GHRSST XVII

RDAC UPDATE:

NOAA/NESDIS/STAR2
Eileen Maturi
Andy Harris, Xiaofang Zhu, Prabhat Koner, Gary Wick

Main Activities

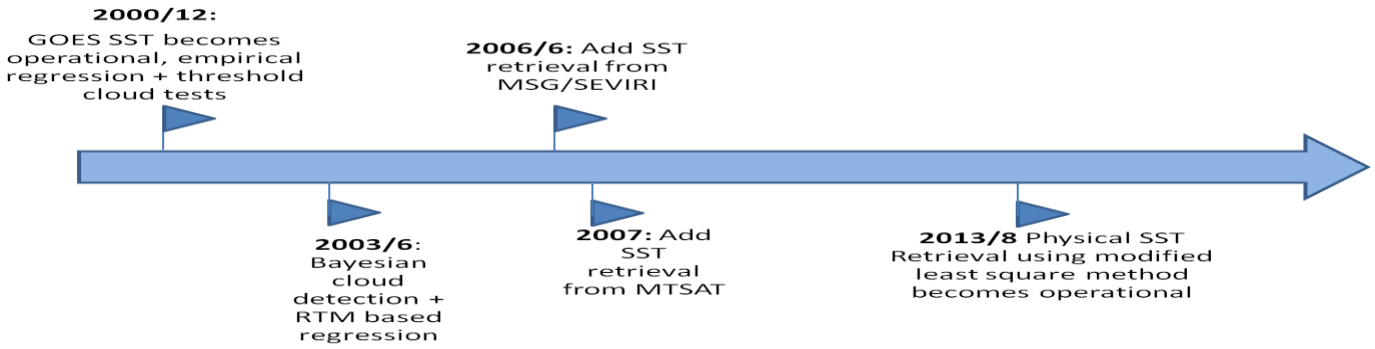
- Maintain, validate and improve our operational global geostationary SST, see poster 27
- Reprocessed 5-km Geo-Polar SST Analysis in GHRSST L4
  - Transfer after verification complete, see poster 55
- Generate diurnal warming amplitudes in L2P product
- Generate AMSR2-SST GHRSST L2 product
  - Available at the end of the year
- Evaluating current ACSPO SST product for suitability as Lake ST w.r.t. NCEP requirements
  - Coverage & accuracy
  - Non-ocean atmospheres, cloud detection, strong gradients, *etc.*
- Geostationary Frontal Product
  - See poster 19
- Generate GHRSST L3 SST for
  - GOES-East, GOES-West, Meteosat-10
- Generate ~1km regional Geo-Polar SST Analyses for CRW targets

Operational geostationary SST

- Maintain and improve the quality of the GHRSST global geostationary operational and heritage L2 and L4 SST products
  - Physical Retrieval Algorithm generates the geostationary SST algorithms for
    - GOES-East, GOES-West, Meteosat-10
    - Koner *et al*., IEEE, 2015
  - Bayesian cloud screening method
  - Bias corrections are applied to improve the L4 products

Operational geostationary SST

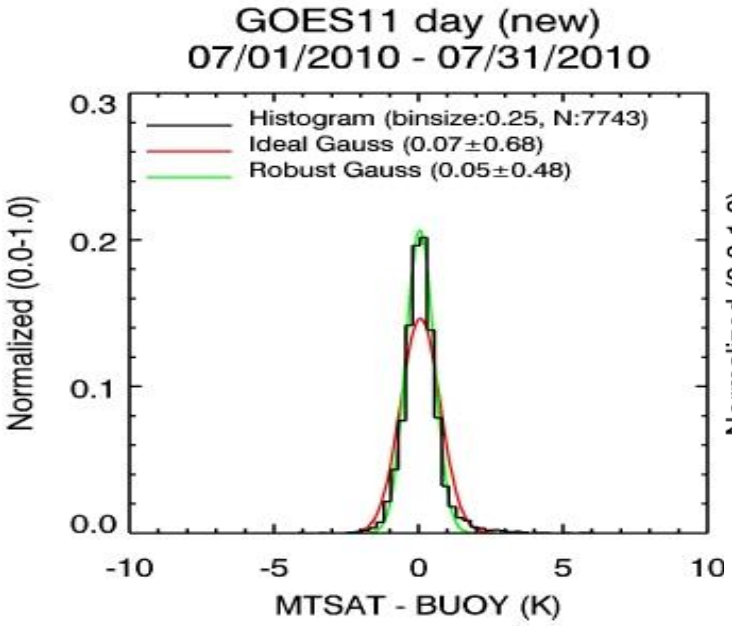
- GHRSST L2P
  - GOES-E, GOES-W, Meteosat-10
  - MTSAT-2 (Stopped December 1, 2015)
  - Operational 24/7
- GHRSST L4
  - 5-km Geo-Polar Sea Surface Temperature Analysis
    - Day/Night
    - Nighttime only
    - Diurnally Corrected

