

Review of the GRUAN implementation plan

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Overview

- What do we need to do between now and 1 January 2014?
- Who will do it?
- When will it be done by?
- What is its priority?
- What will happen if it's not done?

What	By whom (if applicable)	By when	Notes
Submit full proposal for WIGOS-PP in conjunction with development of the GRUAN Plan.	WG-ARO, Lead Centre, GCOS Secretariat	Summer 2009	ICM-1 Action item #17
Develop a guide of common GRUAN definition and terminology for measurement uncertainty, accuracy, stability, etc., ensuring the quality of all GRUAN measurements.	Franz Immler, John Dykema, Tom Gardiner and others	Late summer 2009	Action item #4 from ICM-14
Provide a list of technically competent potential participants (2-3) in 2010 CIMO intercomparison campaign in China to CIMO Secretariat; Head of Lead Centre to be formally involved in the organization of the campaign	WG- ARO	August 2009	ICM-1 Action item #13

What	By whom (if applicable)	By when	Notes
Nominate members on expert team analyzing results from CIMO intercomparison campaign.	WG-ARO	September 2009	ICM-1 Action item #15
Agree a protocol for dealing with any site offers arising in the interim.	WG-ARO, Lead Centre	At ICM-2 (2010)	To be approved by AOPC.
Define remit of and set-up team to ascertain quantitatively defensible guidance for both in-situ and ground-based remote sensing temporal sampling requirements.	WG-ARO	ICM-2 (2010)	
Develop a communication platform for the GRUAN community (blog, wiki, FAQ, other?).	Lead Centre (lead), WG-ARO, sites	2010 (ICM-2)	

What	By whom (if applicable)	By when	Notes
Prepare a position paper on a process to manage change and optimize intercomparisons at GRUAN sites.	Lead Centre	2010	ICM-1 Action item #6
Formalize links between Lead Centre and NCDC, ACRF program regarding data dissemination, investigate the value of NDACC / BADC involvement for high-res in-situ.	Lead Centre, WG-ARO, NCDC, ACRF	2010	ICM-1 Action item #11
Develop proposal to define data dissemination among all GRUAN partners, in full compliance with GRUAN data policy (i.e., delayed mode and near-real time data dissemination addressed).	Lead Centre, WG-ARO, NCDC, ACRF	2010	ICM-1 Action item #12

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Define reprocessing and version control procedures.		2010	
Explore the possibility to publish GRUAN metadata congruent with WIS metadata standards.	Lead Centre, GCOS Secretariat	2010	Many or most stations, e.g. NOAA stations, provide already station metadata following WIS requirements. A user description document shall be available soon
Explore the possibility to disseminate near real time data via the WMO Information System (WIS) including the Global Telecommunication System (GTS) using existing infrastructure.	Lead Centre, GCOS Secretariat	2010	

What	By whom (if applicable)	By when	Notes
Formation of instrument and parameter expert teams.	WG-ARO, Lead Centre, ACRF, sites	2010	
Agree and implement data usage acknowledgement protocol.	WG-ARO, Lead Centre, sites, GCOS Secretariat	2010	Ideally required before data starts going on stream
Implement tracking of data usage.		2010	
Quantitative investigation of collocation issue for priority 1 variables (T,q) at existing sites.		January 2010	Ad hoc GATNDOR interested in this issue
Assessment of scientific requirements for managing instrument change to preserve the climate record fidelity.	Ad hoc GATNDOR	January 2010	Pending time and resources

What	By whom (if applicable)	By when	Notes
Assessment of frequency of sampling required to retain trend fidelity.	Ad hoc GATNDOR	January 2010	Pending time and resources
Develop a case study focussing on in-situ observations for the GRUAN measurements guide.	Lead Centre	March 2010	Action item #5 from ICM-1
Assessment based upon current sites of the collocation of measurements issue.	Ad hoc GATNDOR	June 2010	Pending time and resources
Draft a GRUAN Manual of Operations.	Lead Centre, GCOS Secretariat, WG- ARO, ACRF	End 2010	Potential Assistance by WMO CBS Expert Team, and through WIGOS PP

What	By whom (if applicable)	By when	Notes
Instigate formal communication pathway to operational radiosonde community.	CIMO, CBS, WG-ARO, Lead Centre	Continuous 2010	Regular reporting to WMO bodies, e.g. through WIGOS-PP channels; possible CBS expert team in 2010
Implement a final version of the data dissemination structure.	GRUAN community	2011	Needs to be done prior to network expansion. Needs a stable version on this timescale.
Roll out measurement guidance to meet GRUAN requirements to all GRUAN site instrumentation based upon the prevalence of instrument types.		2011	May include National Metrology Institutes

What	By whom (if applicable)	By when	Notes
Define a set of accepted objective criteria to assess both instrument specific measures and site performance vis-à-vis stated requirements.	Site certification and expansion team (membership TBD)	2011	Team composition to be determined at ICM-2
Develop an instrument replacement protocol with a solid quantitative basis.		2011	Ad hoc GATNDOR interested in this issue, ACRF representatives have expertise
Design and instigate a framework to investigate, report and resolve data quality and instrument issues in real-time.		2011	ACRF already have such a capability and should be consulted.
Brief science community on GRUAN by seeking to convene special sessions at relevant conferences including updates on progress.	WG-ARO	During 2011	AMS, EGU and other meetings

