

GHRSSST RDAC

# NOAA NATIONAL CENTERS FOR ENVIRONMENTAL INFORMATION

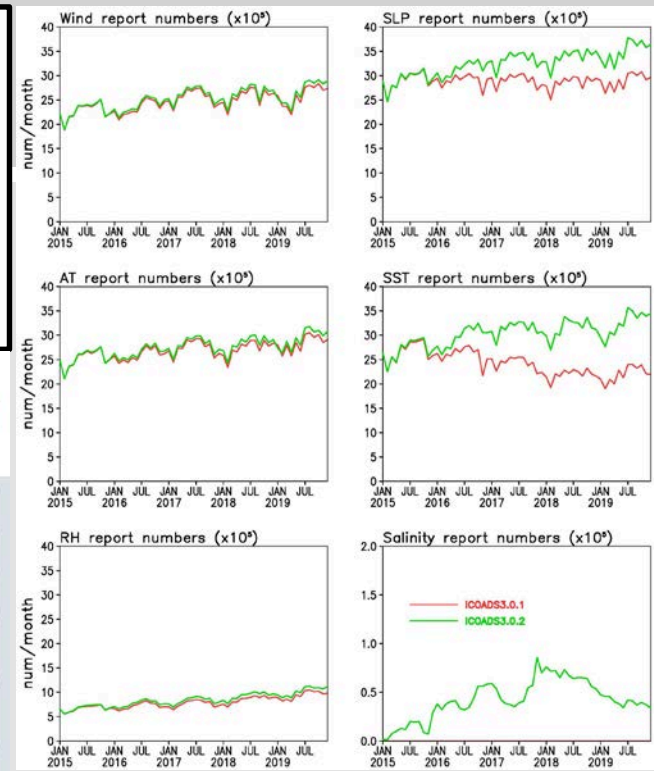
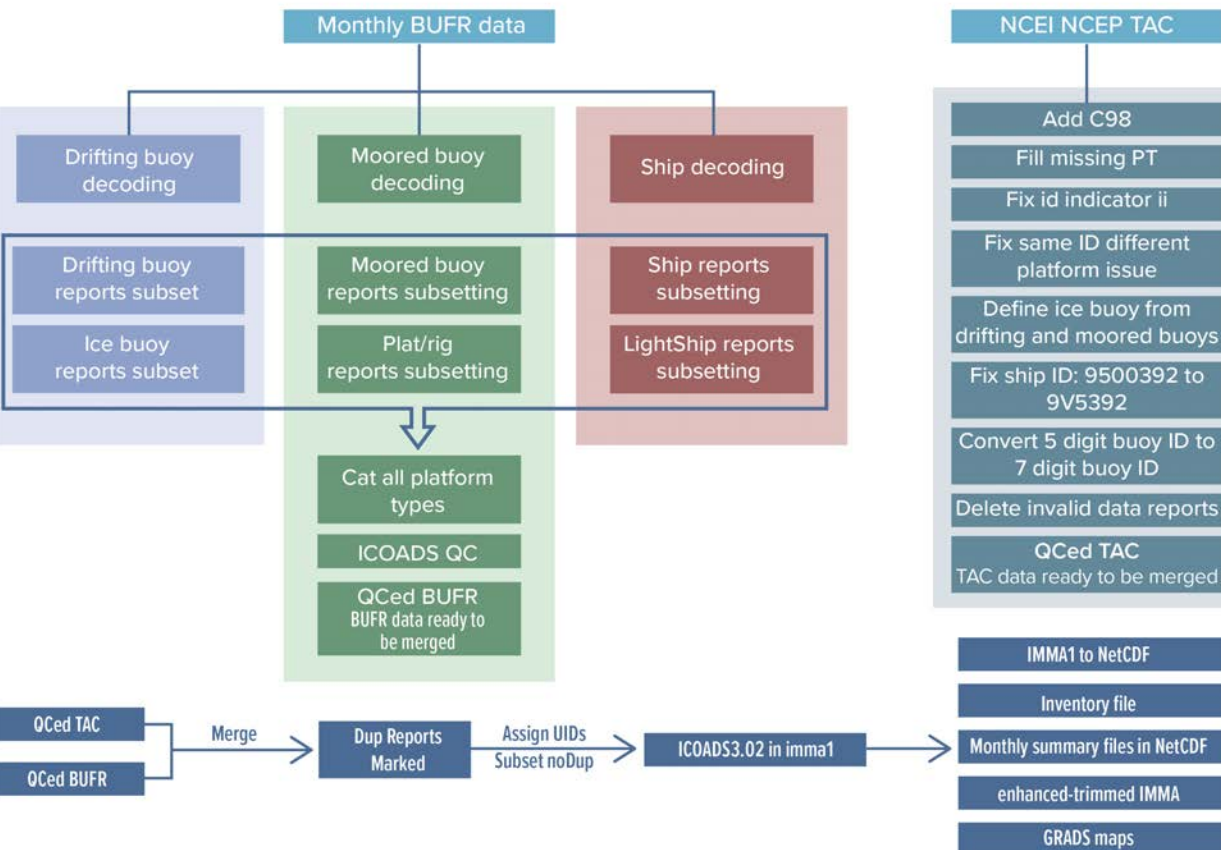


