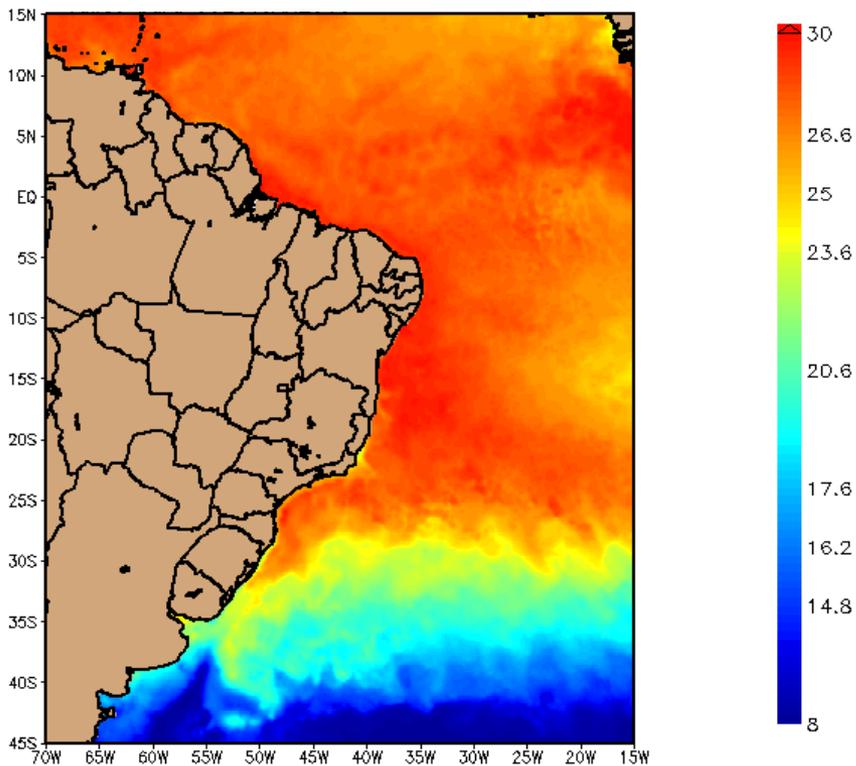
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SST Composition



