

AC-VC#21 Agenda and Meeting Info

The 21st meeting of the CEOS Atmospheric Composition Virtual Constellation (AC-VC), held on 9-13 June 2025 in Takamatsu, Japan, is kindly hosted by the National Institute for Environmental Studies (NIES) of Japan.

The meeting is jointly set up with the 21st International Workshop on Greenhouse Gas Measurements from Space (IWGGMS-21) and the Atmospheric Composition Sub-Group of the CEOS Working Group on Calibration and Validation (WGCV-ASCG).

Date	Room	IWGGMS	AC-VC	WGCV-ASCG
Mon 09 June	Kagawa International Conference Hall	1 GHG Missions Overview		
Tue 10 June	Small Hall 1/ Sunport Hall Takamatsu		2 Tropospheric Ozone	
				2 General Cal/Val
			2 Limb and GEO Ozone	
Wed 11 June	Small Hall 1/ Sunport Hall Takamatsu		3 AQ Trace Gases	
Thu 12 June	Small Hall 1/ Sunport Hall Takamatsu		4 AQ aerosol	
Thu 12 June	Small Hall 1/ Sunport Hall Takamatsu		5 General Discussion	
Fri 13 June	Shoko-Shorei-Kan Hall, Ritsurin Garden		6 GHG	
Fri 13 June	Shoko-Shorei-Kan Hall, Ritsurin Garden		7 AC-VC Wrap Up	

The Session 1 covering GHG Missions Overview is set up jointly with the IWGGMS and will be held in the Kagawa International Conference Hall in the Takamatsu Symbol Tower, on the 6th floor. The Session 1 agenda can be found at

<https://www.nies.go.jp/soc/en/events/iwggms21/acvc21/index.html>

The Sessions 2, 3, 4 and 6 cover the AC-VC activity areas including greenhouse gases, air quality trace gases and aerosol, and ozone. Related presentations and discussions on Cal/Val are planned jointly with the WGCV-ASCG which also holds two sub-sessions dedicated to Cal/Val for the constellations. These sessions will be held in the Small Hall 1 at the Sunport Hall Takamatsu, in the Takamatsu Symbol Tower (Hall building), on the 4th floor. The detailed agenda for Sessions 2 to 7 is given at the end of this document.

Remote Connection

The AC-VC#21 is set up as a hybrid meeting. **The meeting link for remote participation will be distributed to registered participants.**

Remotely connected participants are kindly requested to

- Join using an accurate name using the convention: Given_name Family_name (organization_acronym).
- Raise your hand or send a chat message if you have comments or questions.
- Stay muted unless invited to speak and switch off your video connection.

Remotely connected speakers are kindly requested to

- Upload your presentation prior to the meeting.
- Connect early to resolve potential technical issues. The meeting will be started 15 minutes before the scheduled start time each day.
- The slides will be presented from a local device. The presenter navigates by requesting “next slide” etc.
- Keep the allocated presentation time and respect the time keeping warnings (“one minute” etc.) by the organisers.

The meeting will not be recorded. The chat logs will be saved and used to prepare meeting minutes.

Upload Presentations and Material

All presenters are asked to upload presentation (and background material that may be linked to speed talks for off-line viewing) **by Friday 30 May**. Please upload your presentations and material to the shared drive. The detailed information will be provided later by email. **The link to upload slides will be distributed to registered participants.**

In case you encounter problems with the uploading, please email your material to the session chairs (John Worden for GHG, Ben Veihelmann for AQ trace gas, Diego Loyola for O3, Shobha Kondragunta for AQ aerosol, Hiroshi Tanimoto for the general discussion topics).

Please name the presentations using the convention:

AC-VC_Talk-ID_Last-Name_version-number.pptx (or .pdf as appropriate)

taking the **Talk-ID from the meeting agenda**. For background material please apply the same naming convention and append 'background' (such that presented material and background material are unambiguously linked).

Please note that Speed Talks of 3 min should be limited two slides. You are encouraged to refer to background material for off-line viewing.

