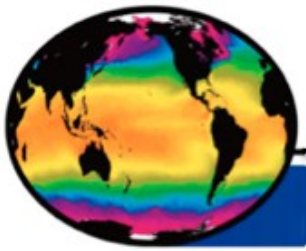
AUS-TAG

Jorge Vazquez

CDR-TAG Report 2013

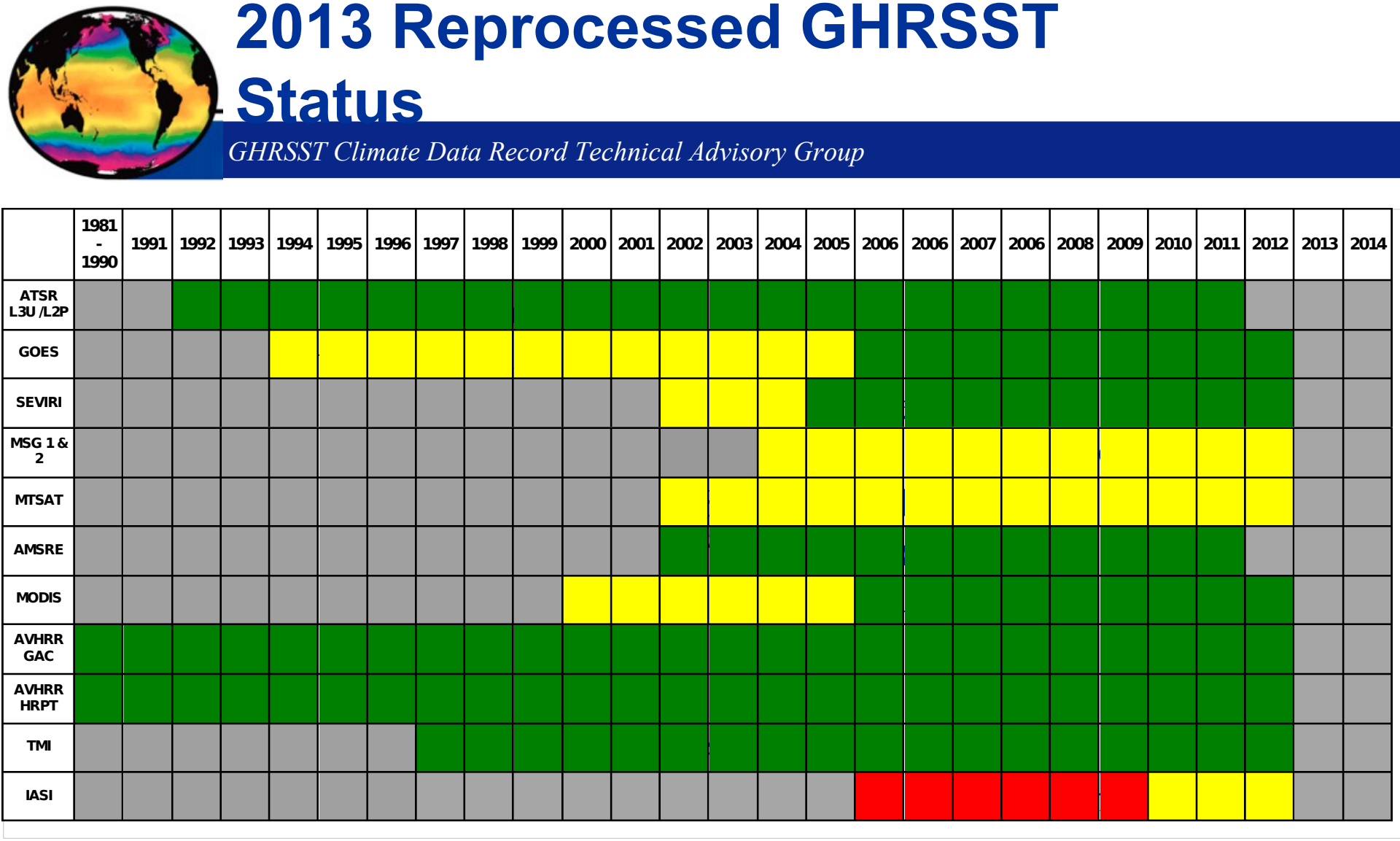
GHRSST XIV

Woods Hole



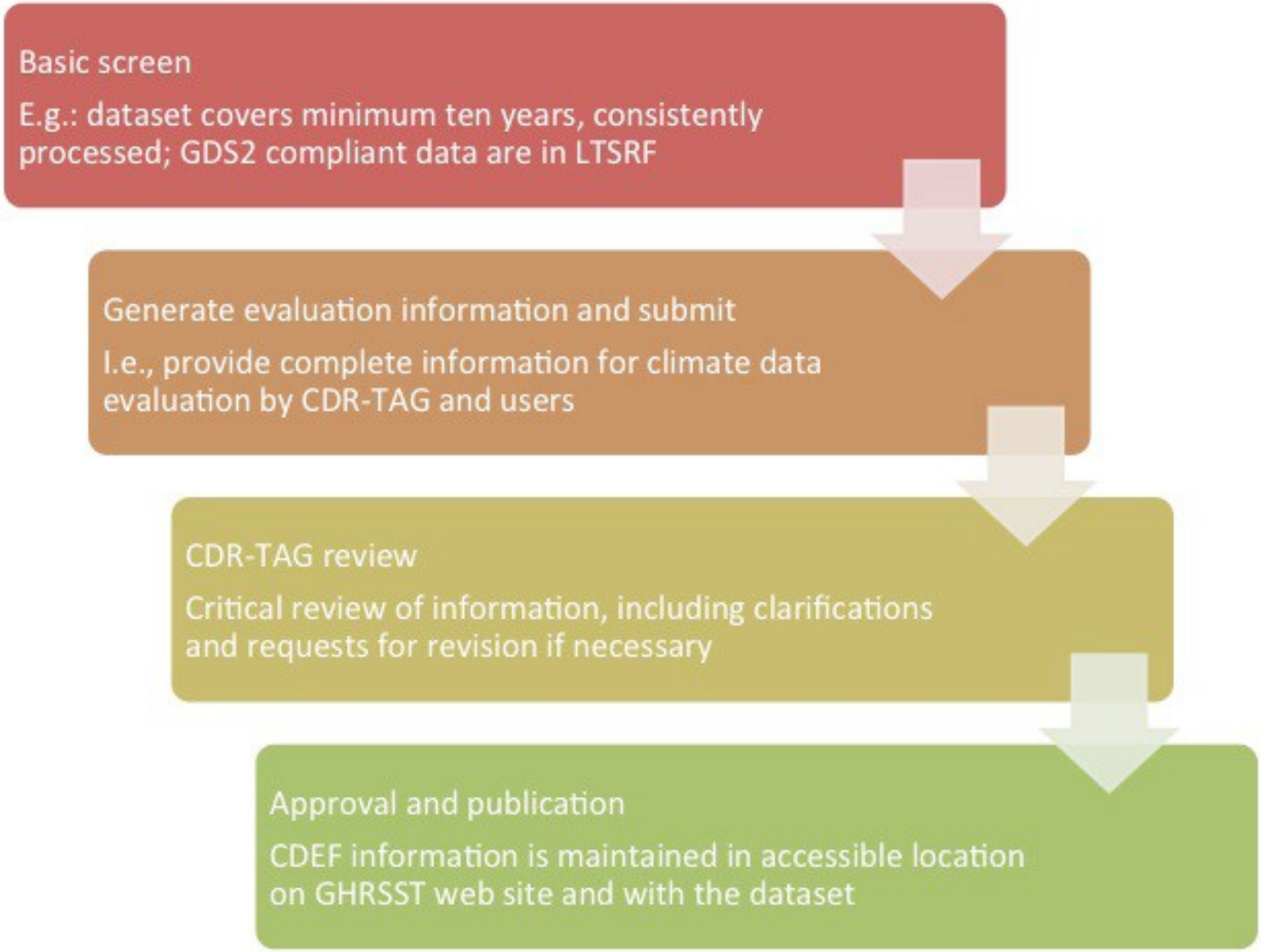
2013 Reprocessed GHRSST Status

GHRSST Climate Data Record Technical Advisory Group



Sensor not in operation or capable of SST observations	
No plans yet for reprocessed GHRSST L2P/L3U	
Efforts underway or proposed for reprocessed GHRSST L2P/L3U	
Consistent reprocessed data available in GHRSST L2P/L3U	