Daily SST

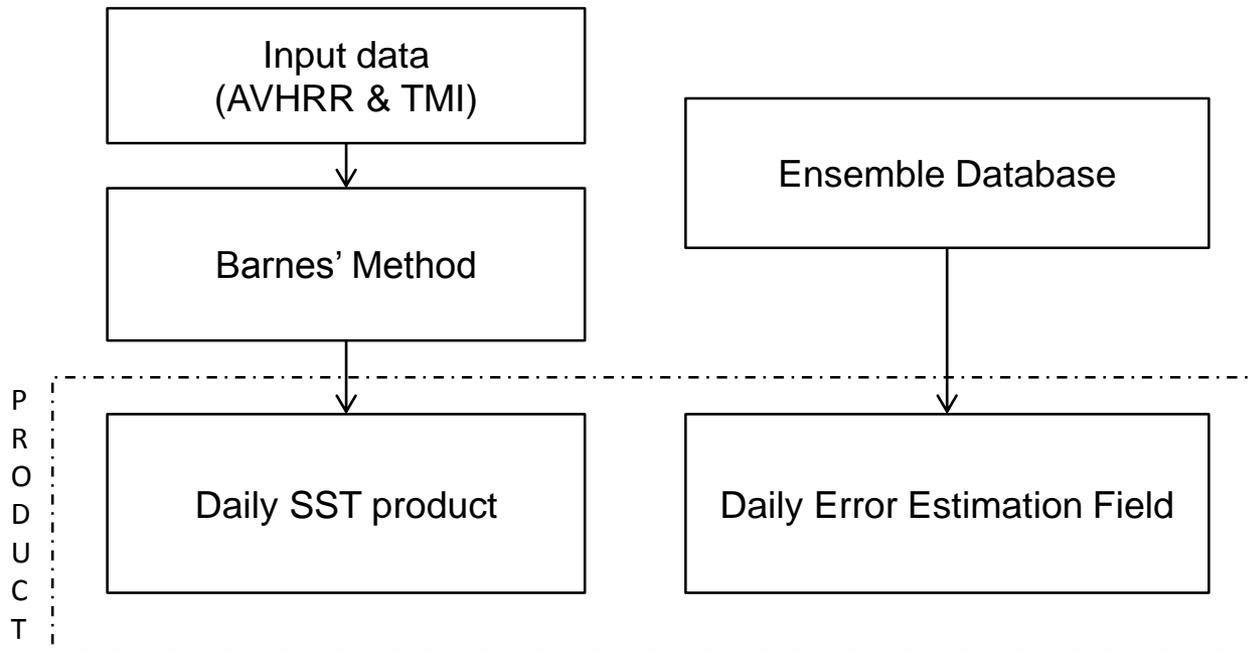


➤ homepage:
<http://www.rederemo.org/html/>

OUTLINE

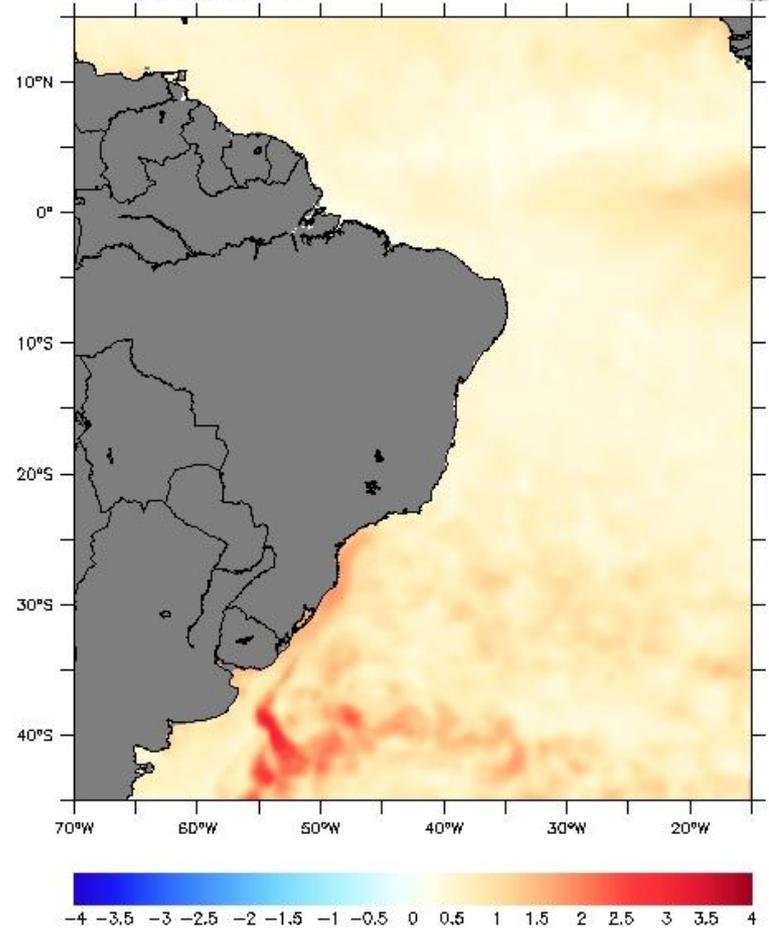
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Error Estimation: SST field estimation method and its uncertainties



