

GHR SST

*Group for High Resolution
Sea Surface Temperature*

Science activities and interest in SST from drifting buoys

Andrea Kaiser-Weiss



Outline

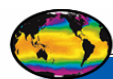
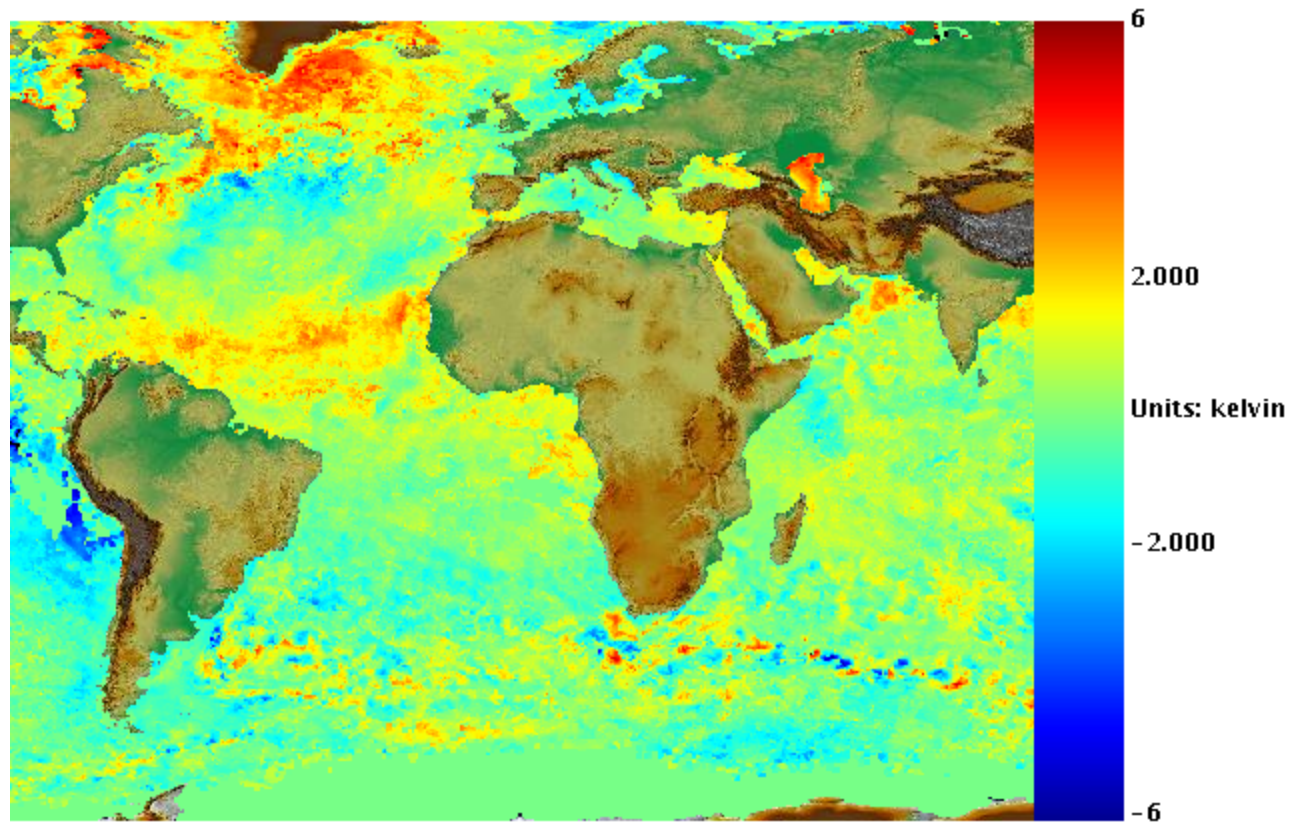
1. Motivation for SST measurements
2. Measuring SST
3. Definition of SST
4. GHRSSST service
5. GHRSSST interest in drifting buoys

GHRSSST mission:

