

GCOS Reference Upper Air Network (GRUAN) 6th Implementation and Coordination Meeting (ICM) Greenbelt, Maryland - USA

Dates: 10-14 March 2014

Location: Hilton Garden Inn, 7810 Walker Drive, Greenbelt, Maryland

Organizing Committee: Greg Bodeker, Belay Demoz, Howard Diamond, Jim Fitzgibbons, Anna Mikalsen, Bill Murray, Tony Reale, Dian Seidel, Peter Thorne, Holger Vömel, David Whiteman

Hosted by: Howard University

Meeting supported by: NOAA GCOS Office, GCOS Secretariat, Howard University

Theme: "Maximizing the utility of GRUAN activities and measurements to benefit the Global Observing System"

Notes: Speakers should plan to speak for half of allotted time and leave the second half for discussions.

We will maintain minutes using a real-time google docs meeting summary document. The link is available [here](#). Everyone is encouraged to contribute to the meetings.

Day 1 (Monday)

Day chair: Greg Bodeker; Rapporteur: David Whiteman

08:00 – 09:00 Registration

Session 1: Welcome

09:00 – 09:05 Welcome from local organizers – Belay Demoz

09:05 – 09:10 Welcome from WG-GRUAN (Working Group on GRUAN) co-chairs and aims of workshop

09:10 – 09:30 Welcome remarks from Dr. Wayne A. I. Frederick (Howard University Interim President)

09:30 – 09:50 NOAA keynote address – Robert Detrick (Assistant Administrator for Oceanic and Atmospheric Research, and Acting Chief Scientist, NOAA)

09:50 – 10:00 GRUAN: Starting Small and Becoming Formidable – Dave Goodrich (former Director GCOS Secretariat)

10:00 – 10:20 GRUAN basics for new GRUAN ICM participants – Holger Vömel

10:20 – 10:50 Coffee break

Session 2: Progress updates from WG-GRUAN and Lead Centre

10:50 – 11:10 Progress check against ICM-5 agreed work plan – Peter Thorne

11:10 – 11:30 Progress report from Lead Centre – Holger Vömel

11:30 – 12:00 Network expansion progress report – Greg Bodeker

12:00 – 13:00 Lunch

13:00 – 13:30 GRUAN Implementation Plan – Peter Thorne

13:30 – 14:00 Funding opportunities discussion – Greg Bodeker

Session 3: Review of existing / emerging data streams

14:00 – 14:30 Metadata in GRUAN – Michael Sommer

14:30 – 14:50 GRUAN interaction with the WIGOS metadata task team – Arnoud Apituley

14:50 – 15:00 Meteomet – Tom Gardiner

15:00 – 15:30 Coffee break

15:30 – 15:50 RS92 radiosonde data stream specification, performance and characteristics of early data flow – Ruud Dirksen

15:50 – 16:00 Bringing non-RS92 sondes into GRUAN – Holger Vömel

16:00 – 16:20 Preparatory work for the Modem radiosonde – Martial Haeffelin

16:20 – 16:35 Cryogenic Frost Point Hygrometer (CFH) data stream – Holger Vömel

16:35 – 17:00 Lidar data stream – Thierry Leblanc

17:00 – 17:30 Global Navigation Satellite System-Precipitable Water (GNSS-PW) data stream – Kalev Rannat

17:30 – 18:00 Open discussion on Day-1 reports – Peter Thorne

Day 2 (Tuesday)

Day chair: Peter Thorne, Rapporteur: Arnoud Apituley

Session 4: Updates from GRUAN Task Teams and GATNDOR

09:00 – 09:30 Radiosondes – Ruud Dirksen

09:30 – 10:00 GNSS-PW – June Wang and Kalev Rannat

10:00 – 10:30 Measurement schedules and associated instrument-type requirements – Tom Gardiner and Dave Whiteman

10:30 – 11:00 Coffee break

11:00 – 11:30 Ancillary measurements – Tony Reale and Thierry Leblanc

11:30 – 12:00 GRUAN Analysis Team for Network Design and Operations Research (GATNDOR) – Fabio Madonna

12:00 – 13:00 Lunch

Session 5: GRUAN as a potential “force multiplier” for the global observing system (I)

13:00 – 13:15 A view from the Network for the Detection of Atmospheric Composition Change (NDACC) – Martine De Maziere / Mike Kurylo

13:15 – 13:25 A view from NOAA STAR – Al Powell (STAR Director)

13:25 – 13:45 NOAA PROducts Validation System (NPROVS+) – Tony Reale

13:45 – 14:00 Site Atmospheric State Best Estimate (SASBE) – John Dykema

14:00 – 14:15 Collocation White Paper – Xavier Calbet

14:15 – 14:30 A view from the Global Space-based Inter-Calibration System (GSICS) – Mitch Goldberg

14:30 – 14:45 A view from NASA – Jack Kaye

14:45 – 15:00 A view from NOAA/NWS – John Murphy

15:00 – 15:15 A view from the Global Observing System (GOS)/WMO Commission for Basic Systems (CBS) – Lars Peter Riishojgaard

