

GRUAN website and communication tools



Michael Sommer

GRUAN Lead Centre, DWD

7th GRUAN Implementation and Coordination Meeting (ICM-7)

Matera, Italy

Session 9, 27 February 2015

- Overview
- Available tools
- Future plans

Overview of communication tools

Deutscher Wetterdienst
Wetter und Klima aus einer Hand



What	Where	Extern	Intern	Since
Web site	www.gruan.org	yes	yes	2008
Blog	gruan.wordpress.com	yes	yes	2009
Email lists	... @gruan.org	(no)	yes	2009
Live docs	docs.google.com/...	(no)	yes	2010
Wiki	gruan.wikidot.com	no	yes	2013
Site reports	(at web site)	yes	yes	2014
Other tools ...				



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RS92 GRUAN Data Product Version 2 (RS92-GDP.2)

DOI for scientific and technical data

10.5676/GRUAN/RS92-GDP.2

Citation

Sommer, Michael; Dirksen, Ruud; Immler, Franz. (2012): RS92 GRUAN Data Product Version 2 (RS92-GDP.2). GRUAN Lead Centre. DOI:[10.5676/GRUAN/RS92-GDP.2](https://doi.org/10.5676/GRUAN/RS92-GDP.2)

Publisher

GRUAN Lead Centre (at Deutscher Wetterdienst)

Publication year

2012

Creators / Authors

Sommer, Michael; Dirksen, Ruud; Immler, Franz

Description / Summary

This dataset comprises reference radiosoundings performed with the Vaisala RS92. Reference in this case means that:

- all known biases are corrected for
- best possible vertically resolved uncertainty estimates
- well-documented correction algorithms
- extensive meta data collection

The GCOS (Global Climate Observing System) Reference Upper-Air Network (GRUAN) data processing for the Vaisala RS92 radiosonde was developed to meet the criteria for reference measurements. These criteria stipulate the collection of metadata, the use of well-documented correction algorithms, and estimates of the measurement uncertainty. An important and novel aspect of the GRUAN processing is that the uncertainty estimates are vertically resolved. The algorithms that are applied in version 2 of the GRUAN processing to correct for systematic errors in radiosonde measurements of pressure, temperature, humidity, and wind, as well as how the uncertainties related to these error sources are derived. Currently, the RS92 is launched on a regular basis at 13 out of 15 GRUAN sites.

An additional GRUAN requirement for performing reference measurements with the RS92 is that the manufacturer-prescribed procedure for the radiosonde's preparation, i.e. heated reconditioning of the sensors and recalibration during ground check, is followed. In the GRUAN processing however, the recalibration of the humidity sensors that is applied during ground check is removed. For the dominant error source, solar radiation, laboratory experiments were performed to investigate and model its effect on the RS92's temperature and humidity measurements.

GRUAN uncertainty estimates are 0.15 K for night-time temperature measurements and approximately 0.6 K at 25 km during daytime. The other uncertainty estimates are up to 6 %RH for humidity, 10–50 m for geopotential height, 0.6 hPa for pressure, 0.4–1 m/s for wind speed, and 1° for wind direction. Daytime temperature profiles for GRUAN and Vaisala processing are comparable and consistent within the estimated uncertainty. GRUAN daytime humidity profiles are up to 15 % moister than Vaisala processed profiles, of which two-thirds is due to the radiation drv bias correction and one-third is due to an additional calibration correction.

Redundant measurements with frost point hygrometers (CFH and NOAA FPH) show that GRUAN-processed RS92 humidity profiles and frost point data agree within 15% in the troposphere. No systematic biases occur, apart from a 5 % dry bias for GRUAN data around -40 °C at night.

Format



Documents



Access to GRUAN Documents,
Publications, and Literature.

[\[more\]](#)

Data



Access to the GRUAN Data Products

[\[more\]](#)

[Contact](#)



Send an email to gruan.lc@dwd.de
to contact the **GRUAN Lead Centre**

Web site comments to Michael Sommer (gruan.bugs@dwd.de)

[\[more\]](#)



Ignaccolo et al. (2014): Modelling collocation uncertainty of 3D atmospheric profiles. Stochastic Environmental Research and Risk Assessment

This GRUAN relevant paper was published. Please have a look on the following abstract.

Ignaccolo 2014: Ignaccolo R., Franco-Villora M., Fassò A. (2014) **Modelling collocation uncertainty of 3D atmospheric profiles. Stochastic Environmental Research and Risk Assessment. On-line first.** DOI [10.1007/s00477-014-0890-7](https://doi.org/10.1007/s00477-014-0890-7)

Atmospheric thermodynamic data are gathered by high technology remote instruments such as radiosondes, giving rise to profiles that are usually modelled as functions depending only on height. The radiosonde balloons, however, drift away in the atmosphere resulting in not necessarily vertical but three-dimensional trajectories. To model this kind of functional data, we introduce a "point based" formulation of an heteroskedastic functional regression model that includes a trivariate smooth function and results to be an extension of a previously introduced unidimensional model. Functional coefficients of both the conditional mean and variance are estimated by reformulating the model as a standard generalized additive model and double mixed model that allows each is applied to describe collocation mismatch when we deal with couples of balloons launched at two different locations. In particular, we model collocation error of atmospheric pressure in terms of meteorological covariates and space and time mismatch. Results show that model fitting is improved once heteroskedasticity is taken into account.



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If you more interested on GRUAN, visit our main website www.gruan.org.

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FAQ Funding
GATNDOR General
ICM Instrument Manual
Measuring
Meeting Plan
Radiosonde Reference
Remote Sensing Station
Temperature Uncategorized
Uncertainty Vaisala RS92 Water
vapour Wind

gruan.wordpress.com/blog

→ Communication in & between GRUAN groups

- Working group
- Task teams
- Lead Centre
- ICM organisation team...

... @gruan.org

→ Changes of group membership

- Chairs of a group inform the LC

[docs.google.com/ ...](#)



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Just a reminder that the GRUAN blog, which is complementary to this wiki, is available [here](#).

Current members of the wiki

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- [Richard Querel](#)

gruan.wikidot.com





GRUAN Station Report for Lindenberg (LIN), 2013

Reported time range is Nov 2012 to Oct 2013
Created by the Lead Centre
Version from 2014-02-20

- Station
- Measurement systems
- Setups & data streams
- Data products
- Instrument combinations

available at
www.gruan.org

→ Bouquet full of tools

- But maybe not the right one?

→ Source of content

- Most content from LC & WG chairs
- Few contributions by community to: web site, blog

→ Proposal to get more content

- LC requests all teams and sites to give a regularly contribution to web site or blog
- Short (one to two pages) article about a theme relevant to GRUAN, e.g.
 - ◆ Campaign, experiment, project, ...
 - ◆ Publication, analysis, side meeting, ...

- Establish a new version of our website, including
 - Refreshed look & feel
 - Author / user management
 - Merge some of our communication tools at one place (e.g. blog, wiki)

- Start this year
 - first of all → the *statical* part
 - step by step → the *dynamic* parts

- ➔ Access to the GMDB
 - Easy view into the GRUAN meta-data
 - Sites can manage/change *uncritical* parts of meta-data
- ➔ Project management / task tracker system for whole GRUAN
 - Maintain an overview
 - Allows bug reports, change requests, timelines, ...
- ➔ Other ideas?
 - Please give response to LC.
- ➔ Not all is feasible at once. But we can start with one of them.
Which one?

- Bouquet full of tools
- Few content contributions by community
- Establish a new version of our website

Your thoughts?