Plenary actions open from previous plenary sessions (at CGMS-47)							
Actionee	**AGN item**	**Action #**	**Description**	**Action feedback/closing document**	**Deadline**	**Status**	**HLPP ref**
CGMSSEC	E.6	A46.21	CGMS Secretariat to organise a special plenary session or a side event on operational oceanography at CGMS-47 to help advance the operational nature of ocean observation. (Ref. CGMS-46-NOAA-WP-11, CGMS-46-IOC-UNESCO-WP-02)	CGMS-47: Deferred to CGMS-48 in view of the WMO constituent body reform. The CGMS Secretariat will include this session at CGMS-48 taking into account the proposal in CGMS-47 IOC-UNESCO-WP-01: - Receive annual briefing on the UN Decade of Ocean Science for Sustainable Development - Sustain satellite and in situ system of ocean observing systems - Utilize geostationary meteorological satellites for ocean observations - Enhance data acquisition for special observing periods - Add CGMS-relevant ocean measurements to tsunami watch infrastructure - Add HAB toxic aerosols to coastal air pollution forecasts (in addition to WMO-IOC coordination following the WMO constituent body reform)	CGMS-48 (CGMS-47)	**OPEN**	
WMO	H	A46.11	**On ocean variables:** In view of the anticipated reorganisation of JCOMM, WMO to provide a report with proposals on future coordination/cooperation between JCOMM and CGMS.	*CGMS-47: In view of the WMO constituent body reform, the action is deferred to CGMS-48.* CGMSSEC IS#3, 13 Mar 2019: CGMSSEC has discussed	CGMS-48 (CGMS-47)	**OPEN**	
CGMS-47plenary actions							
Actionee	**AGN item**	**Action #**	**Description**	**Action feedback/closing document**	**Deadline**	**Status**	**HLPP ref**
WMO	3.1.2	A47.01	**On WIGOS Vision 2040:** WMO to report to CGMS-48 on activities undertaken to respond to the new WIGOS Vision 2040		CGMS-48	**OPEN**	

WMO	3.2.5	A47.02	**On global NWP:** WMO to provide a report at next CGMS on baseline requirements for satellite products for global NWP, to trigger a CGMS discussion on status of delivery of such observations and possible improvements in the future and inclusion in the CGMS baseline document.		CGMS-48	**OPEN**		
NOAA, WMO	3.2	A47.03	**On PP sector engagement:** WMO and NOAA to report on the status of affairs and related issues on public private sector engagement to CGMS-48		CGMS-48	**OPEN**		
WMO, IOC-UNESCO	3.3	A47.04	**On operational oceanography:** WMO and IOC-UNESCO to report on their coordination following the WMO constituent body reform to CGMS-48		CGMS-48	**OPEN**		
IOC-UNESCO	3.3	A47.05	**On operational oceanography:** IOC-UNESCO to provide to GCMS-48 guidance on satellite data requirement for improved coastal ocean prediction and services		CGMS-48	**OPEN**		
CGMS members	5.1	A47.06	**WGI co-chair:** CGMS members to propose candidates for the WGI co-chair by Q2 2019		Q3 2019	**OPEN**		
CGMS members	5.2	A47.07	**Cloud services:** CGMS agencies to analyse if existing cloud service activities can serve as a demonstration project, exploring at least two of the WMO Information Systems (WIS 2.0) principles. (Initially discussed in WGIV/8)		Dec 2019	**OPEN**	3.7	D/TSS, GSI/LW..
CGMSSEC	7	A47.08	**Arctic observations:** CGMSSEC to secure the inclusion of Arctic observations on the plenary and working group agendas for future CGMS plenary sessions		CGMS-48	**OPEN**		
CGMS members	7	A47.09	**Arctic observations:** Provide product priorities for Arctic observations for a special Arctic session in WG II during CGMS-48		CGMS-48	**OPEN**		
CGMSSEC, CMA	7 (5.5)	A47.10	**Hyperspectral sounding:** CGMSSEC together with CMA to organise a thematic session at CGMS-48 on hyperspectral sounding observations		CGMS-48	**OPEN**		

CGMS members	8.2	A47.11	**Climate session:** CGMS members to endorse (through a written procedure) the ECV inventory gap analysis report and updated coordinated action plan		Oct 2019	**OPEN**	
CGMS members	8.2	A47.12	**Climate session:** CGMS members to endorse (through a written procedure) the CEOS/CGMS statement for SBSTA-51	CGMSSEC e-mail to main pocs of CGMS Members on 28 Oct 2019 requesting endorsement by 7 November.	Nov 2019	**OPEN**	
WMO	8.2	A47.13	**Climate session:** WMO to present implications of the WMO constituent body reform to the interface between CGMS and the requirements/GCOS at CGMS-48.		CGMS-48	**OPEN**	
CGMS members	8.2	A47.14	**Climate session:** CGMS members are invited to provide application case studies that use climate data record to support training		CGMS-48	**OPEN**	
SCOPE-CM	8.2	A47.15	**Climate session:** SCOPE-CM to provide an implementation plan based on the agreed new concept (ref. CGMS-47-SCOPE-CM-WP-01)		CGMS-48	**OPEN**	
WGClimate	8.3	A47.16	**Climate/GHG session:** WGClimate to present the roadmap for the implementation of the recommendations from the GHG monitoring constellation white paper (including resource implications)		31 Oct 2019	**OPEN**	
CGMS members	9.1	A47.17	**On training and education:** CGMS members active in VLab to propose the next Co-Chair to represent CGMS satellite operators in the VLab (starting October 2020). Nominations to be presented to VLab by December 2019.		Dec 2019	**OPEN**	
CGMS members	11.1	A47.18	**On the HLPP:** CGMS members to comment on the revised HLPP text and provide feedback to CGMSSEC@eumetsat.int	*New action following CGMSSEC review 27 May 2019*	1 July 2019	**CLOSED**	

CGMS-47 Plenary recommendations					
Lead	**AGN item**	**Rec #**	**Description**	**STATUS (feedback for completion)**	**HLPP ref**

CGMS space agencies	5.7	R47.01	**(From IPWG): IPWG** strongly recommends to CGMS members to continue the constellation of PMW sensors to ensure quality satellite precipitation products for weather, climate, and hydrological applications. Additionally, IPWG would like to be kept informed of longer term plans for subsequent launches of microwave sensors to ensure continuity of long-term observations that meet the documented needs of the user community.	*CLOSED in plenary and transferred to WGIII*	
CGMS space agencies	5.7	R47.02	**(From IPWG): IPWG** also recommends that there be a CGMS-wide coordination of the crossing times of precipitation relevant satellites in an effort to improve the temporal sampling of diurnal cycle, convective systems lifecycles, and severe storms.	*CLOSED in plenary and transferred to WGIII*	
CGMS space agencies	5.7	R47.03	(From **IPWG**): As precipitation moves to higher temporal rates, we recommend to CGMS members to synchronize full-disk geostationary sampling schedules which will optimize GEO scans to improve temporal sampling of precipitation products and unknown future PMW imager availability for merged products.	*CLOSED in plenary and transferred to WGIII*	
CGMS space agencies	5.7	R47.04	**(From IPWG)**: Collaboration between space programs and data assimilation centers should be specifically encouraged to incorporate DA requirements as part of scientific requirements when developing new satellite / observing systems. This would reduce barriers for operational assimilation of observations, and potentially provide a greater range of utility for various sensors.	*CLOSED in plenary and transferred to WGIII*	
CGMS space agencies	5.7	R47.05	**(From IPWG):** Higher spatial and temporal (sub-hourly) resolution and higher spectral sampling in the microwave measurement of clouds and precipitation should be considered in future observing systems.	*CLOSED in plenary and transferred to WGIII*	
CGMS space agencies	5.7	R47.06	**(From IPWG):** Latency and quality of satellite data should be improved, from both operational and research missions, to fit in the DA high temporal resolution cycle.	*CLOSED in plenary and transferred to WGIII*	

