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Session 1

Virtual

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Task Team Progress Report for October 2020 – Satellite

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Summary and Purpose of this Document

Progress report from the task team on Satellite-Based Remote Sensing Measurements.

Task Team Structure:

At the Eleventh GCOS Reference Upper Air Network Implementation Coordination Meeting (GRUAN ICM-11), in Singapore on 20-24 May 2019, it was decided to split the Task Team Ancillary Measurements (TT-AM) into two:

- Task Team on Satellite-Based Remote Sensing Measurements (TT-SAT)
- Task Team on Ground-Based Remote Sensing Measurements (TT-GB)

Both new TTs were asked to provide a Terms of Reference for that group, and to discuss possible membership of the task team. At time of ICM-12, TT-SAT had prepared the Terms of Reference and identified potential members of the task team.

Radio Occultation:

Metop GRAS

Parallel to the TT setup, work continued with the LC and GRUAN stations on the provision and refinement of the EUMETSAT provided best-effort product on radio occultation (RO) predictions (providing expected occultation locations and times for the Metop GRAS radio occultation instrument up to 2 weeks in advance), as well as the provision of the ground track of the Metop satellites over the same period.

- Prediction files: ftp://ftp.eumetsat.int/pub/OPS/out/test-data/Metop_Predictions/
- Documentation: www.gruan.org/gruan/editor/documents/meetings/icm-9/pres/pres_0718_Engeln_GRASOccultationForecasting.pdf

The LC is ingesting the Metop GRAS RO prediction files and notifying the GRUAN sites when occultations are predicted to occur within 100km of the sites or if a RO and consecutive satellite overpass will occur within half an hour and 200 km of the site.

COSMIC2

Discussions with the COSMIC2 team have begun regarding the feasibility of COSMIC2 RO prediction files. Currently, there are no prediction files for COMSIC2 RO. If and when these predictions become available, they will be provided to the LC.

RS92/RS41 Sonde Assessments:

RIVAL

The Radiosonde Inter-comparison & VALidation (RIVAL) field campaign, which began in 2018, to assess RS92/RS41 sonde differences at the Eastern North Atlantic (ENA), North Slope Alaska (NSA), and Southern Great Plains (SGP) ARM sites is nearing completion. This field campaign is a joint project between GRUAN, ARM, and the JPSS project and leverages the JPSS funded sonde launches, which are used to validate SNPP and NOAA20 retrievals. The JPSS program provides funds for the RS41 sondes and the ARM program provided funds for the RS92 sondes, balloons, rigging, etc.

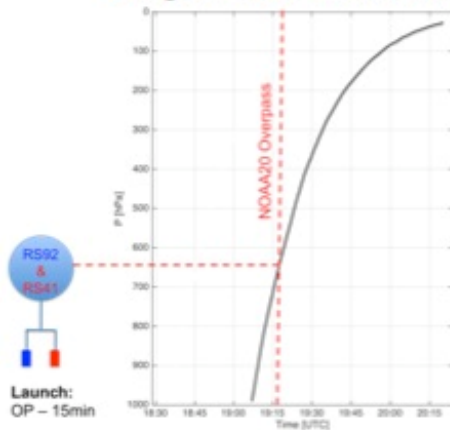
Dual soundings (RS92 & RS41 on the same balloon) have been performed coincident with SNPP or NOAA20 overpasses at the ENA, NSA, & SGP sites with varying degrees of success since 2018. RIVAL launches concluded at the ENA site in October 2019. 54 dual sondes completed were completed at ENA. These launches were single-balloon launches, launched 15-minutes prior to satellite overpass of the site. The NSA site encountered significant difficulties (high winds, staffing issues, etc.) that made RIVAL launches difficult to perform. 19 RIVAL launches were conducted at NSA and no further launches will be attempted. Remaining supplies were sent to the SGP site. 12 of the NSA launches were single-balloon launches and 7 were twin or 2-balloon launches. In a 2-balloon launch, the 1st balloon is launched with RS92 & RS41 sondes 45-min prior to overpass. A 2nd balloon is then launched with a RS41 sonde 5-min prior to overpass. Both types of launch scenarios are shown below in the figure. At SGP, a total of 80 RIVAL sondes have been completed and launches are ongoing. SGP received unused supplies from NSA and ARM funded some additional RIVAL launches. There are supplies to complete another 35 RIVAL launches at SGP.

RIVAL sondes have been incorporated into the NOAA Products Validation System (NPROVS). The NOAA team, including Tony Realy and Nick Nalli have provided the LC a sample of satellite collocations for RIVAL launches at SGP. Discussions regarding this sample data set are needed to further configure access to these collocations.

RIVAL Field Campaign Status (20201105)

Site	ENA	NSA	SGP
Start Date	26 Apr 2018	20 Jun 2018	13 Feb 2018
End Date	18 Oct 2019	20 Oct 2019	ongoing
Launches Completed (Single/Twin)	54 (54/0)	19 (12/7)	80 (45/35)

Single Balloon Launch



Twin or 2-Balloon Launch

