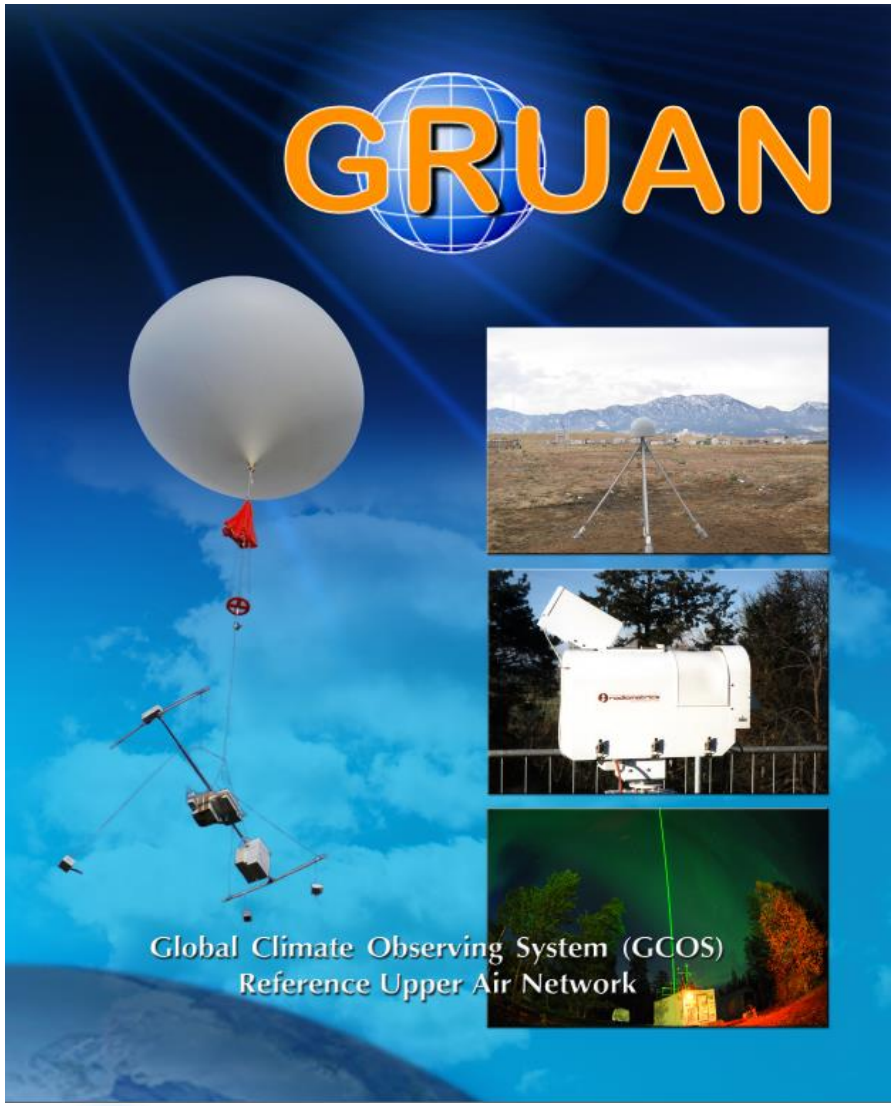


Monitoring progress between ICMs

Fabio Madonna[1] and Masatomo Fujiwara[2]

[1]University of Salerno, Italy

[2]University of Hokkaido, Japan

Rationale

- The interval of 18 months between ICMs creates a risk of reduced visibility and momentum in ongoing GRUAN activities.
- Without intermediate checkpoints, key tasks (certification, GDP development, scientific outputs) may not progress in a timely manner.
- Regular monitoring (TT meetings) and mid-term meeeting with LC are already in place to ensure that actions remain on track and delays, but looks not always sufficient.
- A structured mid-term follow-up helps maintain accountability across sites, Task Teams, Lead Centres, and processing centres, reducing the likelihood of bottlenecks and ensures efficient use of limited resources.
- Strengthening communication between ICMs promotes continuous engagement and prevents the network's activities from stalling.
- Ultimately, consistent monitoring is essential to meet GCOS expectations, support the climate community.

