Task Team Radiosonde

- Progress Report for April 2013-March 2014 -

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1. Introduction: Task Team Radiosonde

- Provide guidelines for the GRUAN on how to obtain the best possible, reference quality data from radiosoundings

- Evaluate radiosonde data products on the basis of the GRUAN 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
- Draw conclusions on the suitability of radiosondes, specific sensors, procedures, and algorithms for the network

- Promote scientific efforts for assessing and improving radiosondes
- 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

2. Membership

Name	Affiliation	Status
Masatomo Fujiwara	Faculty of Environmental Earth Science, Hokkaido University, Japan	Co-chair
Rolf Phillipona	MeteoSuisse, Switzerland	Co-chair
Ruud Dirksen	GRUAN Lead Centre, DWD, Germany	
Frank Schmidlin	USA	
Alexander Kats	Central Aerological Observatory/KOMET, Russia	
Hannu Jauhiainen	The Association of Hydro-Meteorological Equipment Industry, Finland	HMEI representative
Michael Hicks	Howard University, USA	
Larry Miloshevich	MILO-Scientific, USA	
Rigel Kivi	Finnish Meteorological Institute, Finland	
Nobuhiko Kizu	Japan Meteorological Agency, Japan	
LI Wei	China Meteorological Administration, China	

3. Updates for the Tasks

1. *Time lag in RS92 humidity corrections*
2. *The use of auto-launchers*
3. *Controlled descent mechanisms*
4. *Multi-payload launch configurations*
5. *Define the non-RS92 data collection client requirement*
6. *Develop a UT/LS water vapour data product*
7. *Define the frostpoint hygrometer data collection client requirement*
8. *Finalize the definition of GRUAN data products for RS92 radiosondes: Technical document describing pre-launch procedure (TD5)*
9. *Define the ozone sonde data collection client requirement*

(1) *Time lag in RS92 humidity corrections*

- **Task:** *Assess time lag in RS92 humidity corrections, comparing the GRUAN processing to other published approaches.*

- **Main Contact:** *Ruud Dirksen with assistance from Michael Sommer, Larry Miloshevich, Masatomo Fujiwara and Alexander Kats*
- **Due Date:** *25-Feb-2014*
- **Status:** *Ongoing*
- **Milestone:** *Manuscript describing the results of the humidity time lag assessment submitted to a journal.*
- **Progress:** *Test calculations were made by Larry Miloshevich. Will be restarted after finishing the paper describing the GRUAN RS92 data product.*
- **Issues:** *Waiting for the GRUAN Lead Centre for further actions.*

(2) *The use of auto-launchers*

- **Task:** *Assess the effects of the use of auto-launchers compared to manual launches on measurement uncertainty estimates for radiosondes.*

- **Main Contact:** *Rigel Kivi, Nobuhiko Kizu, Fabio Madonna*
- **Due Date:** *30-Nov-2014*
- **Status:** *Ongoing*
- **Milestone:** *Publication in the peer reviewed literature.*
- **Progress:** *Information has been summarized at Sodankyla (Kivi), Potenza (Madonna), and Tateno (Kizu)*
- **Issues:** *None*

(3) *Controlled descent mechanisms*

- **Task:** *Assess controlled descent mechanisms for balloon payloads and issues around use of descent data*

- **Main Contact:** *Rolf Philipona, Dale Hurst and Masatomo Fujiwara*
- **Due Date:** *30-Jun-14. Presentation at ICM-6. (31-Dec-2014 for a document adoptable across GRUAN)*
- **Status:** *Ongoing*
- **Milestone:** *Manuscript(s) detailing operational considerations for controlled descents submitted to a journal or detailed in a GRUAN Report. If deemed applicable, a technical document that supports the adoption of controlled descent across GRUAN.*
- **Progress:** *Regular descent sounding is made at Boulder and Lauder. Some experiments were made at Lindenberg, Payerne, NCAR (and under a tropical project named SOWER).*
- **Issues:** *Still in the experimental phase.*

(4) *Multi-payload launch configurations*

- **Task:** *Assess multi-payload launch configurations for GRUAN usage.*

- **Main Contact:** *Hannu Jauhiainen and Masatomo Fujiwara*
- **Due Date:** *30-Jun-2014*
- **Status:** *Ongoing*
- **Milestone:** *Document detailing the issues surrounding multi-payload soundings to be drafted and submitted either to peer reviewed literature (first choice) or to WG-GRUAN for review as a TD*
- **Progress:** *A questionnaire sheet was sent (and re-sent) to several groups, and some responses have been received*
- **Issues:** *Need some more time to prepare a draft for circulation within the GRUAN community for comments*

