

FINAL DRAFT

Meeting on Implementation of GCOS Reference Upper Air Network (GRUAN) Lindenberg, Germany, 25-28 February 2008

A meeting held under the auspices of the Global Climate Observing System (GCOS) and the National Oceanic and Atmospheric Administration (NOAA).

Meeting Chairs: *David Goodrich, GCOS Secretariat and Peter Thorne, UK Met office*

Meeting Organizing Committee: *Franz Berger (DWD), Leopold Haimberger (Univ. of Vienna) and Junhong (June) Wang (NCAR)*

Meeting objective: "Start small, but start"

Develop a work plan that the lead centre and other interested parties will work towards (with a funding commitment to achieve it!) that:

- Identifies and addresses remaining scientific and technical issues;
- Ensures observations are being made in a manner consistent with the stated GRUAN requirements henceforth at a number of initial sites;
- Informs priorities for the GCOS working group.

Agenda Overview

Day 1 Monday 25th February (only for the members of GCOS/AOPC Working Group (WG) on Atmospheric Reference Observations)

- WG meeting (afternoon 1/2 day) - *Peter Thorne*

Day 2 Tuesday 26th February

- Session 1 - Registration and Introduction (1/4 day) - *Franz Berger*
- Tour of Lindenberg Observatory (1/4 day)
- Session 2 - Initial Site Selection (~1/2 day) - *Leopold Haimberger and Holger Voemel*
- Ice-breaker (night)

Day 3 Wednesday 27th February

- Session 3 - Radiosonde Instrumentation and Launch Schedule (1/2 day) - *Dave Goodrich*
- Session 4 - Instrumentation and Observing Practices (1/2 day) - *Miroslav Ondras*
- Dinner (night)

Day 4 Thursday 28th February

- Session 5 - Data Dissemination and QC/QA (1/2 day) - *Matthew Menne*
- Session 6 - Coordination with other International and National Activities (1/4 day) - *Dian Seidel*
- Session 7 - Development of Action Plan (1/4 day) - *Peter Thorne*

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Detailed Agenda

Monday 25th February

14:00-17:00 **WG meeting, Chair: Peter Thorne** (Working Group members only)
get to know each other; WG membership and TOR; coordination between the lead center and WG; discussion of meeting plans; and the BAMS article.

Tuesday 26th February

08:00-08:30 Registration

Session 1 – Introduction, Chair: Franz Berger

08:30-08:40 Welcome and logistics - *Franz Berger, Marion Fiedler and Stefanie Lorenz*
08:40-08:50 Workshop objectives and agenda - *June Wang*
08:50-09:15 DWD – the host of GRUAN lead centre - *Wolfgang Kusch*
09:15-09:45 Coffee break

09:45-12:15 **Tour of Lindenberg Observatory** (including radiosonde launch at 12:00 and group photo)

12:15-13:15 Lunch

Session 1 – Introduction (continued), Chair: Franz H. Berger

13:15-13:25 Opening speech: *Ulrich Kasparick, Federal State Secretary BMVBS*
13:25-13:30 Opening notes: *Dave Goodrich, GCOS*
13:30-13:50 Introductions around the room
13:50-14:30 Overview of GRUAN - *Dave Goodrich and Peter Thorne*
14:30-15:00 Coffee break

Session 2 – Initial Site Selection, Chair: Leopold Haimberger and Holger Voemel

15:00-15:30 Keynote: GCOS / WCRP activities carried out in Lindenberg - *Franz Berger*
15:30-15:45 Atmospheric Radiation Measurement (ARM) sites - *Doug Sisterson*
15:45-16:00 Lauder, New Zealand within Network for Detection of Atmospheric Composition Change (NDACC) - *Paul Johnston*
16:00-16:15 Howard University Beltsville Research site, Maryland, U.S.A. - *Belay Demoz*
16:15-16:30 European site selection - *Reinout Boers*
16:30-16:40 Sodankylä research site - *Esko Kyrö*
16:40-16:50 Boulder research site - *June Wang*
16:50-17:00 Chinese potential sites - *Kejun Wu*
17:00-17:10 SHADOZ research site - *Masatomo Fujiwara*
17:10-17:20 Tropical site candidates - *Holger Voemel*
17:20-17:35 Partnership / Mentoring Programme – ideas to realise a worldwide homogeneous network - *Franz Berger*
17:35-18:30 Discussions and summary