Proposal to discuss and agree with the WG GRUAN for monitoring progress between ICMs.

Virtual General Assembly Between ICMs

Why a Virtual GA?

- Maintain continuous engagement with the GRUAN community between ICMs.
- Provide a platform to monitor progress, address challenges, and maintain momentum.
- Strengthen communication flow between Sites, Task Teams, and the WG.
- Increase opportunities for scientific exchange, updates, and coordination.

Expected Benefits

- Stronger sense of community and collaboration.
- A venue for feedback, reporting, and visibility of sites' activities.
- More efficient coordination of GRUAN activities.
- Improved timeliness of decisions.

Contingency plans

CC shall maintain active communication with the key persons responsible for high-priority actions and assess whether any triggers require the activation of a contingency plan.

- Trigger
  - Any action item showing no significant progress after 3–6 months of delay.
- Steps
  - Review the cause of delay
  - Reassign or reinforce responsibilities
    - Engage additional WG members, Task Teams, or possibly coordination with external activities when feasible.
    - Adjust timelines and deliverables (a priority is a priority only if feasible, otherwise it is a wish!)
  - Escalate when necessary
    - Bring critical issues to AOPC or relevant WMO structures for guidance or support.

Science coordination

Coordination of scientific outputs should be shared across the whole GRUAN structure, not concentrated only at Lead Centres or processing centres.

What Is Needed

- Task Teams must be actively involved in planning, producing, and reviewing scientific outputs.
- Promote joint authorship, shared responsibilities, and coordinated publication strategies.
- Ensure that expertise is fully leveraged across sites, TTs, LC, and processing centres.

Expected Benefits

- Stronger, more diverse scientific contributions.
- Better alignment between operations, development, and science.
- Increased engagement and ownership across the network.

EU COST Action «CRIM»

The CRIM WG1 on reference upper-air measurements is formed by several members closely connected to GRUAN activities (sites, Task Teams, Lead/Processing Centres, metrology institutes).

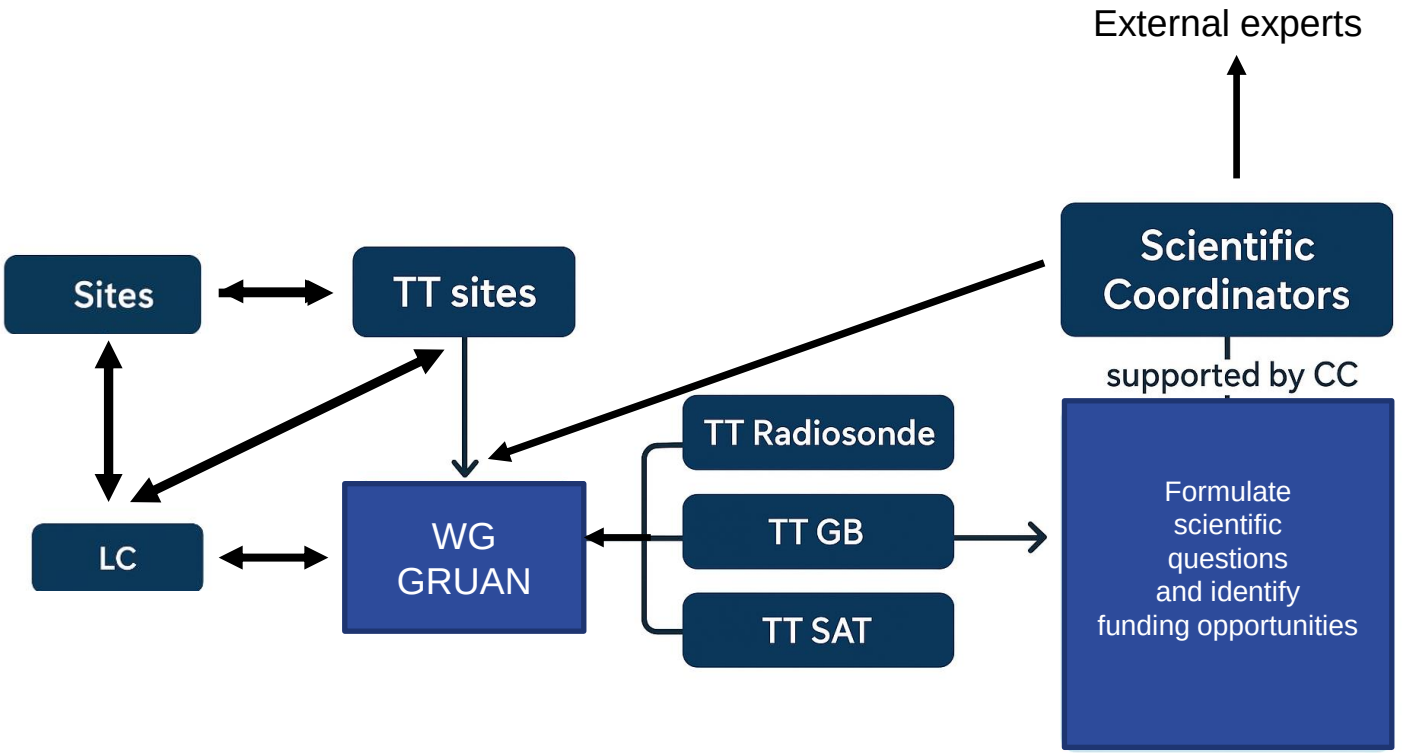
- This group, arraning side meeting to the CRIM WG, that can serve as another regular opportunity to track GRUAN's progress between ICMs.
- Colleagues from EU and associated countries may get involved and experts from other countries may be invited.
- CRIM also funds STMs and training and may support the work related to certain actions.

