

# Proposal for a GHRSSST Shipborne Radiometer Format (“L2i”)

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- Series of four workshops “*Generation of Climate Data Records of Sea Surface Temperature from Current and Future Satellite Radiometers*” held at ISSI in Bern, Switzerland
  - Spent a significant amount of time looking at the measurement process for *in situ* radiometers, including how best to exploit existing and future radiometer data
  - Accessibility is a significant problem, so developed a common *in situ* data format
  - Draft version now implemented in SISTeR (RAL) and ISAR (UoS) processors

- Why specify a common data format for *in situ* radiometer SSTs (and possibly other *in situ* SSTs too)?
  - Unified access for users
  - Guaranteed presence of basic data fields
  - Can implement standards
  - Encourages best practice (e.g. QA4EO recommendations)
- Are there any relevant existing *in situ* product specifications?
  - Some, e.g. SAMOS ([samos.coaps.fsu.edu](http://samos.coaps.fsu.edu)), but limited flexibility and lack relevant data and metadata fields

## Format outline

- Borrows the structure of GHRSSST SST products
  - NetCDF4
  - Follows Climate Forecast (CF) conventions
  - Implements the Attribute Convention for Data Discovery (ACDD)
  - Aim is *in situ* radiometer data accessible in a format familiar to the GHRSSST community

## Dataset content

- Global header containing summary metadata
  - Uses GDS v2.0 header (almost) without modification
  - One additional field to comply with CF-1.6 convention for trajectories
- Coordinate variable systems for measurement time series at a single location, along tracks, profiles...
  - Latitude, longitude, (depth), time
- Station variables (CF-1.6)
- Mandatory variables
  - SSTs, *SST uncertainties*, quality indicators...
- Optional variables
  - Wind speed, platform speed, course, bearing...
- Experimental variables
  - Outline format and guidance

## Mandatory variables

time, lat, lon (, depth)  
platform\_name, platform\_id  
sea\_surface\_temperature  
sst\_total\_uncertainty  
sst\_flags  
quality\_level  
view\_nadir\_angle

## Optional variables

sst\_random\_uncertainty  
sst\_systematic\_uncertainty  
julian\_day  
speed\_over\_ground  
course\_over\_ground  
speed\_through\_water  
true\_bearing

view\_azimuth\_angle  
wind\_speed  
wind\_direction  
wind\_speed\_dtime\_from\_sst  
sources\_of\_wind\_speed  
relative\_wind\_speed  
relative\_wind\_direction

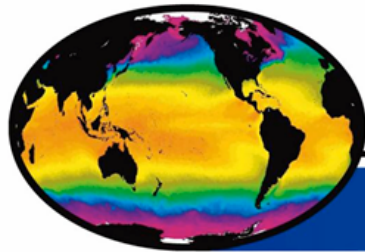
# sst\_flags

| Bit | Common flags                        |
|-----|-------------------------------------|
| 0   | 0 if thermometric, 1 if radiometric |
| 1   | 0 if night, 1 if day                |
| 2   | Set if cloudy                       |
| 3   | Set if rain or spray detected       |
| 4   | Set for an instrument exception     |
| 5   | Set for a processing exception      |
| 6   | Set if the platform speed is low    |
| 7   | Set if the wind speed is low        |
| 8   | Land proximity                      |
| 9   | (reserved)                          |



# Questions

- Is there support for a GHRSSST *in situ* level 2 format?
- If so, what's the process for vetting a new format and moving towards possible adoption?
- Who'll host the *in situ* radiometer datasets? Does adoption imply the involvement of the GDAC?
  - Possibility of support from the CEDA data centre ([www.ceda.ac.uk](http://www.ceda.ac.uk)) operated by the UK Research Councils but don't yet understand the scope of acting as a “mini-RDAC”



# GHRSSST

*Group for High Resolution  
Sea Surface Temperature*



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## The Recommended GHRSSST L2i Data Specification

### Version 1.0 Revision 2

| Document Management          |   |
|------------------------------|---|
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Draft available (52 pages).  
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