(5) *Define the non-RS92 data collection client requirement*

- **Task:** *Define the non-RS92 data collection client requirement, identify the central data processing facility, and initiate data flow.*

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- **Main Contact:** *Holger Vömel, Michael Sommer, Rolf Philipona, Lead Center, Radiosonde task team*

- **Due Date:** *1-Sep-2015*

- **Status:** *Ongoing*

- **Milestones:** *Assessments of non-RS92 data collection client requirements. Data flow through NCDC portal*

- **Progress:** *First tests with RS-Launch client to submit non-RS92 data to the Lead Center. Built up of data processing facility and data files with final product and uncertainties of each parameter for non-RS92 radiosondes.*

- **Issues:** *Submission of Meteolabor radiosonde data in preparation.*

Define GRUAN Data Product for Sounding Flight

- Operational flight with SRS-C34
- Operational flight with SRS-C34 + Ozone
- GRUAN multisounding with SRS-C34/SnowWhite + Vaisala

Use GRUAN RsLaunchClient to

- Configure the sounding flight
- Define radiosondes and ground stations
- Define calibration and ground check instruments
- Add flight meta data and weather information
- Add .csv data file from SRS-C34 radiosonde (PAY_GRUAN_001... .csv)
- Add data file from Vaisala (Dc3db...)

Submit .xml data file to LC using RsLaunchClient

MeteoSwiss

SRS-C34 Data File .csv

- .csv data file : PAY_GRUAN_001_date.time.csv
- Includes station, date, time and software information
- Includes preflight check, ground check, meta data and weather information
- Includes all raw data
- Includes calculated final product with uncertainties for all final products

Data extraction at GRUAN Lead Center

- Meta data extraction and storage in GRUAN meta data base
- Final product and uncertainties extraction and storage in GRUAN archive
- Production of NetCDF file and submission to NCDC climate data center

Data Product Responsibility and Future Updates

- The GRUAN station Payerne is responsible for the final data product
- Future updates are made at Payerne and resubmitted to GRUAN LC

MeteoSwiss

(6) *Develop a UT/LS water vapour data product*

- **Task:** *Develop a UT/LS water vapour data product supported by appropriate technical documentation. The technical documentation must account for operation of CFH, NOAA FPH, Snow White and possibly FLASH-B.*

- **Main Contact:** *Holger Vömel, Rolf Philipona, Masatomo Fujiwara and Dale Hurst*

- **Due Date:** *1-Mar-2014*
- **Status:** *Ongoing*
- **Milestone:** *Technical documentation completed for frostpoint hygrometer measurements*

- **Main Contact:** *Holger Vömel, and Dale Hurst*
- **Due Date:** *1-Mar-2015*
- **Status:** *Ongoing*
- **Milestone:** *Peer reviewed publication on frost point hygrometer GRUAN data product submitted.*

(7) *Define the frostpoint hygrometer data collection client requirement*

- **Task:** *Define the frostpoint hygrometer data collection client requirement, identify the central data processing facility, and initiate data flow.*

- **Main Contact:** *Holger Vömel, Lead Centre, Radiosonde task team*
- **Due Date:** *1-Sep-2015*
- **Status:** *Not yet started*
- **Milestone:** *Data flow through NCDC portal*

- **Main Contact:** *Radiosonde task team*
- **Due Date:** *1-Dec-2015*
- **Milestone:** *Assessment of data usage, issues and potential improvements for this data stream*
- **Progress:** *Not yet started*

(8) *GRUAN data products for RS92 radiosondes*

- **Task:** *Finalize the definition of GRUAN data products for RS92 radiosondes: Technical document describing pre-launch procedure (TD5)*

- **Main Contact:** *Ruud Dirksen and Masatomo Fujiwara*
- **Due Date:** *25-Feb-2014*
- **Status:** *Ongoing*
- **Milestone:** *Review of the pre-launch ground-check/ground-calibration procedures*
- **Progress:** *A questionnaire sheet was sent to the relevant GRUAN sites in August 2012*
- **Issues:** *There is a preliminary version of TD5 whose missing perspective is to consider the current practice at the relevant GRUAN sites. The questionnaire is for this purpose.*

(9) *Define the ozone sonde data collection client requirement*

- **Task:** *Define the ozone sonde data collection client requirement, identify the central data processing facility, and initiate data flow.*

- **Main Contact:** *Holger Vömel, Lead Centre Radiosonde task team*
- **Due Date:** *30-Jun-2015*
- **Status:** *Not yet started*
- **Milestone:** *Data flow through NCDC portal*

- **Main Contact:** *Radiosonde task team*
- **Due Date:** *30-Jun-2017*
- **Status:** *Not yet started*
- **Milestone:** *Assessment of data usage, issues and potential improvements for this data stream*

Summary

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