Agenda and presentations will be made available on the meeting websites

<https://ceos.org/meetings/ac-vc-21/>

Questions

Should you have any questions at all, please contact the leadership team by email:

- Barry Lefer barry.lefer@nasa.gov
- Ben Veihelmann ben.veihelmann@esa.int
- Hiroshi Tanimoto tanimoto@nies.go.jp
- Shobha Kondragunta shobha.kondragunta@noaa.gov (especially for aerosol session questions)
- Diego Loyola diego.loyola@dlr.de (especially for ozone session questions)
- John Worden john.r.worden@jpl.nasa.gov (especially for GHG session questions)
- Jean-Christopher Lambert jean-christopher.lambert@aeronomie.be (especially for Cal/Val session questions)

Detailed Agenda

Times are specified in Japan Standard Time (JST). Corresponding times are listed for a few selected time zones:

Japan Standard Time (JST)	US Eastern Time (EST)	US Pacific Time (PST)	Central European Summer Time (CEST)
8	19 previous day	16 previous day	1
10	21 previous day	18 previous day	3
12	23 previous day	20 previous day	5
14	1	22 previous day	7
16	3	0	9
18	5	2	11

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Time (JST)	ID	Topic	Presenter / Chair	Duration (min)
		Tuesday, June 10		
		Session Ozone (Part I)	Chair: Diego Loyola (DLR)	
09:00	2.01	Introduction / goals	Diego Loyola (DLR)	5
		Tropospheric Ozone		
09:05	2.02	The Tropospheric Ozone Assessment Report (TOAR), Phase II	Helen Worden (UCAR)	15
09:20	2.03	TOAR II Advancing understanding of tropospheric ozone	Kazuyuki Miyazaki (JPL)	15
09:35	2.04	TOAR II Chemical Reanalysis Working Group	Takashi Sekiya (JAMSTEC)	15
09:50	2.05	TOAR II Assessment of satellite ozone	Kazuyuki Miyazaki (JPL), Hubert & Keppens (BIRA-IASB)	15
10:05	2.06	Highlights of tropospheric ozone data harmonization	Arno Keppens (BIRA-IASB)	15
		Limb Ozone Missions (Part I)		
10:20	2.07	Ozone profile observations with OMPS Limb Profilers	Natalya Kramarova (NASA)	10
10:30		Coffee Break		30
		Session General Cal/Val	Chair: J.-C. Lambert (BIRA-IASB)	
11:00	2.08	Introduction / goals	Jean-Christopher Lambert (BIRA-IASB)	5
		WGCV-ACSG Updates		
11:05	2.09	CEOS Working Group on Calibration and Validation	Medhavy Thankappan (GA), Cody Anderson (USGS)	15
11:20	2.10	Atmospheric Composition Cal/Val updates	Jean-Christopher Lambert (BIRA-IASB)	15
11:35	2.11	SI-Traceable Satellite (SITSat) Task Group update	Nigel Fox (UKSA/NPL)	15
11:50	2.12	CEOS-FRM Maturity Assessment Framework v2	Paolo Castracane (Starion for ESA)	15
12:05	2.13	CEOS Guidelines on Aerosol, Cloud, and Precipitation Profiles Validation (ACPPV)	Rob Koopman (ESA)	15
12:20	2.14	Copernicus Cal/Val Solution (CCVS) Gap Analysis	Tijl Verhoelst (BIRA-IASB)	15
12:35	2.15	General discussion WGCV and AC-VC collaboration	All	15
12:50		Lunch		70
14:00	2.16	Validation challenges for upcoming limb missions	Kaley Walker (U.Toronto)	10
		Operational Validation Capacity		
14:10	2.17	ESA Atmospheric Validation Data Centre (EVDC)	Ann Mari Fjaeraa (NILU)	10
14:20	2.18	Atmospheric Toolbox (CODA, HARP, VISAN, AVL)	Sander Niemeijer (s&t)	10
14:30	2.19	AERIS Atmosphere Data and Services Centre	Sébastien Payan (IPSL) / Patrice Henry (CNES)	10
14:40	2.21	EPA operational validation plans	Jim Szykman, Luke Valin, Barron Henderson (EPA)	10
14:50	2.22	ESA/Copernicus ATM-MPC routine validation service	Arno Keppens, J.-C. Lambert (BIRA-IASB)	10
15:00	2.23	EUMETSAT operational validation plans	Frank Ruethrich, Rasmus Lindstrot (EUMETSAT)	10
15:10	2.24	General discussion on operational validation capacity - Tracking needs and gaps	All	20
15:30		Coffee Break		30
		Session Ozone (Part II)	Chair: Diego Loyola (DLR)	
		Limb Ozone Missions (Part II)		
16:00	2.25	ALTIUS mission	Emmanuel Dekemper (BIRA-IASB)	10
		GEO Ozone Missions		
16:10	2.26	GEMS ozone products	Jae Hwan Kim (Pusan Uni.)	15
16:25	2.27	TEMPO ozone products	Xiong Liu & Joonsung Park (SAO)	15
16:40	2.28	Sentinel-4 total ozone	Klaus-Peter Heue (DLR)	10
16:50	2.29	Sentinel-4 tropospheric ozone	Richard Siddans (RAL)	10
17:00	2.30	GIIRS ozone	Zhao-Cheng Zeng (PKU)	10
17:10	2.31	IRS ozone	Dorothee Coppens (EUMETSAT)	10
17:20		General ozone discussion	All	10
17:30		Adjourn		