provide SST to a massive user community

Met Office Web Map Service > OSTIA Anomaly > sea_surface_temperature_anomaly

Time: 2010-09-06T12:00:00.000Z powered by : GODIVA2



GHRSSST

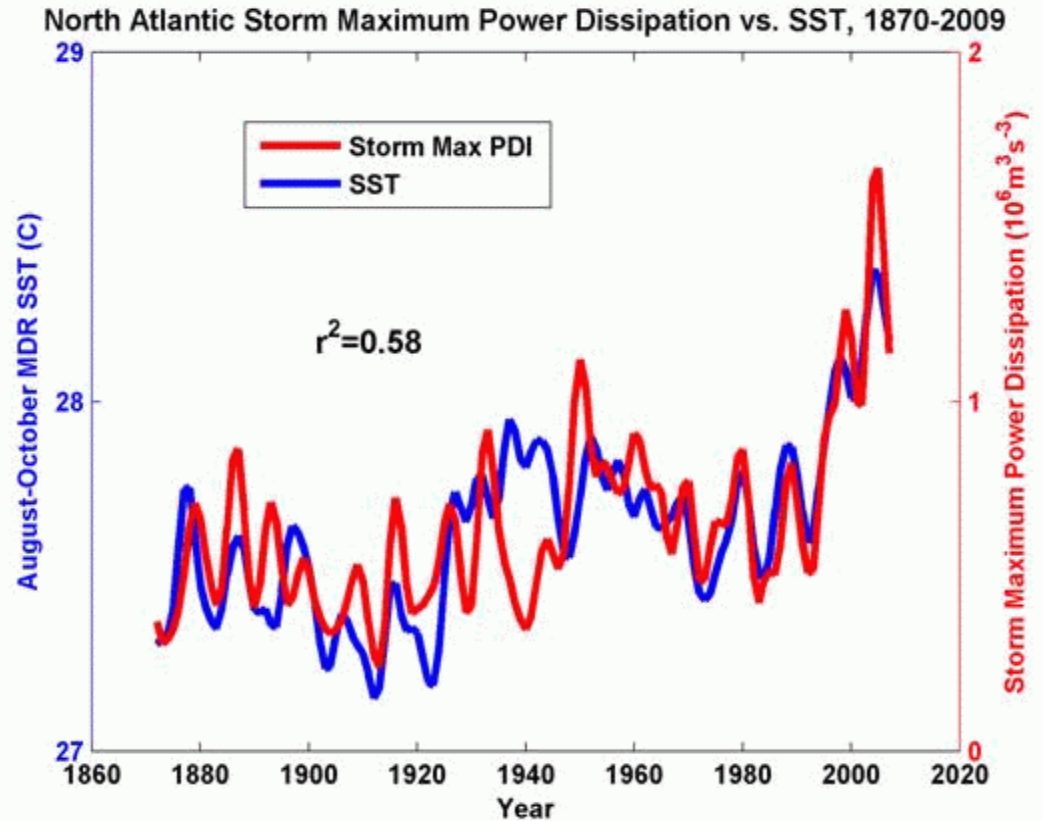
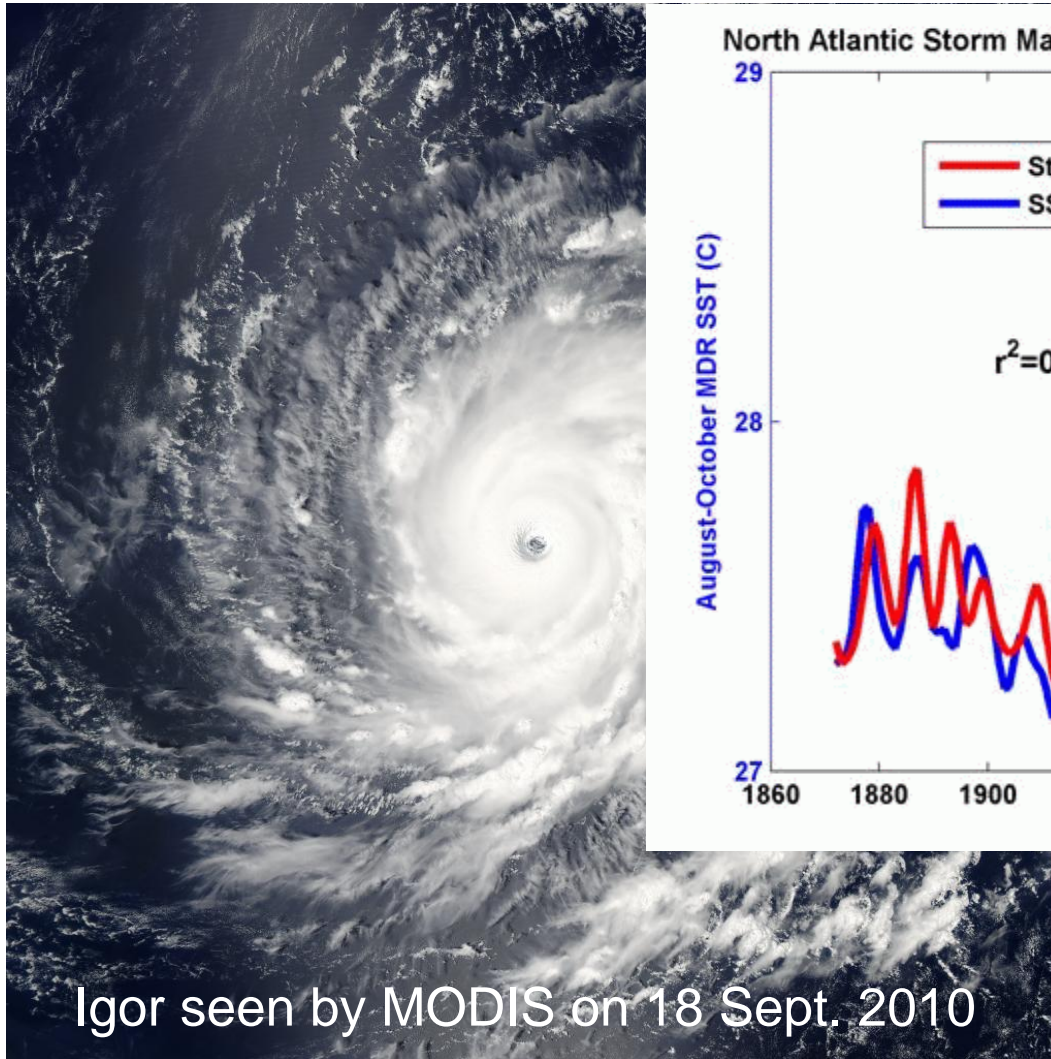
Group for High Resolution Sea Surface Temperature

<http://www.ghrsst.org>



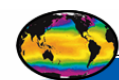
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DBCP-XXVI and Argos-JTA-XXX 27/10/2010*

Motivation : Storms



Kerry A. Emanuel (April 2010)

Andrea Kaiser-Weiss: GHRSSST Science Activities and interest in SST from drifting buoys. DBCP-XXVI and Argos-JTA-XXX 27/10/2010