15:15 – 15:30 Coffee break

15:30 – 17:30 Parallel sessions:

Breakout 1: Review and discussion of the new LidarRunClient prototype (Thierry Leblanc)

Breakout 2: Review of specifics of RS-92 data stream and uncertainty calculation (Ruud Dirksen)

Breakout 3: Collocation analysis and uncertainty estimation (Alessandro Fasso)

17:30 – 18:00 Report back from breakouts and open discussion of items arising on Day 2

Day 3 (Wednesday)

Session 6: GRUAN site activities and related research

Day chairs: Belay Demoz, Rapporteur: Dale Hurst

09:00 – 09:30 GRUAN data flow – Michael Sommer

09:30 – 10:00 Lead Center generated sounding reports and Discussion – LC and Sites

10:00 – 10:30 Coffee break

10:30 – 10:50 Maïdo observatory: A new high-altitude station facility at Reunion Island –
Stefanie Evan (La Reunion)

10:50 – 11:10 Updates from Ny Alesund – Marion Maturili

11:10 – 11:25 Change management for the RS92 - Meisei transition at Tateno – Nobuhiko Kizu
(Tateno)

11:25 – 11:40 First results from the Vaisala RS-41 – Rigel Kivi (Sodankylä)

11:40 – 11:50 Managing the change to the Vaisala RS-41 within GRUAN – Holger Vömel

11:50 – 12:00 Open Discussion

12:00 – 13:00 Lunch

13:00 – 13:20 Validation of Aura MLS stratospheric water vapor by the NOAA FPH – Dale Hurst
(Boulder)

13:20 – 13:40 Trend detection and lessons for GRUAN – Dave Whiteman

13:40 – 14:00 Raman calibration issue – Demetrius Venable (Beltsville)

14:00 – 14:30 SHADOZ ozonesonde network – Anne Thompson

14:30 – 15:00 SOWER water vapor sonde network – Holger Vömel

15:00 – 15:30 Coffee break

15:30 – 15:50 Updates from Lauder – Richard Querel

15:50 – 16:10 Activities in future NWS networks Belay Demoz (Beltsville)

16:10 – 16:30 Multi-thermistor activities at NWS – Mike Hicks

16:30 – 18:00 Open Discussion – Greg Bodeker

Day 4 (Thursday)

Tour of Sterling and Beltsville facilities and presentation by local scientists/students

- 09:00 Leave Hilton Garden Inn to travel to Howard University Beltsville research campus [7501 Muirkirk Rd., Beltsville , MD 20705]
- 09:30 – 11:30 Tour of the Howard University Beltsville Site
- 11:30 – 12:30 Boxed lunch
- 12:00 – 12:45 Travel to Sterling, VA – NOAA/NWS site
[43741 Weather Service Road, Sterling, VA 20166]
directions at <http://www.nws.noaa.gov/ops2/ops22/sfsc%20html/index.html>
- 12:45 Sign in and welcome at NOAA/NWS Sterling site
- 13:00 – 15:45 Tour of NOAA/NWS Sterling site
- 15:45 Travel to the Air and Space Museum
- 16:30 – 17:30 Guided tour of highlights of the Smithsonian National Air and Space Museum's [Steven F. Udvar-Hazy Center](#) in Chantilly, VA.
- 17:30 Travel to Bungalow Lake House
- 18:00 Dinner at the Bungalow Lake House (at own expense)
46116 Lake Center Plaza. Sterling, VA 20165
<http://www.bungalowlakehouse.com>
- 19:30 Bus tour of Washington DC, National Mall and Memorial Parks including walking tour of the Lincoln Memorial, guided by Dave Goodrich.
- 22:00 Return to Hilton Garden Inn

Day 5 (Friday)

Day chair: Holger Vömel, Rapporteur: Dian Seidel

Session 7: GRUAN as a potential “force multiplier” for the global observing system (II)

09:00 – 10:00 GRUAN representation at AOPC – Peter Thorne
(Please note the discussion document for this agenda item, which should have been read prior to the discussion)

10:00 – 10:30 Coffee break

10:30 – 11:00 Discuss specific actions on how to expand the network and which organizations to specifically approach – Holger Vömel

Session 8 Forthcoming meetings

11:00 – 11:15 Upcoming GRUAN/GNSS-RO/GSICS meeting – Stephan Bojinski / Peter Thorne

11:15 – 11:30 Other upcoming meetings discussion – All

Session 9: Miscellaneous items of business

11:30 – 11:45 Discussion of Terms of Reference for WG and Task

11:45 – 12:00 Discussion of GRUAN launch event during WMO Congress in May 2015

12:00 – 13:00 Lunch

13:00 – 13:30 Presentation and discussion of synthesis of Tuesday session – Greg Bodeker

13:30 – 15:00 Agreement of work plan for 2014/5 and discussion of outstanding issues
Peter Thorne

15:00 Close