

# New GRUAN website



**Michael Sommer**  
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9<sup>th</sup> GRUAN Implementation and Coordination Meeting (ICM-9)

Helsinki, Finland

Section 11, 16 June 2017



GRUAN



## GCOS Reference Upper-Air Network




The climate reference network

The Global Climate Observing System (GCOS) Reference Upper-Air Network ([GRUAN](#)) is an international reference observing [network](#), designed to fill an important gap in the current global observing system. GRUAN measurements will provide long-term, high-quality [climate data records](#) from the surface, through the troposphere, and into the stratosphere. These will be used to determine trends, constrain and calibrate data from more spatially-comprehensive observing systems (including satellites and current radiosonde networks), and provide appropriate data for studying atmospheric processes. GRUAN is envisaged as a global network of eventually 30-40 [sites](#) that, to the extent possible, builds on existing observational networks and capabilities.

### GRUAN promotional video



### Latest news

	<b>GRUAN Technical Note 8 published</b>	Document   2017-06-01
GRUAN Technical Note 8 (GRUAN-TN-8) published with title "GRUAN Monitor MW41 and the Vaisala RS41 Additional Sensor Interface"		
	<b>New Official GRUAN Website</b>	Community   2017-05-31
We proudly announce the new GRUAN website.		
	<b>Important Changes of Radiosounding in GRUAN</b>	Measurement   2017-04-06
Recently, various GRUAN sites have changed their system used for daily operational radiosoundings		

New GRUAN website  
is released  
<https://www.gruan.org>

- Independent site
  - no longer part of the DWD website
- Modern design
  - can be displayed at all kind of web-enabled devices
- Dynamical elements
  - e.g. overview of the status of the GRUAN data archive
- Secure access
  - supports the secure protocol HTTPS

- Communication platform
  - can integrate all web activities of GRUAN
  - new features: comments, user forum, newsletter, and contact form
- User management
  - different levels of access privileges
- Protected areas
  - available for selected user groups only, e.g. for GRUAN working group

- About GRUAN
  - What is GRUAN?
- Working Group
  - WG-GRUAN
- The GRUAN Lead Centre
- Task teams
- The GRUAN expert groups
- GRUAN Stations
  - The measurement network

Mostly functional



GRUAN / Network / Stations / Tateno

About GRUAN  
Working Group  
Lead Centre  
Task Teams  
**Stations**

Alice Springs  
Barrow  
Beltsville  
Boulder  
Cabauw  
Darwin  
Davis  
Dolgoprudny  
Graciosa  
Lamont  
Lauder  
La Réunion  
Lindenberg  
Macquarie Island  
Melbourne  
Ny-Ålesund  
Paris  
Payerne  
Potenza  
Singapore  
Sodankylä  
Tateno  
Tenerife  
Xinhot

### Tateno (TAT)

Japan



Balloon launch as seen from rooftop of Aerological observatory

#### GRUAN status

since 2011 active

#### Site Name

GRUAN (code, name)	TAT Tateno
-short	Tateno
-long, international	Tateno Aerological Observatory
-long, national	Japan Meteorological Agency Aerological Observatory
WMO (code, name)	47646 TATENO

#### Location

Country	Japan
Prefecture	Ibaraki
City	Tsukuba
Latitude	36.06 °
Longitude	140.13 °
Altitude	25 m

#### Site maps

Position and region map

[Position map](#) [Local map](#)

