

ANNEX 3: Agreed ICM-13 Actions

High priority:

	Description	Activity (s)	Responsibility	Date
HP1	Manage and progress High Priority Actions	Quarterly meetings to discuss progress, report issues and update as agreed.	GCOS Sec Lead for each HP action	Mar 2022 Jun 2022 Sep 2022
HP2	Development of RS41-GDP	Milestones in the development of the Vaisala RS41 GDP (a) Finalise TD and submit to WG for review (b) Final Certification	Lead Centre	Apr 2022 By ICM-14
HP3	Development of Meisei GDP	Milestones in the development of the Meisei IMS-100 GDP (a) Technical document submitted for review for IMS-100, including an update for RS-11G (b) Provide update at ICM-14	Lead Centre JMA Meisei	Feb 2022 ICM-14
HP4	Development of Modem M10 GDP	Milestones in the development of the Modem M10 GDP (a) Technical document. (c) Data Processing (d) Provide update at ICM-14	Lead Centre Meteo-France Modem	Apr 2022 Apr 2022 ICM-14
HP5	Use of R23 and its replacement	(a) Provide operational guidance to GRUAN sites on how to manage the finite supply of R23 and monitor the status at each site in collaboration with TT sites. (b) Ongoing testing, including where possible comparison to CFH, of possible R23 replacements; SKYDEW; Liquid Nitrogen (Julich); Ethanol dry-ice. (c) Provide experimental flight data to LC to ensure optimal progress. (d) Provide update at ICM-14	Lead Centre TT Sites All sites using R23 All sites doing test LC	Jan 2022 Ongoing Ongoing ICM-14

RS92-RS41 transition items:

	Description	Activity (s)	Responsibility	Date
A1	Parallel soundings database augmentation with ancillary data	(a) TN ready for review. (b) Approved TN (c) Implementation – update at next ICM	David Smyth June Wang LC	Jan 2022 Mar 2022 ICM-14
A2	Satellite data collocations with RS92/41 pairs	Meeting to discuss next steps	TT-SAT LC	Jan 2022

New GRUAN data products:

	Description	Activity (s)	Responsibility	Date
B1	Microwave Radiometer GDP progression	Milestones in the development of the Microwave Radiometer GDP (a) Updates on data format and calibration uncertainty characterization to be provided by ICM-14.	TT GB	ICM-14
B2	LIDAR GDP progression	Milestones in the development of the LIDAR GDP (a) Implement data steam for at least one site	TT GB Thierry Leblanc LC	Jun 2022
B3	Frostpoint Hygrometer GDP progression	Milestones in the development of the Frostpoint Hygrometer GDP (a) Paper (Holger's) - review (b) Meeting to: Identify additional personnel (with good knowledge of statistics) to complete task? Scope the necessary work and reach out to ETHZ through Meteoswiss? (c) Report at ICM-14	Dale Hurst; Ruud Dirksen; Takuji Sugidachi	Mar 2022 Mar 2022 ICM-14
B4	QC/QA flagging and presentation in data files	QTF have made progress on detailing the QC/QA process/need but questions remain on the governance. Complete summary of different approaches currently in use across sites.	<u>Tzvetan Simeonov</u> (LC) + Ad-hoc group members (QTF)	ICM-14

Other Actions:

	Description	Activity (s)	Responsibility	Date
C1	Sites photos	Utility to regularly update site photos is complete. Complete audit that all GRUAN sites who are actively sharing data have uploaded site photos.	LC	Jun 2022
C2	Usage of GRUAN data	Further develop ideas around the appropriate usage and citation metrics of GRUAN data. GDP data stored in PANGAEA with allocated DOIs.	LC	By ICM-14
C3	Data Policy	Finalise Technical Note	LC TT Sites WG	Apr 2022
C4	Uncertainty terminology and presentation in GRUAN products	Paper submitted for publishing	TT-Scheduling	June 2022
C5	Standard Humidity Chamber	Paper to justify the use of the SHC in terms of the data quality and the benefits and including need for standardisation of operating procedures. TN to describe procedural requirements (e.g. operational procedure; quality of the applied references in the SHC). Complete TN and submit paper.	Richard Querel; David Smyth; TT-sites; Lead Centre	By ICM-14
C6	Standardizing cloud observations / reporting	Develop a proposal on the reporting of cloud observations: Write a GRUAN TN with several colleagues. Title: Towards the standardisation of cloud observations and their reporting associated with radiosonde ascents. 1. Manual visual cloud observation (to be included in the GDP metadata) 2. Automated ground-based remote sensing instruments (incl. ceilometers, all sky camera; to recommend further research) 3. Balloon-borne cloud/radiation instruments (to reduce radiosonde T uncertainty; to recommend further research) Draft TN by ICM-14.	<u>TT-radiosonde</u> ; TT Sites; TT SAT; Lead Centre	By ICM-14

C7	Justification for high ascent attainment	TT radiosondes to progress an analysis of the additional benefits of high-altitude attainment Draft Paper	TT-radiosonde	By ICM-14
C8	Silent stations	WG, LC and secretariat to propose a review mechanism for retention of sites which remain silent and never progress to certification. Draft TN to TT-Sites for Review TN approved	WG-GRUAN; Lead Centre; GCOS Secretariat	Jan 2022 By ICM-14
C9	GNSS GDP format	GFZ to progress provision of a netCDF format version of the GNSS GDP Jonathan Jones to provide steps necessary (SMART) Update at ICM-14	TT GNSS-PW; Lead Centre (review)	ICM-14
C10	Metrological closure of GNSS-IWV radiosondes and	For GRUAN sites that perform both GNSS-IWV measurements and radiosoundings, Analyse the comparison of the GRUAN data products (and their respective uncertainties) for these data streams to establish whether metrological closure is attained. Jonathan Jones to provide steps necessary (SMART) Update at ICM-14	GNSS-IWV; TT- radiosonde	ICM-14

Actions where progress is required, but not time-bound:

	Description	Activity (s)	Responsibility	Date
D1	Ozonesondes GDP progression	Milestones in the development of the Ozonesode GDP (a) Datastream (b) Paper (c) GRUAN documents	Richard Querel; WG Chairs	Update at ICM-14
D2	Radiosonde fundamental documentation	Draft available for review by WG	LC	Update at ICM-14
D3	RS92-RS41 comparison paper	Paper	LC	As time permits

D4	Development of M20 Data product	Milestones in the development of the Modern M20 GDP Agree timeline and progress those items as time permits	M20 consortium (Modern, J-C Dupont)	As time permits
D5	Refresh of presentation materials	Priority is on a GRUAN PowerPoint presentation	Dave Smyth	As time permits