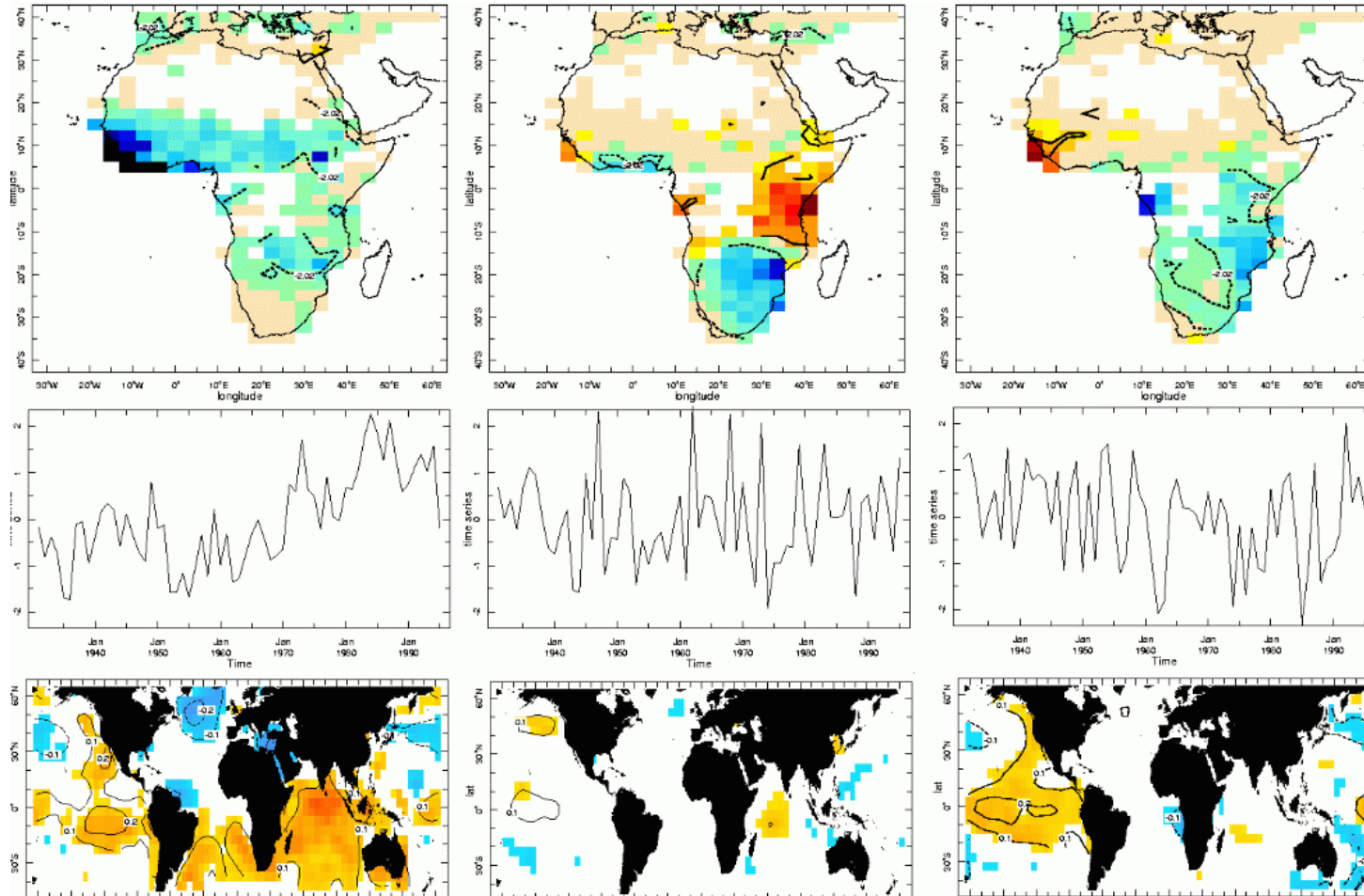
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Motivation : Rainfall variability



Rainfall
EOF's

Long-term
change

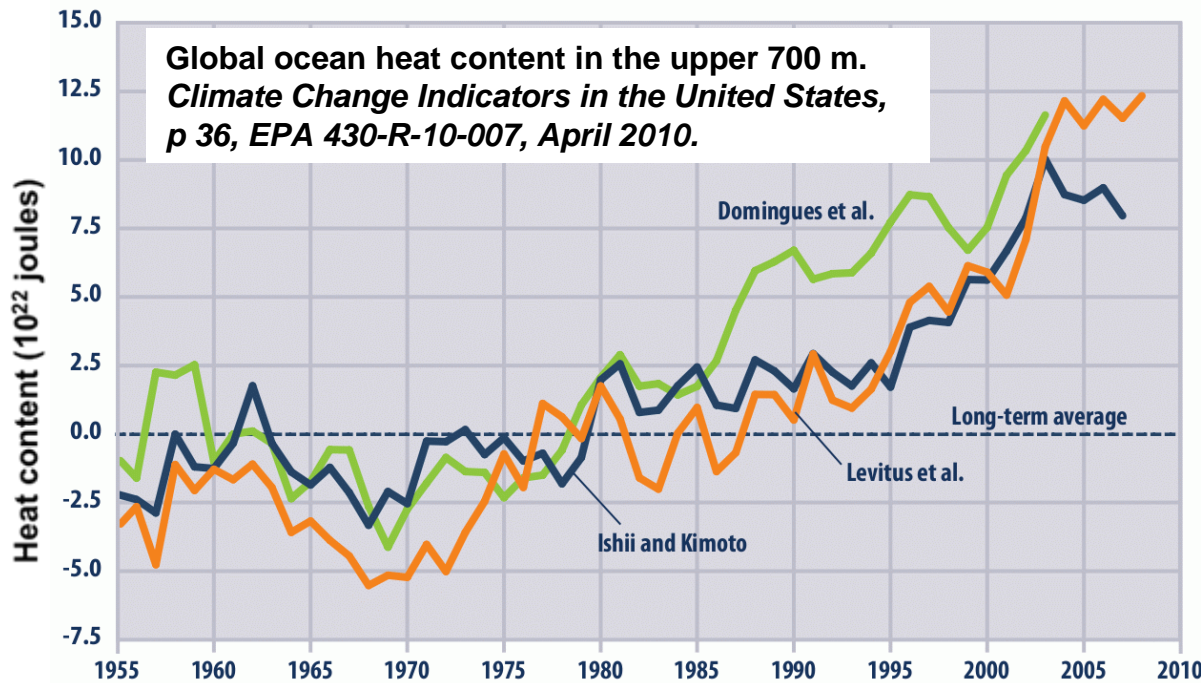
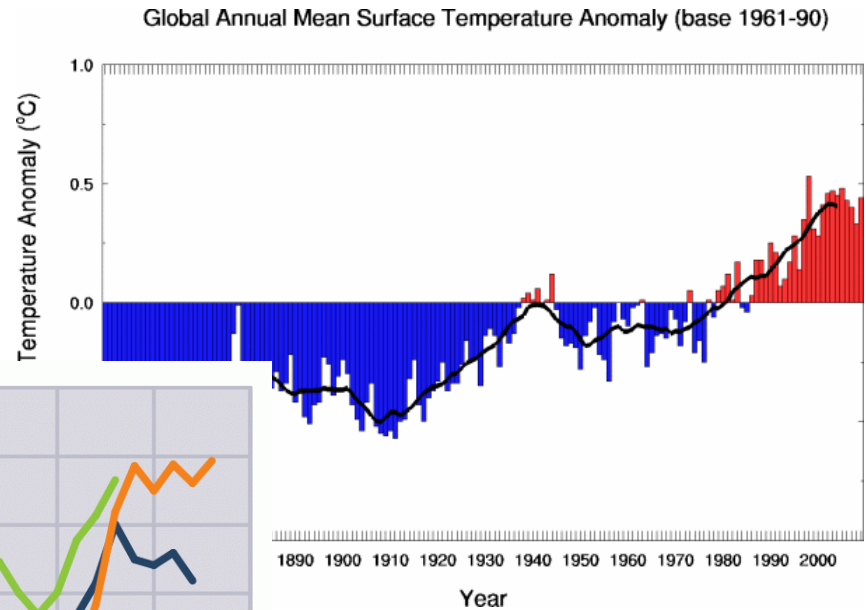
Correlated
SST