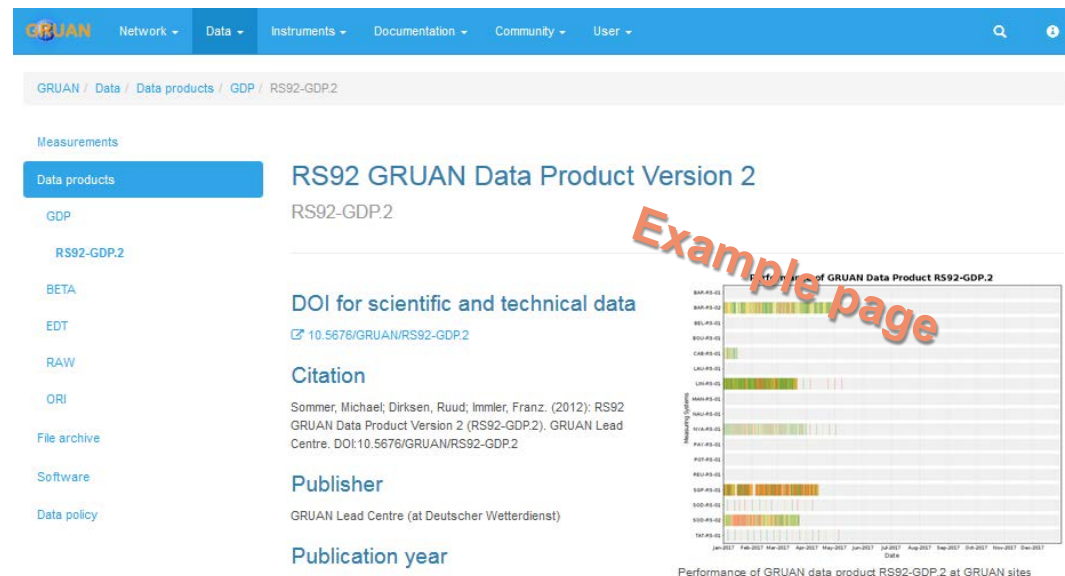
**Example page**



- Measurements
  - The GRUAN measurements
- Metadata (GMDB)
  - GRUAN Meta-data Data Base
- Data Products
  - Overview about data products
- File archive
  - Direct access to all published files
- Software
  - Developed tools and libraries
- Data policy
  - The GRUAN data policy

**It is under construction!**

**Structure (maybe) not perfect  
and content is missing.**



- Balloon-borne in-situ sounding
  - Radiosondes – Backbone of GRUAN
  - Ozone sondes – In-situ ozone sounding
  - Humidity sondes – In-situ humidity sounding
  - Temperature sondes – In-situ temperature sounding
  
- Ground-based remote sensing
  - GNSS
  - Lidar

Example page

GRUAN / Instruments / Radiosondes / Sonde models / Vaisala RS41

**Radiosondes**

Sonde models

- Graw DFM-06
- Graw DFM-09
- Internet Met-1
- Meisei RS-11G
- Meteolabor SRS-C34
- Modem M10
- Vaisala RS92
- Vaisala RS41

Other sondes

## Vaisala RS41

### Details

General information

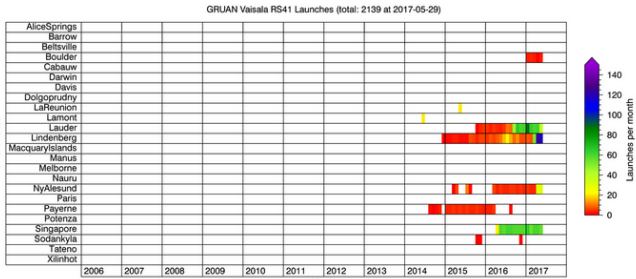
Model	RS41
Manufacturer	Vaisala ( <a href="http://www.vaisala.com">www.vaisala.com</a> )
Weight	109 g: RS41-SG 113 g: RS41-SGP
Size	145 x 63 x 46 mm (body) 272 x 63 x 104 mm (sensor boom bent)
Sensors	Pressure: silicon (if SGP), derived from GPS (if SG) Temperature: platinum resistor Humidity: thin-film capacitor, heated sensor Position: GPS
Measurement cycle	1 s
Available since	2014
Ground system	Vaisala DigiCORA® Sounding System MW41
Ground check	R41, R41-B