CGMS space agencies	5.8	R47.07	**(From ICWG**): CGMS members to budget a baseline funding for the intercomparison study, given its importance and impacts on global cloud products.	*Also marked as a WGII recommendation*	
CGMS space agencies	5.8	R47.08	(From **ICWG)** CGMS members to consider introducing multi-sensor (satellite and ground-based measurements) applications for convective nowcasting when developing/updating product requirements.	*Also marked as a WGII recommendation*	
CGMS space agencies	5.8	R47.09	(From **ICWG**) CGMS agencies to continue operating conically-scanning passive MW sensors in an early afternoon orbit as well as in a dusk/dawn orbit in order to maintain this unique long-term time series.	*Also marked as a WGII recommendation*	
CGMS members	9.1	R47.10	**On training and education:** CGMS members to provide contributions into the WMO VLab Trust Fund to ensure the continuation of technical support to the VLab. CGMS members considering to provide additional support should contact the WMO Space Programme Secretariat		

WGI actions open from previous plenary sessions (at CGMS-47)							
Actionee	**AGN item**	**Action #**	**Description**	**Action feedback/closing document**	**Deadline**	**Status**	**HLPP ref**
DCS (WGI) sub-group	WGI/5.3	A46.06	The DCS sub group is invited to review and provide comments to this draft of the CGMS agency best practices in support to user DCS data access.	CGMS-47 CGMS-WP-17. Proposed Best Practices to be further reviewed to take into account DCP data formats.	CGMS-48 (CGMS-47)	**OPEN**	
CGMS members	WGI/7.2	A46.12	Members to provide the status of their systems already in place and those planned, along with their overall approach to dealing with the challenges associated with handling and circulating large data volumes	CGMS-47: EUMETSAT expects to report on progress to CGMS-48 in 2020.	CGMS-48 (CGMS-47)	**OPEN**	
CGMS-47 WGI actions							
Actionee	**AGN item**	**Action #**	**Description**	**Action feedback/closing document**	**Deadline**	**Status**	**HLPP ref**
CGMS space agencies	WGI/1.1	WGI/A47.01	CGMS members are requested to provide nominations to the CGMS Secretariat for the position of Co-Chair of CGMS Working Group I		Q3 2019	**OPEN**	
WGI	WGI/4.1	WGI/A47.02	Consider the advantages of using RHCP/LHCP against the simplicity/affordability of the Direct Broadcast stations and to formulate a CGMS Agency Best Practice on use of Circular Polarisation for Direct Broadcast		CGMS-48	**OPEN**	
WGI	WGI/4.1	WGI/A47.03	Analyse possible solutions to address the expected increase in instrument data from future polar orbiting satellites and to propose new DB standards and/or Best Practices as required		CGMS-48	**OPEN**	
WGI	WGI/4.1	WGI/A47.04	Initiate a peer review process between the agencies (e.g. NOAA, CMA and EUMETSAT) of the Implementation of CGMS Best Practices for LEO Direct Broadcast Data documents prepared by these agencies, with the aim of improving quality and consistency of these documents and references prior to presentation at the CGMS plenary sessions		End 2019	**OPEN**	
WGI	WGI/4.1	WGI/A47.05	To review and if appropriate identify any common viewing geometries that are missing from the proposed list of NetCDF encoding good practices		End 2019	**OPEN**	
DCS sub group	WGI/5.1	WGI/A47.06	To coordinate the elaboration of the user requirements, the technical specifications, and potential applications for a new DCP Standard and make a proposal to WGI		CGMS-48	**OPEN**	
CGMS Member	WGI/5.1	WGI/A47.07	Review and provide comments to Draft V1B of the DCS Handbook		Aug 2019	**OPEN**	
EUM	WGI/6.1	WGI/A47.08	Form a Space Weather Database Task Group. A first report Form the TG on its activities would be presented at CGMS-48 including: • Establish the membership and ToR of the Task Group • Establish the requirements of the Space Weather Database parameters • Establish the requirements for the Security / Confidentiality aspects • Establish the process and rules for access the Database content		CGMS-48	**OPEN**	
NOAA	WGI/6.2	WGI/A47.09	Form a Task Group on Space Debris and Collision Avoidance to produce a Best Practice on Collision Avoidance		CGMS-48	**OPEN**	
EUM	WGI/7.1	WGI/A47.10	Perform a detailed analysis consisting of: • Developing a simulation algorithm considering all variables affecting the LEO Orbit coordination • Developing plots and other simulation outputs as tools for illustrating the potential coordination possibilities and improvements in both global and direct broadcast mission return in a cross-member coordinated mission analysis approach.		CGMS-48	**OPEN**	
WGI	WGI/7.1	WGI/A47.11	Develop a Best Practice on the considerations to be made on orbital phasing between satellites, as a measure for reducing pass scheduling conflicts and maximising the amount of instrument observation collected.		CGMS-48	**OPEN**	

CGMS-47 WGI Recommendations					
Lead	**AGN item**	**Rec #**	**Description**	**Recommendation feedback/closing document**	**HLPP ref**
CGMS members	WGI/3.1	WGI/R47.01	CGMS members are recommended to take appropriate actions towards their national frequency regulatory authorities to support unwanted emission limits for IMT-2020/5G at 26 GHz in the order of -42 dB(W/200 MHz) for base stations and -38 dB(W/200 MHz) for terminal stations to protect passive sensors in the 23.6 – 24 GHz band.		

CGMS members	WGI/3.1	WGI/R47.02	CGMS members are therefore are recommended to propose to their national frequency regulatory authorities not to support an identification for IMT-2020/5G in the bands 47.2-50.2 GHz and 50.4-52.6 GHz in order to protect passive sensors in the neighbouring passive bands 50.2-50.4 GHz and 52.6-54.25 GHz.		

