

Task Team #1 Radiosondes

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TT1 Members

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Progress by February 2011

1. The members of the team fixed (October 2011)
2. Terms of Reference completed and published (November 2010)
3. A draft task list prepared by the co-chairs and circulated within the team for comments (January 2011)
4. Some tasks currently in progress

1. Member List

MEMBERS:	AFFILIATION	STATUS
Masatomo Fujiwara	Hokkaido Univ., JAPAN	co-chair, member of WG-ARO
Franz Immler	GRUAN lead centre, DWD, GERMANY	co-chair
Rolf Phillipona	MeteoSuisse, SWITZERLAND	core
Joseph Facundo	Observing Systems Branch, NOAA, NWS, USA	core
Carl Bower	Office of Climate, Water and Weather Services, NOAA, NWS, USA	alternate to Joseph Facundo
Frank Schmidlin	NASA/GSFC/WALLOPS Flight Facility, USA	core
Alexander Kats	Central Aerological Observatory/ KOMET, RUSSIA	core
Hannu Jauhiainen	HMEI (Vaisala, FINLAND)	associate
Michael Hicks	Howard Univ., USA	associate
Larry Miloshevich	Milo-Scientific, USA	associate

HMEI: The Association of Hydro-Meteorological Equipment Industry (for WMO)

ASSOCIATE members provide additional expertise to the task team and participate in discussions, but their consent is not necessary for the issuing of reports and recommendations.

2. Terms of Reference (excerpt)

- ToR: Background + Duties + Reporting and governance + Operation + Annex (Membership)

Duties:

- Evaluate radiosonde data products on the basis of the GRUAN reference specifications and the GRUAN measurement specifications
 - Survey radiosondes and sensors (in particular considering their performance in intercomparisons).
 - Review the uncertainty analyses and correction algorithms.
 - Recommend radiosonde launch procedures and metadata to be collected.

2. Terms of Reference (continued)

- Draw conclusions on the suitability of radiosondes, specific sensors, procedures, and algorithms for the network.
- Promote scientific efforts for assessing and improving radiosonde performance.
- Recommend measures for ensuring long-term stability of radiosonde records.
- Provide input to the GRUAN manual by defining launch procedures and pre-launch checks that need to be followed by the sites

3. Task List

- Purpose: Define the actual tasks
- 3 categories:
 - “**Very High (VH) priority**”: done within ~half a year (11 tasks)
 - “**High (H) priority**”: done within 2-3 years (8)
 - “**Low (L) priority**”: done in the future, but within the scope of the team (10)
- Status: A draft task list prepared by the co-chairs, under review by the members (the leader for each VH-priority task assigned & the 2011 version fixed by mid-March)
- Your inputs are most welcome!

3. Task List: **VH-priority** items (1/3)

- REVIEW (AND MAKE RECOMMENDATIONS FOR GRUAN COMMUNITY) of the Lead Centre document for the GRUAN Vaisala RS92 data product (raw & corrected; review just started)
- REVIEW of the time-lag and mean-bias correction algorithms for Vaisala RS92 RH sensor (doc. prepared by Kats, Miloshevich, and Immler) ... two docs. related
- REVIEW of the data analysis of the Lindenberg Meisei Temperature Reference (MTR) campaign in November 2010 (doc. prepared by LC and Meisei)
- (Set up a password-protected server website where all relevant papers could be collected for easy access by the team members)

3. Task List: **VH-priority** items (2/3)

- REVIEW of the report from the 8th WMO Intercomparison of Radiosonde Systems (Jul.-Aug. 2010, Yangjiang, China), the part for temperature and water vapor/relative humidity sensors on the “Science” payloads
- REVIEW of the report from the 8th WMO Intercomparison of Radiosonde Systems, the part for all sensors on the “operational” payloads
... into a single report; will be published in May

3. Task List: **VH-priority** items (3/3)

- REVIEW of the uncertainty estimation of NASA ATM (Accurate Temperature Measuring) sonde
- REVIEW of the uncertainty estimation of LM Sippican Multithermisor sonde

... info still limited

- REVIEW of the uncertainty estimation of Meteolabor Snow White hygrometer
- REVIEW of the uncertainty estimation of Cryogenic Frostpoint Hygrometer (CFH)
- REVIEW of the uncertainty estimation of NOAA Frost Point Hygrometer (FPH)

... ad hoc team for doc.

3. Task List: H-priority items (1/2)

- REVIEW of the uncertainty estimation of FLASH-B (Fluorescent Advanced Stratospheric Hygrometer for Balloon)
- REVIEW of the AquaVIT summary document (a chamber experiment of 16 UT/LS water vapor sensors (including CFH, FLASH-B, and Snow White) using the German AIDA chamber in 2007) (a “white-paper” summary doc. available)
- Meteolabor Hypsometer versus GPS (versus other, classical pressure-measuring method) ... boiling-point press. sensor
- REVIEW of the uncertainty estimation of GRAW radiosonde (RH sensor good perform. in WMO intercomp.)

