

Consultative Committee for Thermometry

Working Group Environment

Task Group Air Temperature

Meeting n. WG ENV 5 – TG Air 2
2023 February 7 – 10.00 – 12.00 UTC

Via Teleconference

Agenda

- 1) Welcome
- 2) Approval of the agenda and minutes of the last meetings
- 3) WG and TG Chairs and members (AM – ÅO – SS)
- 4) Reports from WG Chair on activities under WMO and other Institutions, projects (AM)
- 5) The EURAMET ATM - Air Temperature Metrology project – ILC Conclusion (ÅO)
- 6) TG Air sub groups activities (SG chairs)
- 7) Questionnaire on calibration of thermometers in Air (YGK)
- 8) MMC 2021 (AM)
- 9) AoB
- 10) Next meeting - Closure

AM – Andrea Merlone

SS – Stephane Solve

ÅO - Åge Andreas Falnes Olsen (JV)

YGK - Yong Gyoo Kim

SG chairs - Stephanie Bell, Davor Zvizdic, Yong Gyoo Kim

WG – TG Members and invited (P=Present)

WG Chair	Andrea Merlone (INRiM)	(P)
TG Chair	Åge Andreas Falnes Olsen (JV)	(P)
Members	Carmen García Izquierdo (CEM)	(P)
	Christian Monte (PTB)	
	Davor Zvizdic (FSB)	(P)
	Drago Groselj (WMO-CIMO)	(P)
	Efrem Ejigu (NMISA)	
	Eric Gerogin (LNE)	(P)
	Eric van der Ham (NMIA)	
	Fan Yan (A-Star)	(P)
	Ferdouse Jahan (NMI)	(P)
	Fernando Sparasci (LNE-Cnam)	(P)
	Graziano Coppa (INRiM)	(P)
	Hao Xiaopeng (NIM)	(P)
	Howard Yoon (NIST)	

	Javier García Skabar (INTI)	
	Jeremy Lovell-Smith (MSL)	(P)
	Júlio D. Brionizio (INMETRO)	(P)
	Lars Bünger (PTB)	(P)
	Matthijs Panman (VSL)	(P)
	Michal Voldan (CMI)	(P)
	Murat Kalemci (UME)	
	Tohru Nakano (NMIJ/AIST)	Replaced by Janu Widiatmu
	Peter Pavlasek (SMU)	(P)
	Seda Aytekin (UME)	(P)
	Shahin Tabandeh (MIKES)	(P)
	Stephanie Bell (NPL)	(P)
	Svitlana Fil (NSC)	
	Victor Fuksov (VNIIM)	
	Vitor Cabral (IPQ)	
	Yong Gyoo Kim (KRISS)	(P)
Invited	Aleksandra Kowal (INTiBS)	(P)
	Gaber Beges (UL-LMK)	
	Jane Warne (BOM)	
	Krunoslav Premec (WMO)	(P)
	Marco Pisani (INRiM)	
	Peter Thorne (Mainhoot Univ)	(P)
	Rainer Feistel	
	Stephen Burt (Reading Univ)	(P)
	Walter Bich (INRiM - JCGM)	(P)
CCT President	Duan Yuning	
BIPM	Stephane Solve	(P)

Point 1.

AM Welcomes Participants and Guests, reminding this is the first joint meeting of the WG Env and TG Air.

Point 2

Agenda and previous minutes approved

Point 3

A request to confirm the involvement in the WG and TG is made to all participants. An email will be circulated by the WG and TG chairs

Point 4

AM presents a detailed list of projects, activities, interactions with the WMO and future areas of interest for the WG and TG.