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Time (JST)	ID	Topic	Presenter / Chair	Duration (min)
		Wednesday, June 11		
		Session AQ Trace Gases	Chairs: Ben Veihelmann (ESA), Barry Lefer (NASA), Hiroshi Tanimoto (NIES)	
08:30	3.01	Introduction / goals	Ben Veihelmann (ESA), Barry Lefer (NASA), Hiroshi Tanimoto (NIES)	5
08:35		Brief Status of Missions in Orbit		
	3.02	S5P/TROPOMI status	Pepijn Veefkind (KNMI)	10
	3.03	GEMS status	Jhoon Kim (Yonsei Uni), Jeong-Ah Yu (NIER)	10
	3.04	TEMPO	Xiong Liu (Harvard, CFA)	10
	3.05	IASI&CRIS	Cathy Clerbaux (LATMOS/CNRS), Helen Worden (UCAR)	10
	3.06	Geostationary Interferometric Infrared Sounder (GIIRS): CO, NH ₃ , and VOCs	Zhao-Cheng Zeng (PKU)	10
	3.07	High resolution NO ₂ ML/AI product from the OCI sensor on PACE	Joiner Joanna (NASA/GSFC), Zachary Fasnacht (NASA/GSFC)	10
	3.08	Hyper Local Monitoring of NO ₂ from TEMPO	Shobha Kondragunta (NOAA)	10
09:45		Brief Update on Future Missions		
	3.09	Sentinel-4 & Sentinel-5	Ben Veihelmann (ESA), Rasmus Lindstrot, Frank Rüthrich (EUMETSAT)	10
	3.10	IASI-NG	Cyril Crevoisier (LMD)	10
	3.11	IRS	Cathy Clerbaux (LATMOS/CNRS)	10
	3.12	cancelled		
10:30		Coffee Break		30
11:00		Geo AC Constellation: towards global coverage		
	3.13	Goals, whitepaper status, way forward	Helen Worden (UCAR), Ali Omar (NASA)	15
	3.14	Observational Needs for South America	Arlindo da Sila (NASA/GSFC), Paulo Artaxo	10
	3.15	Observational Needs for the Middle East and North Africa (MENA Region)	Omar Emam (Intospace)	10
	3.16	Observational Needs for Sub-Saharan Africa	Helen Worden and Pieter Levelt (UCAR)	10
		Discussion way forward	All	15
12:00		Validation		
	3.17	S5P/TROPOMI validation update	Jean-Christopher Lambert (BIRA-IASB)	15
	3.18	TEMPO validation highlights	Laura Judd (NASA), Barron Henderson (EPA)	15
	3.19	EPA validation activities	Barron Henderson Luke Valin, Jim Szykman (EPA)	15
	3.20	GEMS validation campaign results and Asia Air Pollutants Network (AAPN)	Limseok Chang (NIER)	15
13:00		Lunch		90
14:30	3.21	PEGASOS & Geo-Ring: Consistency TEMPO-GEMS-S5P	Ronny Lutz (DLR), Arno Keppens (BIRA-IASB) and PEGASOS team	15
	3.22	CINDI-3 intercomparison campaign	Michel v. Roozendaal (BIRA-IASB), Karin Kreher (BKS), Jean-Christopher (BIRA-IASB)	15
	3.23	Pandora/PNG status	Thomas Hanisco (NASA, GSFC), Alexander Cede (Luftblick)	15
	3.24	India Pandora and FTIR	Hiroshi Tanimoto (NIES), Isamu Morino (NIES), Mahesh Sha (BIRA-IASB)	15
15:30	3.25	Global Analysis of NO ₂ and HCHO Column Densities from the Pandora Global Network (PGN): Variability and Implications for Satellite Validation	Sang-Woo Kim (SNU)	15
15:45		Coffee Break		30
16:15	3.26	Progress with MAX-DOAS observations to validate TROPOMI Collection 03 and GEMSv3 NO ₂	Yugo Kanaya (JAMSTEC)	15
16:30		Discussion on validation topics	All	15
16:45		Data Use		
16:45	3.25	An update on JPL MOMO-Chem air quality research	Kazuyuki Miyazaki (JPL)	15
17:00	3.26	CAMS	Antje Inness (ECMWF/CAMS)	15
17:15	3.27	GEOS Constituent DA	Brad Weir (Morgan State Uni; NASA GMAO) and Lesley Ott (NASA GMAO)	15
17:30		Discussion on data use		15
17:45		Adjourn		

