



WORLD
METEOROLOGICAL
ORGANIZATION
WEATHER CLIMATE WATER

WMO TECHNICAL CONFERENCE ON
METEOROLOGICAL AND ENVIRONMENTAL
INSTRUMENTS AND METHODS OF OBSERVATION
(TECO-2024)

PROVISIONAL PROGRAMME

(as of 02 September 2024)

The WMO Technical Conference on Meteorological and Environmental Instruments and Methods of Observation (TECO-2024)

**Vienna, Austria
23-26 September 2024**

**Theme: *"Measurements and new technologies for WMO
priority initiatives"***

MONDAY, 23 SEPTEMBER 2024

08:00–09:00	Registration			WMO Secretariat
09:00–09:30	Opening Ceremony			
TOPIC 1: NEW MEASUREMENT TECHNOLOGIES AND INNOVATIVE INTEGRATED APPROACHES				
Time	Paper No	Title of presentations	Speaker	Country
09:30–09:45	O1(1)	Multi-Magnification Networks for Visibility Estimation	Mr Nicola Santacroce	Switzerland
09:45–10:00	O1(2)	Cosmic Rays Neutron Sensing is a mature technology for Snow Water Equivalent measurement	Dr Luca Stevanato	Italy
10:00–10:15	O1(3)	Strategy and technology for de-icing treatment on roads and runways during winter precipitation	Dr Arkady Koldaev	Russian Federation
10:15–10:30	O1(4)	THERMACERN: A new method for precipitation analysis from Thies CLIMA	Dr Christoph Peper	Germany
10:30–11:00	COFFEE / TEA BREAK			
11:00–11:15	O1(5)	AI improvement of irradiance measurements	Dr Marc Korevaar	Netherlands
11:15–11:30	O1(6)	Overview of the 2024 WMO UAS Demonstration Campaign	Dr James O. Pinto	United States of America
11:30–11:45	O1(7)	Exploitation of webcam images for coastal applications	Ms Nerea Garmendia García	Spain
11:45–12:00	O1(8)	The Yucatan HF Radar Network as a Pathfinder for Caribbean-wide Operations	Dr Scott Glenn	United States of America
12:00–12:30	1-min Presentations of Session 1 Posters (1 slide for each)			
12:30–14:00	LUNCH BREAK			
14:00–14:15	O1(9)	Mode-S: the benefits and challenges of high-density aircraft observations	Mr Bruce Ingleby	United Kingdom
14:15–14:30	O1(10)	Cost-effective, High-accuracy Routine Atmospheric Profiling with wxUAS	Dr Ben Pickering	United Kingdom
14:30–14:45	O1(11)	Mapping horizontal wind speed using a single Doppler Wind Lidar scanning horizontally: a test case over Paris	Dr Clément Toupoint	France

14:45–15:00	O1(12)	A situ profiling techniques that can provide cost-effective upper-air measurements Round-trip Drifting Sounding System (RDSS) in China	Mr Qiyun Guo	China
15:00–15:15	O1(13)	Enhancing Precipitation Particle Observations: The Development and Application of the Balloon-borne and Ground-based Rainscope	Dr Kenji Suzuki	Japan
15:15–15:30	O1(14)	WindBorne Global Sounding Balloon Observations	Mr Todd Hutchinson	United States of America
15:30–15:45	O1(15)	Machine learning methodology for remote calibration and anomaly detection in collaborative sensor fusion networks	Mr Amul Batra	India
15:45–16:15	COFFEE / TEA BREAK			
16:15–17:30	PANEL DISCUSSION SESSION 1: Trends and innovations in measurement technologies			
TUESDAY, 24 SEPTEMBER 2024				
TOPIC 2: ENVIRONMENTAL SUSTAINABILITY OF OBSERVING SYSTEMS				
Time	Paper No	Title of presentations	Speaker	Country
09:00–09:15	O2(1)	Driving a paradigm shift: key outcomes from the WMO initiative to advance the environmental sustainability of observing systems and methods	Dr Michael Earle	Canada
09:15–09:30	O2(2)	A novel Method of evaluating the environmental Impact of Radiosondes	Mr Johannes Frielingsdorf	Germany
09:30–09:45	O2(3)	Evaluating the effectiveness of propylene glycol and ethanol as antifreeze: an environmentally friendly alternative	Dr Bikas Chandra Bhattarai	Norway
09:45–10:00	O2(4)	Development and Testing of an Ultralight Reusable Glidersonde	Mr Yohan Hadji	Switzerland
10:00–10:15	O2(5)	Two examples of the use environmentally-friendly sensors by Météo-France	Ms Beatrice Vincendon	France
10:15–10:30	O2(6)	A truly sustainable and comprehensive solution for The Global Basic Observing Network	Mr Timo Siirtola	Finland
10:30–11:00	COFFEE / TEA BREAK, POSTER VIEWING, EXHIBITION VISIT			