# GHRSSST\_RDAC\_NCEI: Update on NOAA/NCEI Surface Marine Datasets and Services

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**Introduction:** NOAA National Centers for Environmental Information (NCEI) provides scientific stewardship for climate and oceanographic data. Marine surface datasets include the historical in-situ observation based foundational datasets [e.g. the International Comprehensive Ocean-Atmosphere Data Set (ICOADS), the Surface Underway Marine Database (SUMD), the centennial scale (1854-present) Extended Reconstructed SST (ERSST), the satellite era Pathfinder SST and Optimum Interpolation blended SST (OISST), satellite blended sea surface winds, and the stewardship of NOAA and international oceanographic datasets. Recent progress includes new versions of these datasets, such as ICOADS R3.0.2 and OISST v2.1, which utilize the combined GTS data from the traditional TAC and new BUFR formats, resulting OISST global bias being reduced from -0.09C to -0.01C against GMPE benchmark.

## Monthly ICOADS R3.0.2 process

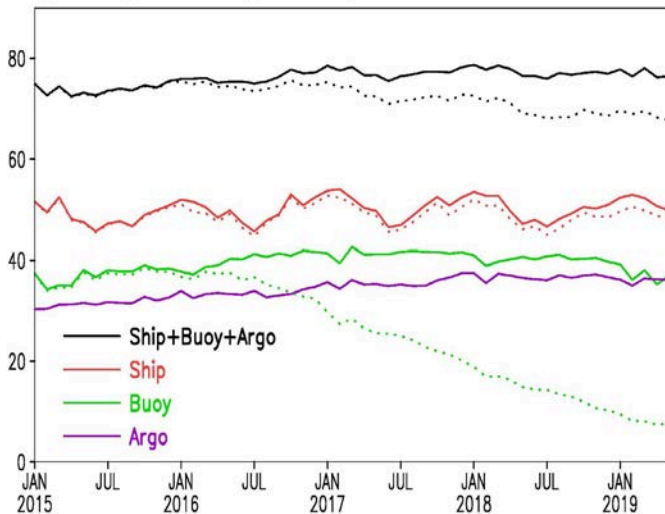


Number of essential climate variables (ECVs) reports in ICOADS R3.0.2 (green) and ICOADS R3.0.1 (red).

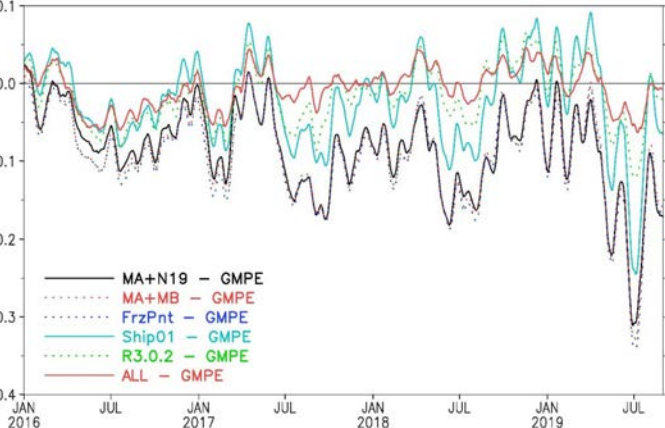
Schematic diagram for the IOCADS R3.0.2 BUFR + TAC merge procedure