Archive file formats

- MWX if MW41 is used

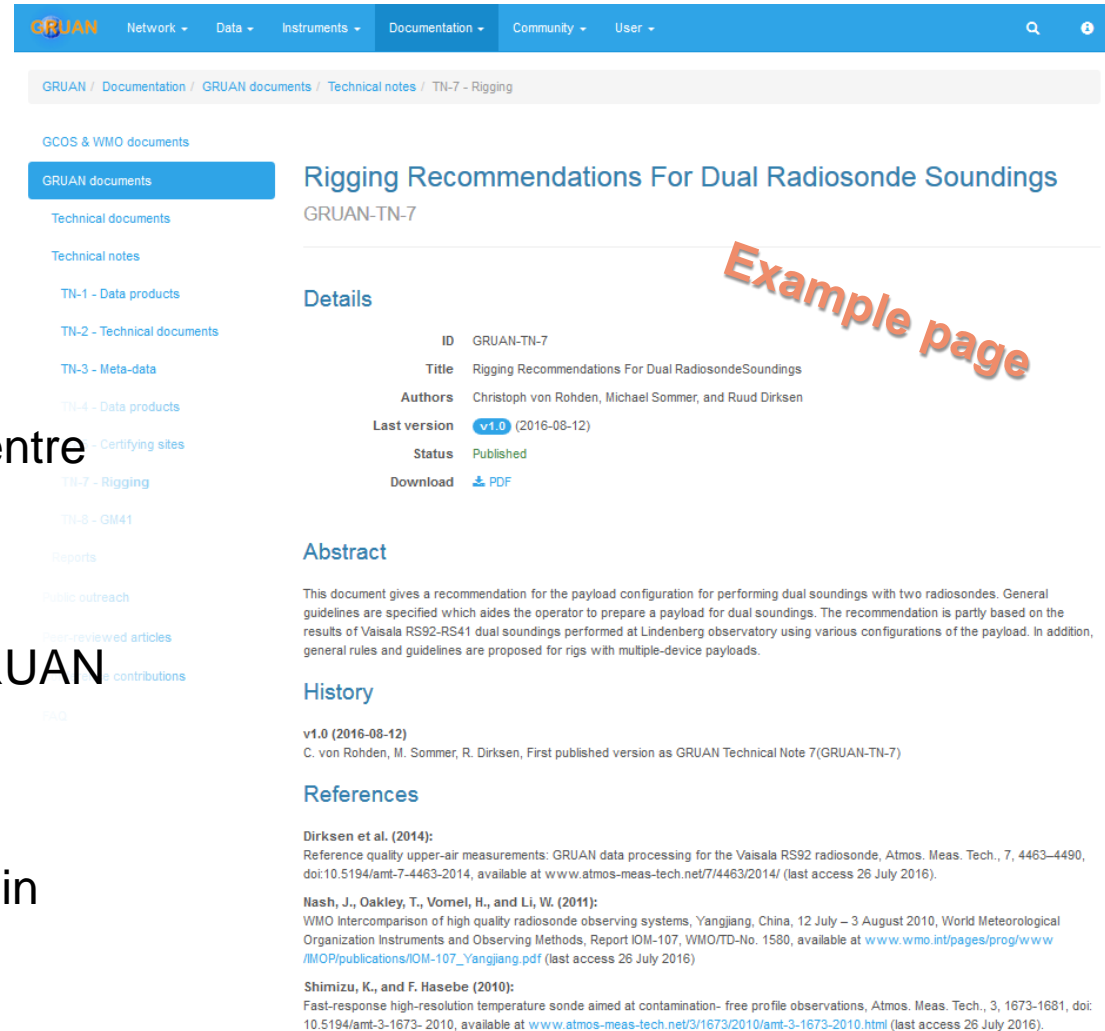
Archived soundings by GRUAN

GRUAN Vaisala RS41 Launches (total: 2139 at 2017-05-29)



It is under construction! Content is missing!

- GCOS & WMO documents
  - GRUAN documents published by GCOS or WMO
- GRUAN documents
  - Published by the GRUAN Lead Centre
- Public outreach
  - Material to support publicity on GRUAN
- Peer-reviewed articles
  - GRUAN-related articles published in scientific journals
- Frequently Asked Questions (FAQ)



The screenshot shows the GRUAN website's documentation section. The top navigation bar includes links for GRUAN, Network, Data, Instruments, Documentation, Community, and User. The left sidebar lists various document categories: GRUAN documents (selected), Technical documents, Technical notes, TN-1 - Data products, TN-2 - Technical documents, TN-3 - Meta-data, TN-4 - Data products, TN-7 - Rigging, TN-8 - GM41, Reports, Public outreach, Peer-reviewed articles, and FAQ. The main content area displays the details for the document 'Rigging Recommendations For Dual Radiosonde Soundings' (GRUAN-TN-7). A red diagonal watermark 'Example page' is overlaid on the right side of the screenshot.