TOPIC 3: CHARACTERIZATION AND TESTING OF INSTRUMENTS AND METHODS				
Time	Paper No	Title of presentations	Speaker	Country
11:00–11:15	O3(1)	Multi-year Analysis of All-In-One Meteorological Observing Instruments for Scientific Research Use	Dr Bradley Illston	United States of America
11:15–11:30	O3(2)	Intercomparison of radiation shields in polar climate. COAT Project	Dr Carmen Garcia Izquierdo	Spain
11:30–11:45	O3(3)	Impact of thermometer diameter on observations of air temperature	Ms Laura Bevilacqua	United Kingdom
11:45–12:00	O3(4)	Environmental Influences on field measurement of Temperature	Dr Jane Warne	Australia
12:00–12:15	O3(5)	Installation and Operation of Ultrasonic Anemometers in JMA	Mr Takashi Hamagami	Japan
12:15–12:45	1-min Presentations of Sessions 2, 3 and 4 Posters (1 slide for each)			
12:45–14:00	LUNCH BREAK, EXHIBITION VISIT			
14:00–14:15	O3(6)	Improving the cloud cover estimation using wide-field of view imagers compared to narrow field instruments	Mr Mehdi Ben Slama	France
14:15–14:30	O3(7)	Time Constant of a Newly Released Air Temperature Sensor and its Implications	Dr Dirk V. Baker	United States of America
14:30–14:45	O3(8)	Inter-comparison of rainfall estimates from two optical rain gauge models	Dr Jacky TK LAU	Hong Kong, China
14:45–15:00	O3(9)	Development of quantitative precipitation estimation (QPE) relations for dual-polarization radars based on raindrop size distribution measurements in Metro Manila, Philippines	Mr Marco Polo Ibanez	Philippines
15:00–15:30	POSTER SESSION FOR TOPIC 1, 2 & 3			
15:30–16:00	COFFEE / TEA BREAK, POSTER VIEWING, EXHIBITION VISIT			
16:00–17:15	PANEL DISCUSSION SESSION 2: Capacity development and challenges in maintaining measurement networks			

WEDNESDAY, 25 SEPTEMBER 2024

TOPIC 4: TRACEABILITY OF MEASUREMENTS TO RECOGNIZED STANDARDS

Time	Paper No	Title of presentations	Speaker	Country
09:00–09:15	O4(1)	Introduction to the development of ISO test method standards of radiosonde temperature, humidity, and solar radiation correction	Dr Yong-Gyoo Kim	Republic of Korea
09:15–09:30	O4(2)	Experimental study on measurement uncertainty of air temperature observation	Dr Jianxia Guo	China
09:30–09:45	O4(3)	Intercomparison and traceability of visibility measurements	Dr Jessica Strickland	Netherlands
09:45–10:00	O4(4)	Sea-Ice Observations: Optimizing Methods in a Changing Environment	Dr Petra Heil	Australia
10:00–10:15	O4(5)	Measurement uncertainty of eddy covariance based carbon budget	Dr Nicola Arriga	Italy
10:15–10:45	COFFEE / TEA BREAK, POSTER VIEWING, EXHIBITION VISIT			
10:15–10:45	Meet with SC-MINT Expert Teams Chairs Informal discussions for persons interested in contributing to works of Expert Teams			