WGII actions open from previous plenary sessions (at CGMS-47)							
Actionee	**AGN item**	**Action #**	**Description**	**Action feedback/closing document**	**Deadline**	**Status**	**HLPP ref**
IROWG	4	A45.02	**IROWG** to develop a detailed proposal for OSSEs regarding LEO-LEO MW occultation and GNSS-RO&-reflectometry.	*CGMS-47: Pending IROWG meeting autumn 2019* WGII IS#2 2019: Next update expected at next IROWG meeting in September 2019.	Sept 2019 (CGMS-47, 1 Nov 2017,	**OPEN**	
IPWG	4	A45.04	**IPWG** to produce documentation on precipitation climate data record generation and related activities worldwide, including prospects for continuity	CGMS-47: Ongoing. In conjunction with GEWEX, a precipitation assessment is underway and was discussed in detail at IPWG-9 through a dedicated session. The goal is to have the assessment competed in 2020.	CGMS-47 (CGMS-46)	**OPEN**	
CGMS agencies	4	A45.06	CGMS Agencies to implement Landing Pages on calibration events accessed via WMO-OSCAR.	CGMS-47: See CGMS-47-WMO-WP-15 for status update. Some agencies still to provide landing page information.	CGMS-47 (CGMS-46)	**OPEN**	
ITWG (CGMS members)	WGII/5	A46.01	CGMS members to provide a summary of their known unfilled spectroscopy needs, and to develop a means of facilitating interaction between laboratory spectroscopy groups to spur cooperation and mitigate the lack of resources (financial and persons). (Ref. CGMS-46-ITWG-WP-01)	CGMS-47: No update. Mitch to go back and discuss with ITWG. Presentation to be given to CGMS-48. WGII IS#2 2019: Ken/Mitch to check with CGMS-Secretariat if action has been taken to ask CGMS members to provide input.	CGMS-48 (By CGMS-47)	**OPEN**	
CGMS members	WGII/5	A46.02	All AMV producers to implement the "Common QI module" in their algorithms.	CGMS-47: Common QI showed skill in filtering collocated AMVs and led to improved agreement between AMVs generated by satellite operators • Action 1 to IWWG co-chairs: Place the Common QI in a public repository. • Done -> https://github.com/swanzong/IWWG • Send any questions to stevew@ssec.wisc.edu • Recommendation 1 to AMV producers: Implement the software prior to IWW15 • Partially complete : EUMETSAT and NWCSAF/HRW have included the Common QI in their repositories. NOAA, KMA and JMA have plans to complete the integration in late 2019	By IWW15, CGMS-48	**OPEN**	

CGMS members	WGII/5	A46.03	AMV producers to adopt the new AMV BUFR template.	CGMS-47: The AMV sequence 3.10.067 endorsed by the WMO in November 2017 has been rejected by some users in early 2018 because it could not be used in automated framework. • The WMO corrected the sequence appropriately and endorsed the new AMV BUFR sequence 3.10.077 in November 2018. • NOAA, EUMETSAT and JMA are working on the production of the test data, planning an operational change early 2020. The NWCSAF will release a software patch later in 2019 which includes the new BUFR sequence. A new deadline to IWW15 (spring 2020) has been set to agencies to change their AMV BUFR sequence. • AMV producers to provide their users with a small test dataset (a few hours of data) encoded in the new BUFR format as soon as possible. • Nine months later, AMV producers will provide parallel dissemination of their AMV data in the new and old BUFR sequence over a 2-3 month period of	End 2019	**OPEN**	
NWP community	WGII/5	A46.04	NWP community to define the best configuration to be used by the AMV producers, for use in global and regional NWP models.	CGMS-47: The Met Office and Met Norway is planning to test various configurations of AMVs, via the NWC SAF software, to work towards optimal configurations. • There are no updates to report at this time. • We expect more discussion at the IWW15. • No results to report yet. • This topic and results will be re-visited at IWW15	By IWW15, CGMS-48	**OPEN**	

IWWG	WGII/5	A46.06	IWWG to look at improving quality indicators for high resolution wind derivation for mesoscale and regional applications. (Ref. CGMS-46-IWWG-WP-01)	CGMS-47: Research activities continue that aim to identify additional quality information from the AMV derivation that could be used to filter out poor quality AMVs and/or set observation errors for the AMV height assignment. • Quality measure associated with the correlation surface (addresses feature tracking) • Optimal estimation cost associated with cloud top temperature retrieval (addresses AMV height assignment) • Cloud top pressure error estimates (addresses AMV height assignment) • No results to report at this time. • We expect that some useful information relevant to this action may be extracted from work associated with A46.04.	CGMS-48 (By CGMS-47)	**OPEN**	
IWWG	WGII/5	A46.07	IWWG to consider developing climate projects from Atmospheric Motion Vectors (AMVs) and to report to the CEOS/CGMS WGClimate with a potential pilot project. (Ref. CGMS-46-IWWG-WP-01)	CGMS-47: IWWG has reviewed the gaps identified by the last Essential Climate Variables (ECV) inventory. • The international status of polar and geostationary AMV reprocessing has been updated and is presented in Annexe 1 of the IWWG Working Paper. • This topic will be discussed in a specific session at the next at IWW15.	CGMS-48 (By CGMS-47)	**OPEN**	
IROWG	WGII/5	A46.08	IROWG to develop process and principles for RO data quality control to ease intercomparison of data from different providers.	WGII IS#2 2019: to be raised at next IROWG in September 2019.	Sep 2019	**OPEN**	
CGMS members	WGII/7	A46.13	CGMS members to provide comments on the impact studies conducted by ECMWF on OSES vs. FSOI and how CGMS members can benefit from the findings. (Ref. CGMS-46-WMO-WP-13)		CGMS-48? (CGMS-47)	**OPEN**	
CGMS members	WGII/10	A46.14	CGMS members to provide points of contact for GOFC-GOLD to the CGMS Secretariat (Ref. CGMS-46-GUEST-WP-02)	CGMS-47: WGII to reach out to GOFC-GOLD. WGII IS#2 2019: check with CGMS-Sec	By 31 August 2019	**OPEN**	
CGMS members	WGII/10	A46.15	CGMS members to provide points of contact for AEROSAT to the CGMS Secretariat (Ref. CGMS-46-GUEST-WP-01)	CGMS-47: WGII to reach out to GOFC-GOLD. WGII IS#2 2019: check with CGMS-Sec	By 31 August 2019	**OPEN**	
CGMS-47 WGII actions							
Actionee	**AGN item**	**Action #**	**Description**	**Action feedback/closing document**	**Deadline**	**Status**	**HLPP ref**

GSICS	WGII/4	A47.01	GSICS to expand GSICS Report on the State of the Observing System to successively cover the calibration status of all instruments relevant GSICS.		CGMS-48	**OPEN**	
WMO	WGII/4	A47.02	WMO to remove current formulation of 'GSICS calibration' and to rename 'calibration and events' to 'instrument landing page'		Dec 2019	**OPEN**	
CGMS Agencies	WGII/4	A47.03	Agencies assessing commercial radio occultation data are requested to present their efforts at IROWG-7 to facilitate community planning.		Sep 2019	**OPEN**	
IROWG	WGII/4	A47.04	IROWG to provide recommendation on orbital planes in order to improve coverage.		Sep 2019, CGMS-48	**OPEN**	
IROWG	WGII/4	A47.05	IRWOG to evaluate outcome of Agency funded commercial weather data pilot following IROWG-7 and report back to CGMS-48.		CGMS-48	**OPEN**	
ROSH	WGII/4	A47.06	Roshydromet to report on future plans for RO missions at WG II.		CGMS-48	**OPEN**	
WGII	WGII/4	A47.07	WGII to discuss with WMO the way forward to have access to telecommunications microwave link data in support of IPWG validation activities.		CGMS-48	**OPEN**	
SCOPE-CM	WGII/4	A47.08	SCOPE-CM to report back on the conclusion of the 9 pilot projects		CGMS-48	**OPEN**	
SCOPE-CM	WGII/4	A47.09	SCOPE-CM to provide an implementation plan based on the agreed new concept including an agenda and updated ToRs.	*This is also a plenary action.*	CGMS-48	**OPEN**	
CGMS Agencies	WGII/4	A47.10	Agencies to continue to support the WMO maintained trust-fund that enables the work of the VLAB technical officer and report to CGMS-48		CGMS-48	**OPEN**	
CGMA Agencies	WGII/4	A47.11	Agencies to endorse the VLAB 5-year strategy plan.	*Endorsed by CGMS-47 plenary.*	CGMS-47 (CGMS-46)	**CLOSED**	
CGMS and VLAB	WGII/4	A47.12	Agencies to provide links to their training events and resources for VLAB communication.		Dec 2019	**OPEN**	
CGMS Agencies	WGII/4	A47.13	Agencies to provide nominees for next VLAB co-chair starting in 2020 for three years.	*This is also a plenary action.*	Dec 2019	**OPEN**	

