TT-SAT Task Team Report

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30 November 2022
ICM -14

Members

(as at 2022-10-20)

Name	Organisation
Lori Borg (co-chair)	SSEC, University of Wisconsin-Madison, US
Axel von Engeln (co-chair)	EUMETSAT, DE
Stephen Leroy	AER
Tony Reale	NOAA / NESDIS / STAR
Benjamin Ruston	UCAR
Chi Ao	Jet Propulsion Laboratory, California Institute of Technology
Johannes Nielsen	Danish Meteorological Institute
Florian Ladstädter	Wegener Center, University of Graz, Austria
Fabien Carminati	Met Office
Jordis Tradowsky	Bodeker Scientific
Bomin Sun	NOAA
Thomas August	EUMETSAT

Progress with provision of satellite based ancillary measurements to RS92/RS41 colocation database (A2, initially raised at ICM-9)

- TT-SAT tasked to provide Lead Centre (LC) collocated satellite measurements with historical RS92/41 database

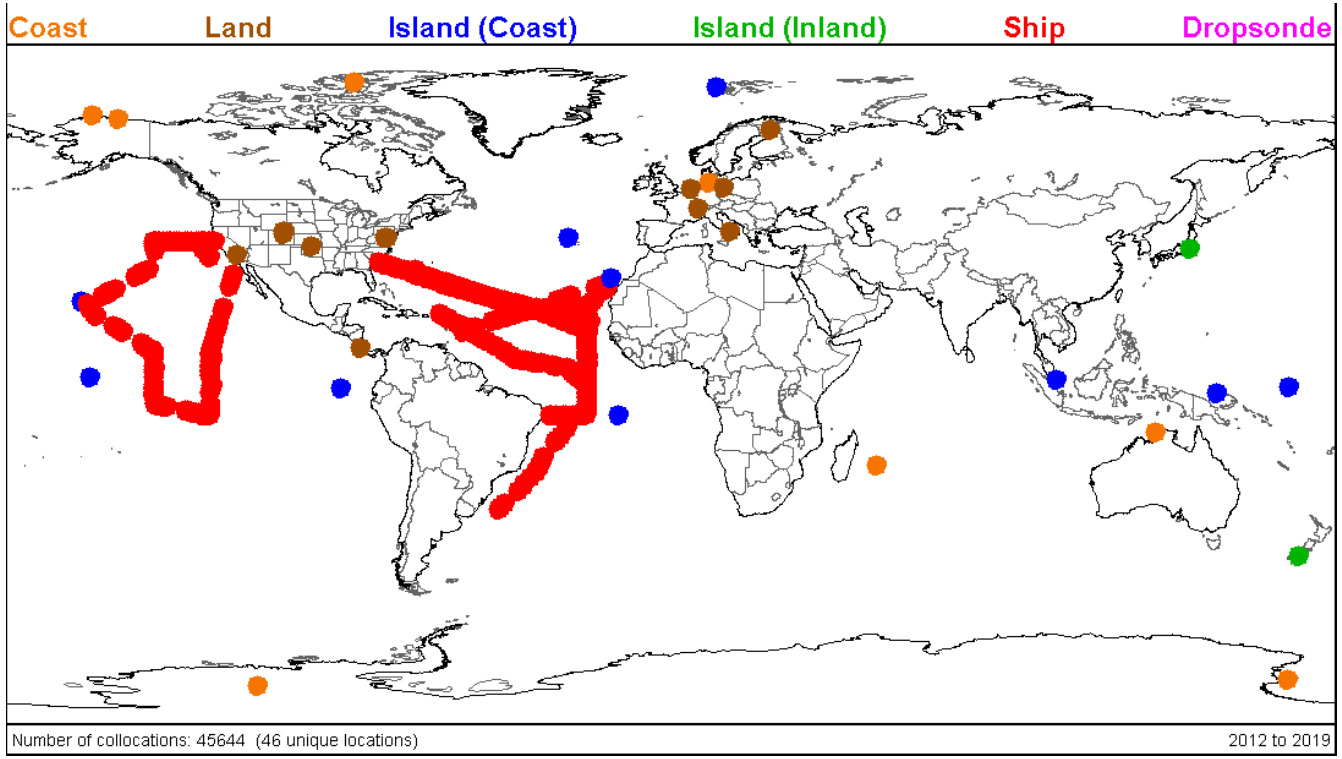
- **Fulfilling this action is complex**
  - Which satellite data (infrared, microwave, radio occultation)
  - Which satellite data products (level 1,2,3)
  - Which colocation criteria (e.g. 1 hour and 100 km …)
  - Need for built in flexibility to accommodate reprocessing of satellite data sets