TOPIC 5: QUALITY ASSURANCE AND MAINTENANCE OF THE OBSERVING SYSTEMS

Time	Paper No	Title of presentations	Speaker	Country
10:45–11:00	O5(1)	Siting Classification 2024: Guidance on implementation of the siting classification and future work on its optimization	Dr Mareile A. Wolff	Norway
11:00–11:15	O5(2)	Maintenance and quality assurance of New York State Mesonet	Dr Junhong Wang	United States of America
11:15–11:30	O5(3)	Sustaining a global observing network – the International Monitoring System perspective	Dr Lucie Pautet	France
11:30–11:45	O5(4)	MET Malaysia's Meteorological Mobile Maintenance and Site Calibration	Mr Mohd Azman Abd Ghafar	Malaysia
11:45–12:30	1-min Presentations of Sessions 5 & 6 Posters (1 slide for each)			
12:30–14:00	LUNCH BREAK, EXHIBITION VISIT			
14:00–14:15	O5(5)	Research and Application of Weather Radar Calibration Methods	Dr Yubao Chen	China

14:15-14:30	O5(6)	What peculiar situations can we find on the Basque coast?	Ms June Madariaga Navarro	Spain
14:30-14:45	O5(7)	Impact of assimilating Mode-S observations into the Met Office global deterministic NWP model on forecast accuracy, from a European and global network	Dr. Elliott Warren	United Kingdom
14:45-15:15	POSTER SESSION FOR TOPIC 4, 5 & 6			
15:15-15:45	COFFEE / TEA BREAK, EXHIBITION VISIT			
15:45-17:00	PANEL DISCUSSION SESSION 3: Evolving measurement requirements for WMO priorities (EW4All, G3W, GBON, RBON and WIGOS Vision*)			
17:00-18:00	DRINK RECEPTION			
THURSDAY, 26 SEPTEMBER 2024				
TOPIC 6: CAPACITY DEVELOPMENT FOR SUSTAINABLE AND QUALITY MEASUREMENTS				
Time	Paper No	Title of presentations	Speaker	Country
09:00-09:15	O6(1)	The benefits of a standardised technical specification for Automatic Weather Station design and installation	Mr David Hiscock	United Kingdom
09:15-09:30	O6(2)	Field evaluation 3D-Printed Automatic Weather Stations (3D-PAWS) in Türkiye	Mr Engin Oztürk	Türkiye
09:30-09:45	O6(3)	Development and Application of Microclimate Observation Network in Hong Kong	Dr Dick Ho-ming Leung	Hong Kong, China
09:45-10:00	O6(4)	Sustainable and quality measurements for answering AFOLU emission challenges regarding NDCs in Colombia	Dr Edwin Cristancho-Pinilla	Colombia
10:00-10:15	O6(5)	Provision of AWS training - lessons learnt	Mr Andrew Harper	New Zealand
10:15-10:45	COFFEE / TEA BREAK, POSTER VIEWING			
10:45-11:00	O6(6)	Standardization Of First-Mile Data Collection in China	Dr Dongdong Chen	China
11:00-11:15	O6(7)	Capacity Building Challenge in A Fast Climate & Technology Changing Environment For Developing Countries	Ms Esther Nakiwala Kigongo	Uganda
11:15-11:30	O6(8)	Improving runway visual range calculation using an optimized optical parameter	Mr Yashar Rostami	Islamic Republic of Iran