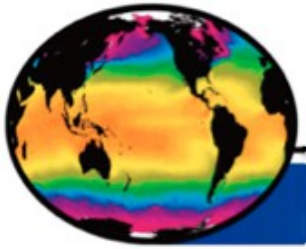
Climate Data Evaluation Framework



Historical documentation of sensors

Decisions and Actions

- CDR-TAG adopted Climate Data Assessment Framework v1.0.3 and **ask GHRSST ST** to endorse it formally
- ACTION: Task team will undertake 3 trial CDAF assessments by GHRSST XV: **CM, JM, KC, SI, JFP, CG and CD**
- ACTION: **PM** with STVAL will advise on how to describe traceability aspect of CDAF
- ACTION: **CM and JM** to revise summary graphic on reprocessing activities across GHRSST
- ACTION: **PM** to write to CEOS and CGMS (and others as relevant) to request action on digitising and curating paper archives of pre-flight and in-flight sensor calibration/performance information for historical sensors



DAS-TAG Report

Chair : Edward Armstrong
Co Chair: Jean Francois Piolle

14th GHRSST Science Team Meeting

Woods Hole, MA, USA

21 June 2013

What do we do for GHRSST?

* Provide technology infrastructure and informatics expertise
* Foster data usability, stewardship and understanding for present and future generations

Agenda

***Emerging trends in metadata**, Ted Habermann (remote)*

***PO.DAAC integrated web services**, Ed Armstrong*

***Reconciling GHRSST archive integrity and data flows**, Ken Casey*

***A Hadoop framework for data mining and analyses of large datasets**, Jean-Francois Piolle*

***Proposals for new GHRSST dataset policies**, Ed Armstrong and Gary Corlett*

Summary

* Metadata evolution
  - Proven ability to translate among metadata formats at the dataset level
  - ISO 19115 provides powerful ways to capture dataset lineage and quality that are important to GHRSST
* Data accountability and Lifecycle
  - Need improved reconciliation of data flows between GHRSST data centers
  - Even users should be given tools to run “reports”

Summary

* Dataset Lifecycle …
  - A process to improve the stewardship of GHRSST data within the GDAC
  - Proposal for a “Submission Agreement” for data provider
    - Document data lineage, quality and uncertainty
* Technology improvement development
  - Bring processing and services of data directly to the user !
    - Integrated web services for dataset and granule discovery, metadata, data subsetting, extraction and imaging
    - Input of one service to call another
    - GDAC will rollout these in 6 months

Summary

* Technology improvement development….
  - Bring processing and services of data directly to the user !
    - Hadoop framework for distributed computing -- Ifremer proof of concept
    - ***Nephelae*** system with 600 cores
      - Example: process 4 years of L4 data to produce anomalies from a climatology in 90 seconds
      - 10 years of QuikSCAT L2 data to produce daily wind statistics in 2 minutes

Issues and concerns update

- Way forward on implementing on dataset lifecycle policy
- GDS governance has been resolved ?
- Implementing schedule for new GDS2 datasets
- Non standard distribution of L2P data still outstanding

Diurnal Variability Working Group

Breakout Report

Gary Wick

Group Focus

- Desired approaches/requirements for diurnally resolved SST
  - Provision of diurnal warming estimates
    - Temporal frequency
    - Representative depth
    - Representative spatial scale
  - Direct provision of models/parameterizations
  - Provision of error characteristics for existing models and predictions
  - Increasing available validation data
  - Understanding of basic physics

Current Activities

- Product refinement for TWP+ experiment
- Dedicated matchup database for diurnal variability
- Demonstrated value of near-surface Argo measurements
- Evaluation of approaches for foundation temperature estimation
- Diurnal warming prediction from NWP forecast fields
- New observations of turbulence fields for model evaluation