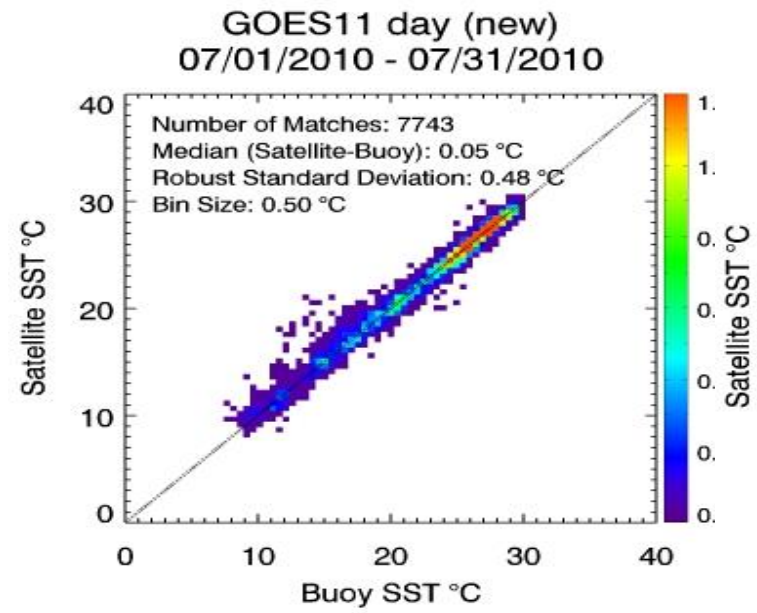


Reprocessing 2002-2015 geostationary SST using physical retrieval and Bayesian Cloud screening

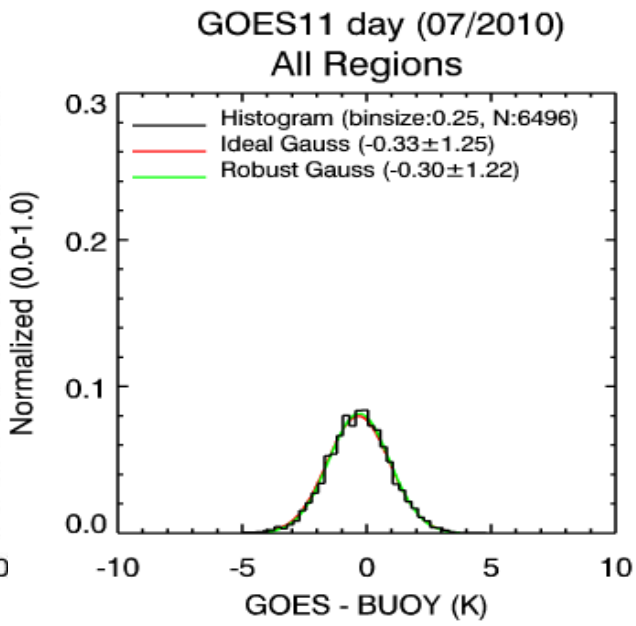
Products and Agencies	Time resolution	Platforms	Time length
GOES-East (75˚ W), NOAA/USA	30 mins	GOES 12	2003-2010
		GOES 13	2010-present
GOES-West (135˚W), NOAA/USA	30 mins	GOES 10	2004-2006
		GOES 11	2006-2011
		GOES 15	2011- present
MTSAT, JMA/Japan (140˚E)	hourly	GOES-9 (substitute for failed MTSAT-1)	2003-2005
		MTSAT-1R	2005-2010
		MTSAT-2	2010-2014
MSG (Meterosat Second Generation), Eumetsat/Europe	15 mins	Meteosat 8	2004-2006
		Meteosat 9	2006-2012
		Meteosat 10	2012-present