GRUAN / Documentation / GRUAN documents / Technical notes / TN-7 - Rigging

GCOS & WMO documents

GRUAN documents

Technical documents

Technical notes

TN-1 - Data products

TN-2 - Technical documents

TN-3 - Meta-data

TN-4 - Data products

TN-7 - Rigging

TN-8 - GM41

Reports

Public outreach

Peer-reviewed articles

FAQ

## Rigging Recommendations For Dual Radiosonde Soundings

GRUAN-TN-7

### Details

ID	GRUAN-TN-7
Title	Rigging Recommendations For Dual Radiosonde Soundings
Authors	Christoph von Rohden, Michael Sommer, and Ruud Dirksen
Last version	v1.0 (2016-08-12)
Status	Published
Download	PDF

### Abstract

This document gives a recommendation for the payload configuration for performing dual soundings with two radiosondes. General guidelines are specified which aids the operator to prepare a payload for dual soundings. The recommendation is partly based on the results of Vaisala RS92-RS41 dual soundings performed at Lindenberg observatory using various configurations of the payload. In addition, general rules and guidelines are proposed for rigs with multiple-device payloads.

### History

v1.0 (2016-08-12)  
C. von Rohden, M. Sommer, R. Dirksen, First published version as GRUAN Technical Note 7 (GRUAN-TN-7)

### References

Dirksen et al. (2014):  
Reference quality upper-air measurements: GRUAN data processing for the Vaisala RS92 radiosonde, Atmos. Meas. Tech., 7, 4463–4490, doi:10.5194/amt-7-4463-2014, available at [www.atmos-meas-tech.net/7/4463/2014/](http://www.atmos-meas-tech.net/7/4463/2014/) (last access 26 July 2016).

Nash, J., Oakley, T., Vomel, H., and Li, W. (2011):  
WMO Intercomparison of high quality radiosonde observing systems, Yangjiang, China, 12 July – 3 August 2010, World Meteorological Organization Instruments and Observing Methods, Report IOM-107, WMO/TD-No. 1580, available at [www.wmo.int/pages/prog/www/IOMOP/publications/IOM-107\\_Yangjiang.pdf](http://www.wmo.int/pages/prog/www/IOMOP/publications/IOM-107_Yangjiang.pdf) (last access 26 July 2016)

Shimizu, K., and F. Hasebe (2010):  
Fast-response high-resolution temperature sonde aimed at contamination-free profile observations, Atmos. Meas. Tech., 3, 1673–1681, doi: 10.5194/amt-3-1673-2010, available at [www.atmos-meas-tech.net/3/1673/2010/amt-3-1673-2010.html](http://www.atmos-meas-tech.net/3/1673/2010/amt-3-1673-2010.html) (last access 26 July 2016).

Mostly functional



# Community section

Deutscher Wetterdienst  
Wetter und Klima aus einer Hand



## ➤ News

- News of network, community and related science

## ➤ Forum

- The user forum for all GRUAN-related topics

## ➤ Meetings

- Community meetings, workshops and relevant conferences

## ➤ Campaigns

- In cooperation with GRUAN

## ➤ Newsletter

- GRUAN newsletter subscription



Lead Centre

M. Sommer – 2017-06-16 – Helsinki, Finland – Page 5

Example page

GRUAN / Community / News

News

Forum

Meetings

Campaigns

Newsletter

Contact

Month filter

2017

- June 2017 (1 entry)
- May 2017 (1 entry)
- April 2017 (1 entry)
- March 2017 (1 entry)

2016

- November 2016 (1 entry)
- October 2016 (1 entry)
- September 2016 (3 entries)
- August 2016 (2 entries)
- July 2016 (3 entries)
- June 2016 (1 entry)
- May 2016 (1 entry)
- April 2016 (4 entries)
- March 2016 (1 entry)
- February 2016 (3 entries)
- January 2016 (2 entries)

Category filter

Science

- Small study
- Student project
- Research question
- Science topic

Community

- Award
- Meeting
- Conference
- Event

Document

- Outreach
- Article

Data

- File archive
- Measurement
- Metadata
- Software
- Data product

Network

GRUAN News

News of network, community and related science

1 2 3 Next

GRUAN Technical Note 8 published

Document | 2017-06-01

GRUAN Technical Note 8 (GRUAN-TN-8) published with title "GRUAN Monitor MW41 and the Vaisala RS41 Additional Sensor interface"

New Official GRUAN Website

Community | 2017-05-31

We proudly announce the new GRUAN website.