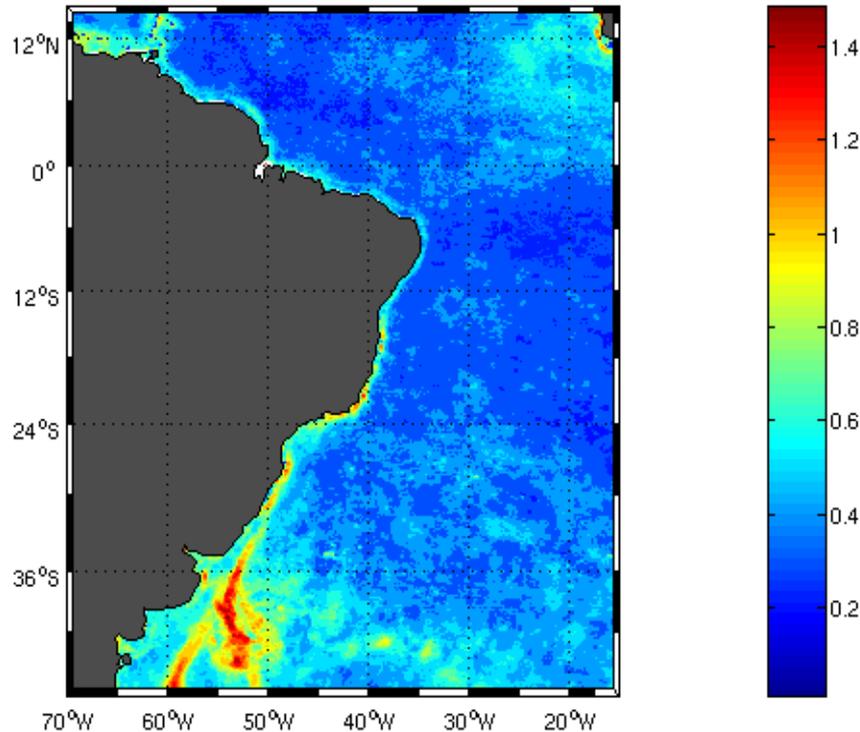
SST field uncertainty

Rede de Modelagem e Observação Oceanográfica
Temperatura da Superfície do Mar (Celsius)
Valido para 0630



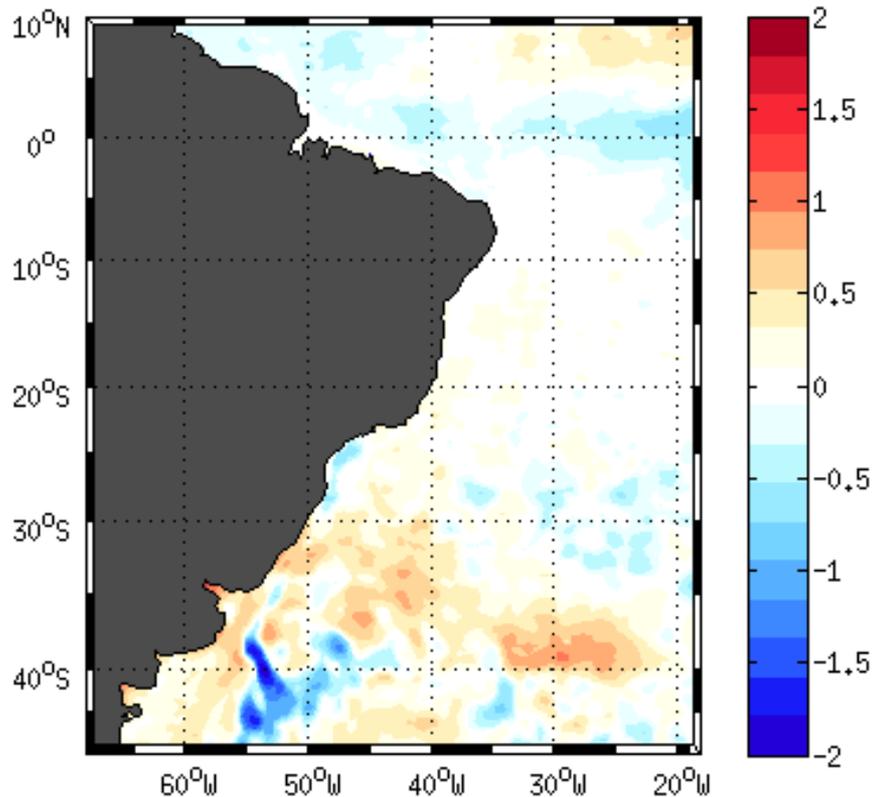
Standard deviation on 30th June 2012.

Error Estimation: SST field uncertainty



RMSE field generated from SST estimated values considered in this work and SST estimated values of OSTIA project collected during the period from January 1st to June 30th, 2006.