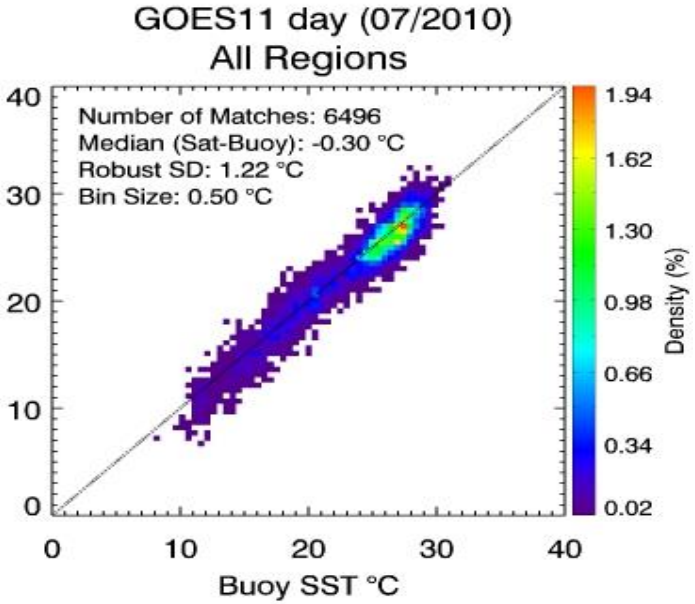
reprocessed



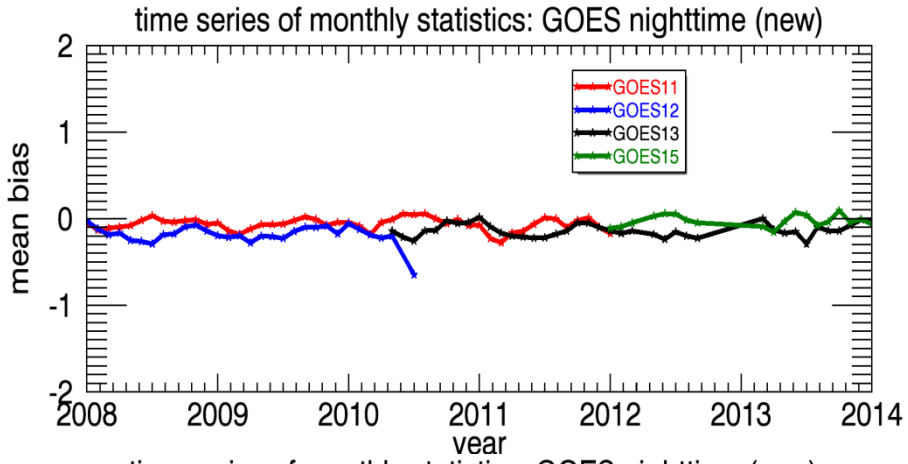


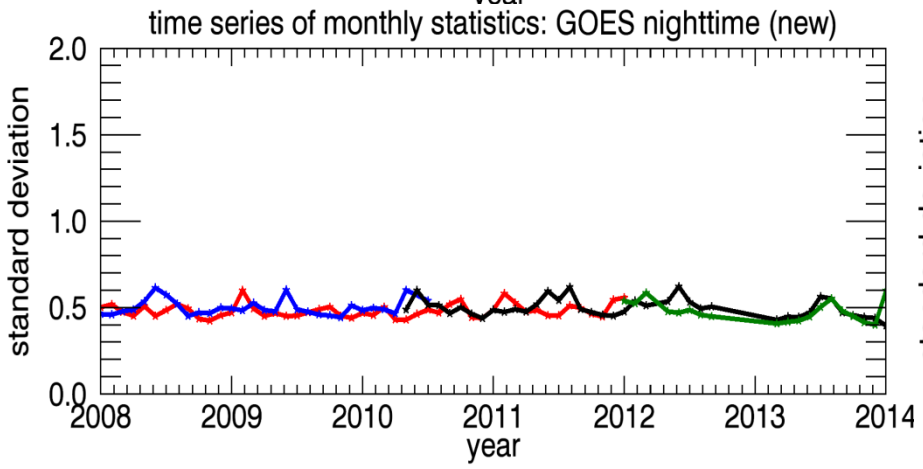