Giannini, Biasutti, Held and Sobel, Climatic Change, 2008

*Andrea Kaiser-Weiss: GHRSSST Science Activities
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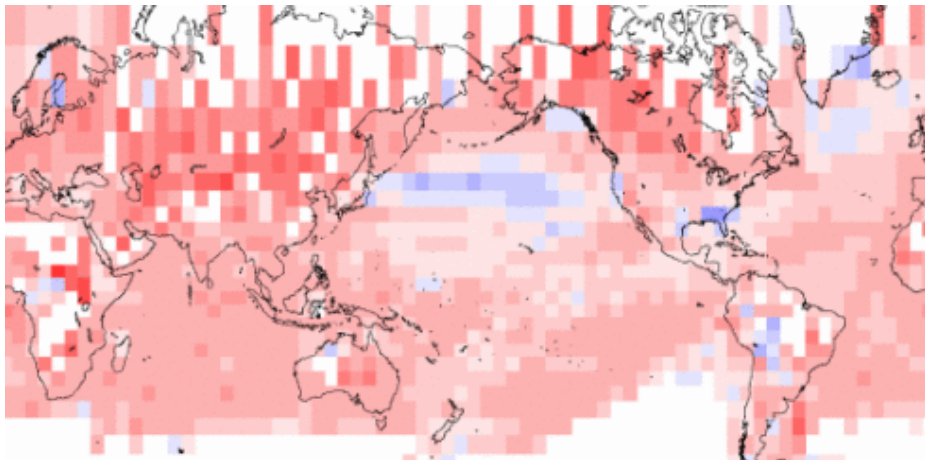
Motivation : Climate change

1961-1990 average: 13.97 C
 Source : BoM graphics from HadCRUT3v data



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Motivation : Oceanography



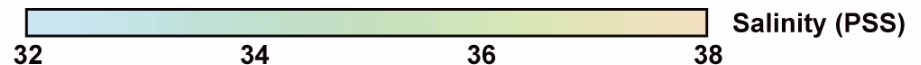
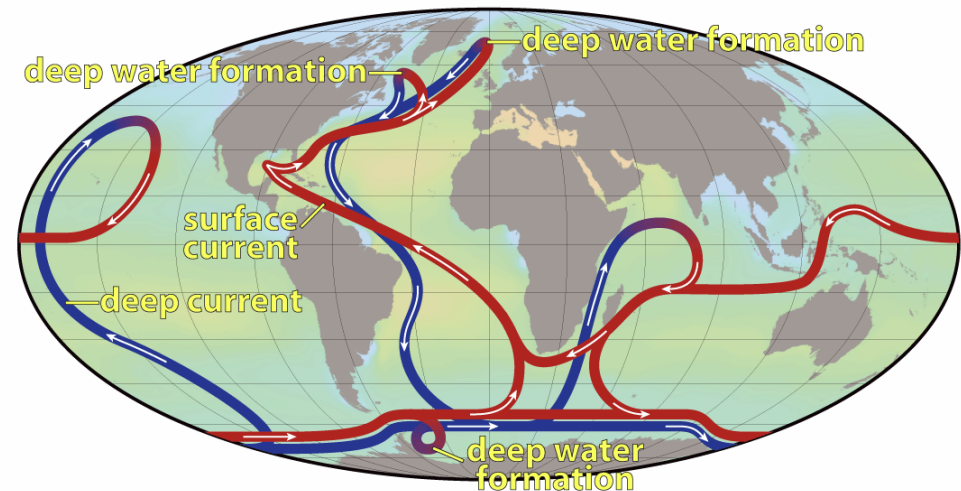
Surface Trend (°C/10 yrs)
1950-2010

Source : BoM graphics from
HadCRUT3v data

SST related science in
Oceanography :

