Lead Centre report for 2017-2018

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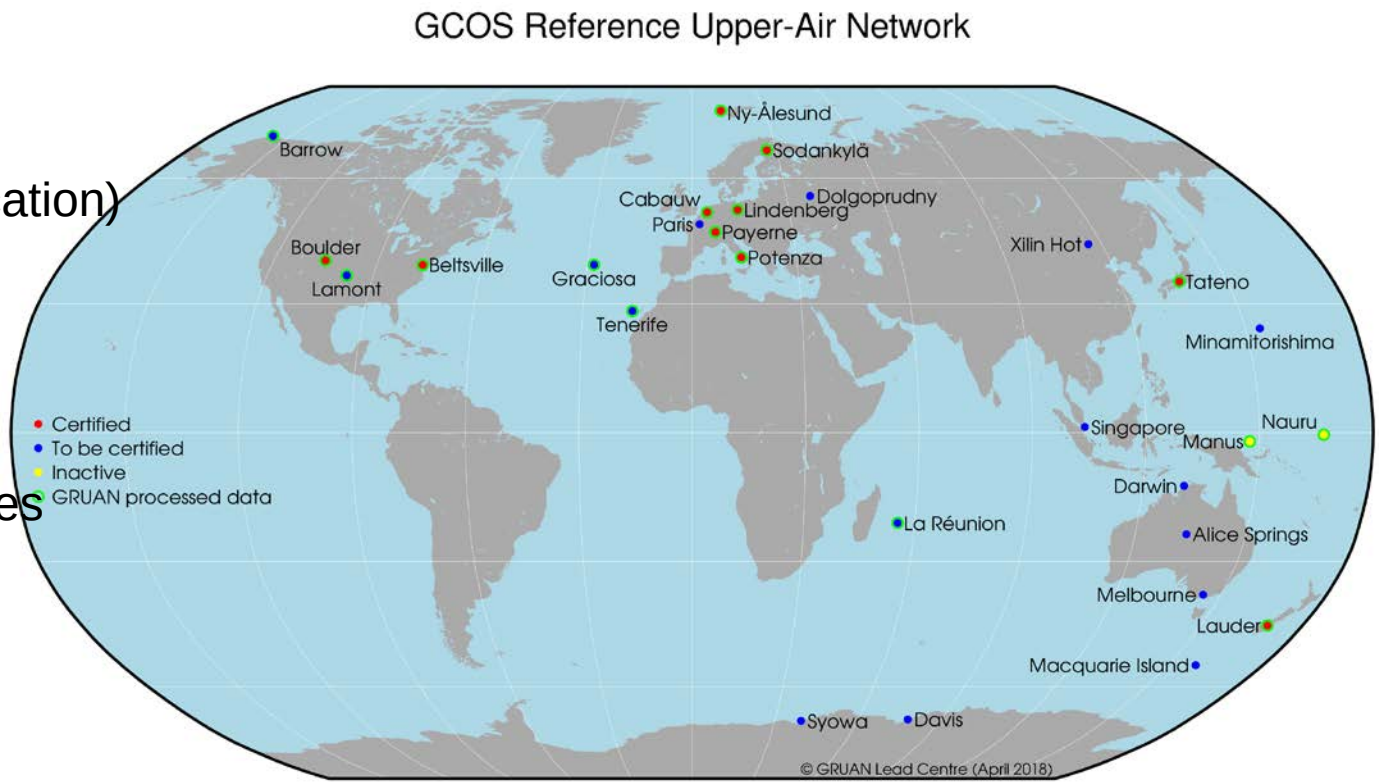
GRUAN Lead Centre, DWD

10th GRUAN Implementation and Coordination Meeting (ICM-10)
Potsdam, Germany
April 2018

Network status

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

- Dakar invited to become candidate site
- Tateno certified
- Under review:
  - Lamont (SGP)
  - Lindenberg (recertification)
- In total
  - 26 sites
  - 10 GRUAN-certified sites



Lead Centre cooperation

- ETH Zürich, IITM (India), StratoClim2017 Campaign (RS92-RS41)
- CAO Moscow, FLASH-B instrument
- Provided Vaisala system for windtunnel experiments at INRIM
- Visitors
  - Thierry Leblanc, June 2017, LidarRunClient.
  - Tom Gardiner & David Medland (NPL) July 2017, GRUAN-GAIA/CLIM.
  - Korea Research Institute of Standards and Science (KRISS) CoreTemp2017 Campaign, September 2017.
  - GUAN task team meeting, December 2017.
  - Vaisala, discussion/coordination, March 2018.
- Site Visits
  - INRIM November 2017