Mid-term with LC and conferences

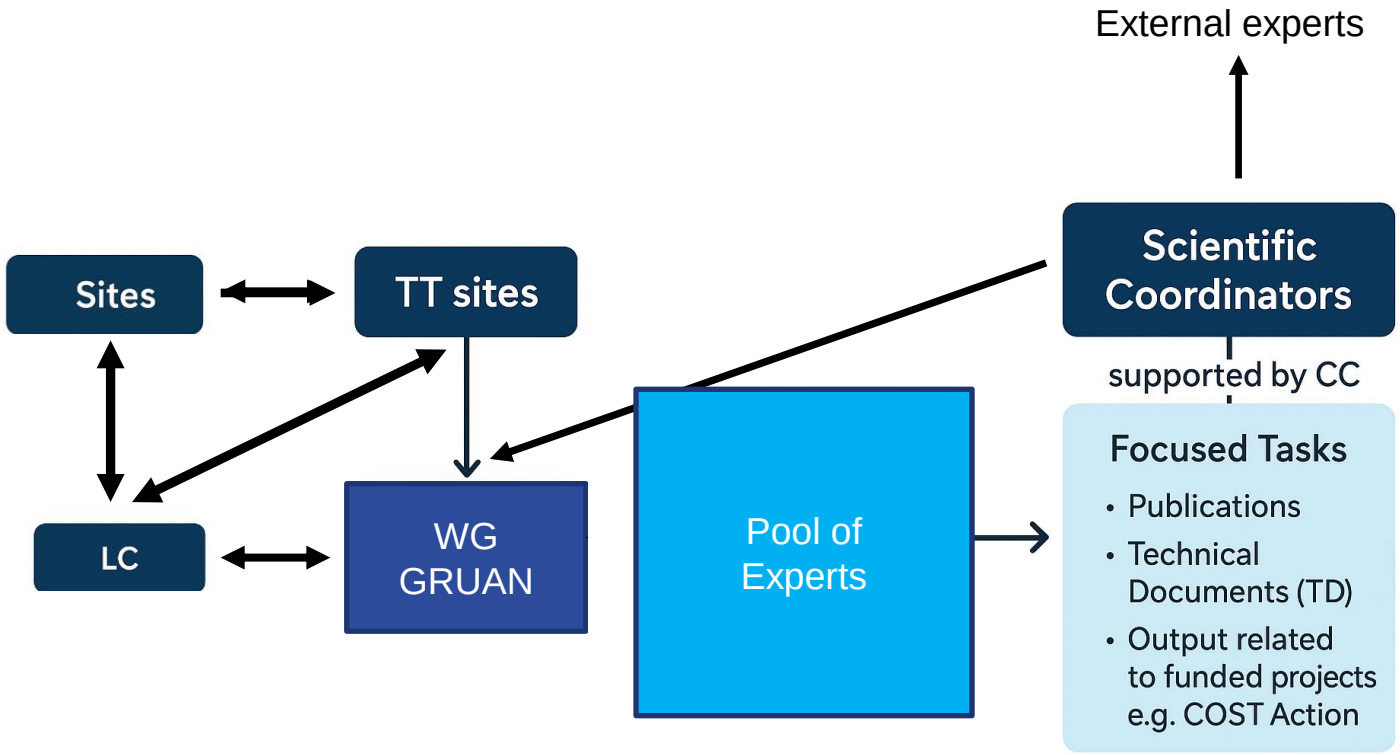
- Mid term will continue to be an important moment to review the work progress and foster the network implementation.