operational



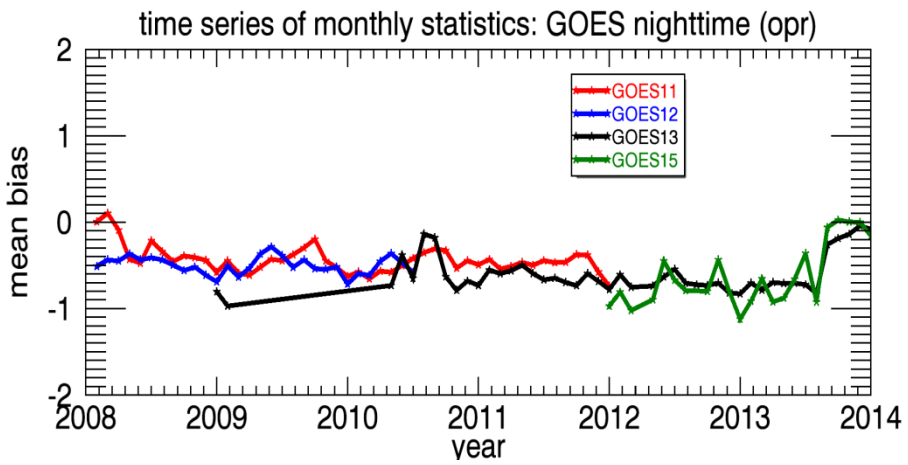


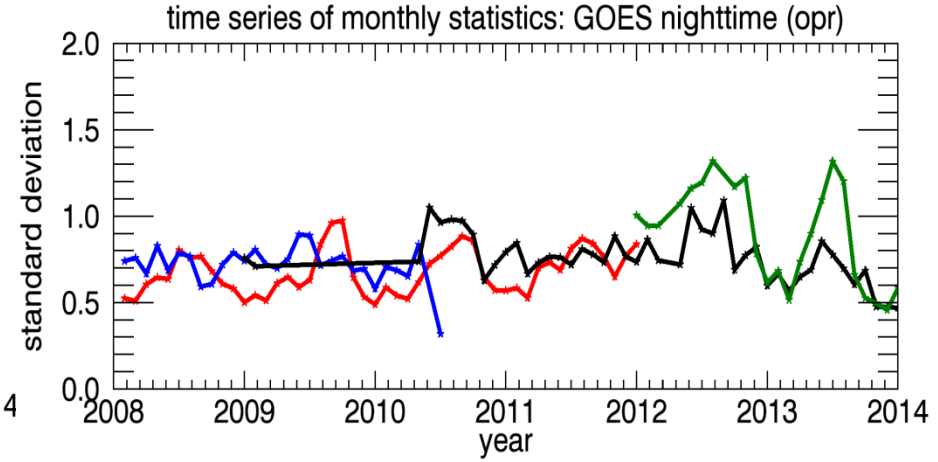
reprocessed





