Report to GHRSST14 from Australia – BLUElink> and IMOS

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Presented at 14th GHRSST Science Team Meeting, Woods Hole, 17-21 June, 2012

GHRSST Products - Updates since G-XIII

- **Locally received HRPT AVHRR skin SST L2P, L3U, L3C and L3S files (IMOS) – GDS v2.0**
  - Improved SSES and monthly updated NLSST regression coefficients
  - Experimental SST field using same 3-ch algorithm for day and night
  - Changes to be implemented in RT system from July 2013
  - Data available from: ftp://aodaac2-cbr.act.csiro.au/imos/GHRSST/
  - Using new system to reprocess back to 1992 (started)
  - Transitioning to operational system (July 2013)

- **Geostationary satellite MTSAT-1R skin SST L3U files (BLUElink/IMOS/NOAA) – GDS v2.0**
  - Produced experimental L3 files for GHRSST TWP+ Project using same 2-ch algorithm for day and night

- **Global and regional foundation SST analysis L4 files (GAMSSA and RAMSSA) (BLUElink) – currently GDS v1.7**
  - Ingested WindSat SSTs from 11 Dec 2012 (after debugging system)

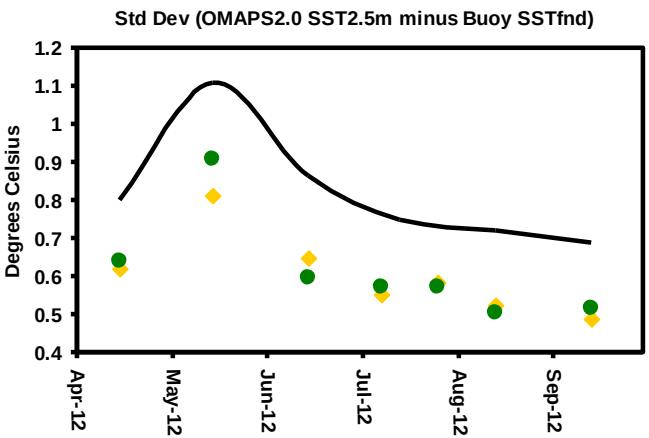
Other Main Activities since G-XIII

- Validation quality SST from 18 ships (IMOS)
- Meteorological and air-sea flux data from Southern Ocean Mooring and 3 research vessels (IMOS)
- Testing RAMSSA_skin for QC of satellite radiances assimilated into Australia's NWP model (ACCESS-R)
- New Datasets and research for Tropical Warm Pool Diurnal Variability (TWP+) Project
- Use of HRPT AVHRR L3S data in ReefTemp NextGen Coral Bleaching Nowcast System
- Tested impact of assimilating WindSat SSTs into operational ocean model (OceanMAPS 2.1) and operational SST analyses

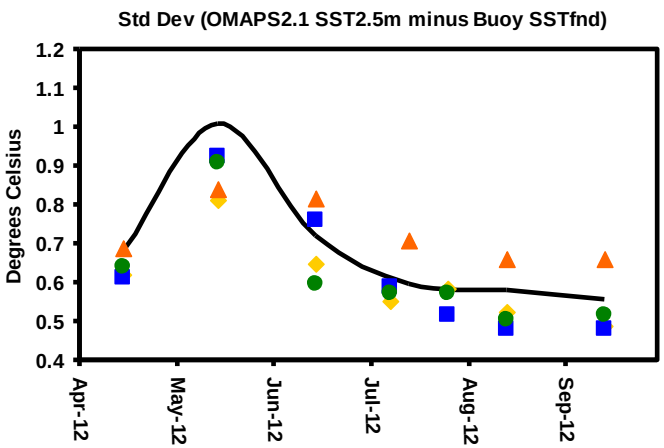
Impact of Ingesting WindSat SST

Ocean Model SST2.5m (OceanMAPS)

Without WindSat



With WindSat



WindSat
NOAA-18
NOAA-19
METOP-A

Ingesting REMSS WindSat L2P-gridded SSTsubskin has significantly decreased Std Dev of the Bureau's operational ocean model (OceanMAPS) SST2.5m wrt buoys over 90°E – 180°E, 70°S – 15°N but has not affected RAMSSA errors

GDS 2.0 Implementation

With support from BLUElink and IMOS BoM aims to provide the following netCDF 4 GDS v2.0 format files to GHRSST GDAC by Dec 2013:

- Reprocessed and operational RT HRPT AVHRR SSTskin L2P, L3U, L3C and L3S from Australian and Antarctic groundstations back to 1992
  - Currently available back to 1998 from IMOS RDAC at ftp://aodaac2-cbr.act.csiro.au/imos/GHRSST/

Issues to be raised at G-XIV

- What should GHRSST aim to achieve in the coming year(s)?
- How should users apply the Sensor Specific Error Statistics (SSES) in GHRSST files?
- How to best produce a high-resolution sea ice analysis for the Southern Ocean?