WGIII	WGII/5	A47.14	WGIII to provide their assessment and planning for the next risk assessment to the ISWGs, JWGClimate and GSICS.	*Included in WGIII LOA*	Mar/Apr 2019	**OPEN**	
IROWG, ICWG, IWWG, IPWG, ITWG, GSICS, WGClim	WGII/5	A47.15	The ISWGs, WGClimate and GSICS to review WGIII Risk assessment and consider mitigation opportunities.		CGMS-48	**OPEN**	
ICWG	WGII/7	A47.16	ICWG to organise a dedicated session (05.-1 day) on lightning observations from space (calval, algos, applications and products)		Dec 2019	**OPEN**	
CGMS space agencies	WGII/8	A47.17	CGMS agencies encouraged to present papers at CGMS-48 on use of satellite products for agricultural applications (ref CGMS-47-WMO-WP-11)	*New action following WGII report preparation*	CGMS-48	**OPEN**	
EUMETSAT	WGII/8	A47.18	EUMETSAT to provide PoC for NOAA for OSI SAF for discussion on future collaborative work/workshop for development of cryospheric products.		Oct 2019	**OPEN**	
CGMS space agencies	WGII/8	A47.19	CGMS agencies to present solutions at CGMS-48 for satellite-based bathymetry (CGMS-47-WMO-WP-13)	*New action following WGII report preparation*	CGMS-48	**OPEN**	
CMA	WGII/8	A47.20	CMA to provide information on ILS and SRF and other relevant documentation to the user community for the development of necessary RTMs/tools for the exploitation of HIRAS and GIIRS data. (Reference: Action (SG3.22) from the NWP SAF Steering Group)		Dec 2019	**OPEN**	
GSICS, WGClim, SCOPE-CM	WGII/8	A47.21	GSICS, WGClimate and SCOPE-CM to organise a workshop on calibration supporting reprocessing.	*(First review to take place at GSICS meeting in March 2020, Korea).*	Mar 2020, CGMS-48	**OPEN**	
NOAA/ CMA	WGII/10	A47.22	NOAA/CMA to provide final report from the flood mapping pilot for CGMS-48.		CGMS-48	**OPEN**	
SWCG	WGII/11	A47.23	SWCG to further develop white-paper on current instruments and their calibration and to provide report to GSICS for review		Dec 2019	**OPEN**	

GSICS	WGII/11	A47.24	GSICS to review SWCG white-paper on calibration and consider opportunities for GSICS support to aforementioned activity.		Mar 2020	**OPEN**	
WG II	WGII/12	A47.25	WG II to review its terms of references during intersessional meetings before CGMS-48.		Nov 2019, Mar 2020	**OPEN**	
JMA	WGII/13	A47.26	JMA to coordinate with related parties and close down the JMA Volcanic Ash algorithm Testbed.		CGMS-48	**OPEN**	
CMA	WGII/13?	A47.27	CMA to provide a PoC for the IPWG validation protocol (HLPP 4.3.1)	*(included in the IPWG report section)*	Dec 2019	**OPEN**	
WMO	WGII/14	A47.28	WMO to provide a preliminary report from the 7th WMO Impact Workshop (Seoul, May 12-15 2020) at CGMS-48	*New action following CMGSSEC review 27 May 2019 (following input by WMO).*	CGMS-48	**OPEN**	
GSICS	from WGIII	A47.29	GSICS to continue cross calibration progress of microwave imagers. (WGII)	*New action requested by WGIII*	CGMS-48	**OPEN**	
ESA	WGII/9	A47.30	ESA to present a paper on SAR applications for storms and flooding with information on enhanced acquisitions and latency. (ref CGMS-47 WMO-WP-12)	*New action following WGII report preparation*	CGMS-48	**OPEN**	
IROWG, WMO	WGII/4 (from WGIII)	A47.31	**CGMS baseline and RO:** IROWG and 7th WMO Impact Workshop needs to validate the current Baseline requirements in terms of the coverage, number, quality and sampling of RO.	*CGMS-47: Action from WGIII to WGII Added as action*	2020, CGMS-48	**OPEN**	
IROWG	WGII/4 (from WGIII)	A47.32	IROWG to review the CGMS Baseline and validate wording that captures CGMS Member contribution to RO data in terms of coverage, number, quality and sampling; and share impact studies of RO data between the CGMS Baseline and WIGOS 2040 vision observing targets.	*CGMS-47: Action from WGIII to WGII Added as action*	2019/ 2020	**OPEN**	

CGMS-47 WGII Recommendations					
Lead	**AGN item**	**Rec #**	**Description**	**Recommendation feedback/conclusions**	**HLPP ref**
ISWG Chairs	WGII/3	WGII/R47.01	ISWG Chairs to organise intersessional teleconferences amongst the co-chairs.		
CGMS members	WGII/4	WGII/R47.02	**From ICWG:** CGMS members to budget a baseline funding for the intercomparison study, given its importance and impacts on global cloud products.	*NB This is also marked as a plenary recommendation.*	

CGMS	WGII/4	WGII/R47.03	**From ICWG:** CGMS members to consider introducing multi-sensor (satellite and ground-based measurements) applications for convective nowcasting when developing/updating product requirements.	*NB This is also marked as a plenary recommendation.*	
ICWG, IWWG	WGII/4	WGII/R47.04	**ICWG and IWWG:** ICWG to work with IWWG on the golden days observations to provide cloud height uncertainty for AMV applications		
CGMS	WGII/4	WGII/R47.05	**From ICWG:** CGMS agencies to continue operating conically-scanning passive MW sensors in an early afternoon orbit as well as in a dusk/dawn orbit in order to maintain this unique long-term time series. Progress was made in the interaction of the ICWG	*NB This is also marked as a plenary recommendation.*	
WGII	WGII/4	WGII/R47.06	WGII recommends to Plenary the endorsement of the proposed new concept for SCOPE-CM.	**COMPLETED.** Endorsed by CGMS-47 plenary.	
CGMS	WGII/4	WGII/R47.07	WGII recommends to Plenary the proposed approach for Leadership in WGClimate	**COMPLETED.** Endorsed by CGMS-47 plenary.	
CGMS	WGII/4	WGII/R47.08	WGII recommends to Pleanry the adoption of the updated WGClimate ToRs	**COMPLETED.** Endorsed by CGMS-47 plenary.	
CGMS	WGII/4	WGII/R47.09	WGII recommends to Plenary the inclusion of Greenhouse Gas Monitoring activities in WGClimate as presented in CGMS-47-JWGCLIM-WP-03WGII	**COMPLETED.** Endorsed by CGMS-47 plenary.	
ESA and EC	WGII/8	WGII/R47.10	ESA and EC to explore the possibility of creating a European service (or a component within an existing service) to optimize SAR acquisitions over TCs, and to provide, in near real time, the SAR observations and surface wind field estimates to the Tropical Cyclone community at large, both with data formats		
ISRO	WGII/9	WGII/R47.11	ISRO is encouraged to consider follow-on missions on scatterometry to Oceansat-3/3A		
CMA	WGII/14	WGII/R47.12	CMA is encouraged to present their impact analysis work at the upcoming WMO NWP Impact Workshop in May 2020.		