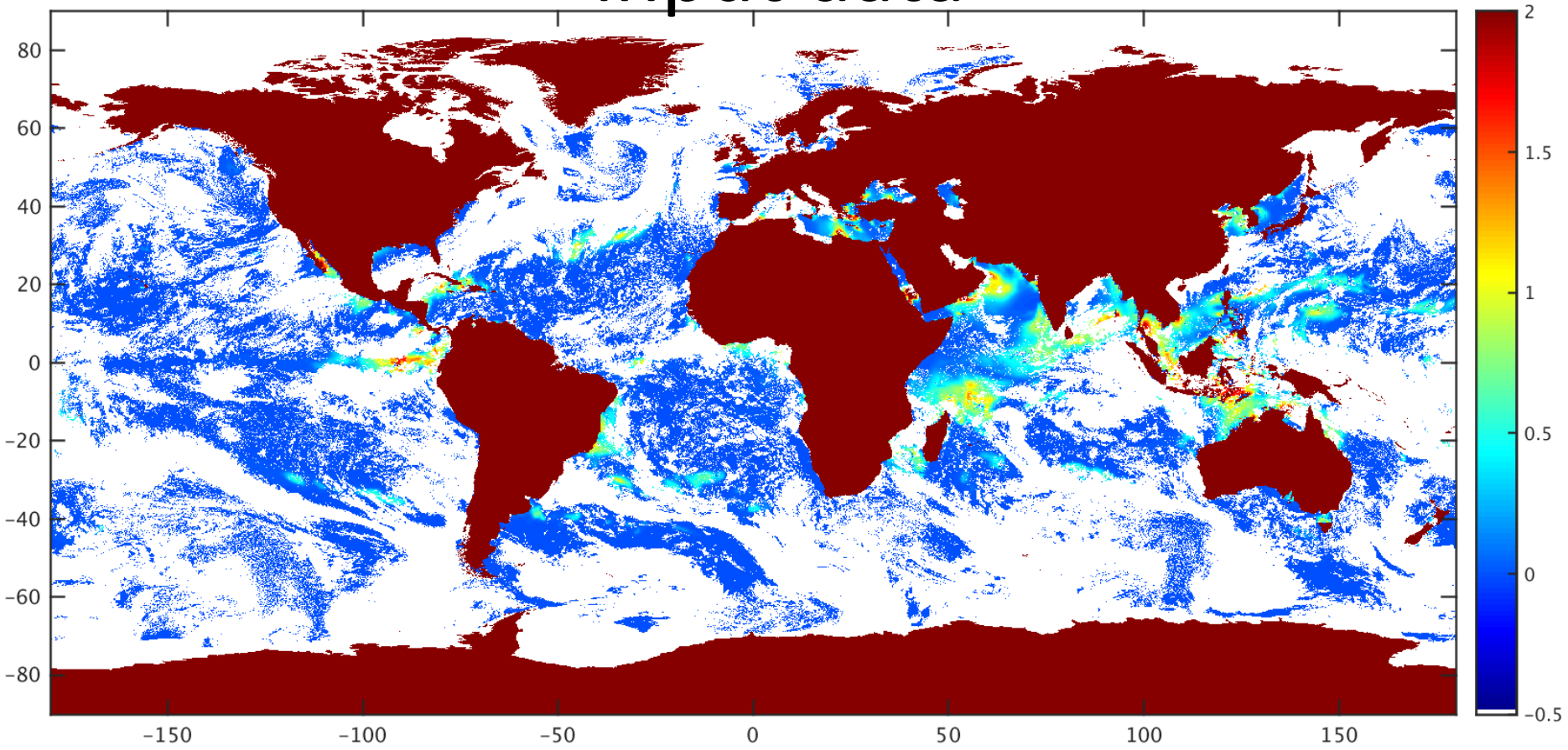
operational





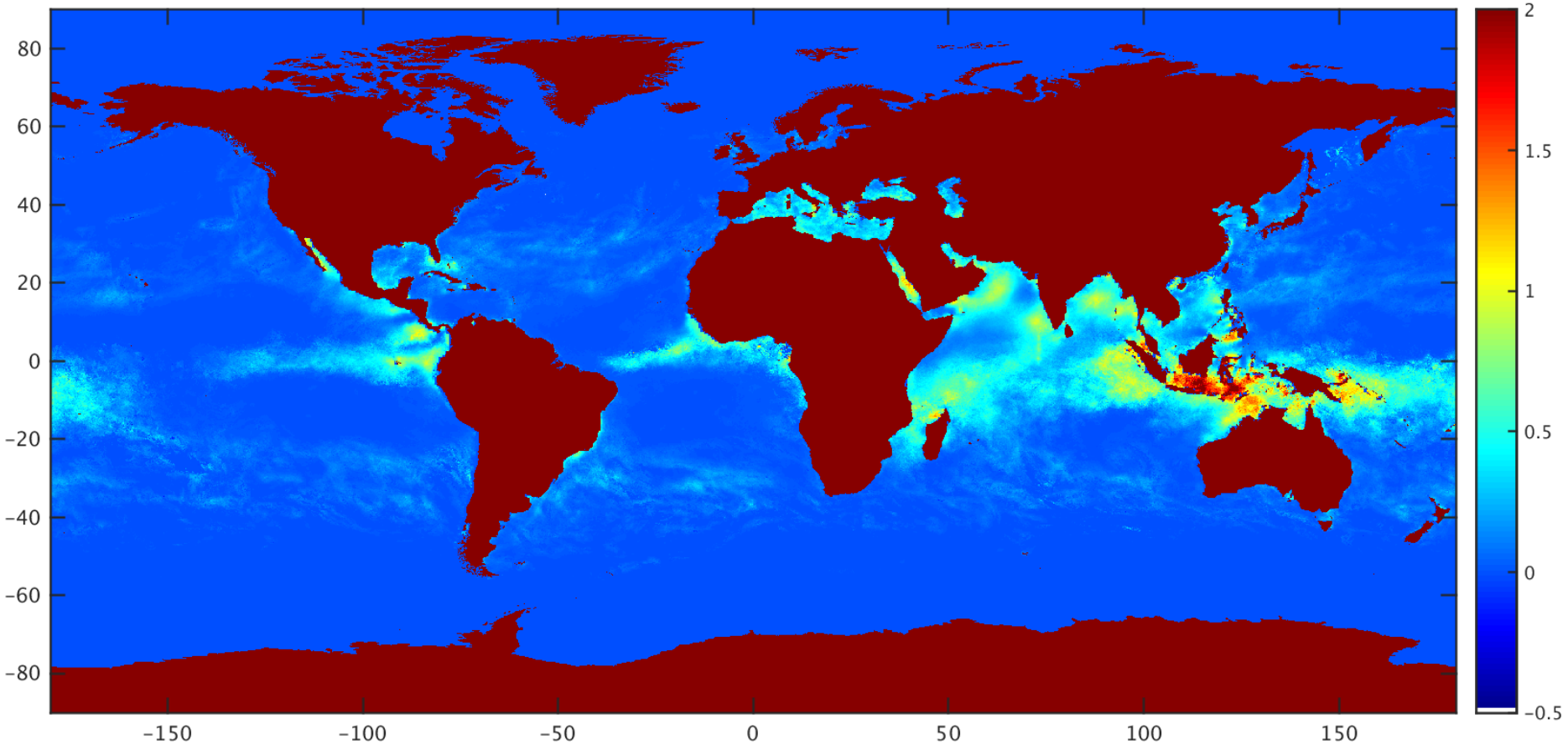
GOES night time, year 2008-2014 statistics

