



Lead Centre report for 2019-2022

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14th GRUAN Implementation and Coordination Meeting (ICM-14)
Saint Denis, La Reunion
28 Nov- 2 Dec 2022

- Hong Kong, Dakar & Paramaribo invited to become candidate sites
- Ross Island (ROS) & Barrow (BAR) certified
- Several sites recertified
 - Payerne, Potenza, Ny Alesund, Sodankyla, Beltsville, Tateno

➤ Under review:

- Tenerife (BOU, CAB; recertification)

➤ In total

- 31 sites
- 14 GRUAN-certified sites

GCOS Reference Upper-Air Network



➤ Visitors

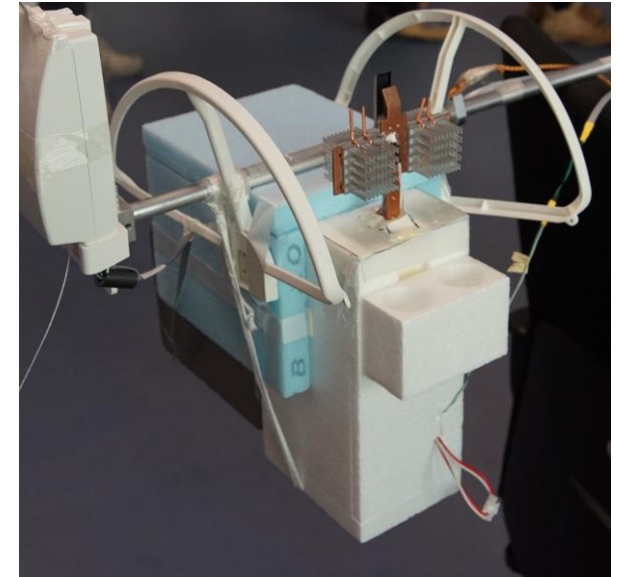
- ETH-Zürich, tests with PCFH, November 2019.
- Modem, laboratory tests M10, November 2019
- Alexey Lykov (CAO - Dolgoprudny), test of FLASH-B November 2019.
- Tom Gardiner & David Medland, GRUAN uncertainties, Sept 2019.
- EMPA-Zürich, test with TDL-based stratospheric hygrometer, Dec 2019 & Sep 2022

- GRUAN data archive
 - Operationally running GRUAN meta-data data base - GMDB (24/7)
 - Operationally working GRUAN file archive - GFA (24/7)
 - Data streams RS41-GDP.1, RS92-GDP.2, RS-11G-GDP.1 iMS-100-GDP.2
- Ongoing development and optimization of all GRUAN server software components, GDMS, GMDB, GFA
- Ongoing development on GRUAN software tools for use at sites
 - RsLaunchClient, LidarRunClient, gt92, gtRsl, gm41
- Regularly update of data flow statistic plots (available at website)
- Lists of comparison soundings available at website, e.g. RS92-RS41
- Operational data processing of RS41-GDP.1 and RS92-GDP.2

- Laboratory experiments (radiation, calibration)
- RS41-GDP.1 developed
- All RS92 sites have switched to RS41
- Dual soundings with RS41/RS92 ~1200 GRUAN-wide
 - Radiosounding database complete (CFH, M10, FPH, O₃, COBALD, Skydew, RS11-G, iMS100 etc)
 - Transfer of ancillary data still to be initiated
- Strategy paper published (Dirksen et al. GI2020)
- Paper on RS92-R41 comparison in preparation (pres 10-5)

- Stratospheric hygrometers

- FLASH-B
- Meisei Skydew
- PCFH



- RS41, RS92, DFM-09, DFM-17, M10 (laboratory & intercomparison).
- Research contracts to investigate alternatives for R23 (TU Dresden, FZ Jülich)
- Research contract to investigate added value GRUAN data processing