What	By whom (if applicable)	By when	Notes
Workshop with manufacturers under the joint auspices of GCOS and HMEI.	WG-ARO, HMEI, GCOS Secretariat	January 2011	Meeting suggested by HMEI
Final set of temporal sampling guidance for both in-situ and remote sensing instrumentation based upon a quantitative assessment prior to network expansion, including superseding of GCOS-121 documentation for in-situ measurements.	Temporal sampling team (membership TBD)	January 2011	
Formulate generic guidance on the collocation issue based upon quantitative evidence wherever available and for all variables.	Lead Centre, WG-ARO	January 2011	

What	By whom (if applicable)	By when	Notes
Prepare a position paper on expansion to full column characterisation to meet all stated GRUAN measurement requirements.		January 2011	Needed so that candidate sites for expansion have a concrete idea of what an ideal station may look like.
Assessment of the value and utility of satellite coincident in-situ and remote sensing measurements vis-à-vis standard times for satellite cal/val. Submitted for publication.	Temporal sampling team (membership TBD)	June 2011	To be resolved in collaboration with GSICS
Finalize the GRUAN Manual of Operations.	Lead Centre, GCOS Secretariat, WG-ARO; ACRF	Mid-2011	Potential Assistance by WMO CBS Expert Team, and through WIGOS PP

What	By whom (if applicable)	By when	Notes
Assessment of utility against cost and logistical overhead of regular site specific intercomparisons / travelling standards to intercompare sites.		Late 2011	Needed to ascertain costs ahead of push for network expansion.
Create a priority list of candidate sites for expansion based upon rigorous assessment against requirements.	Site certification and expansion team (membership TBD)	2012	Supersedes ICM-1 Action item #2

What	By whom (if applicable)	By when	Notes
Conduct a pilot study to evaluate the efficacy of change management protocols / concepts.		2012	May be best carried out at Lindenberg?
Formal inclusion of GRUAN Manual of Operations into existing WMO documentation.	GCOS Secretariat, WMO Secretariat	2012	Through adoption by WMO Commission for Basic Systems
Instigate a user review group to meet on a biennial basis.	WG-ARO	2012	Periodic external review group with ex-officio Lead Centre, WG-ARO and GCOS Secretariat membership
Prepare public outreach material.		2012	

What	By whom (if applicable)	By when	Notes
Develop an operational capability to undertake certification analysis providing efficient feedback to sites.	Site certification and expansion team (membership TBD)	2013	ACRF have extensive expertise
Meet with current sites and candidate expansion sites (identified by the site certification and expansion team) and their governing institutions to elicit additional sites' involvement.	WG-ARO, Lead Centre	2013	May also be a full network "launch" event and so held at WMO HQ.
Launch event of GRUAN full operational phase.	WG-ARO, Lead Centre	2013 (end of implementation phase)	May be best tied in to the end of the network expansion workshop
Meetings of Lead Centre, WG-ARO, Secretariat and sites (ICMs).	WG-ARO (lead), Lead Centre, GCOS Secretariat	Annually (in Feb / March)	Until superseded

What	By whom (if applicable)	By when	Notes
Regular progress reports against specified work plan from the Lead Centre to the WG-ARO.	Lead Centre	Continuous	Minimum frequency 6-monthly
Quantification of the value of redundant measurements and assessment of optimal combinations.	Ad hoc GATNDOR	TBD	Not yet a defined output
Assessment of scientific desirability of station locations from a variety of perspectives.	Ad hoc GATNDOR	TBD	Not yet a defined output
Assessment of the quality of observations and advice on specific uncertainty issues.	Instrument specific expert teams	TBD	To be formed

What	By whom (if applicable)	By when	Notes
Consider the instigation of science advisory panel with remit to meet on a 3-5 year basis.	AOPC (lead), GCOS Secretariat, WG- ARO, WCRP/WOAP	As appropriate	Periodic external review group with ex-officio Lead Centre, WG-ARO and GRUAN Secretariat membership. Decision to be made by AOPC in their 2010 meeting.
Ensure institutional / informal linkages between GRUAN community and existing/potential partners, to maintain mutual engagement, knowledge transfer, recognition.	Lead Centre candidate sites, WG-ARO, GCOS Secretariat	Continuous	E.g., membership in WG-ARO, invitations to ICM meetings, invites to formal launch event, and other linkages

What	By whom (if applicable)	By when	Notes
Dialogue with satellite community (GSICS; other space agencies), e.g. on use of GRUAN data, needs / sponsoring for additional radiosonde launchings.	GSICS; representatives from space agencies	Continuous	ICM-1 Action item #1; Invites to formal launch event
Foster participation of research radiosondes in 2010 CIMO intercomparison campaign.	WG- ARO (lead), Lead Centre		ICM-1 Action item #14
Inform GRUAN community on upcoming CIMO activities of interest and enable input where deemed appropriate.	GCOS Secretariat, CIMO	Continuous	
Regularly invite HMEI to ICM meetings.	ICM Organizing Committee	Continuous	
Report to WIGOS Planning Office as required.	WG-ARO chair, Lead Centre, GCOS Secretariat	Ongoing	