Effect of diurnal adjustment on input data



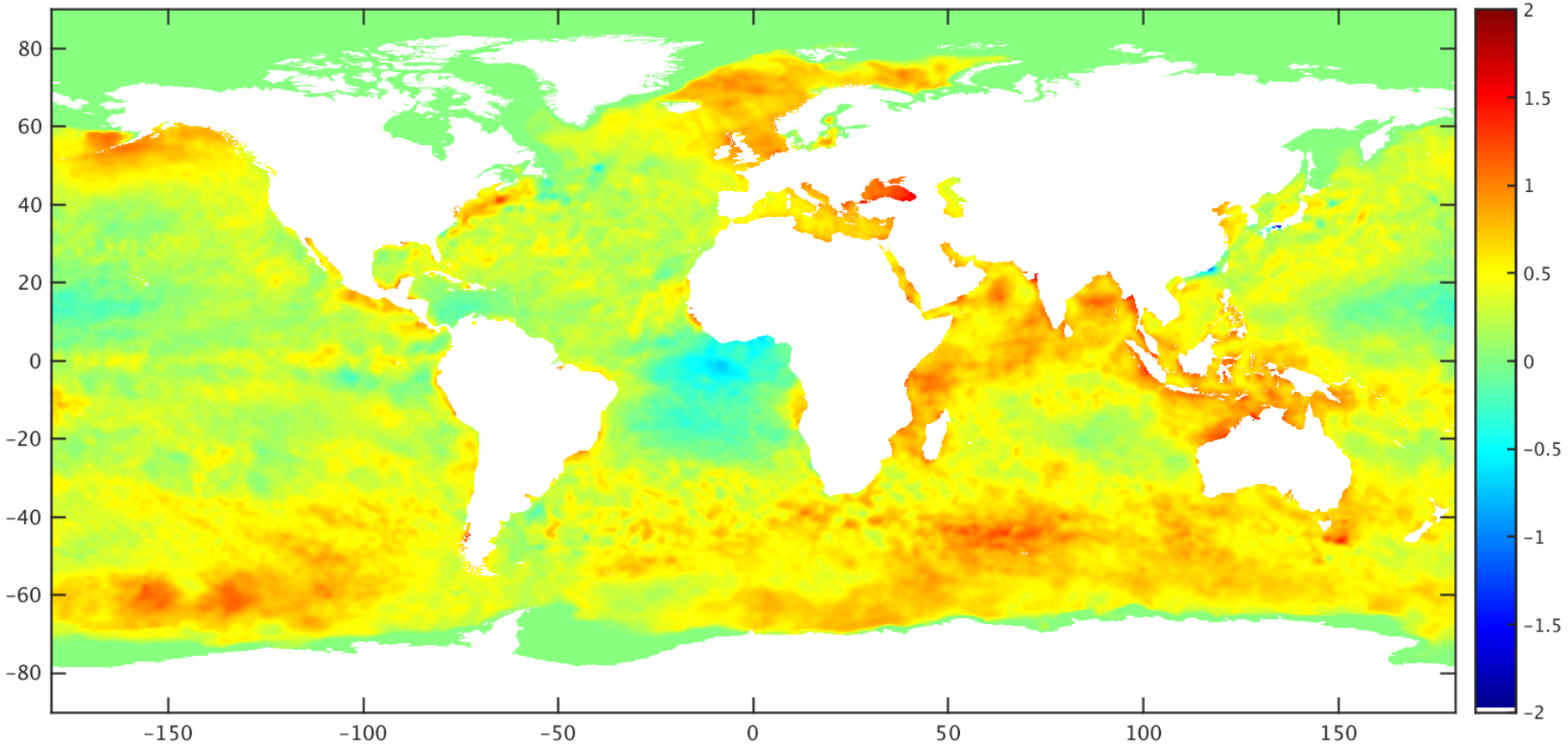
- Example adjustment to daytime VIIRS SST

Effect of diurnal adjustment on input data



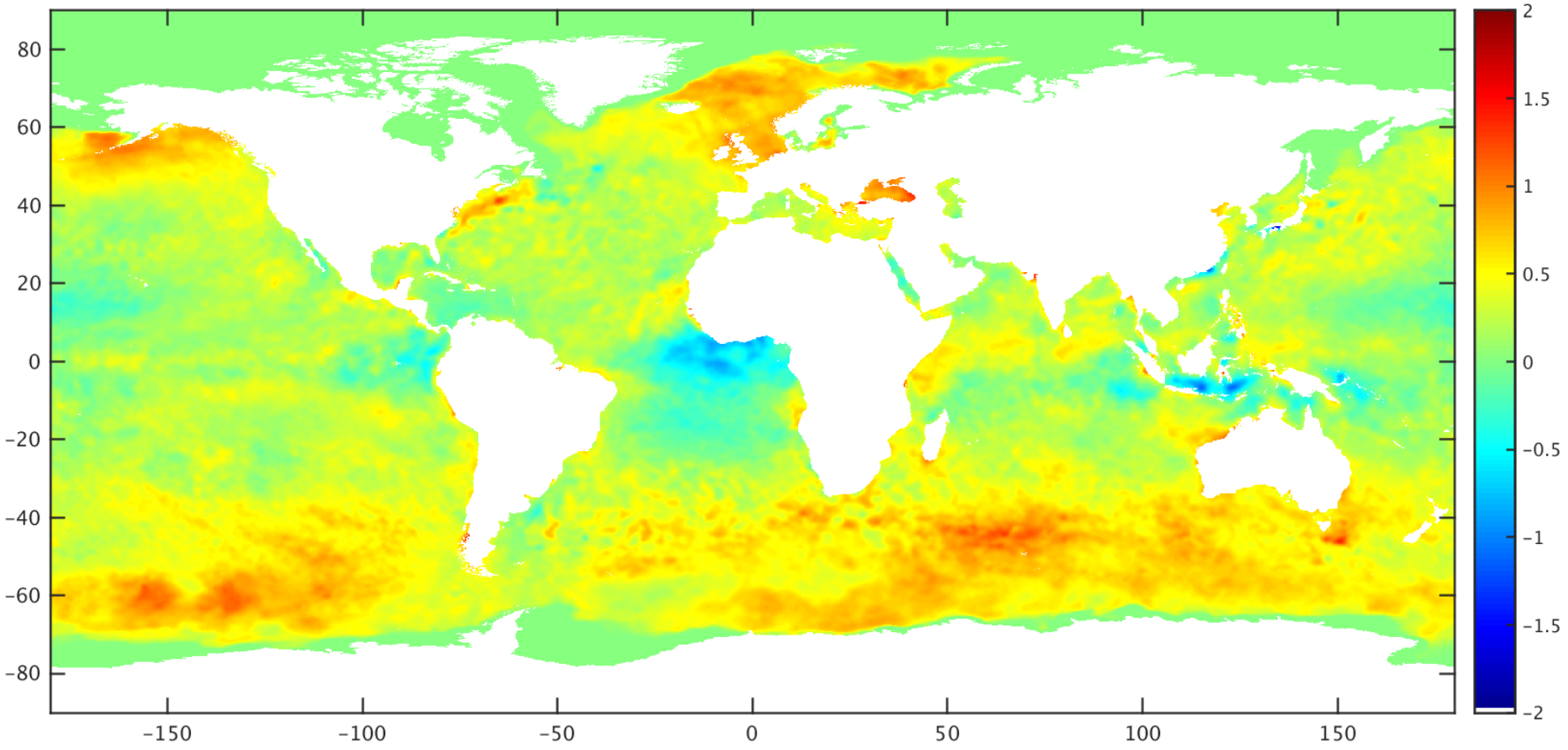
- **VIIRS monthly average for March 2016**