CGMS members	WGII/5	R46.02	CGMS member are encouraged to take due consideration to climate applications requirements during the planning for new meteorological satellite missions. (Ref. CGMS-46-ITWG-WP-01)	CGMS-47: ICWG invited IPWG representative Ben Johnson to present at ICWG-2 and engagement is developing.	
ISRO	7	R45.07	ISRO to consider adding a direct broadcast capability to future satellites.	CGMS-47: recommendation maintained	
CGMS agencies	8	R45.09	CGMS agencies encouraged to document their products online, including ATBDs and validation reports, and link product page URLs to the WMO Product Access Guide following defined documentation criteria. (current agency focal points in WMO IPET-SUP: Sally Wannop (EUMETSAT), Natalia Donoho (NOAA), Geun-Hyeok Ryu (was Chu-Yong Chung) and Jin Woo (KMA), Xiang Fang (CMA), Shiro Ohmori (JMA))	CGMS-47: Ongoing. For NOAA: NOAA-WP-16 (Landing pages include this information). WGII IS#1 Dec 2018: To be addressed in IPET-SUP-5 in February 2019. WGII IS#2 15 Mar 2018: WMO has taken these into account.	
CGMS members	WGII/4	R44.05	CGMS members to budget a baseline funding for the cloud intercomparison study, given its importance and impacts on global cloud products.	CGMS-47: Addressed in WGII and plenary. WGII IS#1 Dec 2018: Discussed at the ICWG . Message	
CGMS R&D agencies	WGII/4	R44.07	Research agencies to consider continuing space-borne lidar for ice/liquid water since they have proven very valuable to validate retrievals from passive sensors	CGMS-47: recommendation maintained WGII IS#2 15 Mar 2018: Maintain it as a recommendation.	
CGMS space agencies	WGII/4	R44.15	Future satellite programmes should include the provision of high temporal frequency MW humidity sounding radiances (alongside cloud and precipitation sensitive observations).	CGMS-47: not part of the CGMS baseline. Monitor progress, in particular with regards to small satellites. WGII IS#2 2019: Check if discussed in WG III Risk	
ROSC, ROSH	WGII/4	R44.16	Roscosmos to develop and release a direct broadcast processing package (for level 1 data) for the MTVZA-GY microwave imager. Roshydromet to provide dissemination of this package to interested users.	CGMS-47: recommendation maintained WGII IS#1 Dec 2018: Letters have been sent (by whom?)	

CGMS space agencies	WGII/4	R44.18	CGMS satellite operators to consider coordination of orbits for scatterometer instruments and to provide open and timely access to data in order to maximise independent coverage and benefits to nowcasting and NWP from assimilation of scatterometer wind data.	*CGMS-47: Proposed to be transferred to WG III.* Following further discussion in the CGMS Secretariat, we propose that this recommendation is maintained in WGII until CGMS-47, and then taken up when the risk assessment is discussed, at that stage we can see if it should be transferred to WGIII (or stay in WGII).	
CGMS space agencies	WGII/6	R44.21	Operators to take into account in the planning of their data distribution systems the emerging stringent requirements on data latency from SRNWP	CGMS-47: maintain recommendation WGII IS#2 15 Mar 2018:	
CGMS space	WGII/7	R44.25	For monitoring the Polar Regions, the Group stressed the importance of the deployment of HEO missions	CGMS-47: NOAA considering in its system studies and talking with potential partners.	
CGMS space agencies	WGII/8	R44.26	Satellite operating agencies should support proposals and programs to acquire high-accuracy characterization measurements of the Moon, to develop a new, high accuracy, SI-traceable lunar reference standard for reflected solar wavelengths.	CGMS-47: Maintain 10 Apr 2019: Tom Stone who is the leader of lunar calibration in GSICS VINIR subgroup provided feedback see at end of this table.	
CGMS space agencies	WGII/8	R44.28	Agencies to explore the possibilities to develop suitable processing packages to support a direct broadcast implementation of RO processing, within the DBNet to improve timeliness for space weather applications	CGMS-47: Recommended to be transferred to WG I. WGII IS#1 Dec 2018: To be maintained (See also CGMS-44 WGI action A44.08 related to	
CGMS members	WGII/3	R43.02	CGMS members to consider removing spectral gaps from future hyperspectral sounders to support GSICS intercalibration of IR imagers.	CGMS-47: recommendation maintained WGII IS#2 15 Mar 2018	
CGMS members	WGII/6	R43.03	CGMS members to consider include a water vapour channel and a CO2 channel to polar-orbiting imagers, to maintain accuracy and coverage of polar winds and cloud height retrievals achieved by MODIS.	CGMS-47: recommendation maintained WGII IS#2 15 Mar 2018: Maintain it as a recommendation.	

ISRO	WGII/5	R43.10	ISRO is encouraged to implement a multi-sensor precipitation estimate based on SAPHIR and INSAT-3D	CGMS-47: ISRO has carried out following activities: (1) Using Bayesian formulations, a new rain retrieval algorithm for SAPHIR is developed. (2) This algorithm is recently made operational on MOSDAC. (3) This is being used for merging the SAPHIR rain with INSAT measurements. INSAT-3D/3DR based Hydero-Estimator algorithm that provides pixel-scale and half-hourly precipitation is already operational. We will likely to complete the merging of precipitation from SAPHIR and INSAT-3D in near future. This recommendation may be kept open.	

2019 April 10, Tom Stone who is the leader of lunar calibration in GSICS VINIR subgroup:
There are several projects being conducted by satellite operating agencies and GSICS member institutions to acquire high-accuracy lunar measurements, eventually to redevelop the lunar calibration reference.

*** air-LUSI (NASA, NIST, USGS)**

A smaller version of the NIST LUSI instrument has been developed for deployment on the NASA ER-2 high-altitude aircraft under a project sponsored by the NASA Earth Science Technology Office. The air-LUSI project is led by Kevin Turpie of the University of Maryland Baltimore County, in collaboration with the NIST LUSI team, the USGS lunar calibration project, and a robotics team from the University of Guelph, Canada. The experiment had a successful engineering flight in August 2018, reaching 21.3 km altitude; the lunar data currently are being processed. Science acquisition flights are scheduled for September 2019.

*** Lunar measurement campaign (CMA)**

The China Meteorological Administration is continuing efforts to acquire measurements of the Moon using multiple different types of instruments, including imaging spectrometers, a hyperspectral lunar photometer, and a shortwave infrared Fourier Transform Spectrometer. Atmospheric characterisation instruments are operated alongside the lunar instruments. The CMA ground-based campaign has resumed at Lijiang (3193 m altitude), and another campaign is planned for Daocheng, Sichuan province.

