

# The GCOS Reference Upper Air Network Workshop to Develop Network Design and Expansion Criteria

**Greg Bodeker**

# Overview

*When:* 13-15 June 2012

*Where:* Fürstenwalde, Germany

*Expected number of attendees:* 25

*Scientific organizing committee:* Greg Bodeker, Stephan Bojinski, Dale Hurst, Dian Seidel, David Tan, Peter Thorne, Holger Vömel, Russ Vose, June Wang, David Whiteman

*Purpose:* Understand the network design requirements to meet the needs of four primary users of GRUAN data:

**Climate detection and attribution community:** stability and homogeneity of GRUAN data to robustly detect and attribute changes in climate of the free atmosphere. Constrain and calibrate data from more spatially comprehensive global networks for improved climate detection and attribution.

# Overview continued

**The satellite community:** GRUAN data to validate satellite-based measurements and provide input for radiative transfer calculations required to improve and evaluate retrieval algorithms.

**The atmospheric process studies community:** high precision and high vertical resolution measurements aid in developing a deeper understanding of processes affecting atmospheric column.

**The numerical weather prediction (NWP) community:** reference quality of GRUAN data makes them useful for verifying NWP model outputs, and for validating and correcting other data being assimilated into NWP models. GRUAN data can also be directly assimilated into NWP models.

Goal is to engage key representatives from each community to develop a series of 4 whitepapers that can guide decision making regarding expansion of GRUAN from 15 to ~40 sites.

# Timeline

**1 March 2012:** Deadline for establishment of author teams for white papers. Asked for volunteers.

Monitoring changes in climate	Satellite calibration and validation	Atmospheric process studies	Numerical weather prediction
Greg Bodeker	Stephan Bojinski	Peter Thorne	David Tan
June Wang	David Tan	David Whiteman	Bill Bell
Dian Seidel	June Wang	Dale Hurst	Andrew Charlton-Perez
David Whiteman	Mike Kurylo	Holger Vömel	William Lahoz
Holger Vömel	Tim Hewison	Mike Kurylo	
Andrew Charlton-Perez	Cheng-Ahi Zou	Anne Thompson	
William Lahoz	Bojan Bojkov		
Philippe Keckhut	Philippe Keckhut		
Thierry Leblanc	Thierry Leblanc		

# Scope and outline of white papers

Each white paper expected to be 4-6 pages in length. The primary question to address is: What does GRUAN need to do, and what network design is required, to meet the needs of this user community?

**Introduction:** Brief overview of how the community might use GRUAN data products.

**Site attributes:** What should be the attributes of new sites joining GRUAN to meet the needs of this user community?' e.g. infrastructure, instrumentation and especially combinations of different instrumentation, speed of data delivery, on-site expertise, participation in other networks etc.

**Environments:** What specific environments need to be considered e.g. stations on remote islands or over snow to meet the needs of this user community?.

# Scope and outline of white papers

**Geographical coverage:** What are the key considerations for geographical coverage? and What geographical coverage of sites would best serve the needs of this user community?  
Web-based tool.

**Climate regimes:** What large scale climate regimes need to be sampled?

**Scientific basis:** What is the scientific justification/basis for the design of a network to meet the needs of this user community?. Also outlines where research is lacking and what specific targeted research is required to fill knowledge gaps. This can then act as a research road-map for GRUAN.

**References:** It is essential that GRUAN expansion has a strong foundation in peer-reviewed literature.

# Web based tool for collecting data



Name:

Email:

Community:  
Climate detection and attribution

Comments:

### Acronyms of Networks

- ARM : Atmospheric Radiation Measurement programme
- GAW : Global Atmospheric Watch
- GRUAN : GCOS Reference Upper Air Network (shown in yellow)
- GUAN : GCOS Upper Air Network
- NDACC : Network for the Detection of Atmospheric Composition Change
- WOUDC : World Ozone and UV Data Centre

<http://notus.bodekerscientific.com/gruan/survey.html?>

# Timeline continued

- 15 March 2012:** Deadline for submission of abstracts. 1 page abstract summarizing the key points of workshop presentations. No specific format. Word file or PDF file, by email, to Marion Fiedler at [meeting.contact@gruan.org](mailto:meeting.contact@gruan.org).
- 31 March 2012:** Deadline for hotel room bookings and registration to attend the workshop.
- 13-15 June 2012:** The dates for the workshop.
- 30 June 2012:** Deadline for revising white papers and circulating to the wider community for consultation/comments.
- 31 July 2012:** Deadline for feedback on white papers following circulation amongst the wider community.
- 31 October 2012:** Planned submission date of a synthesis paper to a relevant peer-reviewed journal such as *Bulletin of the American Meteorological Society*.

# Scientific programme

- Workshop programme will be finalized once abstract submissions have closed.
- First 1.5-2 days of the workshop will cover presentations by the lead authors of the white papers and presentations for each of the abstracts submitted.
- Next day or so will be devoted to incorporating the outcomes of the presentations into the white papers and discussing planned additional outputs from the workshop.
- Depending on the time available within the 3 day period, the final half day is planned as a visit to the Lead Centre.

# Conclusions

- GRUAN Network Design Workshop is on track.
- Development of white papers will start soon.
- Small but dedicated group of workshop attendees.
- Biggest problem right now: **Lack of any financial support to get key people to attend the workshop.**