- air/sea flux
- currents, eddies, fronts
- AMO
- trends in all of the above

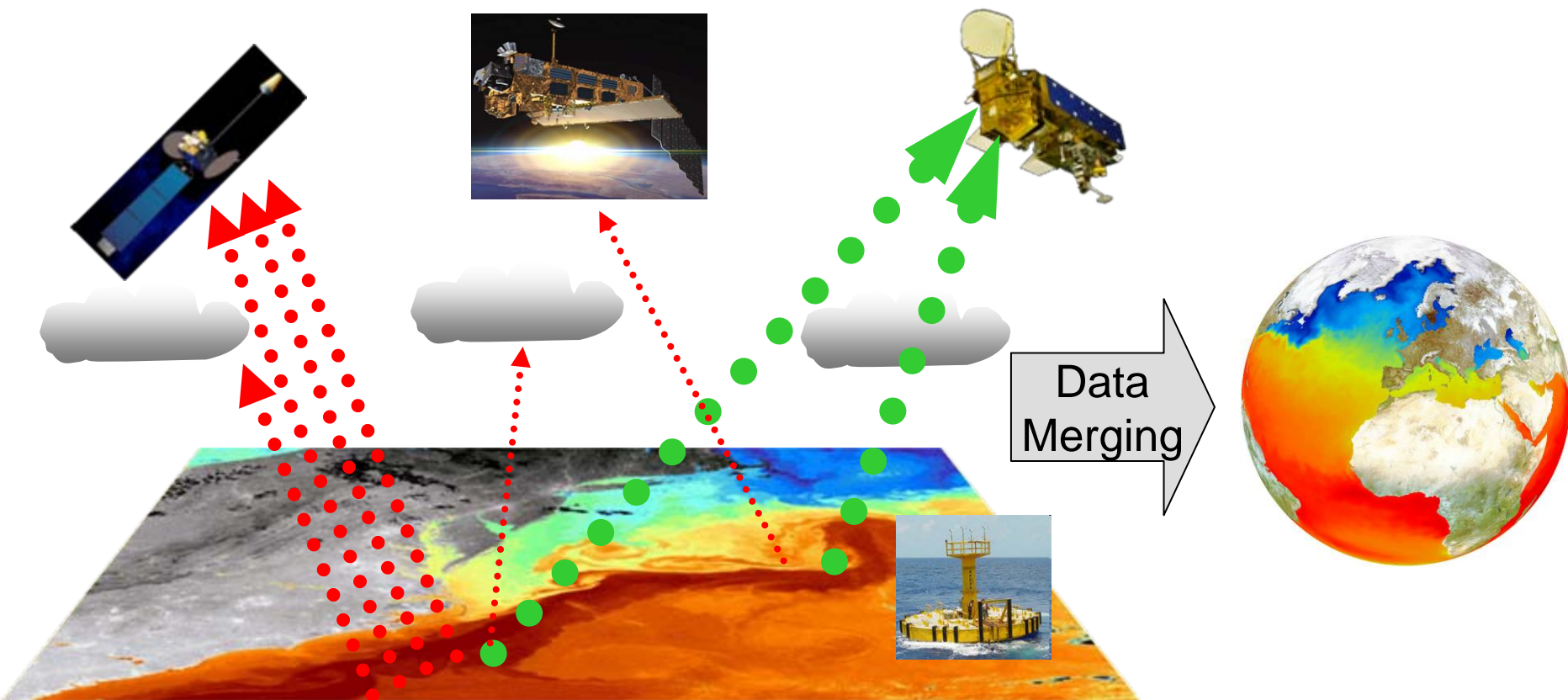
Thermohaline Circulation



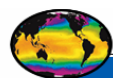
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Measuring the SST



- Polar Orbiting infrared has *high accuracy & spatial resolution*
- Geostationary infrared has *high temporal resolution*
- Microwave Polar orbiting has *all-weather capability*
- In situ data provide *the reference in all weather conditions*



GHRSSST

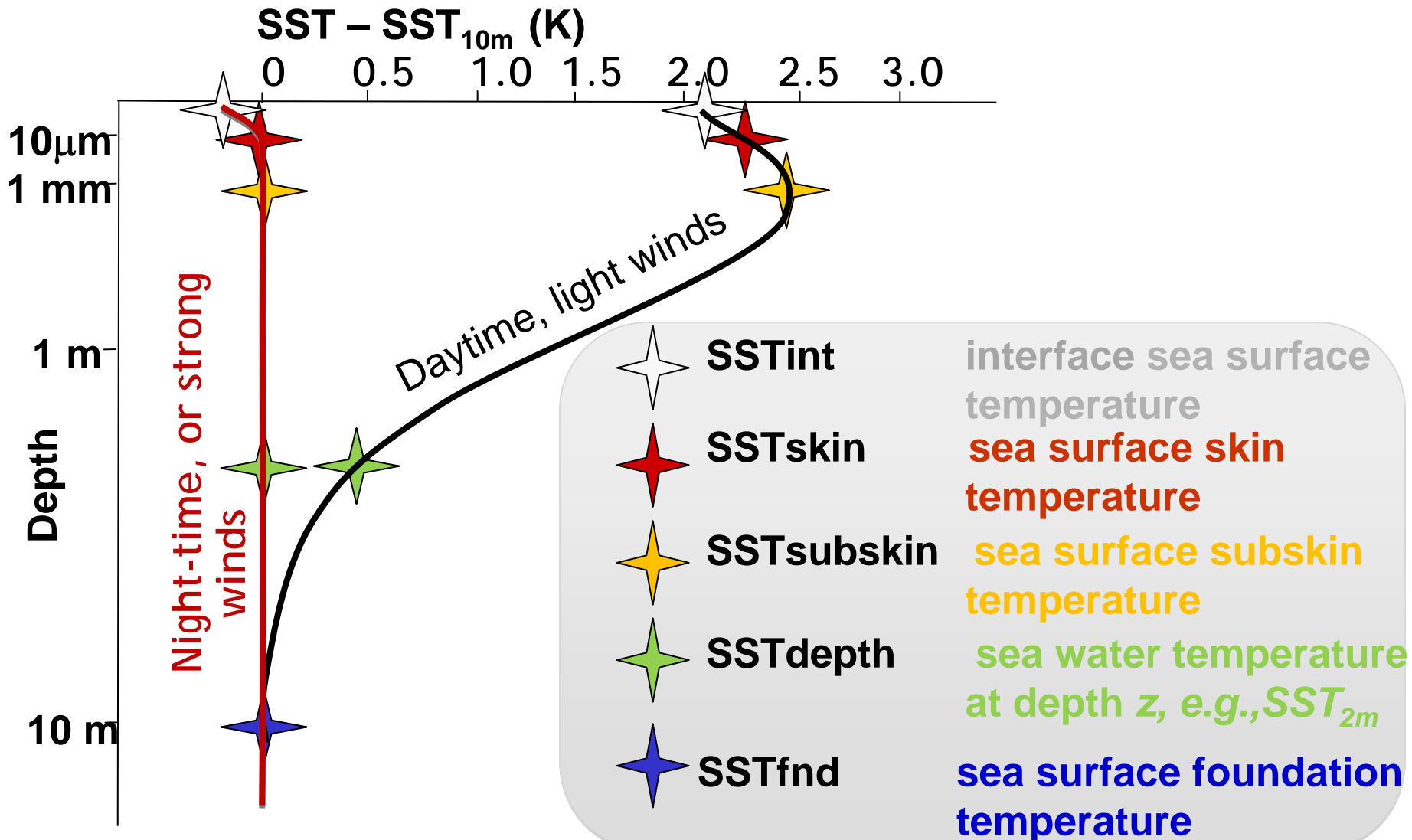
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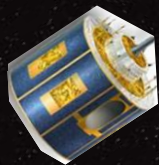
Definitions of SST