Effect of diurnal adjustment on bias correction



- **Unadjusted monthly average VIIRS**

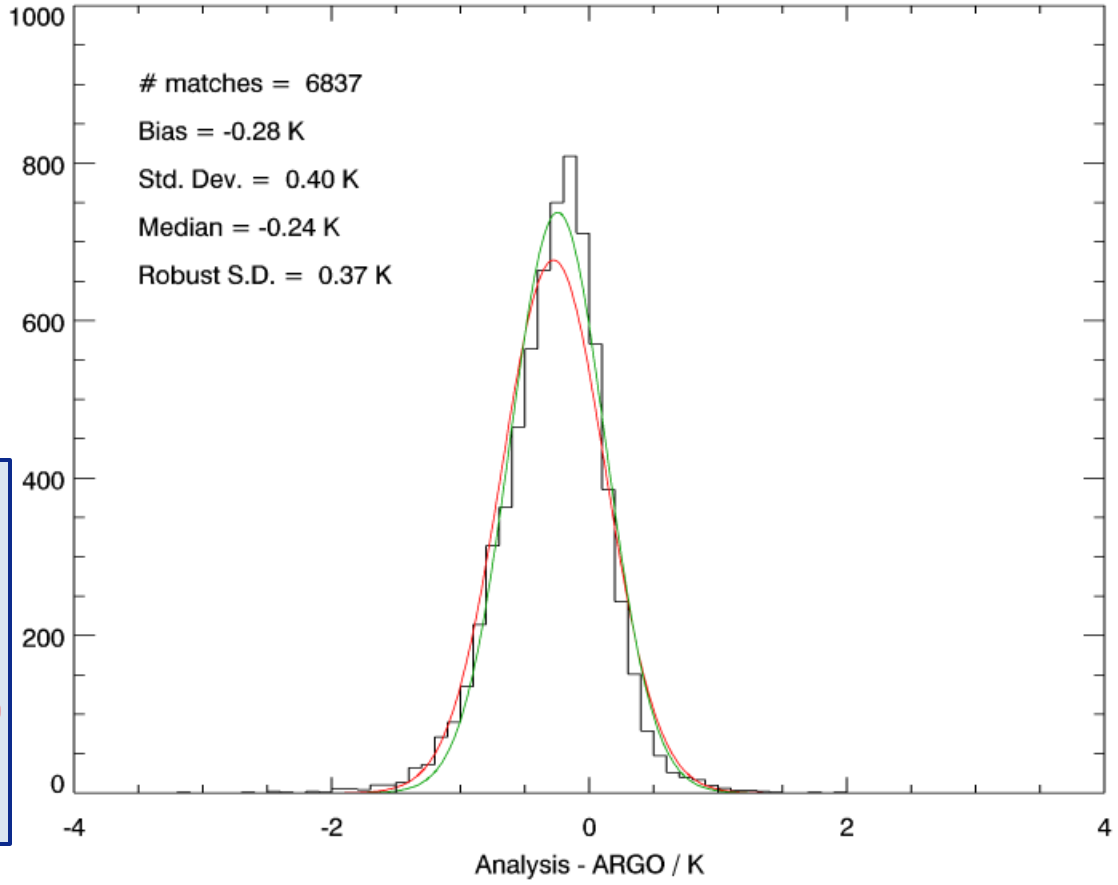
Effect of diurnal adjustment on bias correction



