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**The WMO Technical Conference  
on Meteorological and Environmental Instruments and  
Methods of Observation  
(TECO-2022)**

**Paris, France  
10-13 October 2022**

**Theme: *“Sustainable fit-for-purpose measurement – a  
foundation of the WMO Earth System approach”***

**FINAL PROGRAMME  
(6 October 2022)**

<b>MONDAY, 10 OCTOBER 2022</b>		
<b>Time</b>	<b>Title of presentations</b>	<b>Author(s)</b>
8:00 – 9:00	<b>Registration</b>	
9:00 – 9:45	<b>Opening Ceremony</b>	
<b>Topic 1: Innovative measurements, techniques and integration</b>		
9:45 – 10:00	Measurements, Instrumentation and Technology: the Foundation of WMO Infrastructure	Dr Anthony Rea
10:00 – 10:15	The first evaluation of a 6-months automatic Meteodrone campaign	Dr Maxime Hervo et al.
10:15 – 10:30	Experimental observation of air temperature rise due to the reflection of solar radiation above the clouds	Dr Yong-Gyoo Kim et al.
10:30 – 11:00	<b>COFFEE / TEA BREAK</b>	
11:00 – 11:15	Using Machine Learning to Improve Data Quality and Thus Meteorological Decisions and Alerting	Mr Brian Bellew
11:15 – 11:30	Image-based flow measurements during flood events	Dr Salvador Peña-Haro et al.
11:30 – 11:45	Sustainable rain monitoring using communication links of existing broadband satellite networks	Dr Julian Krebs et al.
11:45 – 12:00	Cognitive camera enhanced software defined method for automatic rainfall measurement	Mr Amul Batra et al.
12:00 – 13:00	<b>2-min presentations of Session 1 and SC-MINT/ET achievement posters</b>	
13:00 – 14:00	<b>LUNCH BREAK</b>	
14:00 – 14:15	Recent improvements of Wind Doppler Lidars for building observing networks	Dr Ludovic Thobois et al.
14:15 – 14:30	SKIRON3D: A Novel 3D Scanning Doppler Wind Lidar Featuring Four Independent Wavelength-Channels – Application to Wind and Wake Vortex Monitoring with the same Instrument	Dr Sebastian Kauczok et al.
14:30 – 14:45	Day and Night-time Estimation of Aerosol extinction coefficients at RGB wavelength and visibility distance by Using Digital Camera	Prof Dukhyeon Kim et al.
14:45 – 15:00	Development of a New Cloud/Precipitation Particle Imaging Radiosonde Using the 400-MHz Meteorological Band	Dr Kensaku Shimizu et al.
15:00 – 15:15	New instrument for automatic pollen monitoring networks	Mr Erny Niederberger
15:15 – 15:30	Towards radiatively immune thermometry in weather stations	Dr Laura Bevilacqua et al.
15:30 – 15:45	Transfer Learning with Change Monitoring for Camera-based Snow Detection	Mr Jean-Philippe Andreu et al.
15:45 – 16:15	<b>COFFEE / TEA BREAK</b>	
16:15 – 17:30	<b>PANEL DISCUSSION SESSION 1: Optimizing costs of stations and accessing more measurements for GBON</b>	