Important Changes of Radiosounding in GRUAN

Measurement | 2017-04-06

Recently, various GRUAN sites have changed their system used for daily operational radiosoundings.

9th GRUAN Implementation-Coordination Meeting (ICM-9)

Meeting | 2017-03-27

GRUAN's 9th Implementation and Coordination Meeting (ICM-9) will be held 12-16 June 2017 in the FMI headquarters in Helsinki, Finland.

AMT paper Calbet et al. 2016 in review

Article | 2016-11-07

The GRUAN-related paper at AMT is now accessible and open for interactive public discussion until 29 December 2016 with title "Consistency between..."

GSICS Quarterly Newsletter article Tradowsky et al. 2016 published

Article | 2016-10-17

GRUAN-related article published at GSICS Quarterly Newsletter Volume 10, No. 2, 2016 with the title "GRUAN in the service of GSICS: Using reference..."

GRUAN Technical Note 7 published

Document | 2016-09-26

GRUAN Technical Note 7 (GRUAN-TN-7) published with title "Rigging Recommendations For Dual Radiosonde Soundings"

GRUAN Technical Note 6 published

Article | 2016-09-14

GRUAN Technical Note 6 (GRUAN-TN-6) published with title "The impact of temperature and humidity on the accuracy of the Vaisala RS41 humidity sensor: a comparison of the Vaisala RS41 with the Vaisala RS41-M and the Vaisala RS41-M2"

Mostly functional

Lindenberg Meteorological Observatory  
Richard Abmann Observatory



## ➤ What are the benefits of registering?

## ➤ Protected areas

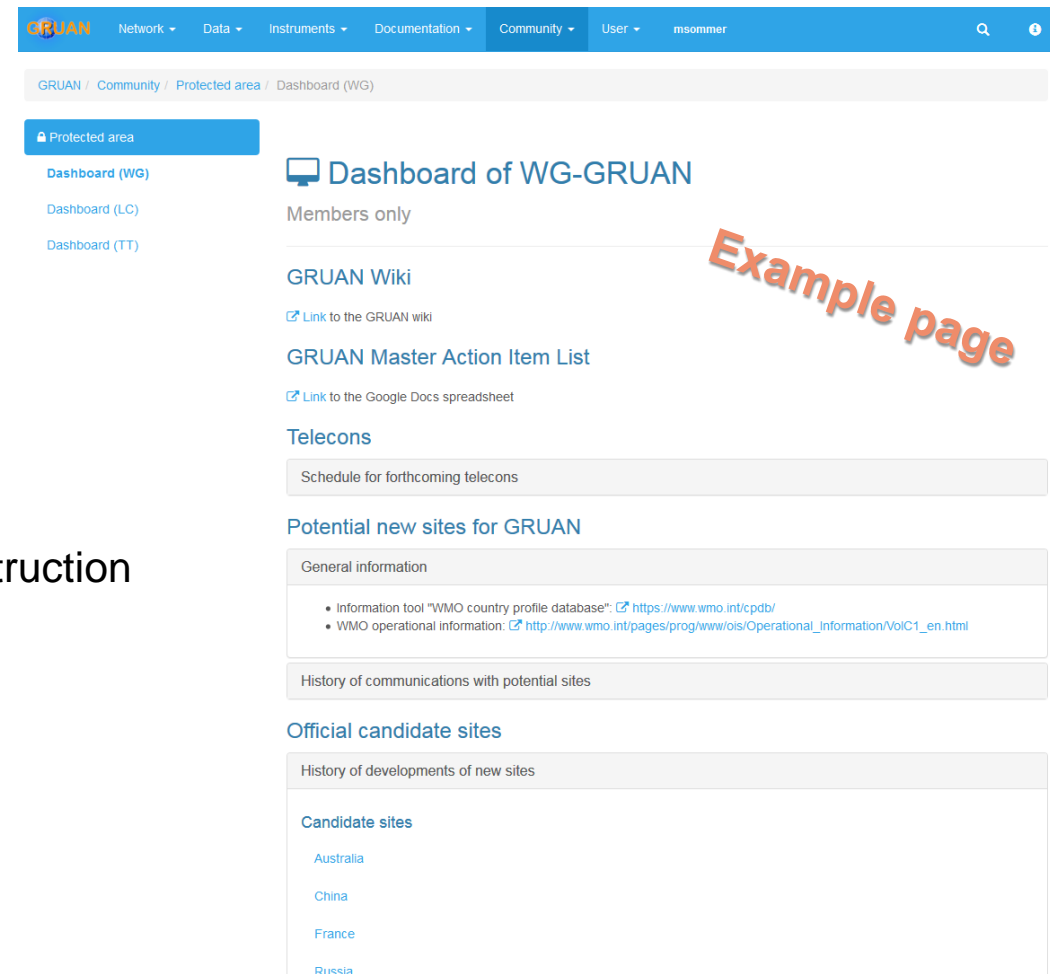
- Member of working group, Lead Centre, task team, ...