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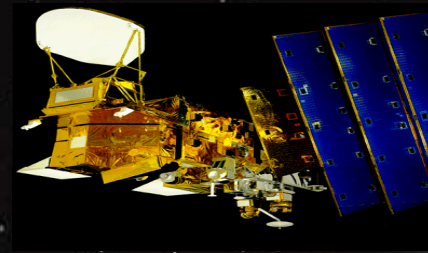
MSG-SEVIRI
Imager



MTSAT-1R
Imager



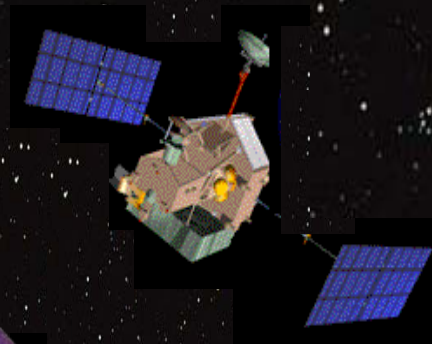
AQUA
AMSR-E
MODIS



GOES
Imager



TRMM
TMI



POES
AVHRR



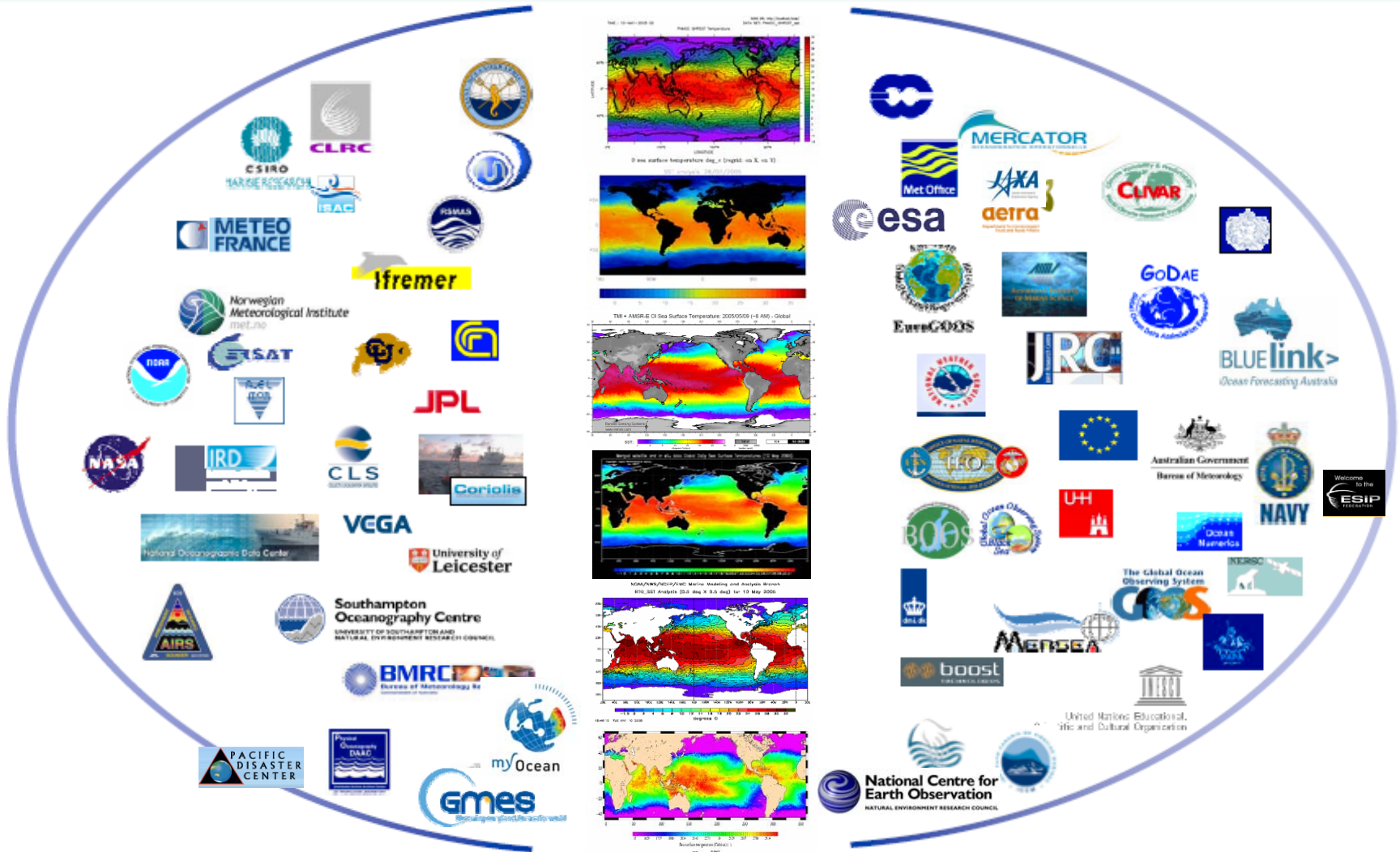
METOP



ENVISAT
AATSR

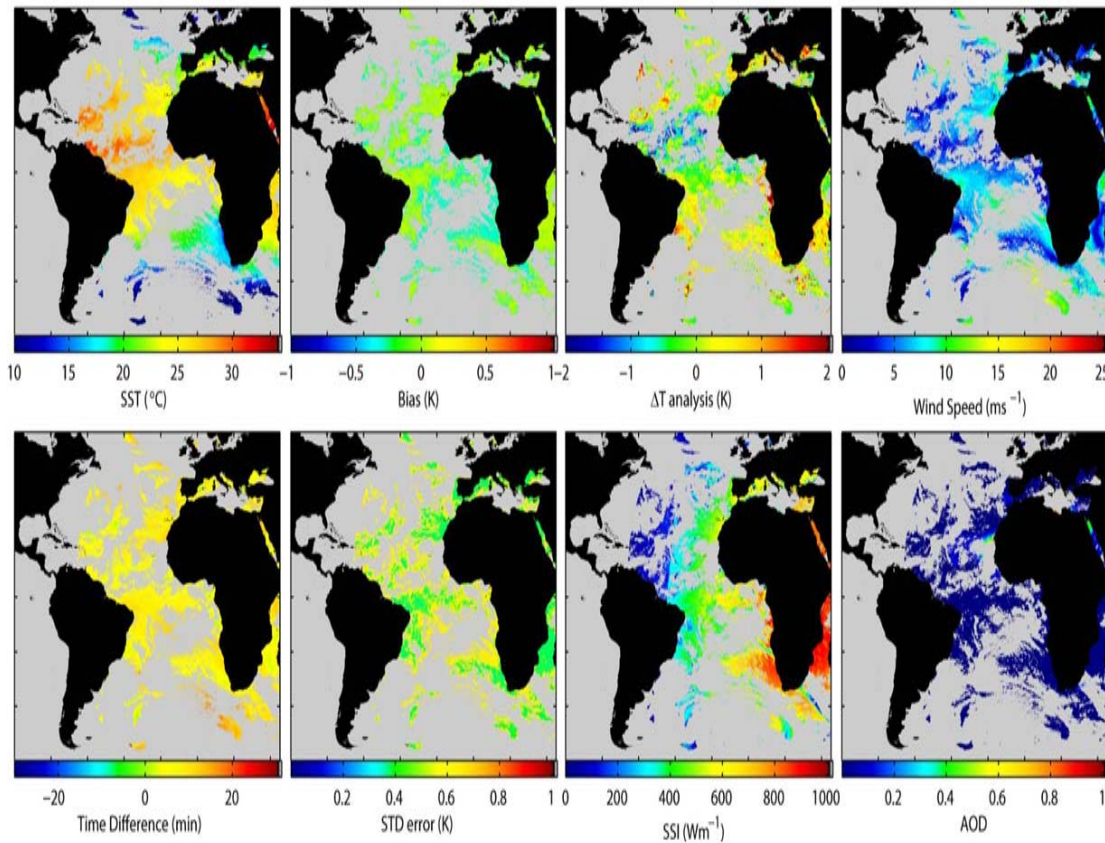
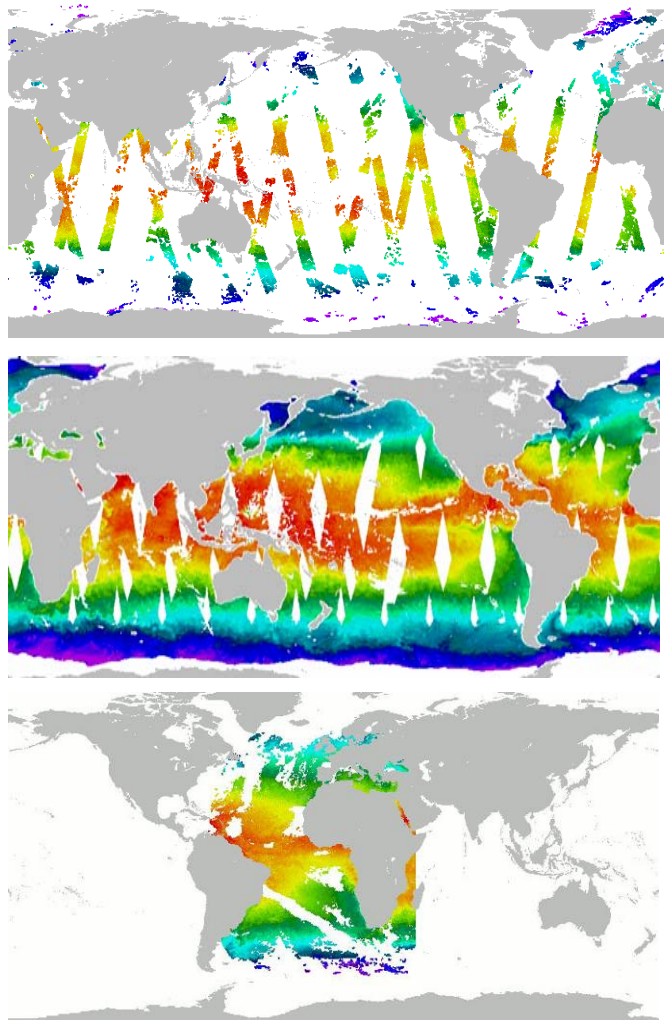