<b>TUESDAY, 11 OCTOBER 2022</b>		
<b>Time</b>	<b>Title of presentations</b>	<b>Author(s)</b>
<b>Topic 2: Intercomparisons and characterization of instruments and methods</b>		
9:00 – 9:15	Results from the 13th International Pyrheliometer Comparisons IPC-XIII	Dr Wolfgang Finsterle
9:15 – 9:30	Pyranometer intercomparison at the BSRN site in Cabauw, the Netherlands	Dr Tiemo Mathijssen et al.
9:30 – 9:45	COAT Project: Intercomparison of thermometers and radiation shields in polar climate	Dr Carmen Garcia Izquierdo et al.
9:45 – 10:00	Continental Scale Study of the Influence of Screens and Siting on Temperature Measurement	Dr Warne Jane et al.
10:00 – 10:15	Results from A Multi-year Analysis of All-In-One Meteorological Observing Sensors	Dr Bradley Illston
10:15 – 10:30	The EUMETNET AutoPollen-ADOPT International Intercomparison Campaign: An overview and key results	Dr Benoît Crouzy et al.
10:30 – 11:00	<b>COFFEE / TEA BREAK, POSTER VIEWING</b>	
11:00 – 11:15	Performance Analysis of Marine Automatic Weather Station in Anak Krakatau Volcano to Monitor Environmental Condition and Volcanic Landslide Tsunami	Mr Sugiarto Sugiarto et al.
11:15 – 11:30	Irish Weather Buoy Development and Rogue Wave Observations	Mr Donal Kennedy et al.
11:30 – 11:45	Using the measured particle size distribution to assess the wind induced undercatch of catching-type gauges	Dr Arianna Cauteruccio et al.
11:45 – 12:00	A comparison of precipitation measurement from multiple instruments	Dr Bikas Chandra Bhattarai et al.
12:00 – 12:45	<b>2-min presentations of Sessions 2&amp;3 posters</b>	
12:45 – 14:00	<b>LUNCH BREAK, EXHIBITION VIEWING</b>	
<b>Topic 3: TRACEABILITY OF MEASUREMENTS TO RECOGNIZED STANDARDS</b>		
14:00 – 14:15	Metrology for aerosol optical properties	Dr Julian Gröbner
14:15 – 14:30	Wind direction sensor calibration method and procedure	Mr SalihH Çakıl
14:30 – 14:45	SI-traceable water vapour reference gas mixtures at $\mu\text{mol/mol}$ used for the validation of hygrometers	Dr Tobias Bühlmann et al.
14:45 – 15:00	Dynamic Characterization of Humidity Sensors Using a Novel H <sub>2</sub> O Vapor Step Change Generator with Traceable Sampling-free Online Monitoring	Mr Felix Witt et al.
15:00 – 15:15	Results, recommendations and challenges of the first ILC campaign at RA-I Africa	Mr Mounir AZIZ
15:15 – 15:30	Experimental evaluation of the effect of presence of obstacles in the vicinity of sites hosting near surface meteorological measurement. The case of the road.	Dr Graziano Coppa et al.
15:30 – 16:00	<b>COFFEE / TEA BREAK, POSTER VIEWING</b>	
16:00 – 17:15	<b>PANEL DISCUSSION SESSION 2: OSCAR<sup>1</sup> Future plan - How could OSCAR better support your needs?</b>	
17:15 – 19:00	<b>LATE EVENING POSTER SESSION</b>	

<sup>1</sup> The WMO Observing Systems Capability Analysis and Review Tools

WEDNESDAY, 12 OCTOBER 2022		
Time	Title of presentations	Author(s)
<b>Topic 4: Measurement quality assurance and quality control</b>		
9:00 – 9:15	Measurements uncertainty in meteorology and climatology: joint efforts to improve knowledge	Dr Andrea Merlone et al.
9:15 – 9:30	Siting Classification – a critical review of member experiences, guidelines for implementations and further development	Dr Mareile Wolff et al.
9:30 – 9:45	Quantification of the Impact of Observations on Global NWP Model Forecasts using FSOI Analysis	Dr Sharon Jewell et al.
9:45 – 10:00	Quality controls applied to opportunistic data for agriculture	Dr Anne-Lise Beaulant et al.
10:00 – 10:15	Analysis of Netatmo Data Quality within the London Model Domain	Mr Matthew Fry
10:15 – 10:30	Observations of Atmospheric Carbon Dioxide Concentrations in Hong Kong	Dr Hok-yin LAM et al.
10:30 – 10:45	The 2021 ASOPOS (Assessment of Standard Operating Procedures (SOPs) for OzoneSondes) 2.0 WMO/GAW Report 268: Global Ozone sonde Best Practices	Dr Anne M Thompson et al.
10:45 – 11:15	<b>COFFEE / TEA BREAK, POSTER VIEWING</b>	
<b>Topic 5: Capacity development towards quality measurements and sustainability</b>		
11:15 – 11:30	Addressing Capacity Development with a focus on gender balance and engagement of young experts in the WMO Earth Observing Systems and Monitoring Networks	Ms Estelle Grueter et al.
11:30 – 11:45	Organization experience with personnel competences related to installing, operating, calibration and maintenance of equipment: Zimbabwe Meteorological Services Department (ZMSD)	Mr Webster Magwaro
11:45 – 12:00	JMA International Collaboration in the field of Meteorological Instrument Calibration	Mr Hiroumi Shigeoka
12:00 – 12:15	Automation of the precipitation gauge network of the NIMH Bulgaria. Challenges in the adaptation of the methodology of observations to the requirements	Mrs Stanislava Radeva et al.
12:15 – 13:00	<b>2-min presentations of Sessions 4&amp;5&amp;6 posters</b>	
13:00 – 14:00	<b>LUNCH BREAK, EXHIBITION VIEWING</b>	