## ➤ Access

- More content pages are available
  - Incl. some pages which are under construction
- Direct access to (more) data files

## ➤ Interactive

- Commenting is easier
- Posting in forum



The screenshot shows the GRUAN Protected area dashboard. The top navigation bar includes links for Network, Data, Instruments, Documentation, Community, User, and msommer. The breadcrumb trail indicates the current location: GRUAN / Community / Protected area / Dashboard (WG). The left sidebar lists three protected areas: Dashboard (WG), Dashboard (LC), and Dashboard (TT). The main content area is titled 'Dashboard of WG-GRUAN' and is marked 'Members only'. It contains several sections: GRUAN Wiki (with a link to the GRUAN wiki), GRUAN Master Action Item List (with a link to the Google Docs spreadsheet), Telecons (with a link to the schedule for forthcoming telecons), Potential new sites for GRUAN (with a table of general information and a history of communications), and Official candidate sites (with a table of candidate sites). A large red diagonal watermark 'Example page' is overlaid on the right side of the screenshot.

General information
• Information tool "WMO country profile database": <a href="https://www.wmo.int/cpdb/">https://www.wmo.int/cpdb/</a>
• WMO operational information: <a href="http://www.wmo.int/pages/prog/www/oiis/Operational_information/VolC1_en.html">http://www.wmo.int/pages/prog/www/oiis/Operational_information/VolC1_en.html</a>

Official candidate sites
History of developments of new sites
Candidate sites
Australia
China
France
Russia

- Released in May 2017 → <https://www.gruan.org>
- New platform → With a lot of new possibilities
- Needs more content → Sections data & instruments
- Website of whole GRUAN community  
→ Contributions are very welcome

Please give feedback and contribute!  
[gruan.lc@dwd.de](mailto:gruan.lc@dwd.de)

Thursday morning session

# REVIEW OF GRUAN WEBSITE

- Went through the GRUAN web pages and made some structural changes.
- Added content where it was immediately clear what could be added:
  - Instruments page.
- Emailed some people to ask for contributions of specific content.



- Why are members of the Working Group and Task Teams not using the GRUAN Master Action item spreadsheet?
- Because it there is no sense of **timeliness**.
- It documents target dates but there is no sense of **flow**.
- There is no sense of the chain of actions required, next steps, and target completion dates.

- Proposal to Michael to investigate establishing a '**work management capability**' across the GRUAN web pages that can manage transitional processes such as:
  - Site assessment and certification
  - Document review
  - Auditing of sites
  - Master action item list
  - Software development versions
  - Development of data products
  - Bringing potential GRUAN sites into GRUAN
  
- The goal is to drive action on transitional processes so that there is more than a flurry of activity one a year.

# Request from Lead Centre to the Working Group

Deutscher Wetterdienst  
Wetter und Klima aus einer Hand



- The Lead Centre requests that the Working Group provides Guidelines to who should be permitted access to:
  - GRUAN data products (both certified and uncertified)
  - Beta version of GRUAN data products
  - Manufacturer data products
  - Converted raw data
  - Original raw data