Future Activites

- Briefing on WHOI Argo activities
- Dedicated experiment “perfectly doable”
  - Majority of new floats use iridium communications
  - Float could repeatedly sample near-surface ocean for period of 3-5 days
  - Willing to explore sampling closer to surface
- Group to develop plans for experiment of opportunity
  - Explore forecasting capability

EARWiG Summary

Andy Harris

Main Points

GHRSST PO Requests

- Approach to consensus in retrieval algorithms/cloud masking *etc*.
  - Is consensus possible?
    - **Maybe, but not yet**
  - Is it desirable?
    - **Not right now. It would stifle innovation**
- Approaches for interacting GSICS and using real-time corrections
  - Meteosat SEVIRI is now operational and other geostationary sensors will follow
  - Noone is using it yet (that we are aware of)
  - N.B. Only for geostationary sensors
  - Using the matchup data to derive actual fixes for calibration would be better, but those data are not being made available publically

Main Points

- 8 presentations shows that there continues to be a lot of activity and interest
  - Not bad for a group whose very raison d'etre was questioned at the outset
- Physical retrieval methodologies are coming to the fore
  - Radiative transfer, instrument calibration and NWP input are issues
  - Need a good source of aerosol data to include (preferably 3-d)
  - Metrics which calculate quality of SST retrieval on a pixel-by-pixel basis have potential to improve SSES
  - Additional channels of new instruments offer prospect of improved retrievals (more complex state state vector)
  - Can consider iterative methods
  - Smoothing inputs related to 'atmospheric' parameters shows promise
- Improvements to cloud detection
  - Bayesian gives ~20% ('traditional' methods ~10%)
  - Implication that a good retrieval is possible for ~30% of data
- Other comments
  - Is it necessary to have many variations on certain algorithms (e.g. NLSST)
  - Include 'SST sensitivity' metric in assessment of algorithms
  - Consensus on metrics is desirable – obvious link to STVAL

HL-TAG

Jacob Hoeyer/Bob Grumbine

GHRSST-XIV

Inter-comparison Technical Advisory Group (IC-TAG)

Breakout Session Report

Alexey Kaplan (Chair), Mike Chin (V-Chair, Rapporteur)

21 June 2013

Membership

- Dave Foley (NOAA & U of CA @ Santa Cruz) was added as a member
- David Poulter (now at Pelamis Scientific Software Ltd, working for IFREMER) will be asked to re-join as he is back in business of developing systems with IC-TAG –relevant capabilities.

By its TOR, IC-TAG is focused on the intercomparison systems: **GMPE**, **HRDDS**, and **SQUAM**.

- About 2 yrs ago **HRDDS** became defunct, b/c of funding problems. Now Dave Poulter is back, funded by ESA, developing even more advanced system called **Felyx**, whose capabilities will include HRDDS. The project is lead by Jean-François Piollé. Felyx development plans have been covered elsewhere at this meeting.

- For logistical reasons, in the last year **SQUAM** development only involved work with L2 and L3 products, not L4; **L4-SQUAM** work will restart in August 2013. Considerable progress of SQUAM on L2 and L3 inter-comparison was reported elsewhere at this meeting.

- **GMPE**'s funding situation and a proposal for its further development was presented by Gary Corlett.

- **GMPE**'s current funding by MyOcean2 is coming to an end.
- U.K. MetOffice is willing to keep running it and support updates provided that GHRSST (participating L4 producers) agree to obey certain requirements regarding their products and delivery (GDS 2.0 format, daily delivery by 1300UTC, global region, resolution at least 0.25°, accessibility through PO.DAAC or, at a minimum, by ftp elsewhere, as well as requirements on resilience and validation). L4 producers that were present were not objecting.
- In addition, MetOffice offers to provide software and guidance for establishing: (1) **Secondary GMPE**s, for testing and evaluation of new L4 products (e.g. at GDAC, if they are interested) (2) **Regional GMPEs**, for regional L4 products (e.g., at interested RDACs?). GPO is enthusiastic about these proposals. Present Data Centers' representatives were cautiously interested but concerned about details.
- Gary Corlett and other relevant people will be settling these issues over email.

