Task Team on Radiosonde
- Progress Report for March 2014-February 2015 -

Masatomo Fujiwara (Hokkaido Univ., Japan),
Rolf Philipona (MeteoSuisse, Switzerland), and
the Task Team Radiosonde

The Team will
- 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

ICM-7, Matera, Italy, February 2015

Members

| Name	Affiliation	Status
Masatomo Fujiwara	Hokkaido University, Japan	Co-chair
Rolf Philipona	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; Vaisala, Finland	HMEI representative
Micheal Hicks	NOAA/NWS/OOS, USA	
Larry Miloshevich	MILO-Scientific, USA	
Rigel Kivi	Finnish Meteorological Institute, Finland	
Nobuhiko Kizu	Japan Meteorological Agency, Japan	
LI Wei	China Meteorological Administration, China	
Yang RongKang	China Meteorological Administration, China	
Martial Haeffelin	Institut Pierre Simon Laplace, France	
Holger Vömel	NCAR/EOL, USA	

Updates of the Tasks

1. *RS92 RH time lag corrections*
2. *Auto-launchers versus manual launches*
3. *Controlled descent assessment*
4. *Multi-payload launch configurations*

5. *Non-RS92 regular sondes (Meteolabor, Modem, Meisei, etc.)*
6. *Water vapour sondes*
7. *GRUAN data product for RS92*
8. *Ozonesondes*

Based on the GRUAN Master Action Item List (February 2015)

(1) RS92 RH Time Lag Corrections

- R. Dirksen (lead), L. Miloshevich, M. Fujiwara et al.
- Intercomparison of GRUAN and other (e.g., Miloshevich's) RS92 RH time lag correction methods
- Started in late 2014, after the publication of Dirksen et al. (AMT, 2014) on description of the GRUAN Vaisala RS92 data product version 2

Example: GRUAN RS92 data product versus cryogenic frostpoint hygrometer data

Night Day
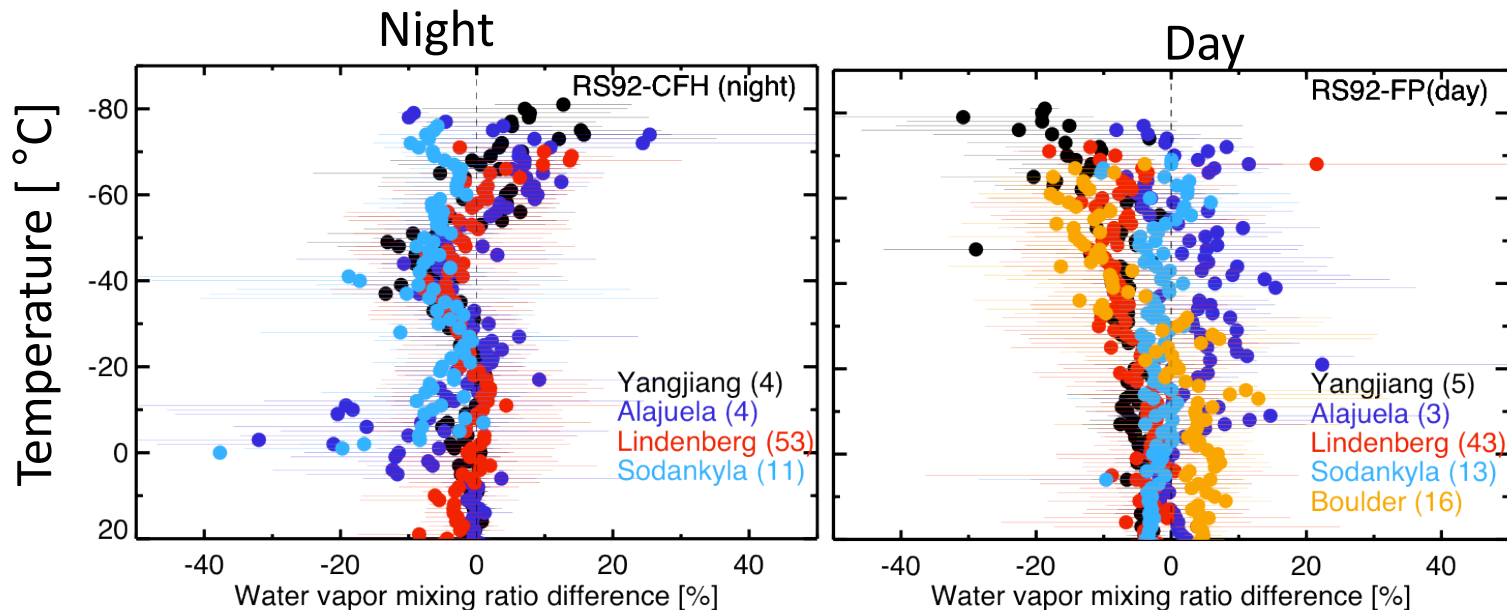
(2) Auto-launchers vs. Manual Launches

