

GRUAN Task team on measurement schedules and associated instrument-type requirements (Task Team 3)

A Task Team of AOPC Working Group on GRUAN (WG-GRUAN)

Terms of reference

June 10, 2014

Background

The GCOS/WCRP Atmospheric Observation Panel for Climate (AOPC) Working Group on GCOS Reference Upper Air Network (GRUAN) was established in 2006 in recognition of the importance of initiating reference-quality observations of atmospheric column properties, in particular temperature and water vapour, from the surface into the stratosphere to enhance the monitoring and understanding of climate variability and change. A GRUAN Implementation Plan was published in July 2009, and updated in 2013 to cover the period until 2017. At the second Implementation and Coordination Meeting (ICM) held in Payerne, Switzerland in March 2010 the WG-GRUAN, GRUAN Lead Centre, and initial sites agreed to the establishment of a number of task teams in order to better manage the workload associated with establishing the GRUAN as a sustainable GCOS network.

The task team on measurement schedules aims to develop defensible, quantifiable, and scientifically-sound guidance for GRUAN sites regarding measurement schedules and associated site requirements, in order to meet all GRUAN objectives including climate trend detection, satellite calibration/validation, and studies of local meso-scale processes and events. Working out an optimal mix of measurement strategies that best serves these combined calls on the network will require careful consideration of a number of factors beyond the purely technical ones. Due to the fact that site resources will differ across the network, it will be necessary to produce a number of different and scalable strategies that can be utilized by sites possessing varying technical resources. These strategies must be backed up by quantitative evidence to the extent possible, and should apply to both in-situ and remote sensing capabilities.

Duties

Under the auspices of the WG-GRUAN the scheduling Task Team was established to:

- Provide guidance on the ideal suite of measurement sampling requirements for the network addressing the primary GRUAN objectives :
 - climate monitoring – to confirm the requirements for regular measurements (in terms of capability and schedule) that will provide a reliable and consistent measurement of decadal trends in the key climate variables,
 - satellite calibration and validation – focusing primarily on providing long-term support for the satellite community, particularly in the area of data ‘gap-filling’ to help establish consistency and comparability between individual satellite records.

- Liaise with GRUAN sites and groups planning mesoscale studies to review what the potential impact of such studies, with their own specific objectives and scheduling requirements, will be on the long-term monitoring objectives of GRUAN.
- Gather information on sampling strategies from the peer-reviewed literature, GRUAN documentation, and currently unpublished studies of which the team is aware;
- Identify suitable measurement and model data sets for sampling studies;
- Define sampling strategy assessment activities, with the aim of linking these to the current and future research activities of the team members and other groups;
- Report to the WG-GRUAN on all above duties

Reporting and governance

- The task team shall be run by at least one and preferably two co-chairs and they should use as primary points of contact the co-chairs of WG-GRUAN and Head of Lead Centre as deemed appropriate.
- The task team co-chairs shall report on a six-monthly basis in February and August to the WG-GRUAN via a brief written progress report which will also be posted as part of official documentation relating to GRUAN. These reports will be discussed on a phone conference between WG-GRUAN, the Lead Centre and all task teams with representation from at least one co-chair from this task team.
- At least one task team co-chair and potentially additional task team members shall attend as deemed appropriate and affordable the annual ICMs to report in person on progress.
- The task team will be expected to respond to all reasonable formal requests for advice from the WG-GRUAN, Lead Centre, other task teams or sites made on an ad-hoc basis in a timely manner. Guidance on what constitutes reasonable can be solicited from WG-GRUAN as required.
- The task team will be expected to interact with the other GRUAN task teams and the GRUAN Scientific Coordinator on research activities on areas of common interest.

Operation

- In terms of scientific outputs from the Task Team, while the activities of the team remain a voluntary one without specific funding, the main information sources will be from the peer-reviewed literature, GRUAN documentation, and currently unpublished studies of which the group is aware.
- Some limited new analyses will be undertaken by Team members using existing data sets to address areas where critical gaps exist that prohibit scientifically defensible choices.

- The task team will largely coordinate via email and take advantage of meetings (in particular GRUAN ICMs) where a quoracy (two-thirds of membership) is in attendance to undertake face-to-face discussions. Telecons will be scheduled as required to address specific task team issues.
- Task team chairs will seek funding for dedicated meetings if deemed appropriate.
- The task team will exist until such time as its duties are deemed to have been completed by the WG-GRUAN.
- Task team terms of reference and membership will be revised periodically, coincident with revisions to the WG-GRUAN ToR or if requested by either party, by the task team members in consultation with WG-GRUAN.

Annex

Membership roster valid June 2014:

Tom Gardiner (NPL) – Co-chair

Dave Whiteman (NASA/GSFC) – Co-chair

Howard Diamond (NOAA/NCDC)

Tony Reale (NOAA/NESDIS)

Carl Mears (Remote Sensing Systems)

Rigel Kivi (FMI)