**PROF DR VILHO VÄISÄLÄ AWARDS 2020 and 2022 CEREMONIES**

14:00 - 14:10	Introduction on the scope of the <i>Professor Dr. Vilho Väisälä Awards</i>	
14:10 – 14:35	Automation solution to manage technical operations and transfer the real-time information from manual stations of Meteorological and Hydrological in Viet Nam	Dr Do Huy Duong
14:35 – 15:00	The Precision Solar Spectroradiometer (PSR) for direct solar irradiance measurements	Dr Julian Gröbner
15:00 – 15:25	Unified AWS Data Collection, Integration and Processing Systems (UNI-AWS DCIPS)	Dr Chemseddine EI Garrai
15:25 – 15:50	Spectrum calibration of the first hyperspectral infrared measurements from a geostationary platform: Method and preliminary assessment	Dr Qiang Guo
16:00 – 17:30	<b>EXHIBITION AND POSTER VIEWING</b>	

## THURSDAY, 13 OCTOBER 2022

Time	Title of presentations	Author(s)
<b>Topic 6: Advancing Measurements in support of WIGOS vision 2040</b>		
9:00 – 9:15	Regional WIGOS Center of Casablanca: what role to play in enhancing performance of observing networks in Africa	Dr RABIA MERROUCHI
9:15 – 9:30	Using WIGOS tools to monitor and improve quality on local observing networks	Mrs Martina Suaya et al.
9:30 – 9:45	WIGOS Metadata Representation (WMDR) revisited	Dr Jörg Klausen et al.
9:45 – 10:00	Towards Provenance metadata for METNorway datasets	Ms Nina E Larsgård et al.
10:00 – 10:15	Tiered networks	Prof Peter Thorne et al.
10:15 – 10:30	Specifying, designing and implementing a global surface reference network - first steps for the GSRN	Dr Tilman Holfelder et al.
10:30 – 11:00	<b>COFFEE / TEA BREAK, POSTER VIEWING</b>	
11:00 – 11:15	Transitioning to modern measurements	Mr Andrew Harper et al.
11:15 – 11:30	Status and impact of radiosonde and surface observing systems	Mr Bruce Ingleby
11:30 – 11:45	The importance of frequency management for meteorological observation	Mr Eric ALLAIX
11:45 – 12:00	Assessing the role and potential benefits of weather-sensing Uncrewed Aircraft Systems through the WMO UAS Demonstration Campaign	Dr Debbie O'Sullivan et al.
12:00 – 12:15	An essential update of WMO-No. 8 for the best practices of automated precipitation measurement	Dr Samuel Buisan et al.
12:15 – 12:30	New innovations to reduce environmental footprint of upper-air soundings	Matti Lehmuskero et al.
12:30 – 12:45	WMO's Upper-Air Instrument Intercomparison 2022: progress report at the half-way point	Dr Frédéric P.A. Vogt et al.
12:30 – 14:00	<b>LUNCH BREAK, EXHIBITION VIEWING</b>	
14:00 – 14:15	Environmentally sustainable instrumentation in automated meteorological sensor networks	Mr Darren Lyth
14:15 – 14:30	WMO Leadership on Environmental Sustainability of Observations in the Context of GBON Implementation	Mr Peter Leibiuk et al.
14:30 – 15:45	<b>PANEL DISCUSSION SESSION 3: Environmental Sustainability of observing systems</b>	
15:45 – 16:00	<b>CLOSING OF TECO-2022</b>	