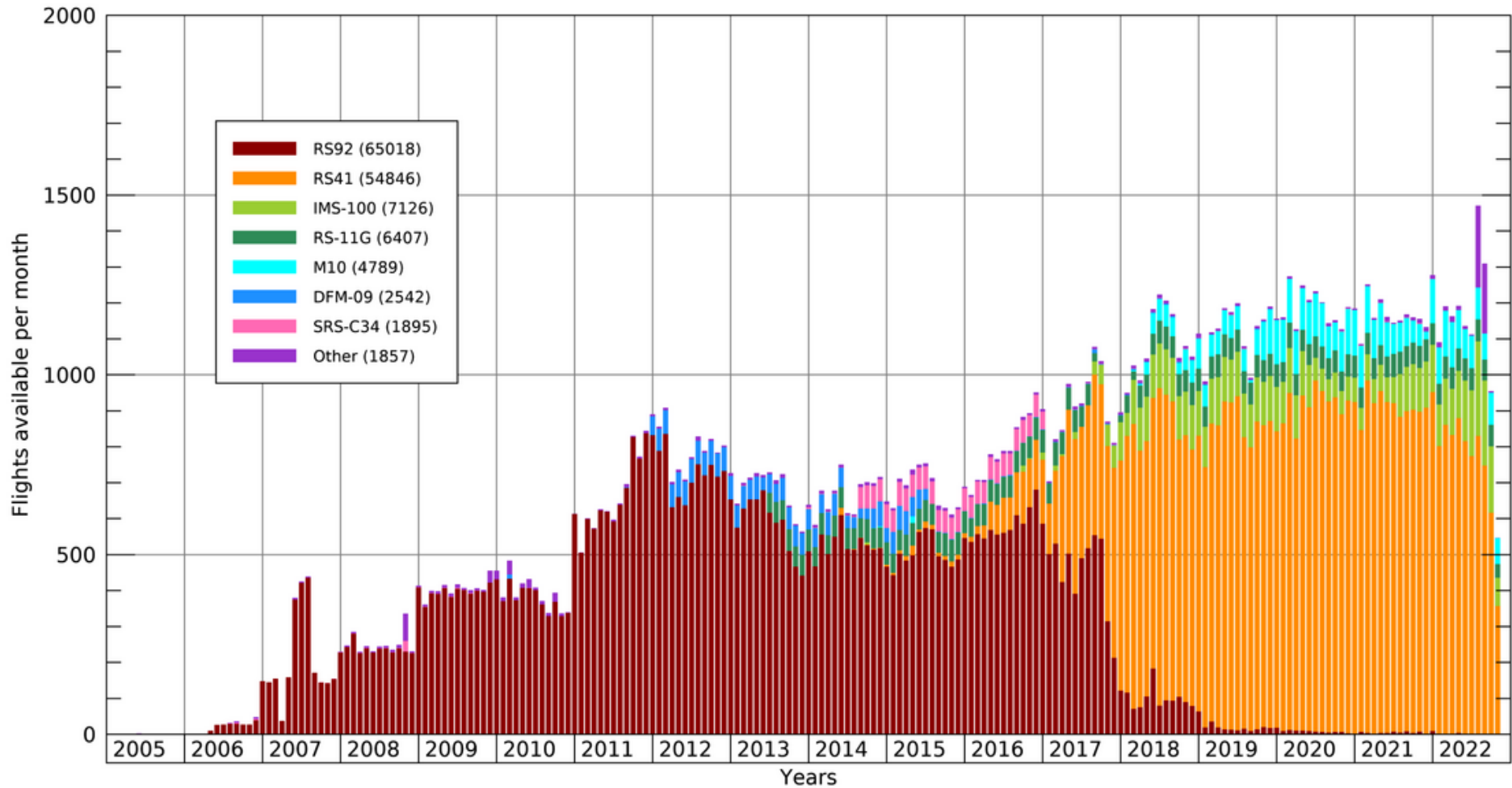
- Development of RS41 GDP V1 completed
 - Data processing for all sites flying RS41 up to date
- Preparation and execution of WMO radiosonde intercomparison campaign (UAI2022) in cooperation with Payerne. The radiosounding part of the campaign was performed August-September 2022, the laboratory part comprised 6 2-week slots from February to November 2022.