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Time (JST)	ID	Topic	Presenter / Chair	Duration (min)
		Thursday, June 12		
		Session AQ Aerosol	Chairs: Shobha Kondragunta (NOAA), Ben Veihelmann (ESA)	
08:30	4.01	Welcome		5
08:35	4.02	Aerosol Layer Height panel discussion	Panelists: Shobha Kondragunta (NOAA), Vijay Natraj (JPL), Jun Wang (U Iowa), Jim Szykman (EPA), Ruben Delgado (Hampton University), Mitch Goldberg (CCNY), Jhoon Kim (Yonsei University), Siyuan Huang (NOAA)	55
09:30	4.03	PM2.5 Roadmap Update	Shobha Kondragunta (NOAA) and Ben Veihelmann (ESA)	30
10:00		Applications Part I		
10:00	4.05	Aerosol DA for PM2.5 (JCSDA)	Jerome Barre (JCSDA)	15
10:15	4.06	Aerosol DA for PM2.5 (NASA)	Pawan Gupta (NASA)	15
10:30		Coffee Break		30
11:00	4.07	Aerosol DA for PM2.5 (NOAA NWS)	Cory Martin (NOAA)	15
11:15		Applications Part II		
	4.08	AirFuse	Barron Henderson (EPA)	15
	4.09	EUMETSAT PM2.5 work	Julien Chimot (EUMETSAT)	15
	4.10	Estimating PM2.5 with remote sensing aerosol observations and auxiliary variables with machine learning models at global scale: promises, challenges, and pitfalls	Tianle Yuan (NASA)	15
12:00		Applications Part II		
	4.11	TEMPO dust and smoke case studies	Amy Huff (NOAA)	15
	4.12	TEMPO PM2.5 product development and validation	Hai Zhang (NOAA)	15
12:30	4.13	Updates on Current/Future Missions		
	4.14	JPSS and NEON Mission Update	Satya Kalluri (NOAA)	15
	4.15	Metop-SG Mission Update	Julien Chimot (ESA)	15
13:00		Lunch Break		90
14:30	4.16	TEMPO Aerosol Update	Shobha Kondragunta (NOAA)	15
14:45	4.17	GEMS Aerosol Update	Jhoon Kim (Yonsei University)	15
15:00	4.18	PACE Aerosol Update	Meng Gao (NASA)	15
15:15	4.19	MAIA Aerosol Update	Dave Diner (NASA)	15
15:30	4.20	NASA Aerosol Update	Rob Levy (NASA)	15
15:45		Coffee Break		30
16:15	4.21	Luce mission update	Chip Trepte (NASA)	15
16:30	4.22	CO2M Aerosols	Yasjka Meijer (ESA)	15
16:45	4.04	Aerosol DA for PM2.5 (CAM5)	Johannes Flemming (ECMWF)	15
17:00		End of AQ Aerosols Session		
17:00		AC-VC General Discussion		
17:00	5.01	Tracking gaps and issues for validation systems and networks	Jean-Christopher Lambert (BIRA-IASB)	15
17:15	5.02	WMO Expert Team on Network Design and Evolution (GAW report 307)	Rich Eckman or Hiroshi Tanimoto (NIES)	15
17:30	5.03	by Thomas August (ESA) on the role of SI- traceable satellites for enhancing radiometric inter-calibration consistency	Thomas August (ESA)	15
17:45		Adjourn		