The WG Env is well represented in the strategic document of 2021 of CCT, and several members are also active as experts in WMO expert teams. Numerous projects are running at European and World level, with the “family” of MeteoMet projects and initiative continuing to deliver results to the climate and meteorology communities. Topics of direct research cover wide areas: radiosondes, permafrost, Arctic climate, oceanography, evaluation of records, understanding quantities of influence, providing training, support to establish traceability and evaluation of uncertainty. Several recommendations and approved documents at the WMO INFCOM 2 of November 2022 are based on contributions from the metrology community mainly represented by TG ENV members. To improve the interaction with a focus on measurement uncertainties, on 5, 6 April 2022 a ET-MU and JCGM-WG1 joint workshop was organized with more than 70 participants. The key outcome of the workshop, WG and Expert Teams work is that Present knowledge is not enough to completely evaluate uncertainty budget for atmospheric observations and that experiments are required, technical solutions evolve

Some events of relevance have been recalled:

WMO online training workshop on quality, traceability and compliance (june 2021)

TECO 2022

Metrology for climate action (sept 2022)

Arctic metrology workshop 2022

Waiting for MMC October 2021

MMC 2023 Torino

KP: The uncertainty harmonization of terminology document and the future WMO standard vocabulary, require special care and support in the development by CCT WG ENV.

CGI: Recalled the recommendation in preparation from the BIPM/WMO workshop

AM: For Euramet members, September will be the start of preparation phase for the EMP Green Deal call.

PP: works in preparation with Austria, for more robust and repeatable measurements in air. Are those efforts of interest? Do we want to expand this to a broader projects? AM: feel free to use the mailing list to circulate the idea to members.

Point 5 – TG Air

ÅAFO: Subgroup chairs take the lead

The EURAMET ATM project 1459 interlaboratory comparison is finished and results will be presented at the EURAMET TC-T in April in Bratislava.

The ILC is a research study for evaluating different methods to calibrate thermometers in air, with different systems and different uncertainty evaluation approaches. It is not an ILC to claim CMC.

The instrumentation is now available to extend the ILC from Europe to other Regions. AM proposes to also involve WMO RIC centers in the following loop. DG agrees to invite RICs within defined requirements, but not too widely. KP fully supports, suggesting to present this at next ET QTC meeting openly to all RICs, then adopt a selection.

Next TG Air will start planning the ILC, based on a similar protocol to the EURAMET ATM and possibly involving part of the thermometers already circulated in Europe.

#Point 6. TG Air subgroups.

SG1 - Definition

SB: Defining measurand. Circulated ideas by email. Next step: circulate a draft of journal paper for people to put ideas. The process is turning ideas into words.

Basically, it's not difficult to define T: the problem is to define AirT, starting from the definition of air temperature itself.

SG2 Uncertainties

DZ: In charge of Uncertainty. Huge difference between measurements and calibrations. In real world it is hard to evaluate corrections and uncertainties from wind, speed of thermometer (on a plane etc), radiation, rain, ice, snow. Steady state (non-linear algebraic equations), and transient measurements (more realistic). Start from Steady state.

SB: Definition also has direct interaction with SG uncertainty.

ÅAFO proposes to organize subgroup meetings?

AM: Question to DZ: have you considered a document of a list of potential candidates for contribution of uncertainty with highlighted those which are "solved"?

DZ: Of course, some are complicated because they work differently in different conditions.

WB: Definition of AirT is fascinating. Difficult to distinguish components that define measurand and those that define uncertainty. Do you have in mind correction?

DZ: Yes, they are uncertainty on corrections.

Point 7 SG3 Guidelines – Questionnaire

YGK presents the results of the questionnaire on calibration of thermometers in air.

The presentation also included some experiments and experience with the use of thermometers of different sizes and a protecting "cap" to be used in climatic chambers.

Point 8 – MMC 2023

AM presented the 4th “Metrology for Meteorology and Climate – MMC 2023” international conference.

The Conference will be held at the Castle of Stupinigi in Torino, Italy on 25-29 September 2023 and will bring an opportunity to present and discuss research, studies, technological innovation, projects and activities aimed at improving our capabilities to measure and understand Earth meteorology and climate.

Call for paper will follow soon

Ponit 9

No Other Business

Point 10 Next meeting

AM: Suggests to concentrate on TG Air SG meetings.

All subgroups to invite chairs of the other subgroups. Next meeting, set priorities for subgroups, then the group meet before next CCT if needed, or at the CCT in '24 according to the progress.

A SG3 meeting can be organized before the Euramet TC-T meeting (17-21 April 2023)

Doodles to circulate for each SG.

Meetings ends at 12.15 UTC