You may remember David from GHRSST-V in Townsville
… now 9 years later

Extra Slides for discussion

RV Investigator

- 70m length, ice capable research vessel for both tropical and Southern Ocean cruises
- Vessel due to be commissioned in Hobart late 2013
- Possible GHRSST piggy-back cruises into TWP and Southern Ocean
- Instruments will include:
  - ISAR autonomous SST radiometer
  - full set of flux-quality met instruments
  - Polarmetric weather radar
  - SBE 38 through-hull thermistor
  - Sea Soar (towed profiler to a few 100m depth that can be installed with external sensors)
  - Forward-mounted booms for mounting instrumentation
- **http://www.marine.csiro.au/nationalfacility/Investigator**

IMOS Ship of Opportunity SST

Goal:

Significantly enhance quantity, quality and timeliness of ship SST data in the Australian region

Status June 2012:

NRT QA'd SST data from 18 vessels (8 with hull temperature sensors) available from GTS and Ocean Portal

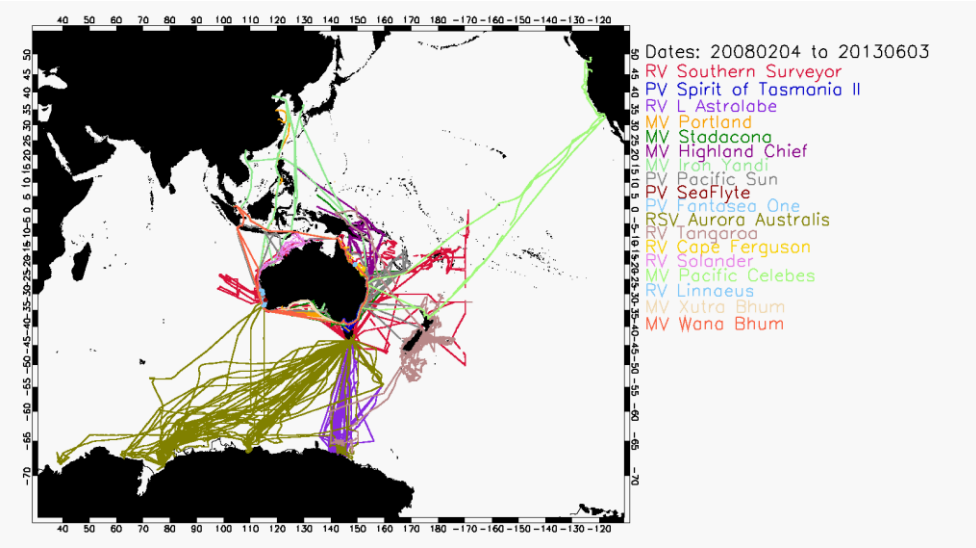
http://imos.aodn.org.au/webportal

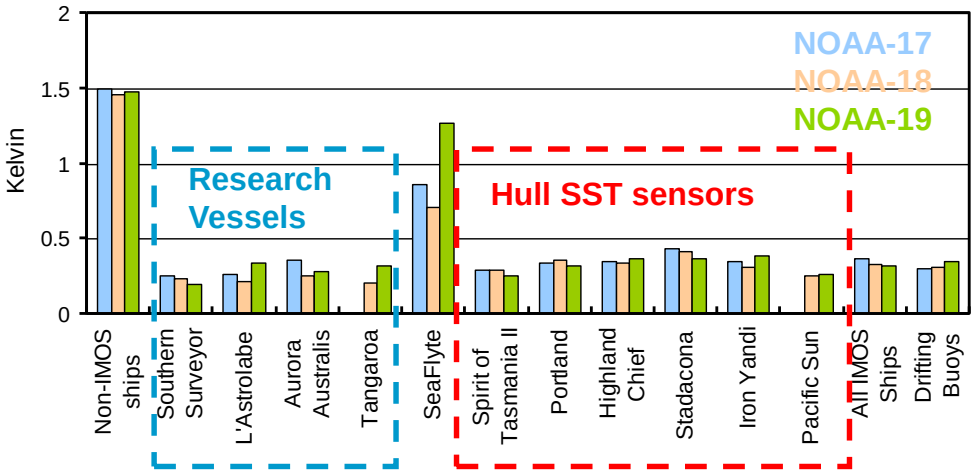
- All except Rottnest and Whitsunday Ferries (engine intake SST) have comparable errors to drifting buoys

- See Beggs et al., 2012, *Journal of Operational Oceanography*, **5**, 59-73

How can GHRSST exploit these data?

Locations of IMOS ship SST observations to 3 June 2013



Ship and buoy SSTfnd cf IMOS AVHRR SSTfnd

Stand. Dev. (AVHRR SST - In Situ SST)