11:30-11:45	O6(9)	Integrated Low-Cost Radar Sensor for Snow Height Measurement: Prototype and Complete Winter Season Measurements	Mr Víctor Herráiz-López	Spain
11:45-12:00	O6(10)	Commissioning of Ten Numbers of X-Band SSPA Based Doppler Weather Radars in Himalayan Region of India	Ms Arpita Rastogi	India
12:00-12:15	O6(11)	Developing water resources management plans for enhanced management, protection, development, and sustainable utilisation of water resources in Lesotho	Ms Kananelo Bookholane	Lesotho
12:15-13:45	LUNCH BREAK, EXHIBITION VIEWING			
13:45-14:00	O6(12)	WMO Guide to Operational Weather Radar Best Practices – first edition	Dr Daniel Michelson	Canada
14:00-14:15	O6(13)	Specifications for solid-state transmitter weather radars	Mr Pekka Utela	Finland
14:15-14:30	O6(14)	Advancing methods for monitoring thermal balance of sea ice during the North Pole - 41 expedition 2022/2024 based on Lagrangian profiling buoys	Dr Vasily Smolyanitsky	Russian Federation
14:30-14:45	O6(15)	Observation comparison and mutual verification of the integrated air-surface system for Fengyun meteorological satellite	Dr Peng Zhang	China
14:45-15:00	CLOSING OF TECO-2024			

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EW4All: Early Warnings for All

G3W: Global Greenhouse Gas Watch

GBON: Global Basic Observing Network

INFCOM: Commission for Observation, Infrastructure and Information Systems

RBON: Regional Basic Observing Network

SC-MINT: INFCOM/Standing Committee on Measurements, Instrumentation and Traceability

WIGOS: WMO Integrated Global Observing System

POSTER SESSIONS

TOPIC 1: NEW MEASUREMENT TECHNOLOGIES AND INNOVATIVE INTEGRATED APPROACHES			
Poster No	Title	Author (s)	Country
P1(1)	A joint initiative between WMO and HMEI on standardization of data collection	Mr Rémy Giraud	France
P1(2)	SSPA Dual-polarization Weather Radar Maintenance	Mr. Hiroya Endo et al.	Japan
P1(3)	Heavy rainfall events of the last 20+ years in Germany: A web-based open information tool	Dr Thomas Einfalt et al.	Germany
P1(4)	SwissMetNet migrating to cloud technologies	Dr Christian Félix et al.	Switzerland
P1(5)	Development of All-weather UAV (Marshall) and Initial Observations	Dr Kazuhiro Yoshimi et al.	Japan
P1(6)	Develop an AI utility to detect cloud types and meteorological visibility in real-time.	Mr Hamza Hamza Mohamed	Egypt
P1(7)	Ground-based lidar operational and research activities at KNMI	Dr Knoop Steven et al.	Netherlands
P1(8)	Development of small uncrewed surface observation vehicles to contribute to typhoon monitoring, forecasting, and modification in the tropical Northwest Pacific Ocean	Dr Shuichi Mori et al.	Japan
P1(9)	Fast and High Resolution Detection Technology Implemented on Weather Radar	Mr Chian Zhang et al.	China
P1(10)	Correction, based upon the air density, of the Density Size Distribution (DSD) estimated by Radar precipitation sensor to improve liquid precipitation measurement	Mr J. Ismael Sanambrosio et al.	Spain
P1(11)	Introduction of Standard Meteorological Observatory in the Korea Meteorological Administration	Mr Ki Hoon Kim	Republic of Korea
P1(12)	Flight altitude control technique using latex weather balloons aimed for advancing upper-air observations	Dr Kensaku Shimizu et al.	Japan
P1(13)	Assessment of Stratospheric Dropsonde Data through NWP Model Comparisons	Mr Matthew Fry	United Kingdom
P1(14)	Enhancing Radiosonde Temperature Measurements	Mr Sencer Aydın et al.	Türkiye