Error Estimation: SST field uncertainty

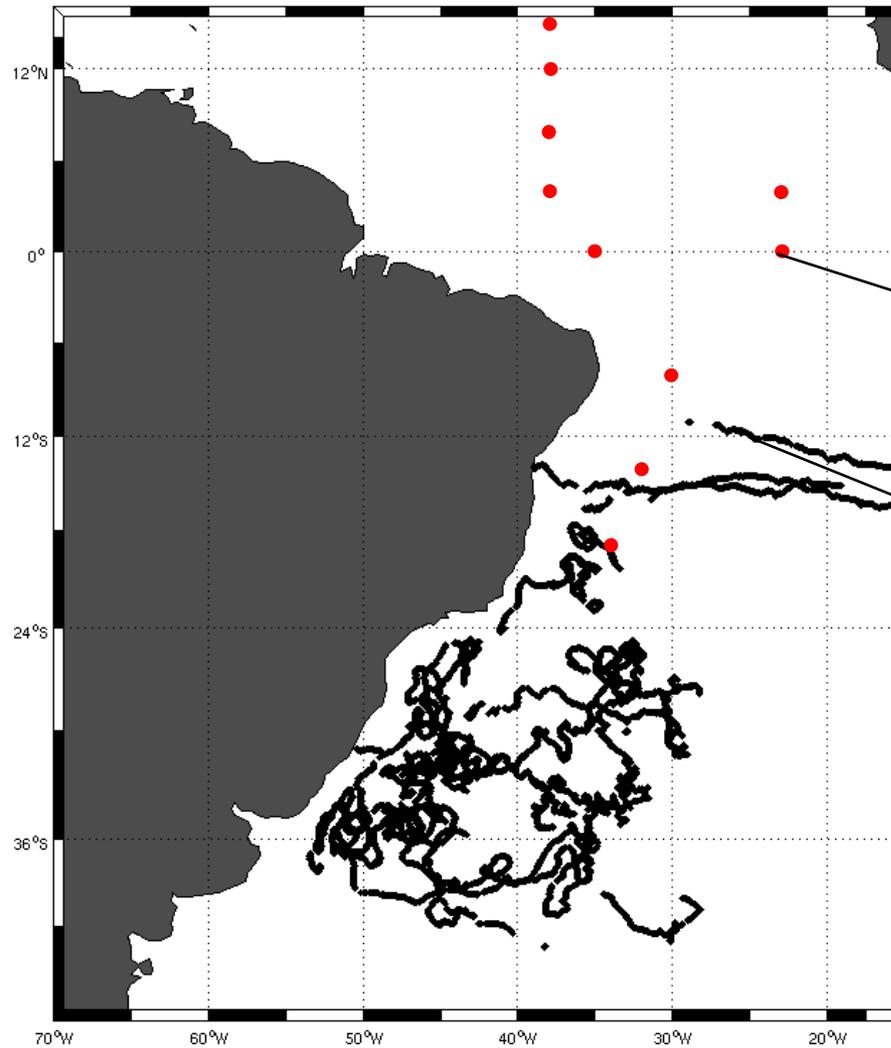


Error estimation difference between OSTIA's SST and one estimated in this work on 30th June 2012.

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- Error Estimation;
- **Validation – SST (Results);**
- Remarks.

Validation:



11 Moored
buoys

23 Drifting
buoys

Validation (Moored Buoys Statistics)

Table 1 – Results between daily SST composition and average daily *in situ* SST collected for the 11 Moored PIRATA buoys.

BUOY	AVERAGE	RMSE	MAE	MBE	CORRELATION
4°N - 23°W	BUOY: 28.06 REMO: 27.94	0.329	0.248	-0.089	0.927
0°N - 23°W	BUOY: 26.58 REMO: 26.42	0.301	0.241	-0.163	0.978
0°N - 35°W	BUOY: 27.51 REMO: 27.48	0.244	0.187	-0.036	0.928
19°S - 34°W	BUOY: 26.36 REMO: 26.27	0.288	0.228	-0.098	0.989
15°N - 38°W	BUOY: 26.18 REMO: 26.04	0.321	0.238	-0.131	0.975
12°N - 38°W	BUOY: 26.96 REMO: 26.72	0.41	0.314	-0.24	0.963
8°N - 38°W	BUOY: 27.83 REMO: 27.73	0.275	0.21	-0.101	0.965
4°N - 38°W	BUOY: 27.99 REMO: 27.94	0.244	0.188	0.185	0.892
8°S - 30°W	BUOY: 27.59 REMO: 27.53	0.193	0.153	-0.064	0.983
14°S - 32°W	BUOY: 26.97 REMO: 26.81	0.317	0.253	-0.158	0.973
12°N - 23°W	BUOY: 26.76 REMO: 26.43	0.573	0.439	-0.334	0.966