\$28 Million invested by the international GHR SST community



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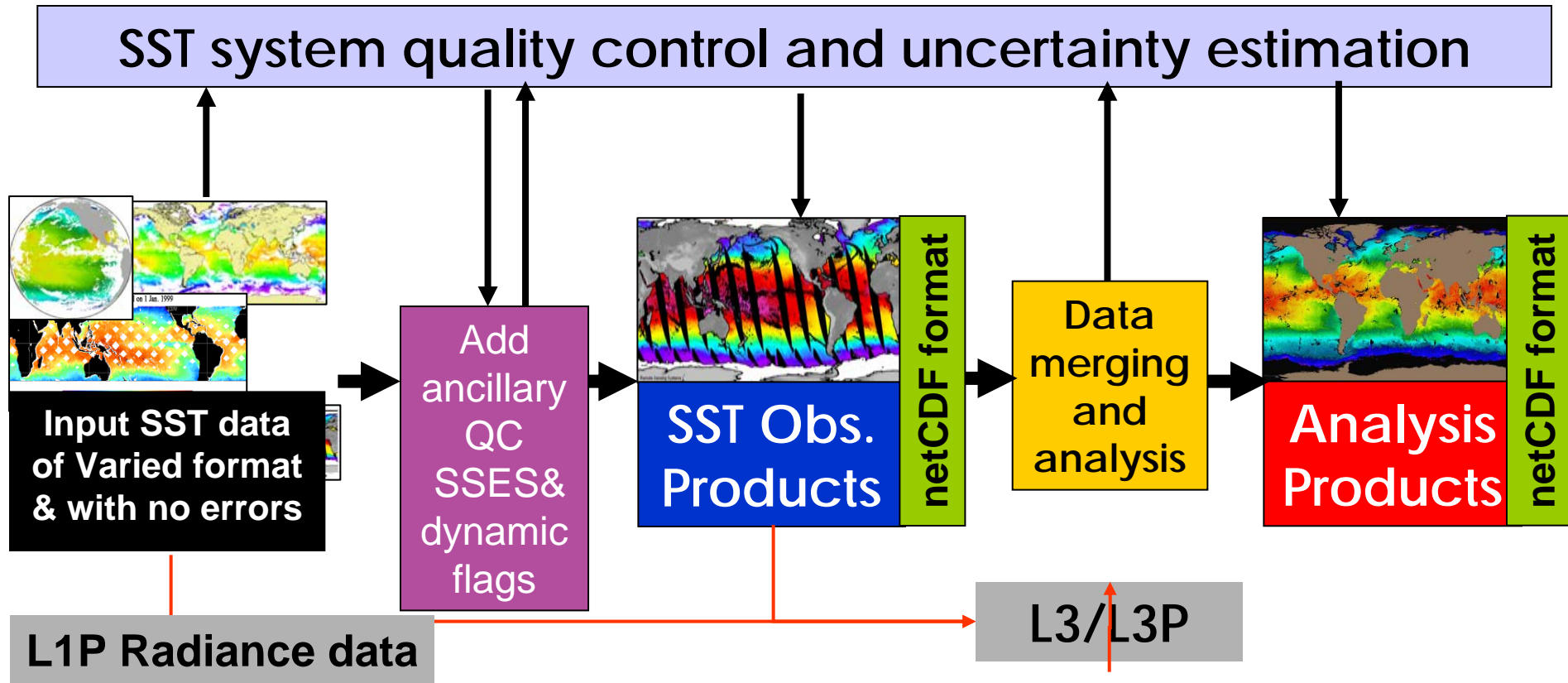
L2P: common format with uncertainty



Ancillary information in L2P products: dynamic flags

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GHRSSST service:

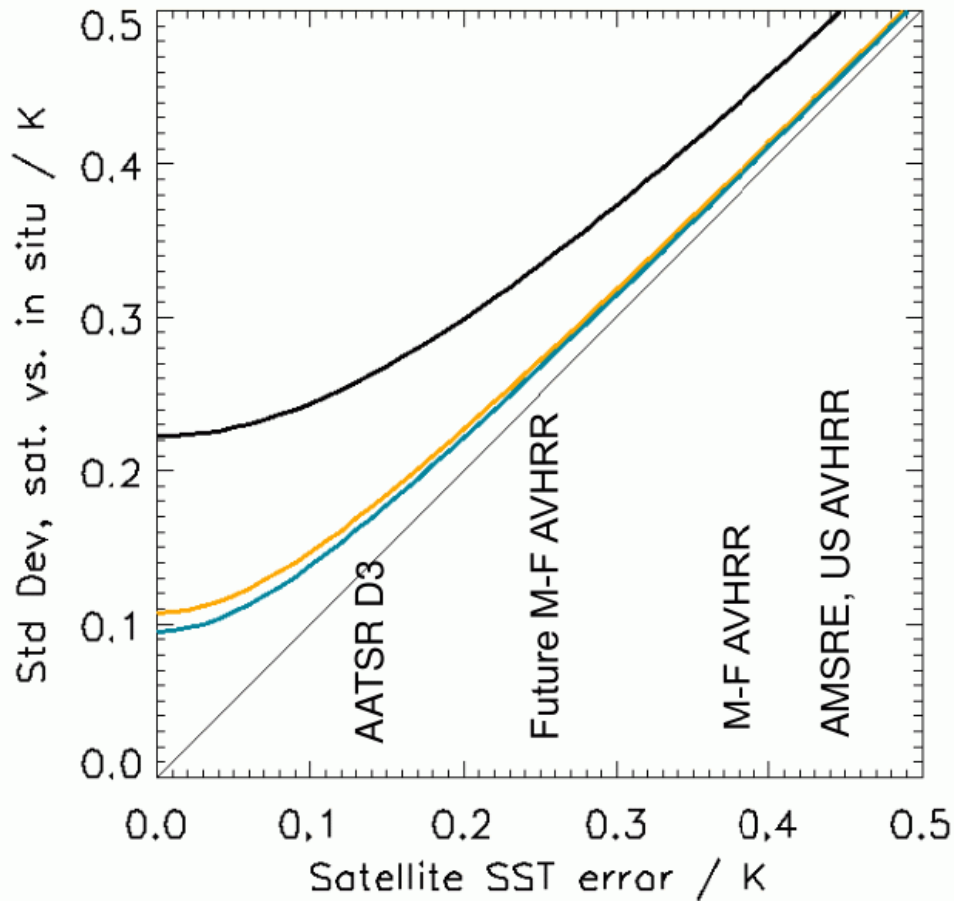


SST Observations



Applications

Apparent vs. true satellite SST uncertainty



Merchant & Corlett

Current drifters

Accuracy

~ 0.05 K

Argo

Single
Sensor
Error
Statistics



Summary

1. GHRSSST mission: to provide SST to operational users and a to a massive science community



2. GHRSSST priority: decreasing uncertainties in satellite SST's (SD and regional bias)
3. Drifting buoys for: empirical regression, uncertainty estimates, regional SST bias
4. Improvements sought: accuracy, resolution and pre/post-deployment calibration system monitoring