- Identify priority conferences (EUMETSAT, AMS, AGU, EGU, WMO Tech Meetings, etc.), where small groups of GRUAN colleagues may have in person meetings. This implies the submission of abstract on GRUAN, giving also the opportunity to increase the network visibility. Support from CRIM Cost Action is possible for Members (ask to join the action!).

GRUAN structure: current



GRUAN structure: current



Current GRUAN actions and future focused tasks

Actions have been reviewed to leave those still relevant to close, others have been mapped with the idea to have focussed task such as publications or to link to existing projects.

Science questions from SCG

- Demonstrate the value of reference networks in support of baseline/comprehensive radiosounding capabilities or other observing networks.
- Using GDPs for estimating climate trends.
- Demonstrate the added value of GDPs in quantifying climate indicators (e.g., QBO, tropical or full arctic amplification).
- Using GDPs for the evaluation of atmospheric reanalysis and historical climate model simulations and for quantifying their uncertainties.
- Assess the impact of robust uncertainties in atmospheric datasets to properly capture the magnitude of extreme weather and climate events.
- Integration of GDPs with RTMs to support satellite cal/val including development of GDP covariance matrices.
- Develop applications using GPDs as the backbone of a broader observing network of data using machine learning.
- Estimate how tropospheric water vapor is affected by tropical cyclones or typhoons during the GRUAN era.
- Impact of using GDPs in engineering hydrological models for better quantifying uncertainties in hydrologic prediction and manage risks.

Potential list of GRUAN publications and «stories»

A non-exhaustive list of possible publications (or “stories”):

- A general GRUAN overview paper (building on the BAMS paper by G. Bodeker; proposed lead: CC) on providing CDRs, use GDPs to estimate climate trends, and comparisons with atmospheric reanalyses
- Papers on the available GDPs, including upper-air and GNSS (Data Journal format)
- A review on the use of GRUAN data in support of satellite calibration/validation
- The GRUAN intercomparisons: best practices, outcomes, and the role of GDPs
- RS92/RS41 comparison paper (LC)
- SHC paper (LC, CC), SHC paper for Autolaunchers (MeteoSwiss)
- Assessment of colocation errors in upper-air measurements (A. Fassò)
- Integration of GDPs with RTMs to support satellite cal/val including development of GDP covariance matrices.
- Estimate how tropospheric water vapor is affected by tropical cyclones or typhoons using GRUAN GDPs
- GRUAN tools: methodology, software, and applications (user training)
- Using GRUAN GDPs to estimate climate indicators and long-term trends
- RS41 performance and uncertainties in the stratosphere
- ……

WG and LC

- WG members: do we have the needed blend of expertise? Add members from climate&renalaysis community?

- While LC contributes substantially to the scientific output and is deeply involved in the development of GDPs, it may be helpful to find an appropriate balance in order to reduce their lead workload on GRUAN publications, while still ensuring their valuable involvement.

Comments are welcome!