Lead Centre operations

- GRUAN data archive
  - Operationally running GRUAN data management server - GDMS (24/7)
  - Operationally running GRUAN meta-data data base - GMDB (24/7)
  - Operationally working GRUAN file archive - GFA (24/7)
- Ongoing development and optimization of all GRUAN server software components, GDMS, GMDB, GFA
- Ongoing development on several software tools for use at sites, e.g. RsLaunchClient, LidarRunClient, gt92, gtRsl, gm41
- Regularly update of data flow statistic plots (available at website)
- Configuring radiosonde data flow for new GRUAN sites: Tenerife, Dolgoprudny, Minamitorishima, Syowa
- Organisation of ICM-10 (together with AWI)

RS92-RS41 transition

- Laboratory experiments (radiation, calibration, time lag)
- Dual soundings with RS41/RS92 (and CFH) ~600 GRUAN-wide
- ARM proposal (“RIVAL”) approved
- Majority of RS92 sites have switched to RS41
- Strategy paper in preparation

GRUAN Data flow

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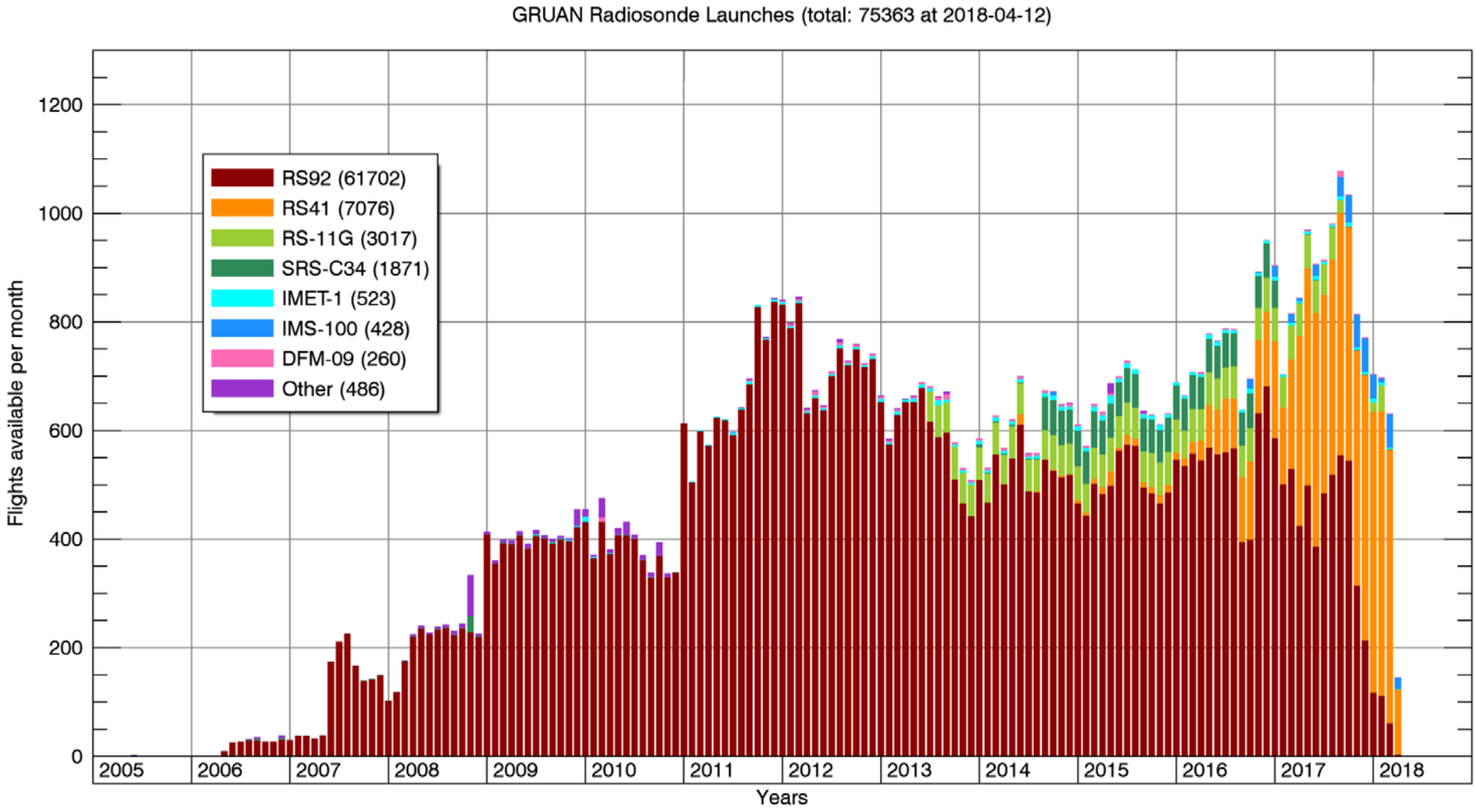