19:00-21:30 Icebreaker

Wed 27th February

Session 3 – Radiosonde Instrumentation and Launch Schedule, Chair: Dave Goodrich

- 08:00-08:30 Radiosonde instrumentation issues and challenges - *Holger Voemel*
- 08:30-08:45 Rationale for using current best operational radiosondes - *Doug Sisterson*
- 08:45-09:00 Rationale for using reference radiosondes - *June Wang*
- 09:00-10:00 Discussions and summary
- 10:00-10:20 Coffee break
- 10:20-10:35 Framing the Question of GRUAN Sonde Launch Schedule - *Dian Seidel*
- 10:35-10:50 Rationale for coordination with satellite overpass - *Franz Berger for Carl Mears*
- 10:50-11:05 Rationale for fixed schedule - *Kevin Trenberth*
- 11:05-12:00 Discussions and summary

12:00-13:30 Lunch (with visit to the balloon hall)

Session 4 – Instrumentation and Observing Practices, Chair: Miroslav Ondras

- 14:10-15:20 Ground based instrumentation requirements- *John Nash*
- 14:10-14:30 Application and Benchmark testing of Vertical Profiles at Lindenberg Observatory - *Dirk Engelbart*
- 14:30-14:50 From science to operation: Practical problems in implementing instruments in an operational network - *Reinout Boers*
- 14:50-15:00 Ground-based GPS measurements - *June Wang for John Braun*
- 15:00-15:20 Surface and upper air developments in MeteoSwiss Payerne - *Bertrand Calpini*
- 15:20-15:40 Coffee break
- 15:40-16:30 Discussions
- 16:30-16:40 WMO technical regulations - *Miroslav Ondras*
- 16:40-17:30 Discussions

17:30-18:30 Meeting of WG to assess progress

19:30 Meeting dinner (sponsored by DWD)

Thursday 28th February

Session 5 – Data dissemination and QC/QA, Chair: Matthew Menne

- 08:00-08:40 Requirements for quality control / quality assurance-*Doug Sisterson*
- 08:40-10:00 Atmospheric Radiation Measurement Program Value Added Products- *Jennifer Comstock*
- 08:40-08:50 SI Traceability of Measurements - *Tom Gardiner*
- 08:50-09:00 Data Analysis/Fusion and Uncertainty Issues - *Alistair Forbes*
- 09:00-09:10 Follow-on to First Two Short Talks - *John Dykema*
- 09:10-09:20 Utility of Raw Radiosonde Data in QA/QC - *Alexander Kats*
- 09:20-09:30 Integrated Profiling of the Atmosphere - *Reinout Boers*
- 09:30-10:00 Discussions

10:00-10:20 Coffee Break
 10:20-12:00 Requirements for data dissemination
 10:20-10:40 Aspects of effective data dissemination - *Holger Voemel*
 10:40-10:50 Lessons from the other GCOS Lead Centers - *Matthew Menne*
 10:50-11:00 CEOP data management - *Steve Williams*
 11:00-12:00 Discussions

12:00-13:00 Lunch

Session 6 – Coordination with other International and National Activities, Chair: *Dian Seidel*

13:00-13:15 Global Space-Based Inter-Calibration System (GSICS) - *Mitch Goldberg*
 13:15-13:30 Global Earth Observation System of Systems (GEOSS) - *Alexia Massacand*
 13:30-13:40 Global Atmosphere Watch (GAW), Network for the Detection of Atmospheric Composition Change (NDACC) - *Geir Braathen*
 13:40-13:45 Southern Hemisphere Additional Ozonesondes (SHADOZ) - *Masatomo Fujiwara for Anne Thompson*
 13:45-14:00 Baseline Surface Radiation Network (BSRN) - *Ells Dutton*
 14:00-14:05 Hydro-Meteorological Equipment Industry (HMEI) - *Bruce Sumner*
 14:05-14:25 National agency perspectives
 14:05-14:10 Inputs to GRUAN from the Netherlands - *Reinout Boers*
 14:10-14:15 Some consideration about potential candidate sites from the Russian Federation - *Alexander Kats*
 14:15-14:20 Potential U.S. contributions to GRUAN - *Howard Diamond*
 14:20-14:25 CMA’s view on the GRUAN - *Kejun Wu*
 14:25-15:00 Discussion and Summary
 15:00-15:20 Coffee break

Session 7 – Development of Action Plan, Chair: *Peter Thorne*

15:20-17:30 Development of action plan - *Peter Thorne*

17:30 Meeting closes

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