	Through Advanced Sensor Coatings		
P1(15)	LEELA lightning detection and VLF recording	Dr Edmund K Stone et al.	United Kingdom
P1(16)	Extracting Key Indicators of Snow and Horizontal Visibility from Webcam Images	Dr Pierre Lepetit et al.	France
P1(17)	New design of radiation shield (RS) – comparison	Mr Juraj Schwarz	Slovakia
P1(18)	A Novel Camera-Based Approach to Increase the Quality, Objectivity and Efficiency of Aeronautical Meteorological Observations	Mr Lukas Ivica	Slovakia
P1(19)	Advancements in air temperature measurement technologies: evaluating and comparing the new SMarT CELLino solar screen	Dr Adriano Fedi et al.	Italy
P1(20)	Innovative solution to see rainfall	Ms Amélie Thevenet-Leprevost	France
P1(21)	Validation and benchmark of a novel low-cost measurement system of direct and diffuse irradiance at six sites worldwide	Dr Blum Niklas et al.	Germany
P1(22)	Presentation of the French national weather service new automatic weather station dedicated to aeronautical platforms.	Mr Leroy Fabrice	France
P1(23)	Weather Surveillance: Aircraft-based Observations via Automatic Dependent Surveillance – Broadcast	Mr Darr Stephen	United States of America
P1(24)	The Importance of Data in Emergency Management	Mr Kerry Caslow Christian Abouzeid et al.	United States of America
P1(25)	Multi-wavelength Polarized Raman Meteorological Lidar Observation Network	Dr Nan Shao et al.	China
P1(26)	Common Data Communication Protocol	Mr Yusuf Salih Eroğlu et al.	Türkiye
P1(27)	Smart Data Logging System	Mr Yusuf Salih Eroğlu et al.	Türkiye
P1(28)	Communicating Integrated Early Warning Weather Information	Mr Jon Tarleton	United States of America
P1(29)	CLODES®, AI-Based System For Overview Of Current Sky Condition, In Terms Of Clouds Classification And Coverage	Dr Claudio Fausto Petrachi et al.	Italy
P1(30)	Storm Surge Modelling in The Eastern Indonesia Waters	Mr Khafid Rizki Pratama	Indonesia
P1(31)	Comparison Of Digital And Analogue Instruments	Mr Hamudi Sikoya	Zimbabwe
P1(32)	Digitization Of Mercury Barometers And Verification Process Of Digital Barometers Of Synoptic Stations In Senegal	Mr Ibrahima Diallo et al.	Senegal

P1(33)	Monitoring forests in remote areas by IoT based measuring systems: the RemoTrees project	Dr Luca Belelli Marchesini et al.	Italy
P1(34)	Drosondes from the Stratosphere: Targeted Observations Over Remote Regions Using Stratospheric Platforms.	Mr Paul Stevens et al.	United Kingdom
P1(35)	FENGYUN Meteorological Satellite: An Innovation Platform for Earth Observation	Dr Dongyan Mao et al.	China
P1(36)	Eddy covariance flux system on a buoy: recent advancements in gas analyzer technology	Dr Ivan Bogoev et al.	United States of America
P1(37)	Cloud classification from global horizontal irradiance data using a ML model in Buenos Aires, Argentina	Ms Anabela Lusi et al.	Argentina
P1(38)	Innovation in met-ocean observing to address upcoming blue economy challenges.	Mr Chad Whelan et al.	United States of America
P1(39)	Rainfall-runoff modeling using SCS-CN under HEC-HMS and GIS techniques in Matadi catchment of Congo River, Democratic Republic of Congo	Dr Kabadi Papy et al.	Democratic Republic of Congo
P1(40)	Sea Surface Salinity Drifting Buoys Based on SVT Technology	Dr Eugene Lunev et al.	Russian Federation
P1(41)	Monitoring of water level and the issue with water discharges	Mr Vasko Stojov	North Macedonia
P1(42)	Title: Using AI and the Internet of Things to Create a Global Network for Environmental Monitoring	Mr Ahmed Sharafaddin	Yemen
P1(43)	Experiences of IoT measurement technology in meteorological and marine applications	Mr Lasse Latva et al.	Finland
P1(44)	Nova PM Sensor SDS011 for Alternative Air Quality Monitoring based on Internet of Things	Mr Arsy Yudha Prinanto et al.	Indonesia
P1(45)	LidarCUBE - an advanced compact lidar for routine operations	Mr Johannes Frielingsdorf et al.	Germany
P1(46)	Organizational and Methodological Issues of Operation of Modern Hydrometric Measurement Equipment in the Hydrometeorological Service of Ukraine	Dr Viacheslav Manukalo et al.	Ukraine

