



**28<sup>th</sup> Session of the GCOS/WCRP Atmospheric Observation Panel for Climate (AOPC-28)**

**This session will be held during the 3rd GCOS Joint Panels Meeting**

**ECMWF  
Bonn, Germany  
26-30 June 2023**

[Local Logistics](#)

<b>Day 1: Monday 26<sup>th</sup> June 2023</b>					
Time	Item	N.	Presenter	Notes/outcome	Docs/PPT
	<b>Opening of meeting</b>	<b>1.</b>			Information
14:00-15:30	Welcome and adoption of agenda (10min)	1.1	Peter Thorne		Draft Agenda
	Tour de table (10min)	1.2	All		
	AOPC 27 Actions (20min)	1.3	Peter Thorne		
	<b>General Information</b>	<b>2.</b>			
	Reanalysis (ERA6) (20+10)	2.1	Paul Poli	Observations/requirements and plans for ERA6 what observations they need, observations challenges, implications for AOPC	
	<b>Networks</b>	<b>3.</b>			
	GCOS networks – GUAN and GSN (15min)	3.1	Tim Oakley		GCOS Network Report
15:30-16:00	Coffee Break				

16:00-17:30	GNSS-PW repository (10+5)	2.2	Fabio Madonna (remote)	Updates	
	GRUAN (20 min)	3.2	Fabio Madonna (remote)	GRUAN to be requested to update of GCOS-170 and GCOS-171/ <b>Approval of GRUAN IP and WG-GRUAN TOR</b>	GRUAN IP GRUAN TOR
	GSRN (40 min)	3.3	Tilman Holfelder	Guidance for selection of GSRN Pilot Stations. <b>Recommendations from AOPC on: TT-GSRN Workplan, membership, station selection process, LC-workplan</b>	
	BSRN (15min)	3.4	Christian Lanconelli (remote)	GCOS-174 needs updates	Report from BSRN GCOS-174
17:30	AOPC Task Team	4.			
	TT-LOCA (20+10)	4.1	Steve Goodman (remote)	<b>AOPC to provide guidance for last year of TT-LOCA-2</b>	Report from TT-LOCA
18.00	End of day 1				
Icebreaker					
<b>Day 2: Tuesday 27<sup>th</sup> June 2023</b>					
Time	Item	N.	Presenter	Notes/Outcome	Docs/PPT
	<b>IP Actions</b>	<b>5.</b>			
14:00-15:00	Presentation of CAMS (20min)	5.2	Vincent-Henri Peuch	Information about global CO <sub>2</sub> and CH <sub>4</sub> monitoring (connection to F5)	
	Presentation on actions and general approach (10 min)	5.1	Caterina Tassone	Includes presentation of WGClimate response to GCOS IP	
	Short presentation on actions (30 min) <ul style="list-style-type: none"> <li>B1.4- Concept of tiered networks</li> <li>B2 -GBON</li> <li>D5 - Undertake additional in situ</li> </ul>	5.2	Peter Thorne  Tim Oakley Chiara Cagnazzo	1-2 slides max to summarize status of action	

	<p>data rescue activities</p> <ul style="list-style-type: none"> <li>• F1.4 - Include daily averages with the monthly CLIMAT reports for land surface stations (GSN/RBON)</li> <li>• F5: Develop an Integrated Operational Global GHG Monitoring System</li> </ul>		<p>Blair Trewin</p> <p>Paolo Laj; Gary Morris, Caterina Tassone (TBD)</p>		
15:00-15:30	Approval of final draft on ECV product for UV-radiation (30 min)	5.3	Paolo Laj	<b>Approval of doc</b> (Part of AOPC action- here because of time constrains by Paolo)	Draft on ECV product for UV-radiation
15:30-16:00	Coffee Break				
16:00-18:00	IP rapporteurs working on selected actions (60 min)	5.4		<p>Groups working on:</p> <p><u>Non-satellite actions:</u></p> <p>B4: Expand surface and in situ monitoring of trace gas composition and aerosol properties.</p> <p>C3: General Improvements to in situ Data Products for all ECVs</p> <p>F1.3: Increase temporal resolution of surface air temperature, soil moisture and precipitation to capture both climate and human-induced changes and extremes.</p> <p><u>Satellite Actions</u></p> <p>B1.3 3. Better align the satellite FRM program to the reference tier of tiered networks and enhance / expand FRM to fill gaps in satellite cal/val</p> <p>B1.5: Establish a long-term space-based reference calibration system</p>	

				to enhance the quality and traceability of earth observations D4.1: Improve access to co-located satellite and reference quality in situ observations, as well as tools for evaluation purposes. This facility will use data from reference networks and FRM programs for a broad range of ECVs for calibration/validation of satellite programs.	
	Actions B4, C3, F1.3 actions to be presented and discussed (60 min)	5.5	IP rapporteurs	<b>Agreed plan to address these actions</b>	
18.00	End of day 2				
No host dinner AOPC					
<b>Day 3: Wednesday 28<sup>th</sup> June 2023</b>					
Time	Item	N.	Presenter	Notes/Outcome	Docs/PPT
	<b>IP Continued</b>	<b>5.</b>			
09:00-10:30	Presentation of satellite actions B1.3, B1.5, D4 (60 min)	5.6	IP rapporteurs	<b>Agreed plan to address these actions</b>	
	Presentation, review and approval of table A1.1 (20 min)	5.7	Caterina and panel members	A1.1: Undertake an assessment of current levels of funding support for global in situ networks delivering relevant in situ ECV data, including cal/val measurements, and identify those in situ networks with immediate or short-term problems around adequacy and sustainability of funding  GCOS Secr will provide a table to start assessment of in-situ networks.	Table for A1.1;