*RMSE - Root Mean Squared Error

*MAE - Mean Absolute Error

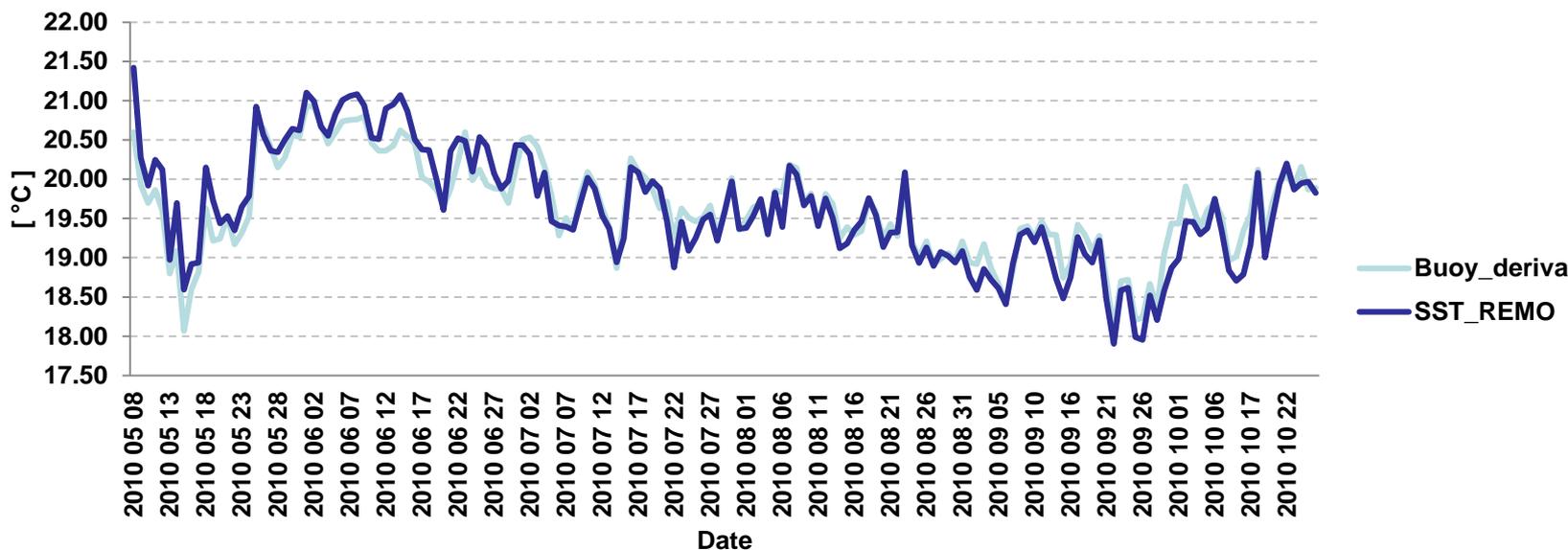
*MBE - Mean Bias Error

Validation (Drifting buoys)

