

ANNEX 5: GRUAN Action/Task plan and tracking – Following ICM-10 (v01/05/18)

Note to all:

- All unremedied actions from prior ICM by default to be carried forwards.
- New actions proposed based upon meeting discussions
- New sub-class of actions around new GRUAN data streams added to make more sense of actions

REMINDER: On a note of process for actions that involve multiple actors only the primary seems to be taking responsibility. All entities should feel ownership though. Several cases I have mapped out what each entity should do to try to remedy

N°	Actions	Responsibility	Deadline	Progress since ICM-10
HIGHEST PRIORITY				
HP1	<p>First full version of RS41 GDP: Lead Centre to complete production of RS41 GDP before ICM-11 and be at worst under active consideration by WG for certification. Product to make use of traceability diagram and effects table approach of GAIA-CLIM and aim to have a radiosonde TD annex and a paper describing the product submitted.</p>	Lead Centre; TT Radiosondes.	<p>March 2019 Intermediate checkpoints: Update on radiation measurements to WG: 9/18</p> <p>Beta version of product available to TT and WG: 1/19</p>	
HP2	<p>Radiosonde fundamental documentation: Develop first draft of GRUAN radiosonde foundational technical document to cover the general instrument-independent aspects. Available for review.</p>	Lead Centre; TT Radiosondes.	January 2019	
HP3	<p>Auto-launchers: (1) An assessment of the advantages and disadvantages of manual vs. auto launches written up and submitted to the peer reviewed literature and/or a technical document. (2) Find a way to get GRUAN certification for radiosonde data products taken with auto launcher systems.</p> <p>(First collect the information/experiences/concerns from various groups, and define the critical questions to answer which would appear to be at least: i) Can we create a GDP?; ii) Is there a bias between manual and auto-launched sondes?; iii) Does the random uncertainty change?; iv) impact of lifetime in launcher (quality, SHC repeatability, and height attained); v) how to make manufacturer-independent ground check.)</p>	<p>Masatomo Fujiwara (Coordinator) ; Rigel Kivi; Fabio Madonna;</p> <p>Members: Relevant sites; manufacturers; and Lead Centre.</p>	<p>August 2018 to define small set of well posed questions to be addressed.</p> <p>December 2018 to submit manuscript.</p> <p>Discussion regarding GRUAN certification at ICM-11.</p>	Bruce Ingelby (ECMWF) offered to produce OB-FG monitoring statistics between manual and automatic launch systems.

RS92 to RS41 transition actions				
A1	<p>Community approach paper: Paper describing the GRUAN change management replacement strategy submitted to peer-reviewed journal (GI) to increase visibility of effort and get broad community buy-in.</p>	Lead Centre; TT Radiosondes; WG-GRUAN	May 2018	
A2	<p>Ensuring all sondes on multi-payloads in archive: Lead Centre to advise each site of current archive status of muti-rig launches in the database. Sites who have launched more complex set-ups with additional non-Vaisala sondes on their rigs not currently archived to advise Lead Centre and where possible provide that additional data to the Lead Centre. Lead Centre to ensure these additional data associated with such launches. Known cases: Payerne, Modem multi-payload launches</p>	TT Sites; Lead Centre	September 2018 (then ongoing)	
A3	<p>Parallel soundings database augmentation with satellite/ancillary: Augment parallel soundings of RS92-RS41 with satellite co-locations and ‘ancillary’ measurements (CFH, FPH, lidar, MWR, satellites, cloud observations (incl. BSRN) within +/-2 hours).</p> <ul style="list-style-type: none"> • Sites to identify instrument streams available within +/- 2 hours of existing and planned parallel launches • TT ancillary to provide advice on suitability and also provide satellite matchúps (closest pixels?) • WG Chair to coordinate • Lead Centre to receive and archive 	TT Ancillary measurements; TT Sites (co-led); WG Chair; Lead Centre.	Oct 2018 (RIVAL soundings) Apr 2019 (all sites)	

A4	UKMO/BAS ascents inclusion: Arrange for the inclusion of Met Office and BAS parallel soundings data in the RS92-RS41 transition. Particular interest in St. Helena given paucity of tropical locations.	Tim Oakley; Lead Centre.	May 2018	02/05/2018 – Met Office contact is David Edwards (david.edwards@metoffice.gov.uk) Rothera (Antarctica have done approx 30 dual soundings, St Helena approx 20 and Camborne 4). If Lead Centre can arrange an FTP location, David will collate the datasets and send to GRUAN.
A5	Scheduling by conditions: Lead Centre to work with sites to fill the low solar elevation angle 'hole' in the current set of dual launches with a lack of dawn / dusk ascents.	Lead Centre; TT sites	ICM-11	
A6	Updated analysis of dual launch holdings: Presentations on updated analysis, including accounting for distinctions in rigging and ancillary measurements to be presented at ICM-11. Reports to be made available a month prior. Consideration of submission of reports as peer-reviewed literature	RIVAL team; ad hoc TT; WG Chair; Lead Centre	ICM-11	
A7	Hard to soft casing: Lead Centre to undertake a number of RS-41 dual launches between hard and soft casing and archive as part of the dual soundings archive. Other sites that wish to ascertain the impact to also submit to the archive.	Lead Centre; TT sites	ICM-11	
New GRUAN data products				
B1	Keeping track of new data stream developments and progress: WG to define and agree table entries for a quick check table on progress against data stream requirements (per summary given by Tom Gardiner). Lead Centre to host this on an appropriate area of the GRUAN website. WG to regularly review this table on calls.	Working Group; Lead Centre	Oct 2018	