Presentation Wednesday morning

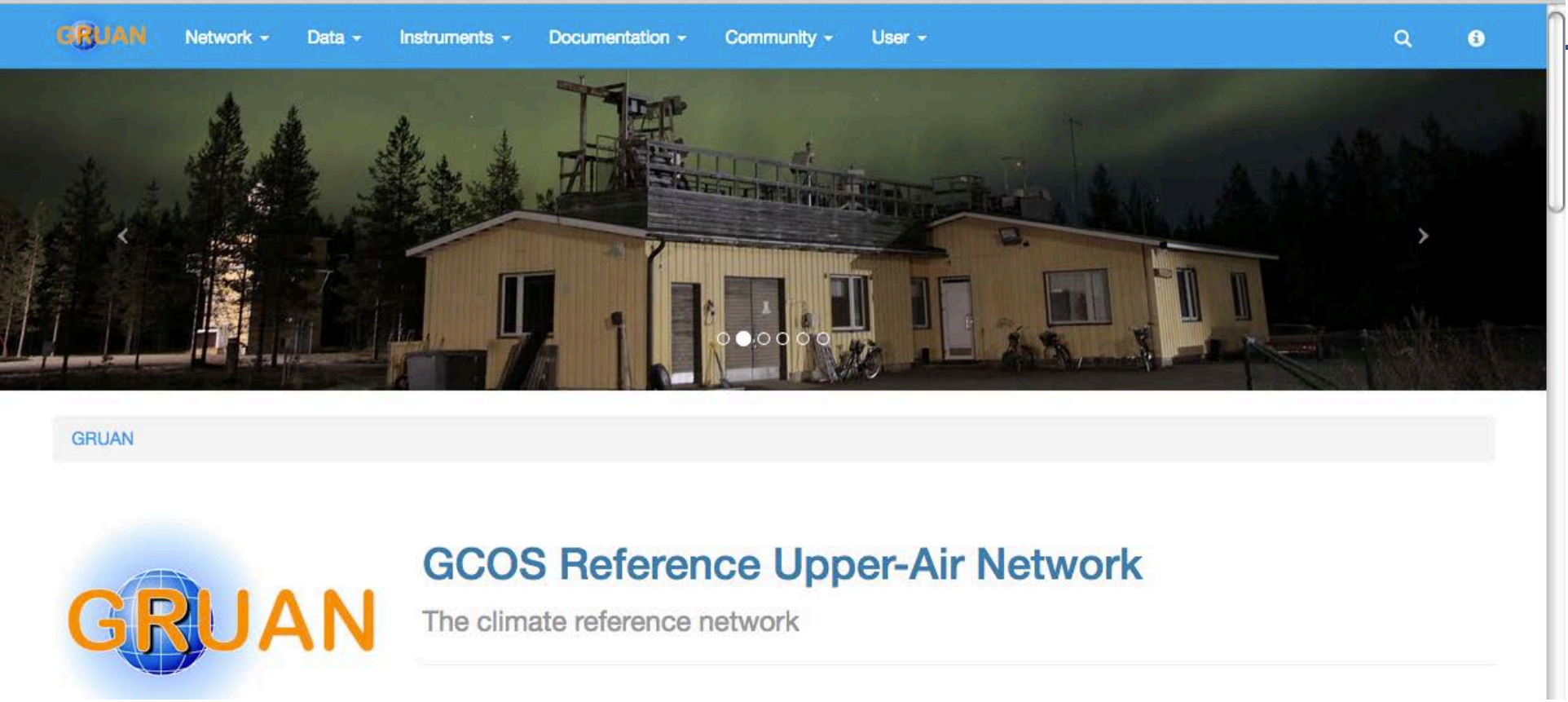
Achievements

- GRUAN-TD-5 published - *Technical characteristics and GRUAN data processing for the Meisei RS-11G and iMS-100 radiosondes*
- Various GRUAN-related papers (10) and presentations
- Development of GRUAN data processor for GNSS-WV (cooperation with GFZ) -> Galina Dick, Tuesday
- Data processing for RS92 .mwx files
- Satellite overpass prediction service