TOPIC 2: ENVIRONMENTAL SUSTAINABILITY			
Poster No	Title	Author(s)	Country
P2(1)	The "Green Reconstruction" Approaches As a Basis of the Restoration of the Hydrometeorological Observations System of Ukraine	Dr Viacheslav Manukalo et al.	Ukraine
P2(2)	Sustainability and availability: democratisation of radar technology	M Michal Najman et al.	Czechia
P2(3)	Sustainable weather and environmental observation systems	Mr Wathik Chahabane Youssef	Comoros
P2(4)	Effect of balloon size, parachute use and radiosonde design on the safety of descending radiosondes	Mr David Edwards et al.	United Kingdom
TOPIC 3: CHARACTERIZATION AND TESTING OF INSTRUMENTS AND METHODS			
Poster No	Title	Author(s)	Country
P3(1)	Design for the small-sized air-circulating chamber for thermometer comparison applicable to the liquid bath	Mr Sunghun Kim et al.	Republic of Korea
P3(2)	Optimizing Meteorological Data Collection with Digital Climate Stations: A Comprehensive Analysis	Mr Gde Krisna Lingga Aditama et al.	Indonesia
P3(3)	Comparative Analysis of Temperature and Humidity Sensors in Unusual Environmental Conditions	Mr Hendri Satria WD et al.	Indonesia
P3(4)	A Comparison of Daily Rainfall Measurements at Irish Stations: Pluvio Weighing Rain Gauge versus Manual Gauge	Mr Tony O'Leary et al.	Ireland
P3(5)	Assessing measurement uncertainty and response time of RS41 humidity sensors using an upper air simulator	Mr Young-Suk Lee et al.	Republic of Korea
P3(6)	Further steps towards an open-source RS41 Data Processing Toolchain	Mr Johannes Frielingsdorf et al.	Germany
P3(7)	Intercomparison of thermometers in a Stevenson Screen under polar climate	Dr Carmen Garcia Izquierdo et al.	Spain
P3(8)	Field trials of trace-gas analyzers designed for eddy covariance flux measurements of methane (CH ₄) and nitrous oxide (N ₂ O)	Mr Scott Cornelsen et al.	United States of America
P3(9)	Influence of user errors on ADCP measurement outcome	Mr Tomas Boraros et al.	Slovakia

P3(10)	Instrumentation performance and preliminary results for running SNOWPACK model	Dr Samuel Buisan et al.	Spain
P3(11)	Double scattering non-catchment IR precipitation sensor "Ray" for road de-icing operation	Dr Arkady Koldaev et al.	Russian Federation
P3(12)	Comparison of Carbon Dioxide Emissions Calculated by Different Methods for Determining the Biomass Content in a Waste Incinerator	Mr Seung Hyun Jung et al.	Republic of Korea
P3(13)	Towards wider usage of radiosonde descent data	Mr Bruce Ingleby	United Kingdom
P3(14)	Effects of environmental conditions on the CIMO WMO Class determination for OTT HydroMet precipitation sensors	Dr Johanna Spiegel-Pinzer	Germany
P3(15)	An intercomparison of precipitation sensors to evaluate the uncertainty in precipitation type determination in Oslo	Mr Renaud Gaban et al.	Norway
P3(16)	Dependence of surface air temperature measurement on thermometer's installation height	Mr Alberto Bottacin et al.	Italy
P3(17)	Metrological validation of the 48.8 °C European extreme air temperature record	Dr Chiara Musacchio et al.	Italy
P3(18)	The wind induced bias of the 2D Video Disdrometer	Dr Enrico Chinchella et al.	Italy
P3(19)	improvement of relative humidity measurement in a meteorological observation network characterized by an extreme environment	Mr Mounir AZIZ	Morocco