B2	<p>Meisei GDP product certification: WG Chair to initiate data stream certification as soon as a discussion version of a paper describing the product is available. Lead Centre to provide a package of materials and data necessary. WG members and TT radiosondes members to undertake a review and advise a decision.</p>	WG Chair; Lead Centre; Working Group; TT Radiosondes	Within 4 months of discussion paper availability	
B3	<p>GNSS-PW GDP data flow and certification: Certify the GNSS-PW data stream by ICM-11. WG Chair to work with TT-GNSS-PW to ensure review and finalisation of TD. GFZ to advance a data stream with full uncertainties (considering how to ensure as much information as possible expressed). Lead Centre to prepare a package of materials to enable certification by WG to proceed.</p>	TT GNSS-PW; WG Chair; GFZ; Lead Centre; WG	ICM-11	
B4	<p>Ozonesondes GDP: WG Chair to discuss with relevant parties (Richard Querel, Jacquie Witte, Greg Bodeker, Lead Centre) remaining challenges in instigating an Ozonesonde product and revert to WG with an update. Challenges are: Peer reviewed paper, data processing.</p>	WG Chair	October 2018	
B5	<p>Modem sonde GDP: Further update on the Modem product development to be given at ICM-11. Special attention paid to completing documentation steps and laboratory test results.</p>	CNRS; Lead Centre; TT Radiosondes	ICM-11	
B6	<p>Microwave Radiometer GDP: WG-Chair and Lead Centre to discuss with Nico Cimini and explore potential processing centre options for an MWR product stream and outline potential options. Presentation to be given at ICM-11.</p>	WG Chair; Lead Centre	ICM-11	

B7	Lidar GDP: Report on beta testing outcomes and progress of a v1 data stream at ICM-11. If beta testing shows no issues then aim to have finalised TD and be in a position to certify one or more initial lidar data streams.	TT Ancillary measurements; Fabio Madonna	ICM-11	
B8	Frostpoint hygrometer roadmap: Prepare a strategy document (2-sides max) to address the remaining steps required for instigation of a general frostpoint hygrometers GDP (to cover at least FPH and CFH) for presentation and discussion at ICM-11.	Dale; Ruud	ICM-11	
Remaining actions				
C1	Sites photos: Technical note on guidance on site survey photos and upload instructions. Current site photo surveys to be uploaded to appropriate area of website. GCOS Secretariat to then discuss with WIGOS inclusion into OSCAR Surface metadata database. Lead Centre to instigate mechanism to remind sites to submit new photos. Included here is ensuring that all GRUAN sites have WIGOS identifiers and metadata within OSCAR Surface.	WG Chair; TT Sites; Lead Centre; GCOS Secretariat	June 2018	
C2	Failsafe back-up: Lead Centre and CNR to instigate a mirror of the raw data holdings from the GRUAN archive.	Fabio Madonna; Michael Sommer	July 2018	
C3	Generalisation of overpass information: Augment the current golden overpass emails so they show in addition appropriately polar orbiter overpasses information to enable sites to also be able to target these overpass times should they wish to do so.	TT ancillary measures; Fabio Madonna, Tony Reale; Lead Centre; TT Sites; Axel	August 2018	

C4	Certification and auditing: WG-GRUAN and Lead Centre to ensure certification and auditing of sites on the agreed upon timetables and verify against these targets at ICM-11.	Peter Thorne; Lead Centre	ICM-11	
C5	Annually based reporting: Lead Centre to provide automated reports on annual performance no later than 20 January of each year . Sites to append site report no later than 15 February to inform the ICM. WG-GRUAN members to read site reports prior to ICM.	TT Sites; Lead Centre; WG-GRUAN	February 2019, and then at the same time each year	
C6	Letters on behalf of sites: WG-GRUAN chair to review site reports and initiate letters from appropriate parties accordingly. TT sites to advise any additional requests as they arise.	WG Chair; TT Sites; Lead Centre; GCOS Secretariat	June 2018	
C7	Uncertainty terminology and presentation in GRUAN products: Brief (max. 8 pages) discussion document to be produced on issues surrounding uncertainty terminology and presentation to users in GDPs including a review of heterogeneity in current approaches in certified and candidate streams to form basis for discussion at ICM-11	Tom Gardiner; WG Chair; Lead Centre; TT-AM; TT-GNSS-PW; TT radiosondes	Feb 2019	
C8	Vertical radiation profile sounding: With a view to the GCOS IP action Lindenberg (via LC) to provide an update on their radiation measurement program including inter-alia: costs, practical deployment considerations, understanding of traceability, assessment of required launch frequency	Lindenberg site	ICM-11	
C9	New sites: Lead Centre to follow up with French sites over potential site in Faa'a, Tahiti as proposed in Modem product update talk.	Lead Centre	July 2018	

	Clarification on NRT transmission when launching dual sondes:	Lead Centre; John Eyre	May 2018	
	Lead Centre to draft letter with John Eyre to sites undertaking dual launches to clarify preference to transmit the operational sonde in NRT.			
C11	Standard Humidity Chamber: If funding secured for WG Chair support role undertake a viability assessment of writing a paper that justifies the use of the SHC in terms of the data quality using data arising from the Lead Centre.	WG Chair	ICM-11	
C12	Usage of GRUAN data Investigate and instigate appropriate usage metrics to support sites in making the case for continued GRUAN participation.	WG Chair, TT sites	ICM-11 session Intermediate deliverables: May 2018 updated bibliography of GRUAN use in literature October 2018 – brief discussion document on additional potential ways to monitor usage	