				<p>1. All panel: review table and agree on final version</p> <p>2. ECV steward to fill in the existing networks for their ECV (divided in 3 groups)</p> <p>3. ECV stewards to fill in the table for their networks</p> <p><b>Approved Table for A1.1</b></p>	
	Presentation, review and approval of table C1.1 (20min)	5.8	Tim Oakley and panel members	<p>Review existing monitoring standards, guidance and best practices for each ECV, ensuring these reflect current state-of-the-art. Maintain a repository of this guidance for ECVs.</p> <p>GCOS Secr will prepare an example of the review of existing monitoring standards, guidance and best practice for 1 ECV as an example. AOPC to approve methodology.</p> <p>ECV steward to work on their ECVS.</p> <p><b>Approved Table for C1.1</b></p>	Table for C1.1;
10:30-11:00	Coffee Break				
11:00-13:00	Presentation, review and approval of table D2.1 (20 min)	5.9	Tim/Caterina and panel members	<p>D2.1: Identify ECVs for which adequate global centres do not exist or are insufficiently supported and facilitate and support the creation or improvement of global data centres for these ECVs</p> <p>GCOS Secr will provide a table to be used for the identification of ECVs in 1. AOPC to review/approve table. ECV stewards to start filling in table.</p> <p><b>Approved Table for D2.1</b></p>	Table for D2.1;
	ECV stewards to work on tables (60 min)	5.10	All	ECV stewards divided in 3 groups +	

				Imke, Blair and Chiara to prepare workplan for D2.1: facilitate and support the creation or improvement of global data centres for these ECVs.	
	Presentation of progress on tables to AOPC and way forward (30 min)	5.9	Panel members	<b>Tables A1.1, C1.1 and D2.1 partially filled</b>	
13:00-14:00	Lunch Break				
	<b>Cross-Panel Activities</b>	6.			
14:00-18:00	B9.1 and B9.2 Reporting and discussion (30 min)	6.1	Liz Kent	B9.1. Improve and extend in situ measurements needed to estimate surface fluxes, with the objectives of improving accuracy and better defining the uncertainties of those measurements and calculated fluxes. B9.2: Extend sites with co-located measurements of direct turbulent and radiative fluxes and variables required to estimate turbulent surface fluxes targeted at improving parameterizations of air-sea exchange and air-land exchange. <b>Input for cross-panel groups</b>	
	B10 Reporting and discussion (30 min)	6.2	TBD	IP B10: identify gaps in the climate observing system to monitor the global energy, water and carbon cycles <b>Input for cross-panel groups</b>	
	D1 Reporting and discussion (30 min)	6.3	Imke Durre	D1.1: Draft requirements for the activities of Global Climate Data Centres and identify the relevant internationally agreed standards. <b>Input for cross-panel groups</b>	

15:30-16:00 Coffee Break					
16:00-18:00	F1.1 (30min) Reporting and discussion (30 min)	6.4	TBD	F1.1. Identify the higher resolution observations of ECVs to support the Climatic Impact-Drivers (CIDs) identified in the IPCC AR6 and develop plans to address the priority needs. (see IPCC WGI AR6 Figure SPM.9). <b>Input for cross-panel groups</b>	
	ECV Rationalization (60 min)	6.5	Peter Thorne	<b>Input for cross-panel groups</b>	
	Indicators (30 min)	6.6	TBD	<b>Input for cross-panel groups</b>	
18:00	End of day 3				
No host dinner for JPM (all panels)					
<b>Day 4: Thursday 27<sup>th</sup> June 2023</b>					
Time	Item	N.	Presenter	Notes/Outcome	Docs/PPT
	<b>AOPC actions</b>	<b>7.</b>			
14:00-18:00	Action C1.4: Review the GCOS climate monitoring principles (30 min)	7.1	Peter Thorne	GCOS Climate Monitoring Principles made available to panel for comments. Discussion on comments and changes. <b>Approved doc</b>	GCOS CMP
	BOM is going to make parallel measurements data available. Data repository to be identified (10+10)	7.2	Blair Trewin	No repository identified <b>Decision on was forward</b>	
	Precipitation: Consistency of data products (10 + 10)	7.3	Blair Trewin		
	Satellite data constellation (10+10) or	7.4	Rainer Hollmann	Satellite data constellations	
15:30-16:00 Coffee Break					

16:00-16:30	Presentation on update of GCOS Published Docs (15min)  ECV Inventory (15 min)	7.5	Tim, Imke Peter	Decision on which docs to update from list presented at last AOPC TC	GCOS Publication Audit Table GCOS-143 Proposal for GCOS-143 Draft of ECV Inventory response
16:30-18:00	Panel works on these two topics (60 min)	7.6			
	Presentation to panel and approval	7.7		<b>Plan on how to update docs Approval of response to WGClimate on ECV Inventory</b>	
18.00	End of day 4				
<b>Day 5: Friday 30<sup>th</sup> June 2023</b>					
Time	Item	N.	Presenter	Notes/Outcome	Docs/PPT
	<b>AOPC actions</b>	<b>8.</b>			
11:00-13:00	Review of plans for cross-panel activities and action for AOPC contribution	8.1		<b>AOPC contribute to cross-panel activities</b>	
13:00.14:00	Lunch				
14:00-15:00	AOPC Actions	8.2		<b>AOPC-28 action plan</b>	
15.00	End of day 5				