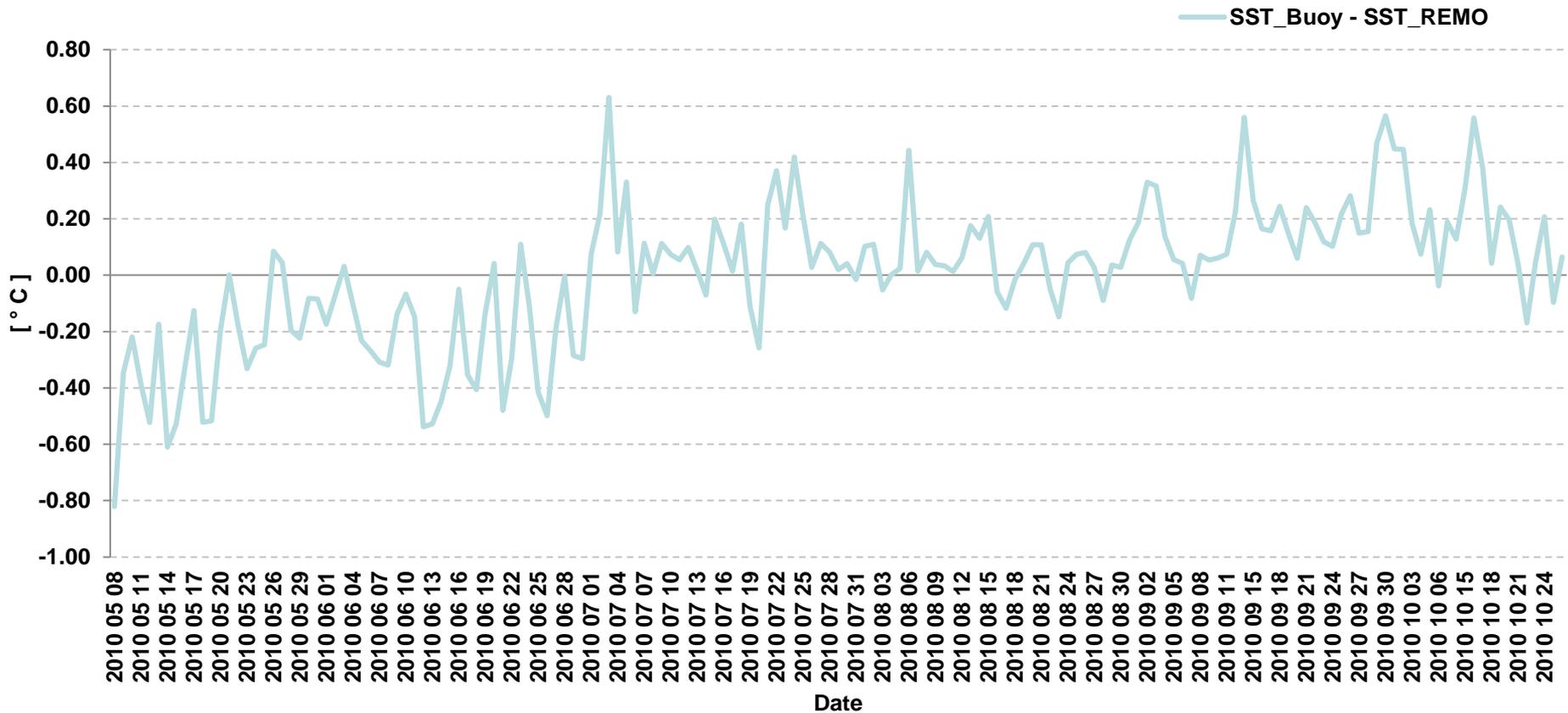
Table 2 - Comparison statistics between daily SST composition and average daily *in situ* SST collected from 23 drifting buoys for the period from **May 2008 to Oct 2010**.

AVERAGE	RMSE	MAE	MBE	CORRELATION
BUOY: 19.628	0.250	0.191	-0.002	0.944
REMO: 19.627				

SST_REMO versus SST_Drifting_buoys



➤ Average difference between SST_Drifting_BUOY and SST_Estimated:



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Now:

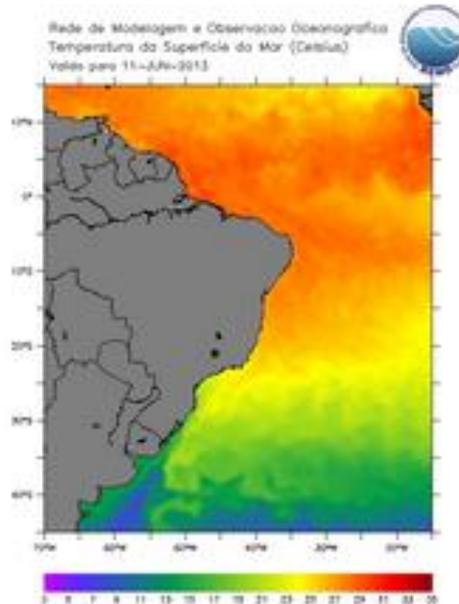
- A daily SST time series (NetCDF format, *GDSV2.0*) is available for assimilation or inter-comparison from 1st of September of 2002 up the present;

Under development:

- To implement the EnOI (Ensemble Optimal Interpolation) for SST analysis;
- To develop a retrieval SST model based on optimal estimator;
- To carry continuously on the SST validation;
- To start cooperation with GHRSSST ST.



Products / Temperatura da Superfície do Mar



Data de referência: 11/06/2013

Alert! The products showed in this page are results of ocean models still under scientific development. They are subject to numerical errors and parameterization errors and other approximations of the governing primitive equations. The use of the products is only for scientific purposes today. REMO does not assume any responsibility for inadequate use of these products.

homepage:

<http://www.rederemo.org/>

Thank you!