Analysis methods and development of L4 SST products

Presentations (10 min each):

Sea surface temperature by Barnes' interpolation: current stage (Franca Gutemberg)

Recent updates to the near real time OSTIA system (Jonah Roberts-Jones)

Brief update (5 min):

NOAA Geo-Polar 5km Global SST Analysis for day&night, night-only, and diurnal correction plans (Eileen Maturi)

Discussion (15 min)

8:50-9:35: **Inter-comparison of L4 SST products**

Presentations (10 min each):

A comparison of SST gradients and the impact of going to higher resolution (Jorge Vazquez)

L4 comparison using Reynolds/Chelton spectrum test (Mike Chin)

Discussion (25 min), including:

plans for the IC-TAG-wide inter-comparison based on Reynolds & Chelton approach [Reynolds, R. W., D. B. Chelton, J. Roberts-Jones, M. J. Martin, D. Menemenlis, and C. J. Merchant, 2013: Objective determination of feature resolution in two sea surface temperature analyses, *J. Climate*, **26**, 2514-2533.]

Discussion Results

- Synthetic data used by *Reynolds et al.* (2013) and codes for their spectral analysis have already been made available at PO.DAAC (thanks to PO.DAAC/JPL people: Michelle Gierach, Ed Armstrong, and Mike Chin!) at ftp://grhsst@podaac.jpl.nasa.gov (the password has to be requested by sending an email to Ed.Armstrong@jpl.nasa.gov).
- Mike Chin has examined the data, software, and performed this test on his own L4 analysis (**MUR**).
- While technically any willing L4 producer already can download the package and perform the test, it seems that some streamlining of the procedure would make things easier to perform and to interpret. We would like to avoid (1) need for re-gridding the L4 results on the "4km Pathfinder grid"); (2) need for L4 producers to accommodate the present L3-like input rather than the L2 input format data; (3) the ambiguity in the test data use in the experiment, since their error estimates were not prescribed. L4 producers are asked to send a brief email stating their interest in participation and to voice any concerns.

IWWG

Erik Crossman/Bob Grumbine

GHRSST Satellite SST Validation Technical Advisory Group Breakout Report

Helen Beggs, Chair ST-VAL TAG
CAWCR, Bureau of Meteorology, Australia

ST-VAL Breakout Session, 14th GHRSST Science Team Meeting, Woods Hole, 17-21 June 2013

In Situ SST Radiometers

- Proposal for common format and repository for Shipborne SST radiometer data
  - Standardise on CCI netCDF format? - Tim Nightingale to email
  - NEODC (RAL) willing to host SST radiometric data
- Where do we need in situ SSTskin?
  - CDR-TAG: Along repeat transects within 100 km of each other and ideally at least once monthly
- High latitude in situ SSTskin
  - DMI obtaining Arctic ISAR SSTskin (but how frequent/sustained)
  - RV Investigator to sporadically obtain Southern Ocean ISAR SSTskin from mid-2014
  - Do we need more ships at high lats with more repeating transects?

GHRSST Validation Protocol Document

- Proposal from GHRSST PO for a brief VPD that would contain:
  - Review of existing datasets
  - QC procedures
  - Future data requirements
  - Description of how to produce SSES's and quality levels via links to L2/L3 producers' documents
- Volunteers to write sections to email Gary Corlett

Sensor Specific Error Statistics

- Are they being calculated correctly?
  - Every L2/L3 producer does something different
  - Producers need to provide:
    - SSES method description
    - SSES validation
- Are they appropriate for the application?
  - ST-VAL to work with IC-TAG to determine what L4 producers need from SSES's
  - Do users need additional SSES fields such as sses_count and sst_count?
    - sses_count = Number of *in situ* matches that contributed to the statistics
    - sst_count = Number of satellite SST measurements that contributed to the "best typical" L3 SST grid value