TOPIC 4: TRACEABILITY OF MEASUREMENTS TO RECOGNIZED STANDARDS

Poster No	Title	Author(s)	Country
P4(1)	Participation of RIC Casablanca in ILC of pyranometers and pyrhemometers organized by "the European ESTI laboratory of the Joint Research Center (JRC)"	Mr Mounir AZIZ	Morocco
P4(2)	Presentation of the new calibration procedure according to ISO9847:2023 for pyranometers according to the two indoor and outdoor calibration operating modes traceable through absolute cavity radiometer	Mr Mounir AZIZ	Morocco
P4(3)	Laboratory calibration of disdrometers using a precision raindrop generator	Dr Enrico Chinchella et al.	Italy

P4(4)	Evaluating the environmental effect on air temperature measurements from ground-based stations	Ms Natali Giselle Aranda et al.	Argentina
P4(5)	Arctic Metrology: case study for air temperature measurements at Ny-Ålesund, Svalbard	Dr Graziano Coppa et al.	Italy
P4(6)	GSRN Pilot - Understanding uncertainties, developing data products and implementing a global surface reference network	Dr Tilman Holfelder et al.	Germany
P4(7)	Enhancing Calibration Capacity in Compact Relative Humidity Calibrators	Dr Adam Krovina et al.	Slovakia
P4(8)	Details of temperature measurement in the operational UK network	Mr Mike Molyneux	United Kingdom
P4(9)	SI-Traceable Indoor Calibration of Pyranometers by Comparison with a Reference Solar Cell	Dr Jae-Keun Yoo et al.	Republic of Korea
P4(10)	Adoption and implementation of ISO 17025 in Geolux hydrological laboratory	Dr Sanja Grubesa et al.	Croatia
P4(11)	Comparing measurements obtained with two KNMI precipitation gauge set-ups to a field reference designed according to the ISO/EN 13798:2010 standard	Mr Michael Quinlan	Netherlands
P4(12)	Towards a next generation meteorological observing network for the Netherlands: first experiences from a managed change perspective	Mr Marijn de Haij et al.	Netherlands
P4(13)	A global scientific effort to improve atmospheric air temperature measurements.	Dr Andrea Merlone et al.	Italy

TOPIC 5: QUALITY ASSURANCE AND MAINTENANCE OF THE OBSERVING SYSTEMS

Poster No	Title	Author(s)	Country
P5(1)	Development of meteorological measurement standards: An introduction to the VDI-Standards	Dr Ge Cheng et al.	Germany
P5(2)	Meteorological measurement standards: Overview of ISO/TC 146/SC 5 "Meteorology" Scope and Activity	Dr Ge Cheng et al.	Germany
P5(3)	Introduction of Regional WIGOS Center (RWC) Tokyo Initiatives	Mr Satoshi Kimura et al.	Japan
P5(4)	Installation, Maintenance and Quality Control Procedures of the Network of Automatic Meteorological Stations.	Ms Martha Eugenia Pereira Molina et al.	Costa Rica
P5(5)	Use of machine learning methods for quality control and	Dr Jose Araya	Costa Rica