3. Task List: H-priority items (2/2)

- REVIEW of the instrumentation change strategy for climate monitoring (e.g., JMA work (Tateno's site report))
→ GATNDOR
- Influence/effects of using the auto-launcher system (particularly for Vaisala RS92)
- The use of descent data
- Satellite overpass by balloon sounding (past experiences from validation activities for UARS, A-train, etc.; its usefulness and limitation, and recommendations for GRUAN)

3. Task List: L-priority items (1/2)

- Ozone: GATHER INFORMATION on existing working groups/task teams for ozonesondes (GAW, JOSIE, WOUDC, SHADOZ, etc.) and communicate with them
- CO2: SEARCH for new balloon-sounding technology
- CH4: SEARCH for new balloon-sounding technology
- Radiation parameters: SEARCH for new balloon-sounding technology
- Aerosol parameters: SEARCH for new balloon-sounding technology
- Cloud parameters: SEARCH for new balloon-sounding technology

3. Task List: L-priority items (2/2)

- A better unwinder?
- A better parachute?

- Improved balloon technology? (above ~35 km)
- Auto-returning, self-recovering upper air in situ sounding system?

... the end of the draft task list ...

4. Tasks in Progress

- Evaluation of the “science payload” data taken from the WMO intercomparison (by F.I., M.F. + J.Wang + H.Voemel)
- Further tests of Meisei Temperature Reference (MTR) sonde in Lindenberg in November 2010
- Review of different time lag correction schemes for Vaisala RS92 humidity measurements (the document being prepared by A.Kats, L.Miloshevich, and F. I.)
- Review of the RS92 GRUAN product document prepared by the Lead Center (just started)
- Review of the CFH/NOAA FPH/Snow White document (the document preparation starting soon)

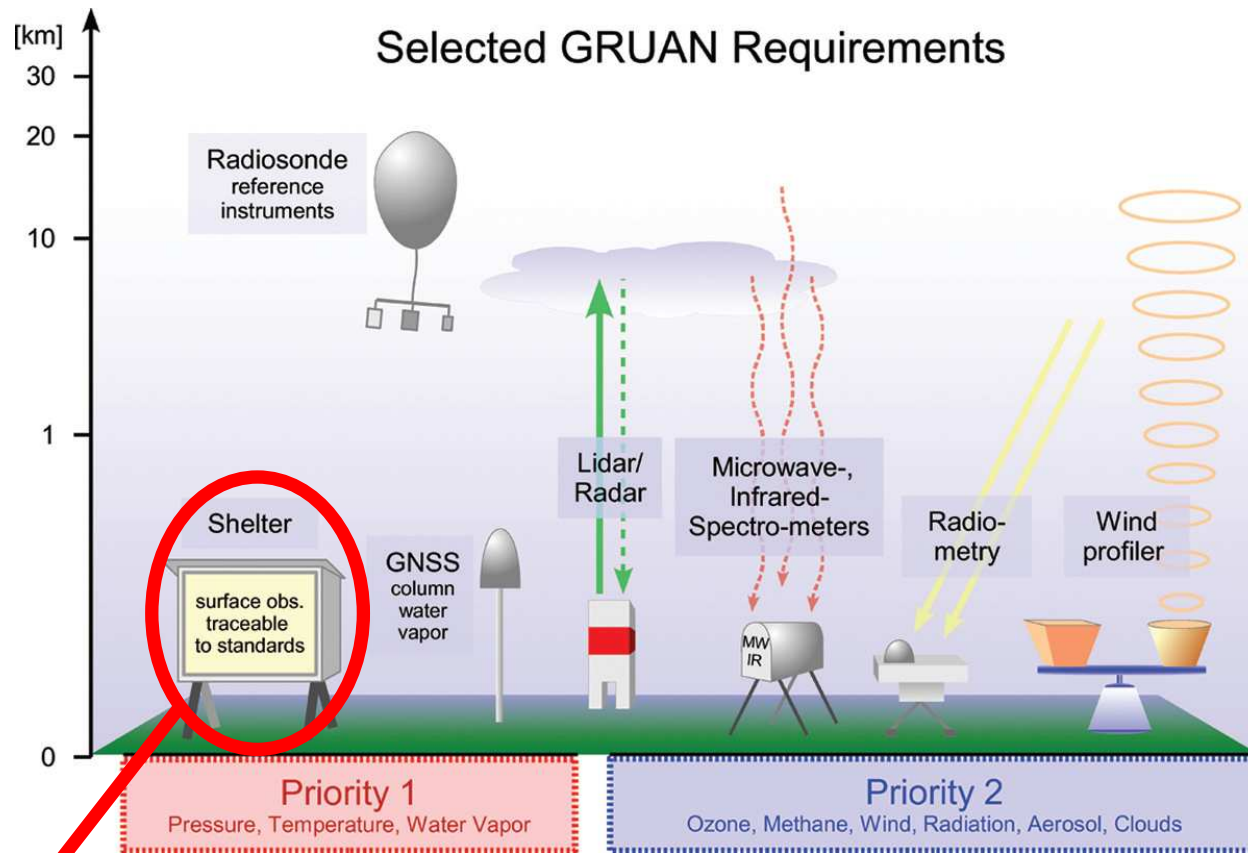


Fig. 1 of Seidel et al. BAMS 2009

Who should cover this? → LC & WG will articulate the inputs from relevant TTs

- Radiosondes should have ground check in the laboratory and also in the field prior to launch. (Some radiosondes need ground calibration.)
- Some remote sensing sensors also need surface data. (co-location issue?)
- GRUAN station had better have surface observations of climate quality.