**New Version - OISST v2.1:** Using merged TAC+BUFR ship, buoy and Argo float data and recent satellites. Global mean bias is reduced from -0.09C to -0.01C

(a) Monthly SST coverage, with Argo



(a) Globally AVE SST difference, daily 0.25x0.25, 15-day running filter



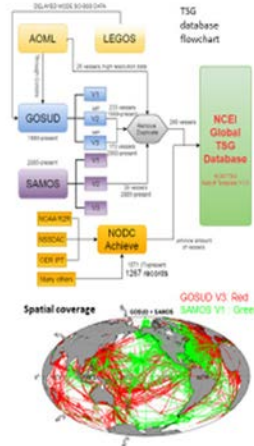
**Surface Underway Marine Database (SUMD): TSG extended to include other platforms**

**Goal of the project:** Stewardship, archive, distribution and quality controlling of in situ underway TSG sea surface salinity and temperature data.

**Purpose:** To gather all available TSG data, quality control, and make them available to the public in a uniform format, with granule subsetting tools.

**Usages:** (1) validation, calibration and matchup of satellite SSS/SST; (2) Air-sea interaction and variability; (3) Climate water cycles; ...

**Temporal Coverage:** 1971-present



**In-Situ data based, Centennial Scale SST Dataset: The Extended Reconstructed Sea Surface Temperature (ERSST), v5**

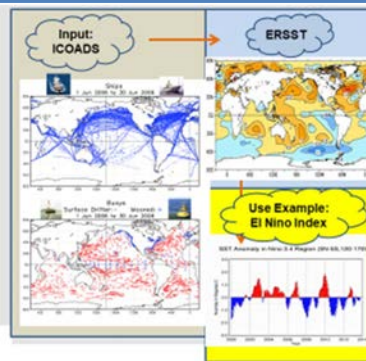
**Scope:** Authoritative centennial global sea surface temperature dataset for climate change research, assessment & monitoring (Monthly from Jan 1854 – present)

**Objective:** Monthly production & dissemination; development to remain state-of-the-science & authoritative

**Version update history:**

- v1 - 2003; v2 - 2004;
- v3 - 2008; v4 - 2015;
- v5: 2017 (J. Climate)

**Use & public interests:** Used for climate reports and assessments. New bias corrections starting from v4 showing no recent warming hiatus



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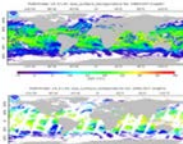
**Pathfinder Sea Surface Temperature Climate Data Record**

**Goal:** High resolution (~4km), long-term (1981 onward) satellite AVHRR SST as a Climate Data Record (CDR).

**Usage:** A *foundational dataset* for marine climate and ecosystem research and applications (e.g., for CoRTAD and higher level SST products such as OISST); a component of GHRSSST (<https://www.ghrssst.org/>)

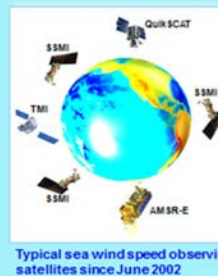
**Ongoing Improvements:**

- Production capacity transitioned from RSMAS/U. Miami to NOAA/NCEI
- V5.3 has been released, and forward quarterly update will start in Spring 2018!



**Blended Sea Surface Winds: To include new satellite data**

- Satellite Retrievals: RSS (NASA Pathfinder)
- 6-hourly & 1/4° global sea winds, blended from multiple (up to 6) satellites
- Daily & Monthly means are also archived & served to the community
- Blended Winds available from July '87 onward
- Climatological monthlies were computed for base period 1995 - 2005 (with obs of ≥ 3 satellites)



Typical sea wind speed observation satellites since June 2002

**Long-term stewardship of NOAA and partner satellite data**