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Time (JST)	ID	Topic	Presenter / Chair	Duration (min)
		Friday, June 13		
		Session Greenhouse Gases	Chairs: John Worden (JPL), Abhishek Chatterjee (JPL)	
8:30		Overview Session	John Worden (NASA)	
	6.01	Introduction / Schedule	John Worden (NASA)	5
	6.02	CEOS GHG Road Map Updates	Yasjka Meijer (ESA)	15
	6.03	IWGGMS Mission Summary	Ray Nassar (ECCC)	15
		Discussion/Questions	All	10
9:15		Validation and Calibration L0 to L2	Abhishek Chatterjee (JPL)	
	6.04	IWGGMS Cal-Val session summary	Hirofumi Ohyama (NIES), Mahesh Sha (BIRA-IASB)	10
	6.05	TCCON status and needs	Debra Wunch (U. Toronto)	10
	6.06	COCCON status and needs	Mahesh Sha (BIRA-IASB)	10
	6.07	NDACC	Jim Hannigan (NCAR)	10
	6.08	Vicarious Calibration	Kei Shiomi (JAXA)	10
	6.09	Validation Supersites	Abhishek Chatterjee (JPL)	10
		Discussion	All	15
10:30		Coffee Break		30
11:00		L2 Algorithms	David Crisp (Crisp Spectra LLC)	
	6.10	IWGGMS Algorithm session summary	Yu Someya (NIES)	10
	6.11	L2 Intercomparison	Chris O'Dell (CSU)	20
		Discussion	All	20
11:50		Observations to Information / Stakeholder Needs	Yasjka Meijer (ESA)	
	6.12	Summary from IWGGMS	Lesley Ott (NASA GSFC)	10
	6.13	IMEO	Itziar Irakulis-Loitxate (IMEO)	15
	6.14	G3W and I3GIS Developments	Jocelyn Turnbull (GNS)	15
		Discussion	All	15
12:45		Lunch		75
14:00		Facility Scale Needs and Validation	John Worden (NASA)	
	6.15	Summary from IWGGMS	Julia Marshall (DLR)	10
	6.16	MEDUSA Overview	Ilse Aben (SRON)	10
	6.17	State of Practice and Future Needs	Evan Sherwin (LBNL/ Stanford)	15
	6.18	Community Accepted Practices CEOS + paper update	Paul Green (NPL)	5
		Discussion	All	30
15:10		Area Fluxes	Kevin Bowman (JPL)	
	6.19	Summary from IWGGMS on Fluxes	Sara Mikaloff-Fletcher (NIWA) and Kevin Bowman (JPL)	10
	6.20	Area Flux Validation Approaches	Junjie Liu (JPL)	15
		Discussion	All	15
15:50		Coffee Break		20
16:10		Identification of measurement gaps	Abhishek Chatterjee (JPL)	
	6.21	Setting the stage	Abhishek Chatterjee (JPL)	5
	6.22	Measurement Gaps	David Crisp (Crisp Spectra LLC)	20
		Discussion	All	15
16:50		Walk On / Extra	Abhishek Chatterjee (JPL)	
	6.23	Summary of Multi-Species Observations	Jochen Landgraf (SRON), Helen Worden (NCAR)	10
		Any additional topics? TBD		
17:00	6.24	Discussion / GHG Session Wrap up	John Worden (NASA), Abhishek Chatterjee (JPL)	15
		End of GHG Session		
17:15		AC-VC Meeting Wrap up	Hiroshi Tanimoto (NIES), Ben Veihelmann (ESA), Emma Knowland (NASA)	15
17:30		Adjourn		