Peer-reviewed papers:

- von Rohden et al., Laboratory characterisation of the radiation temperature error of radiosondes and its application to the GRUAN data processing for the Vaisala RS41, AMT2022
- Dirksen et al., Managing the transition from Vaisala RS92 to RS41 radiosondes within the Global Climate Observing System Reference Upper-Air Network (GRUAN): a progress report, GI2020.

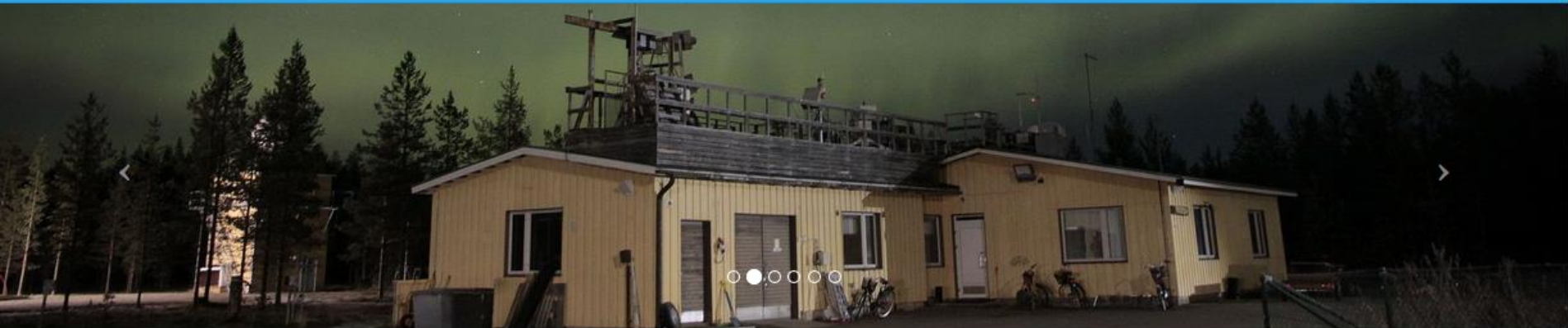
- GRUAN-TD-7 - Review of Multiple-payload Radiosonde Sounding Configurations for Determining Best-Practice Guidance for GRUAN Sites.
- GRUAN-TN-6 – Brief Description of GruanToolRsLaunch (gtRsl)
- GRUAN-TN-8 – [3 updates] GRUAN Monitor MW41 and the Vaisala RS41 Additional Sensor Interface
- GRUAN-TN-9 – Site Photographs Guide
- GRUAN-TN-11 – Brief description of GruanToolRs92
- GRUAN-TN-12 – Brief Description of Vaisala DigiCORA® 3 DataBase File Format (DC3DB)
- GRUAN-TN-13 – User Guide for the RS41 GRUAN Data Product Version 1 (RS41-GDP .1)

GRUAN Radiosonde Launches (total: 144480 at 2022-11-20)



- Prepare report of WMO Radiosonde intercomparison campaign.
- Start development of GRUAN data product for RS92 (RS92-GDP.3).
- Support development of GRUAN data product for Modem M10, M20 & Graw DFM-09, DFM-17 radiosondes, including laboratory investigations
- Further development of the laboratory set ups in Lindenberg
- Complete the GRUAN radiosonde omnibus.
- Continue development of alternative, non-R23 based, cooling mechanisms for frostpoint hygrometers.
 - Test Skydew instrument
- (Re)certify sites.

- Initiate missing datastreams for silent sites
- Publish result of GRUAN-wide RS92-RS41 comparison
- Further development of the GRUAN website.
- Further develop operational processing of CFH data.



GRUAN



GCOS Reference Upper-Air Network

The climate reference network

➤ Steady development

- Addition of functionality
- Regularly updated data flow statistic plots
- **Content: input needed from community (e.g. instrument experts)**

Questions