- Rigel Kivi (lead), Nobuhiko Kizu, Fabio Madonna
- Assess the effects of the use of auto-launchers compared to manual launches on measurement uncertainty estimates for radiosondes
- Analyze data from Sodankylä, Tateno, and Potenza
- Ongoing

At Sodankylä

Autolauncher system in France

(3) Controlled Descent Assessment

- Rolf Philipona (lead), Dale Hurst and Masatomo Fujiwara
- Assess controlled descent mechanisms for balloon payloads and issues around use of descent data
- 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, and other places.
- Issues:

  Still in experimental the phase.
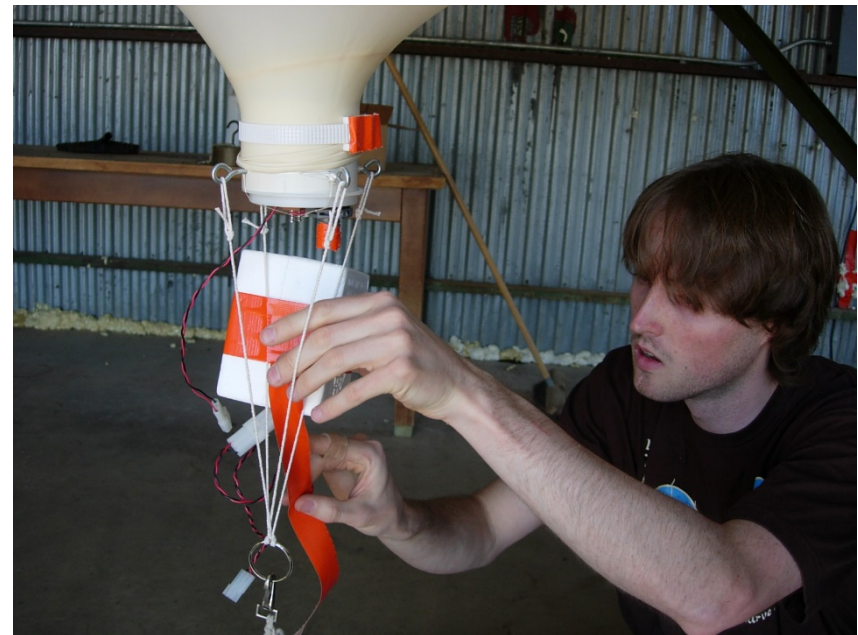
At Boulder

(4) Multi-payload Launch Configurations

- Hannu Jauhiainen (lead), Masatomo Fujiwara et al.
- Assess multi-payload launch configurations for GRUAN usage.
- Draft manuscript being prepared; various options and their pros and cons described
- Issue: Can we make single recommendation? TD or AMT?