- **Paths Forward**
  1. Leveraging NPROVS (Tony Reale & Bomin Sun)
  2. Enhancing capabilities query GRUAN database

Progress with provision of satellite based ancillary measurements to RS92/RS41 colocation database (A2, initially raised at ICM-9)

1. **NPROVS (Tony Reale & Bomin Sun)**
   - NPROVS routinely (daily) compiles datasets of collocated radiosonde, dropsonde, numerical weather prediction (NWP) and satellite sounding product observations
   - NPROVS being updated to include GRUAN processed radiosondes (now includes Vaisala processed)
   - NPROVS files will become publicly available

https://www.star.nesdis.noaa.gov/smcd/opdb/nprovs/



Progress with provision of satellite based ancillary measurements to RS92/RS41 colocation database (A2, initially raised at ICM-9)

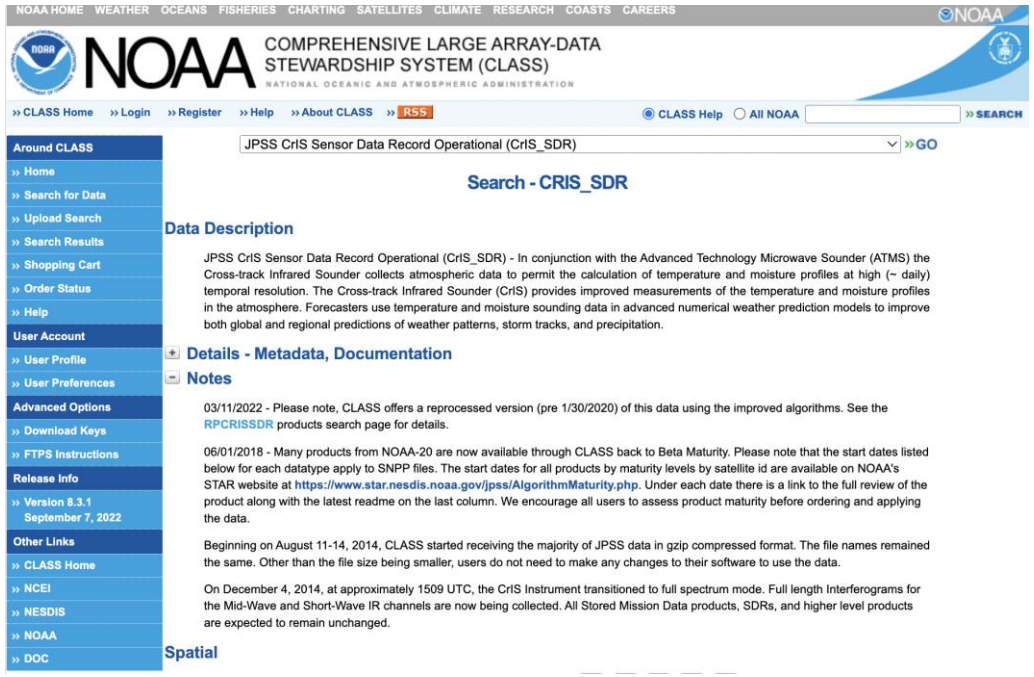
2. Enhancing capabilities to query GRUAN database of radiosondes

- User would be able to determine for a given radiosonde, including dual RS41/RS92 launches and sequential sondes (ie two sondes within 3/4 of an hour collocated with an overpass), which satellite observations are available that are within a configurable time/space window (at the surface for polar and at 100 hpa for GPSRO)

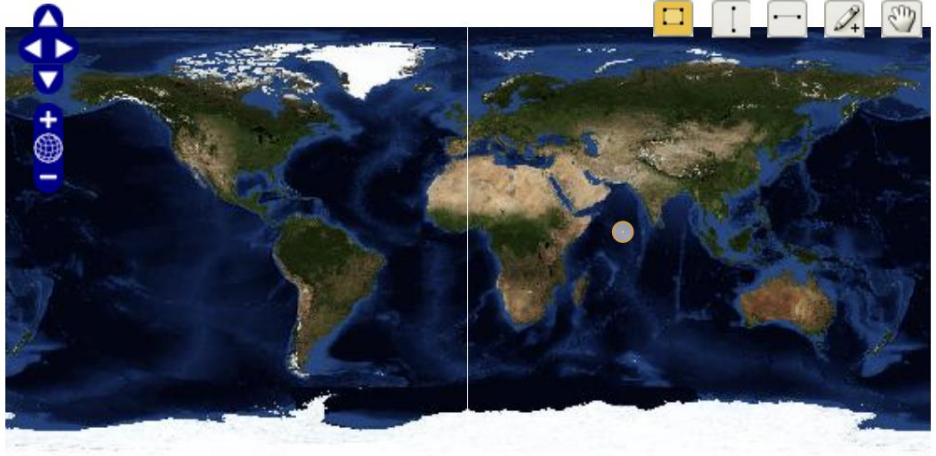
- These queries would include information for the NOAA-20, SNPP, Metop-A,B,C, GRAS, and COSMIC