	data restoration of metocean data		
P5(6)	The use of the Theodolite HD mobile application, orthophoto images and a digital relief model for the purpose of classifying the locations of meteorological stations for selected meteorological elements	Mr Karol Seják	Slovakia
P5(7)	Implementation of Spare Part Analysis Using Reliability, Maintainability, and Availability (RAM) Metrics for Automated Weather Observing System Spare Parts Procurement in Indonesia	Mr Sugiarto Sugiarto et al.	Indonesia
P5(8)	Challenges and Best Practices in Spare Parts and Consumables Management (A Case Study of Zimbabwe Meteorology Services Department)	Mr Travolta Anesu Zibani	Zimbabwe
P5(9)	Automatic siting class of weather stations to assess the effects of heat sources and shadows in Norway	Dr Pierre-Marie Lefevre et al.	Norway
P5(10)	Lidar Quality Assurance System	Dr Zhichao Bu et al.	China
P5(11)	KMA/NIMS Atmospheric Research Aircraft (NARA) observation system operation status and activities	Mr Sueng-Pil Jung et al.	Republic of Korea
P5(12)	Automatic quality control of observational data at MET Norway	Dr Amélie Neuville et al.	Norway
P5(13)	Measurement validation in Automatic Weather Station	Mr Jorma Islander	Finland
P5(14)	Good quality assurance and maintenance AWS database	Mr Abubakarr Jalloh	Sierra Leone
P5(15)	The IoT technology for Moscow area early warning meteorological hazard system.	Dr Arkady Koldaev et al.	Russian Federation
P5(16)	Case study: Transition from conventional to automatic meteorological observing networks in Senegal; challenges and solutions	Mr Sadibou Ba et al.	Senegal

TOPIC 6: CAPACITY DEVELOPMENT FOR SUSTAINABLE AND QUALITY MEASUREMENTS

Poster No	Title	Author(s)	Country
P6(1)	The benefits of a standardised technical specification for Automatic Weather Station design and installation	Mr David Hiscock	United Kingdom
P6(2)	SINARAME, A brief review of the development history of the Argentinian Weather Radar network	Mr Federico Pablo Renolfi et al.	Argentina

P6(3)	Ground-based remote sensing of atmosphere training course in the Latin America	Dr Elian Wolfram et al.	Argentina
P6(4)	Analytic Platform Development for Design of Cloud Seeding	Mr Jung Hoon Lee et al.	Republic of Korea
P6(5)	Modernization of the INM weather rain gauge network in view of the migration from classic to automatic instruments	Ms Saoussen Cheriaa	Tunisia
P6(6)	Presentation of the Guinea's Meteorological Observation Network	Mr Souwala Dore	Guinée
P6(7)	The possibility to determine the object for visibility observation	Dr Amgalan Ganbat et al.	Mongolia
P6(8)	Analytical vision for meteorological monitoring	Mr Feras Natouf	Syria
P6(9)	The Argentine Marine Observation Network	Dr Gustavo Ferreyra et al.	Argentina
P6(10)	Towards a single global standard for polar weather radar data representation with FM301 – CfRadial2	Mr Mark Curtis et al.	Australia
P6(11)	"Challenges in weather forecasting due to complex terrain and data scarcity in Nepal"	Mr Chiranjibi Bhetuwal et al.	Nepal
P6(12)	Of the necessity to reintroduce weather radars in African countries	Dr Cheikh Abdoulat Diop	Senegal
P6(13)	Environmental Instrument and Methods of Observation	Ms Setsoafia Elikem et al.	Ghana
P6(14)	Dynamics of the transport of materials in the Congo River basin to the Atlantic Ocean	Dr Jean Bienvenu Dinga et al.	Congo
P6(15)	Enhancement of Meteorological Observation Capabilities in Myanmar	Mr Wai Toe Aung	Myanmar
P6(16)	Towards the updated Vision for WIGOS and High-Level Guidance on the Evolution of Global Observing Systems	Ms Estelle Grueter et al.	Switzerland
P6(17)	EUMETSAT's Commercial RO Data Service	Mr Georgios Potiriadis et al.	Germany
P6(18)	EUMETSAT Advanced Retransmission Service Next Generation (EARS-NG)	Mr Georgios Potiriadis et al.	Germany