(An example from Boulder)
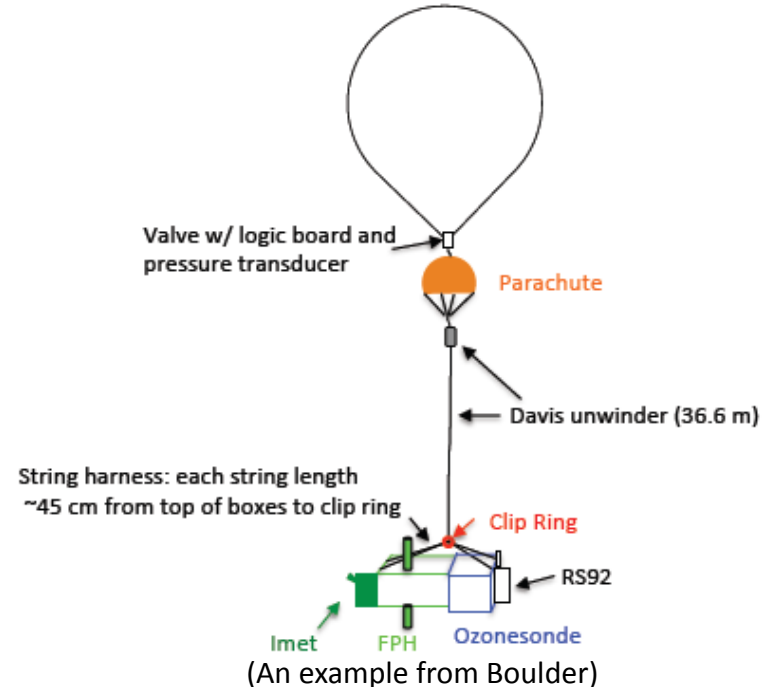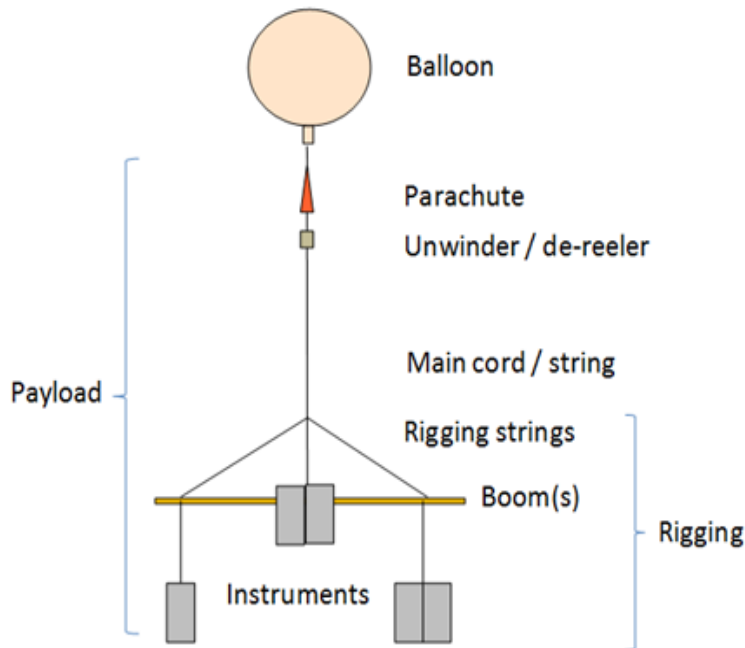
Other Tasks

(5) Non-RS92 Regular Sondes (Meteolabor, Modem, Meisei, etc.)

- Define the non-RS92 data collection client requirement, identify the central data processing facility, and initiate data flow.
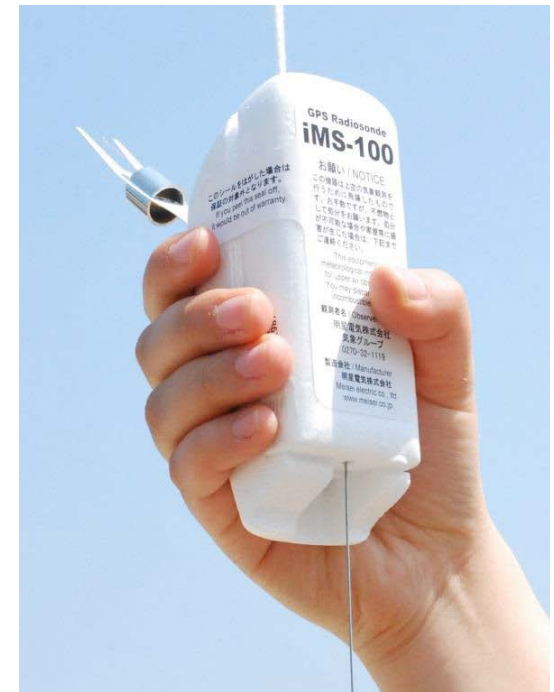- Technical documents being prepared

Meteolabor SRS-C34

Modem M10

Meisei iMS-100

Other tasks

(6) Water Vapour Sondes

- Technical document and data collection client for frostpoint hygrometers (CFH, FPH, Snow White) and other hygrometers (e.g., FLASH-B)

(7) GRUAN Data Product for RS92

- Finalize the definition (e.g., pre-launch procedure, TD5); mostly led by LC

(8) Ozonesondes

- Task Team Radiosonde will support the activity

4. Other Related Activities by Members

- Philipona published papers on re-investigation on the radiation error of SRS-C34 (Philipona et al., GRL, 2012, JTECH, 2013)
- Schmidlin is preparing a paper on multithermister sondes (NASA ATM and LM Sippican Multithermister)
- Hicks is evaluating LM Sippican Multithermister data
- Fujiwara is developing a frostpoint hygrometer "FINEDEW" and Cloud Particle Sensor (CPS) sonde

Two SRS-C34s & CNR 4 Net Radiometer

CPS with Meisei RS-11G radiosonde

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