NOAA NESDIS STAR

iQUAM *in situ* SST quality monitor v2.0

NOAA / NESDIS / STAR

Home | Data | About | Contact | FAQ | Links

- Maps
- Statistics
- Time Series
- Platforms

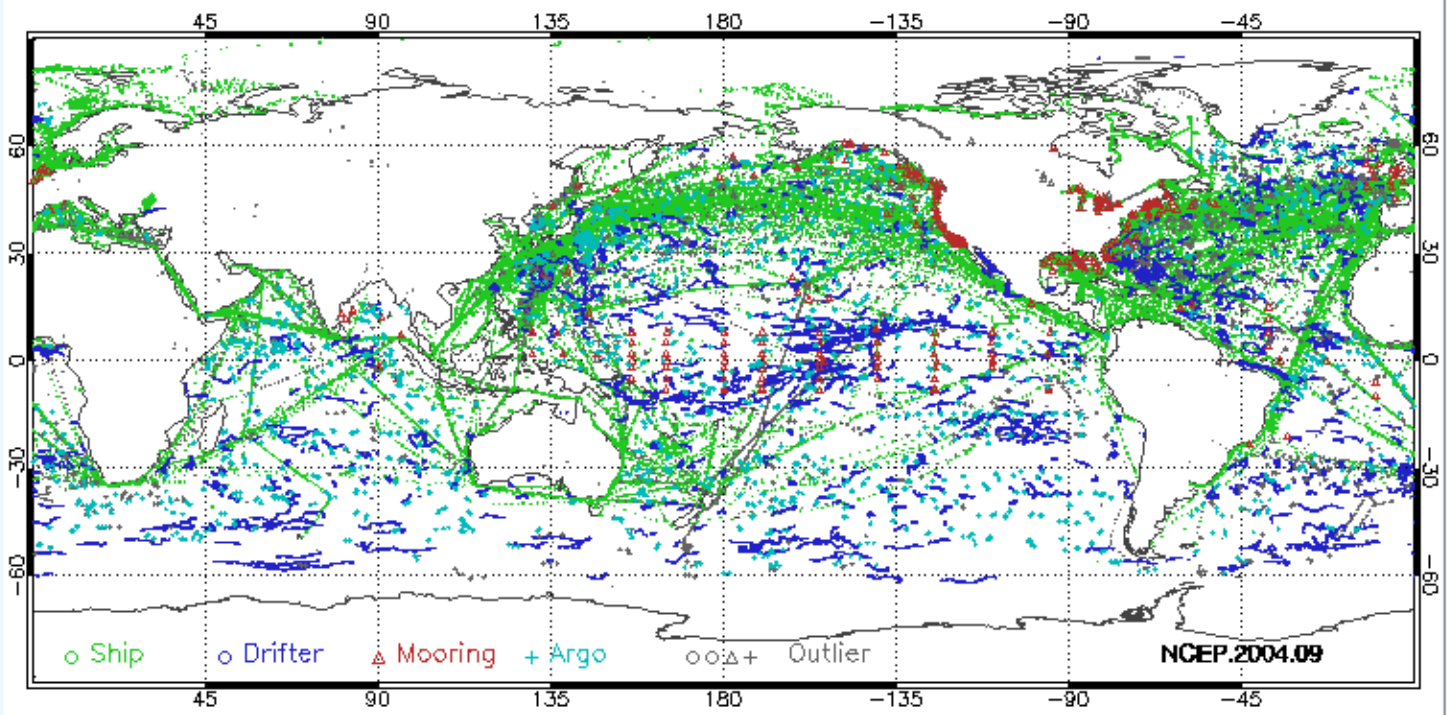
< 09 2004 >

Different platform types are shown in different colors, with outliers (erroneous observations) shown in gray. Each symbol stands for one observation.

Tropical moorings include TAO/TRITON, PIRATA, RAMA etc. Coastal moorings are all other moorings.

Argo floats data are from USGODAE GDAC ftp site. The shallowest good measurement in 3-8dbar depth range is extracted from each profile.

Global map of measurements



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ARGO has the most uniform global coverage

R2HA2

Peter Cornillon