*** CLARREO Pathfinder (NASA)**

The Climate Absolute Radiance and Refractivity Observatory Pathfinder mission (CLARREO Pathfinder, CPF) will acquire views of the Moon with its Reflected Solar (RS) sensor as a demonstration of inter-calibration and measurement technologies. Science planning for lunar observations by CPF RS specifies capturing a wide range of phase angles when the Moon is observable from the instrument's location on the International Space Station. Presuming the lunar observations meet the absolute calibration goals for the RS sensor, the CPF Moon observations represent a potential to collect a substantial set of high accuracy lunar irradiance measurements. CLARREO Pathfinder is scheduled for launch to the International Space Station in early 2023.

*** ARCSTONE (NASA)**

The ARCSTONE project will acquire lunar spectral measurements from a 6U cubesat platform, covering the wavelength range from 350 to 2500 nm. The instrument design allows observing the Sun and Moon through the same optical path with no interchange of components, thus giving a direct measure of lunar disk reflectance. Tying these measurements to the solar spectral irradiance, such as from the Total and Spectral Solar Irradiance Sensor (TSIS), can provide SI-traceable lunar spectral irradiance with potential sub-percent accuracy. The ARCSTONE project is funded by the NASA Earth Science Technology Office, and has a potential flight demonstration in the 2024 time frame.

WGIII actions open from previous plenary sessions (at CGMS-47)							
Actionee	**AGN item**	**Action #**	**Description**	**Action feedback/closing document**	**Deadline**	**Status**	**HLPP ref**
WGIII	WGIII/4.2	A46.02	WGIII to consider how to account for the unique SST conical microwave imager in the CGMS Baseline and Risk Assessment	*CGMS-47: Adressed within the scope of the initial CGMS baseline and risk assessment performed in spring 2019. For further review in 2020* 1 Mar 2019: Discussed at the risk assessment workshop. As for the Baseline, these should be included once future plans are clearer. Future plans will be discussed at CGMS-47 plenary.	CGMS-48 (CGMS-47)	**OPEN**	
NOAA	F	A46.09	**On passive microwave observations:** NOAA to inform CGMS on US's plans/frequency/ features of the post WindSat/SSMI MW radiometry missions (update on SSM/I)	CGMS-47: *Transferred from plenary to WGIII.* Deferred. Expected to be presented to CGMS-48.	CGMS-48 (CGMS-47)	**OPEN**	
CGMS-47 WGIII actions							
Actionee	**AGN item**	**Action #**	**Description**	**Action feedback/closing document**	**Deadline**	**Status**	**HLPP ref**
WMO	WGIII/4	WGIII/A47.01	**Gap analysis, EGOS-IP/WOS-IP:** WMO to report on the action it plans to undertake in response to the Vision for WIGOS in 2040 once it has been approved by the World Meteorological Congress (CGMS-47-WMO-WP-18: Update on WMO Gap Analysis and on status of EGOS-IP/WOS-IP)		CGMS-48	**OPEN**	
WMO	WGIII/5	WGIII/A47.02	**Gap analysis and ISWG:** WMO to conduct a Gap Analysis against the approved WIGOS Vision 2040 and to explore the possibility of coordinating this with the impact assessment planned by the CGMS Science Working Group reporting to WGII		CGMS-48	**OPEN**	
WMO	WGIII/5	WGIII/A47.03	**OSCAR/Space:** WMO to hold a workshop on OSCAR/Space in order to develop plans for its sustainment and future development, both in terms of information content and system capability		2020	**OPEN**	
CGMS space agencies	WGIII/5	WGIII/A47.04	CGMS members and observers to provide updated information on the status of their satellites and instruments following the instructions and tables in CGMS-47 WMO-WP-17b	*New action following WGIII report preparation*	30-Sep-19	**OPEN**	
WMO	WGIII	WGIII/A47.05	Noting the recent conclusions of the WMO IPET-DRMM and the concurrence expressed in CGMS WG III, WMO is encouraged to add the satellite identifier (from Common Code Table C5) and satellite instrument identifier (from Common Code Table C8) to OSCAR Space. (This action originates from WGIII discussions at CGMS-44, WGIII R44.02)	*(Changed from recommendation to action. CGMS-47 WGIII discussion).*	CGMS-48	**OPEN**	

CGMS space agencies, O/SST members	WGIII/5	A47.06a	The OSCAR/Space Support Team (O/SST) to continue providing information on their satellite programmes for accurate recording in OSCAR/Space, according to the recommended procedure with templates provided by the WMO Space Programme. Instructions and templates are available in working paper CGMS-47 WMO-WP-17b.	*Introduced following the draft CGMS-47 report review by WMO.*	1 Dec 2019	**OPEN**		
CGMS space agencies, O/SST members	WGIII/5	A47.06b	O/SST to review the table of "differentials" in the contents between OSCAR/Space and CEOS MIM database on satellite instruments. (The MIM team has provided the list of differentials information previously).	*Introduced following the draft CGMS-47 report review by WMO.*	31 Aug 2019	**OPEN**		
CGMS space agencies, O/SST members	WGIII/5	A47.06c	CGMS members to participate in the OSCAR/Space database maintenance and evolution workshop to be organised by WMO prior to CGMS-48 with the purpose to:	*Introduced following the draft CGMS-47 report review by WMO.*	CGMS-48	**OPEN**		
WMO	WGIII/7	WGIII/A47.07	**Early Morning Orbit:** WMO to reconvene a WMO-CGMS Tiger Team on the impact of the Early Morning orbit. (It is currently premature to convene this Tiger Team until an assessment of FY-3E is conducted).	CGMS-47/SWCG: The WMO CGMS Early Morning Tiger Team is requested to include space weather data in the impact analysis.	2021	**OPEN**		
EUM	WGIII/7	WGIII/A47.08	**GEO coverage in the IODC region:** EUMETSAT to conduct a study on GEO Imager coverage, data quality, availability and resilience in the IODC region		CGMS-48	**OPEN**		EUM: H/RSP and SEP/SSE
CGMSSEC	WGIII/7	WGIII/A47.09	CGMSSEC to write to NSOAS stating the importance of HY-2B MWI and ALT data.		Dec 2019			
NOAA	WGIII/7	WGIII/A47.10	**MW imaging in LEO for SST:** NOAA to provide an update on SSMI status and possible follow-on	A related action from plenary is likely to be transferred from Take action from plenary and transfer to WGIII (same action)	CGMS-48	**OPEN**		
ISRO	WGIII/7	WGIII/A47.11	ISRO to provide an update on its plans for follow-on mission to Oceansat-3A.		CGMS-48	**OPEN**		
ISRO	WGIII/7	WGIII/A47.12	ISRO to confirm data latency for Aditya-L1 mission		CGMS-48	**OPEN**		
ISRO	WGIII	WGIII/A47.13	**On passive microwave observations:** ISRO is recommended to confirm its plans for a Megha-Tropiques follow up mission in low inclination and its plans for TSU and MSU MW sounders and to consider complementary orbits for the deployment of these sounders. (Formerly plenary recommendation R46.07)	(CGMS-47: transferred from plenary recommendation to WGIII action)	CGMS-48	**OPEN**		
JAXA, NASA	WGIII/7	WGIII/A47.14	NASA and JAXA to provide future plans for precipitation measurement mission(s)		CGMS-48	**OPEN**		
WGIII	WGIII/7	WGIII/A47.15	WGIII to update the CGMS Baseline and conduct the annual Risk Assessment for submission to CGMS-48		CGMS-48	**OPEN**		