Work on new data products

- Vaisala radiosondes (Lead Centre)
- Meisei radiosonde (Kizu)
- Modem Radiosonde (Haeffelin)
- Lidar (Leblanc)
- MWR (Cimini)
- GNSS (GFZ & TT)

GRUAN Website



- New website launched 2017
- Still under development
  - Addition of functionality
  - Content: input needed from community (e.g. instrument experts)

Work plan

- Complete the development of a new GRUAN data processor.
- Develop GRUAN data product for RS41 (GDP RS41-v1).
- Develop GRUAN new version of data product for RS92 (GDP RS92-v3).
- Complete the GRUAN radiosonde omnibus.
- Prepare WMO-CIMO Radiosonde intercomparison campaign.
- Recertify sites (Lindenberg and Ny Alesund).
- Further coordinate RS92-RS41 transition within GRUAN.
- Further develop the GRUAN website.
- Operationalize processing of CFH data.

GRUAN-related papers in 2017/2018

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- Borger, C. et al., Evaluation of MUSICA MetOp/IASI tropospheric water vapour profiles by theoretical error assessments and comparisons to GRUAN Vaisala RS92 measurements, Atmos. Meas. Tech. Discuss., 2017, 1–37, doi:10.5194/amt-2017-374, 2017.

- Brunamonti, S. et al., Balloon-borne measurements of temperature, water vapor, ozone and aerosol backscatter at the southern slopes of the Himalayas during StratoClim 2016-2017, Atmos. Chem. Phys. Discuss., 2018, 1–38, doi:10.5194/acp-2018-222, 2018.

- Calbet, X. et al., Consistency between GRUAN sondes, LBLRTM and IASI, Atmos. Meas. Tech., 10(6), 2323–2335, doi:10.5194/amt-10-2323-2017, 2017.

- Kremser, S. et al., Is it feasible to estimate radiosonde biases from interlaced measurements?, Atmos. Meas. Tech. Discuss., 2018, 1–13, doi:10.5194/amt-2018-6, 2018.

GRUAN-related papers in 2017/2018

- de Podesta, M et al., Air temperature sensors: dependence of radiative errors on sensor diameter in precision metrology and meteorology, Metrologia, 55(2), 229, doi:10.1088/1681-7575/aaaa52, 2018.

- von Rohden, C. et al., Temperaturmessung in der atmospähre mit radiosonden, Technisches Messen, 84(12), 804–813, doi:10.1515/teme-2017-0074, 2017, ISSN 2196-7113.

- Tradowsky, J. S. et al., Combining Data from the Distributed GRUAN Site Lauder-Invercargill, New Zealand, to Provide a Site Atmospheric State Best Estimate of Temperature, Earth System Science Data Discussions, 2018, 1–23, doi:10.5194/essd-2018-20, 2018.

- Vérèmes, H. et al., A Raman lidar at Maïdo Observatory (Reunion Island) to measure water vapor in the troposphere and lower stratosphere: calibration and validation, Atmos. Meas. Tech. Discuss., 2017, 1–38, doi:10.5194/amt-2017-32, 2017.

GRUAN-related papers in 2017/2018

- Weatherhead, E. C. et al., Spatial Coverage of Monitoring Networks: A Climate Observing System Simulation Experiment, J. Appl. Meteor. Climatol., 56(12), 3211–3228, doi:10.1175/JAMC-D-17-0040.1, 2017.

- Weaver, D. et al., Intercomparison of atmospheric water vapour measurements at a Canadian High Arctic site, Atmos. Meas. Tech., 10(8), 2851–2880, doi:10.5194/amt-10-2851-2017, 2017.

Various

- Schulz & Partner
  - Redesigned SHC can be ordered, price ~2800 euro
  - Adapters for RS41, RS92, M10, etc ~250 euro
- Karl-Heinz Schulz will be present in Lindenberg during site visit

Questions