- User would then use this information to identify cases to assess and then either get the data directly from the satellite data archives

NOAA Data Archive - CLASS



https://www.avl.class.noaa.gov/saa/products/welcome



4.22
64.69 64.69
4.22
Max Area

68.91, 4.22

Temporal

(maximum range is 366 days)

Start Date (format: YYYY-MM-DD) 2022-11-29 **Start Time (UTC)** (format: HH:MM:SS) 00:00:00

End Date (format: YYYY-MM-DD) 2022-11-30 **End Time (UTC)** (format: HH:MM:SS) 23:59:59

Specify the range of the times for: ○ Each Day Or ◉ The Entire Range Of Days

Advanced Search

Datatype

Sensor Data Record

☐ CrIS Full Spectral Science SDR (SCRIF) (public 03/08/17)

☐ CrIS Science SDR (SCRIS) (public 04/19/12 - 06/24/2020)

Geolocation

☐ CrIS SDR Ellipsoid Geolocation (GCRSO) (public 04/19/12)

Node

○ Ascending
○ Descending
○ Either

Satellite

NOAA-20
S-NPP

Quick Search & Order — to place large order without reviewing inventory or granule (file) metadata.

Search — to place small order after reviewing inventory and granule metadata, including browse images when available.

Save Criteria | Load Criteria | Dataset Name/Granule ID/Beginning Orbit Number View | Reset

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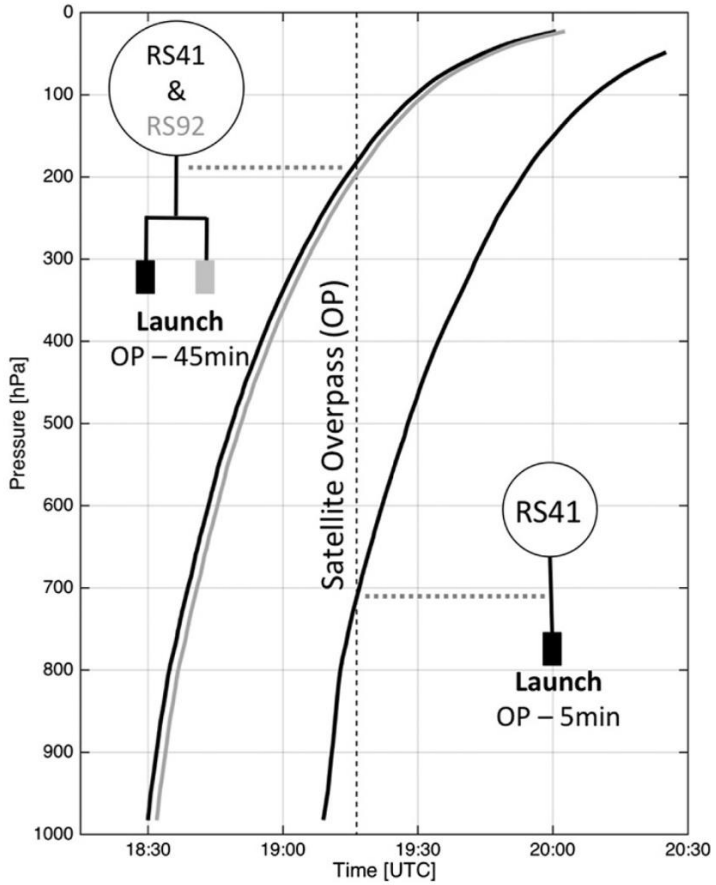
TT-SAT recommendation - Enhance capabilities of querying GRUAN radiosonde database

- Format/extent of the querying/database capabilities should be discussed
- This functionality would reside at the LC
- This would make the GRUAN radiosonde archive more relevant/usable to the satellite community

Radiosonde Intercomparison & VALidation

- RIVAL was GRUAN/JPSS/ARM IOP w/focus on RS92/RS41 transition at ARM sites at ENA, NSA, & SGP
- Campaign began in February 2018 and ended January 2022
- RIVAL launches targeted NOAA20 satellite overpasses at each of the field
- RIVAL team will be analyzing this data

RIVAL Sonde Launches			
Site	**ENA**	**NSA**	**SGP**
Start Date	26 Apr 2018	20 Jun 2018	13 Feb 2018
End Date	18 Oct 2019	20 Oct 2019	12 Jan 2022
Launches Completed Total (Single/Twin)	54 (54/0)	19 (12/7)	110 (38/72)



RIVAL Twin Launch Configuration