EUM	WGIII/	WGIII/A47.16 (WGIII R46.01)	CGMSSEC to enquire with EUMETSAT NWP SAF Radiative Transfer Model (RTM) support for FY-2E/H Indian Ocean coverage. (Formerly WGIII recommendation R46.01)	*(Changed from recommendation to action. CGMS-47 WGIII discussion* : Recommendation to be passed to EUMETSAT)	Dec 2019	**OPEN**	
WGIII	from WGII/5	WGIII/A47.17 (WGII/A47.14)	WGIII to provide their assessment and planning for the next risk assessment to the ISWGs, WGClimate and GSICS. (Action from WGII).		Apr/Mar 2020	**OPEN**	
CGMS-47 WGIII Recommendations							
Lead	**AGN item**	**Rec #**	**Description**	**Recommendation feedback/completion document**	**HLPP ref**		
CGMS space agencies	From plenary 5.7	R47.01	**(From IPWG): IPWG** strongly recommends to CGMS members to continue the constellation of PMW sensors to ensure quality satellite precipitation products for weather, climate, and hydrological applications. Additionally, IPWG would like to be kept informed of longer term plans for subsequent launches of microwave sensors to ensure continuity of long-term observations that meet the documented needs of the user community.	*Transferred from plenary*			
CGMS space agencies	From plenary 5.7	R47.02	**(From IPWG): IPWG** also recommends that there be a CGMS-wide coordination of the crossing times of precipitation relevant satellites in an effort to improve the temporal sampling of diurnal cycle, convective systems lifecycles, and severe storms.	*Transferred from plenary*			
CGMS space agencies	From plenary 5.7	R47.03	(From **IPWG**): As precipitation moves to higher temporal rates, we recommend to CGMS members to synchronize full-disk geostationary sampling schedules which will optimize GEO scans to improve temporal sampling of precipitation products and unknown future PMW imager availability for merged products.	*Transferred from plenary*			
CGMS space agencies	From plenary 5.7	R47.04	**(From IPWG)**: Collaboration between space programs and data assimilation centers should be specifically encouraged to incorporate DA requirements as part of scientific requirements when developing new satellite / observing systems. This would reduce barriers for operational assimilation of observations, and potentially provide a greater range of utility for various sensors.	*Transferred from plenary*			
CGMS space agencies	From plenary 5.7	R47.05	**(From IPWG):** Higher spatial and temporal (sub-hourly) resolution and higher spectral sampling in the microwave measurement of clouds and precipitation should be considered in future observing systems.	*Transferred from plenary*			

CGMS space agencies	From plenary 5.7	R47.06	**(From IPWG):** Latency and quality of satellite data should be improved, from both operational and research missions, to fit in the DA high temporal resolution cycle.	*Transferred from plenary*	

WGIV actions open from previous plenary sessions (at CGMS-47)							
Actionee	**AGN item**	**Action #**	**Description**	**Action feedback/closing document**	**Deadline**	**Status**	**HLPP ref**
EUMETSAT	WGIII/2	A43.02	(Action transferred from WGIII) EUMETSAT to propose dissemination plan for data from Indian Ocean Data Coverage partners identified in CGMS-43-EUM-14 roadmap.	CGMS-47: Availability of Elektro-L N2 meteorological products to be discussed with Roshydromet. CMA to provide status of implementation of IODC products on CMACast. Implementation of all other products on EUMETCast Africa and provision to CMA completed	(CGMS-44/45/46) ***New deadline Dec 2019***	**OPEN**	1.1
CGMS Secretariat WMO, satellite operators, WMO	WGIV (WGII)	A44.05	From CGMS-44 WGII: CGMS operators and WMO to work with GODEX-NWP to explore options for optimal data exchange of advanced data from next-gen GEOs.	CGMS-47: Current situation is ok, no specific requirements. Satellite operators will certainly address regional requirements for their next-gen satellites. Future global (next-gen satellite) requirements will be addressed in an inter-sessional meeting with GODEX-NWP participation .	(CGMS-45/46/47) ***New deadline CGMS-48***	**OPEN**	3.12
TFMI	WGIV/9	A45.02	TFMI to work on the WIGOS metadata standard, in particular to assess the WIGOS Metadata OGC Observations and Measurements standard, and recommend possible adjustments for satellite observations to the WMO WIGOS team.	CGMS-47: included in work plan of TFMI Oct 2018: A WIGOS metadata assessment provision to IPET WIGOS by March 2019 is feasible.	(CGMS-46) ***New deadline CGMS-48***	**OPEN**	3.9.1
TFMI	WGIV/12.1	A45.03	CGMS satellite operators to provide documentation on the data formats for space weather observations, and to forward related space weather metadata to the WIS.	CGMS-47: Space weather metadata aspect to be assessed by TFMI. Remaining action superseded by on-going Space Weather data provider survey (SWCG/A47.05)	(CGMS-46) ***New deadline CGMS-48***	**OPEN**	3.10
WG IV	WGII/4	A45.05	Action from WGII: Ensure timely (< 1 hr) and free access to all geostationary visible, IR and water vapour data that is required to improve global hydrological prediction.	At CGMS-47: Pending response from WGIV/A46.02 Put on hold until requirements are clarified (see new action A46.02)	CGMS-48	**OPEN**	
WMO	WGIV/3.2	A46.02	WMO to further refine the requirement from IPWG for GEO image data, in terms of users and geographical resolution	CGMS secretariat to contact WMO & IPWG	(CGMS-47) Dec 2019	**OPEN**	
WMO	WGIV/6	A46.03	WMO to liaise with GSICS on implementing GSICS monitoring capabilities in WDQMS, to include incident management capabilities, and report back to WG-IV, proposing a way forward	Side Meeting between GSICS and WMO regarding WDQMS. WMO will invite GSICS to attend next TT-WDQMS meeting.	CGMS-48	**OPEN**	

CGMS satellite operators	WGIV/7	A46.04	To consider an enhancement of advance notifications of processing changes as specified below and provide feedback to WG-IV. If a planned change to data processing results in a change in brightness temperature of 0.1K or 20% of NEdT (whichever is smaller), this should be made clear in notifications to users. These notifications should be made no later than 8 weeks before the change and test data should be provided if possible. [From the ITWG ITSC-21 Report]	CGMS-47: EUMETSAT: A general change and user notification process is in place. An analysis is in progress w.r.t. the requested specification. Results to be discussed in an inter-sessional meeting. 5 Dec 2018: It was clarified that "instrument changes" means changes w.r.t. performance, and not changes vs specification. Nov 2018: EUMETSAT has an implemented process.	(CGMS-47) Dec 2019	**OPEN**	
CMA	WGIV/7	A46.05	To consider implementing a subscription-based anomaly/event notification service, similar to that provided by NOAA and EUMETSAT and provide feedback to WG-IV.	CGMS-47: System is under construction.	(CGMS-47) Dec 2019	**OPEN**	