- **Diurnally adjusted monthly average VIIRS**

Validation vs ARGO

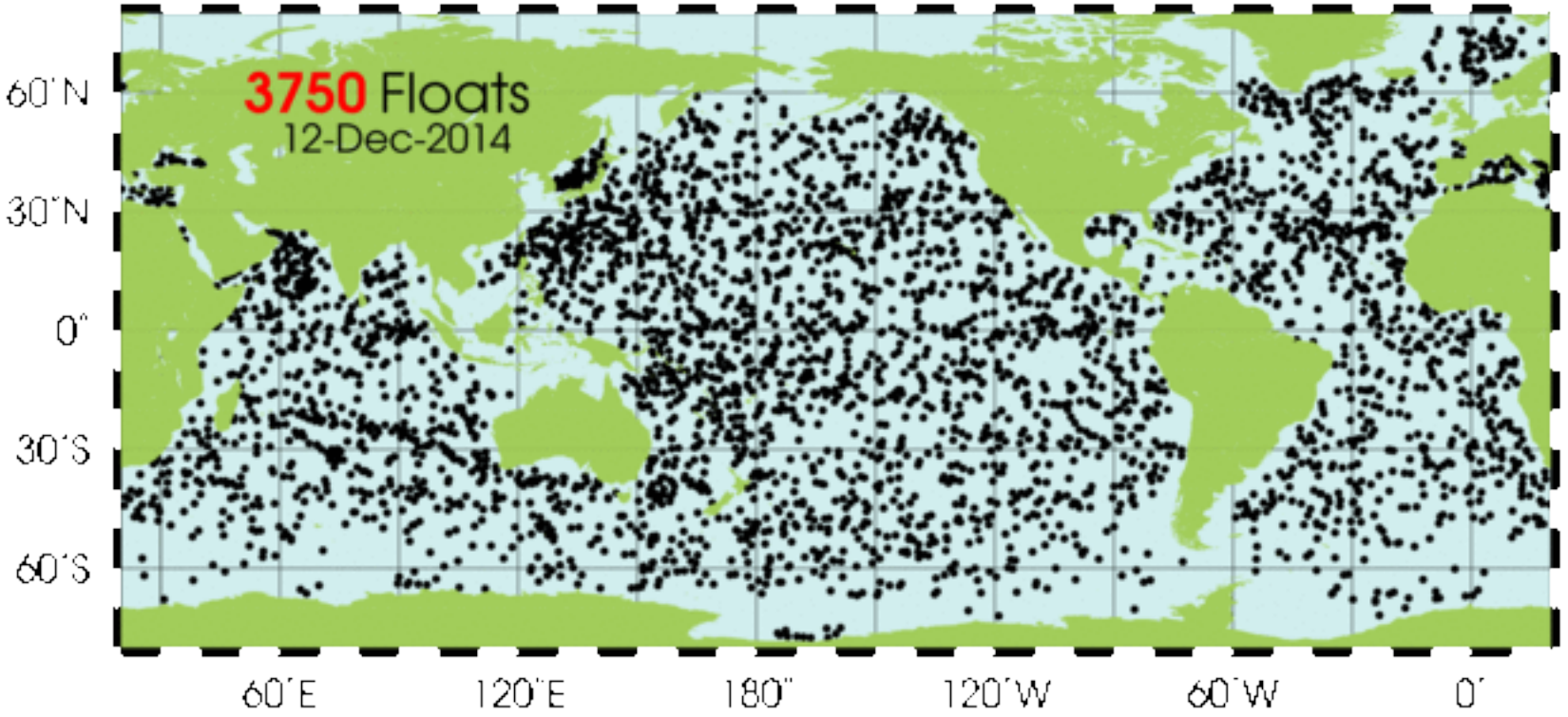
- March 2016
- iQuam QC
- 3 – 7 m depth



Global: -0.28±0.40 (0.37)
30+°N: -0.40±0.46 (0.36)
<|30°|: -0.18±0.36 (0.30)
30+°S: -0.40±0.41 (0.37)

N.B. Virtually identical statistics to uncorrected analysis!

Locations of currently active ARGO floats



Data Availability and Users

- ACCESS
  - GHRSST L2 and L4 SST products in GDS-2
    - Produced operational in NESDIS
    - JPL pulls data to PO.DAAC in real time
    - After 30 days , NCEI-Silver Spring, MD pulls data from JPL and puts into stewardship archive.
- USERS
  - Coral Reef Watch
  - NWS/MMAB-Ocean Forecast Model (-Robert Grumbine) (Geo Session-Thursday Morning (June 9th)
    - JPL pulls data to PO.DAAC in real time
    - After 30 days , NCEI-Silver Spring, MD pulls data from JPL and puts into stewardship archive

Issues

- GHRSST L3 Products
  - How best to produce L3C