WGIV	(Plenary E.10)	A46.06	Following CGMS-46 plenary discussions related to IROWG and GCOS IP: CGMS WGIV to consider the GCOS IP actions on long-term data preservation (LTDP). Ref. GCOS IP action G 26.	get response from other agencies, then make recommendation or Best Practise CGMS-47: NOAA: Under federal law, supported by a suite of policies and procedures (see below for a summary), NOAA ensures through its National Environmental Satellite, Data, and Information Service (NESDIS) and the National Centers for Environmental Information (NCEI) that level 0 and level 1 satellite data, along with metadata and derived level 2 and higher products, are preserved for the long term and made available to the public at no more than the cost of reproduction. EUM Nov 2018: EUMETSAT fully recognises the importance of early satellite data for climate activities and follows the CEOS Preservation Guidelines, documented in "Long Term Preservation of Earth Observation Space Data". In adopting these guidelines and the relevant operational processes EUMETSAT ensures the long-term preservation and usability of (early) satellite raw and level 1 data, including metadata. For all EUMETSAT missions, the raw data and metadata as well as the derived level 1 and level 2 products are archived and preserved in the EUMETSAT Data Centre.	Dec 2019	**OPEN**	
CGMS satellite operators	IS-2	A46.08	CGMS members to review the "CGMS/WMO best practices for achieving user readiness for new meteorological satellites" (https://www.cgms-info.org/documents/CGMS-BP_user_readiness_Apr2016.pdf) and to provide feedback and make recommendations on updates.	CGMS-47: action refined	CGMS-48	**OPEN**	3.2.1
CGMS-47 WGIV actions							
Actionee	**AGN item**	**Action #**	**Description**	**Action feedback/closing document**	**Deadline**	**Status**	**HLPP ref**

CGMS members	WGIV/8	A47.01	**Big data/cloud services:** To provide a point of contact for participation in regular inter-sessional teleconferences lead by NOAA, starting discussions to establish an expert group on cloud services interoperability.		July 2019	**OPEN**	3.7
CGMS members	WGIV/8	A47.02	To analyse if existing cloud service activities can serve as a demonstration project, exploring at least two of the WMO Information Systems (WIS 2.0) principles.		CGMS-48	**OPEN**	
CMA, JMA,KMA, WMO	WGIV/9	A47.03	To liaise with WMO and prepare the report of RSS observation activities including user readiness and notification.		CGMS-48	**OPEN**	N/A
NOAA	WGIV/12	A47.04	To support enabling the connectivity between the OAI PMH NESDIS repository and GISC Washington, to be able to harvest metadata.		July 2019	**OPEN**	3.8
CGMS members	WGIV/15	A47.05	To provide a point of contact for participation in regular inter-sessional teleconferences on cyber security including related training aspects.		July 2019	**OPEN**	N/A
CGMS members	WGIV/16	A47.06	CGMS members, through WGIV, to review CGMS members' adherence levels to the CEOS Data Preservation Guidelines on a regular basis (every 2-5 years). For review at CGMS in the 2021-2022 timeframe.	*(The related recommendation was endorsed by CGMS-47 plenary).*	2021-2022	**OPEN**	

CGMS-47 WGIV Recommendations					
Lead	**AGN item**	**Rec #**	**Description**	**Recommendation feedback/closing document**	**HLPP ref**
CGMS	WGIV/12	R47.01	CGMS-47 Plenary to endorse the recommendations available from CGMS-TFMI-WIGOS-Standard-Review (link see CGMS-47-CGMS-WP-07).	**CONCLUDED** Endorsed by CGMS-47 plenary.	**3.9.1**
CGMS	WGIV/12	R47.02	CGMS-47 Plenary to endorse the presented working plan regarding the assessment of the WIGOS Metadata Representation Format and allow the task force to proceed on the defined tasks.	**CONCLUDED** Endorsed by CGMS-47 plenary.	**3.9.1**

CGMS	WGIV/13	R47.03	CGMS-47 Plenary to endorse the Five-year Strategy document proposed by VLab, w.r.t. items in the scope of WG-IV.	**CONCLUDED** CGMS-47 plenary endorsed the Vlab 5-year strategy.	**5.2.1**
CGMS members	WGIV/3.2	R44.02	CGMS members to continue the provision of up-to-date User Readiness information in the SATURN portal	at CGMS-47: consider conversion into best practise during inter-sessional meeting	3.2.2
CGMS space agencies	WGIV/7	R42.01	Satellite operators to provide WIS Discovery Metadata Records, compliant to WIS requirements and following the guidance to be provided by the CGMS-WMO Task Force on metadata implementation, in order to facilitate satellite information discovery and access	at CGMS-47: consider conversion into best practise during inter-sessional meeting	3.7
CGMS space agencies	WGII/10	R43.07	CGMS agencies to make available a non real-time cache of satellite level 1 data over the previous 2-3 months, similar to the NOAA CLASS system.	at CGMS-47: consider conversion into best practise during inter-sessional meeting	

CGMS-47 SWCG actions							
Actionee	**AGN item**	**Action #**	**Description**	**Action feedback/closing document**	**Deadline**	**Status**	**HLPP ref**
SWCG	SWCG/3	A47.01	CCMS members to assess whether magnetorquer TM can be extracted to allow assessment for magnetic field derivation		July 2019	**OPEN**	1.1.2
SWCG	SWCG/3 (WGIII)	A47.02	Survey ISES on need for operational spaceborne LEO magnetometer data and propose updates to CGMS Baseline as appropriate.		July 2019	**OPEN**	1.1.2
SWCG	SWCG/3	A47.03	Encourage WMO CGMS Early Morning Tiger Team to include Space Weather data in their impact analysis.	*(CGMS-47: The study is expected to be carried out in 2020/2021 timeframe, launch ~2021)*	CGMS-48/-49	**OPEN**	1.1.2
SWCG	SWCG/7	A47.04	Propose improvements to the space weather parameters in the OSCAR DB and request support for implementation from WMO. The parameters available in the existing DB may not be sufficient to properly describe measurement capabilities of SW instrumentation.		CGMS-48	**OPEN**	3.10
SWCG	SWCG/8	A47.05	CGMS Members to complete the on-going Space Weather data provider survey		May 2019	**OPEN**	3.11
SWCG	SWCG/8	A47.06	Identify Space Weather Data and Services Users and send survey including findings from the Data Providers Survey for their comment.		June 2019	**OPEN**	3.11
SWCG	SWCG/8	A47.07	Establish a small task group to identify gaps and disconnects from service and perspective of operational space weather communities (e.g. ICAO, ISES, etc.) with objective to report out in Jan 2019		July 2019	**OPEN**	6.2.1
SWCG IC TG	SWCG/9	A47.08	Space Weather Inter-calibration Task Group members to agree on a specific period of data for validating the inter-calibration approach for high energy particle sensors on-board GEO satellites.		July 2019	**OPEN**	6.2.2 4.1

SWCG IC TG	SWCG/9	A47.09	Space Weather Inter-calibration Task Group to produce a "White Paper" with the objective of getting feedback from GSICS on issues faced by CGMS members concerning inter-calibration of high-energy particle sensors, including, how to share data, use of each sensor for space weather products, identified problems and associated estimates of effort. Consider also the inter-calibration issues of other space-based space weather observation.		July 2019	**OPEN**	6.2.2 4.1