

WMO TECHNICAL CONFERENCE ON METEOROLOGICAL AND ENVIRONMENTAL INSTRUMENTS AND METHODS OF OBSERVATION (CIMO TECO-2018)

(Amsterdam, the Netherlands, 8-11 October 2018)

Preliminary programme

(as of 27 June 2018)

Topic 1: Characterization and standardization of environmental measurements – traceability assurance

Oral presentations:

| No. | Title | Author(s) |
|------------|--|--|
| O1_1 | Weather radar data representation supporting the emergence of weather radar as a global resource | Dr Daniel Michelson (Canada) et al. |
| O1_2 | Traceability and Calibration of Weather Radar Reflectivity Measurements by Means of a Target Simulator | Dr Marc Schneebeli (Switzerland) et al. |
| O1_3 | Comparing DEVG & EDR Aircraft Turbulence Metrics | Dr Douglas Body (Australia) |
| O1_4 | Comparison of aerosol lidar retrieval methods for boundary layer height detection using ceilometer aerosol backscatter data | Dr Vanessa Caicedo (United States of America) et al. |
| O1_5 | Specification and evaluation of present weather sensors | Dr Wiel Wauben (Netherlands) et al. |
| O1_6 | Development of upper-air simulator for the calibration of radiosondes | Dr Yong-Gyoo Kim (Republic of Korea) |
| O1_7 | Can commercial PRTs meet WMO CIMO response time specifications? | Mr Stephen Burt (United Kingdom of Great Britain and Northern Ireland) |
| O1_8 | WIGOS & OSCAR: Where Observational Requirements Meet Observational Capabilities | Dr Jörg Klausen (Switzerland) et al. |
| O1_9 | Regional instrument centers: towards new roles for even better measures | Dr Rabia Merrouchi (Morocco) |
| O1_10 | Interlaboratory Comparison (ILC) in RA-II, V and VI | Mr Kouichi Nakashima (Japan) et al. |
| O1_11 | Efforts to develop a quantitative definition of cloud base height for aviation | Dr Ulrich Görsdorf (Germany) et al. |
| O1_12 | A new WMO Guide for the Measurement of Cryospheric Variables | Mr Craig D. Smith (Canada) et al. |
| O1_13 | Improving the WMO Guide n.8. Results on the 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 (Italy) et al. |

Poster presentations:

| No. | Title | Author(s) |
|-------|--|--|
| P1_1 | Experiences with the CIMO siting classification in the Dutch meteorological observation network | Mr Marijn de Haij (Netherlands) et al. |
| P1_2 | The QUATRAM Campaign: QUALity and TRaceability of Atmospheric aerosol Measurements | Dr Monica Campanelli (Italy) et al. |
| P1_3 | Air temperature measurement uncertainty associated to a mounting configuration temperature sensor-radiation shield | Dr Miruna Dobre (Belgium) et al. |
| P1_4 | Results of WMO RA VI laboratory inter-comparison | Mr Drago Groselj (Slovenia) et al. |
| P1_5 | Assessing the uncertainty, the repeatability and stability of wind measurements of Doppler LIDARs | Dr Ludovic Thobois (France) et al. |
| P1_6 | Accreditation of RIC-Casablanca and presentation of uncertainty budgets in laboratory and on site | Mr Mounir Aziz (Morocco) et al. |
| P1_7 | Long-term comparisons of screened and aspirated methods of measuring air temperature | Mr Stephen Burt (United Kingdom of Great Britain and Northern Ireland) |
| P1_8 | Intercomparison of Vaisala RS92 and RS41 sondes under controlled laboratory conditions | Dr Graziano Coppa (Italy) et al. |
| P1_9 | Calibration of the new Precipitation Gauge Lambrecht rain[e] H3 at Deutscher Wetterdienst (DWD) | Mr Holger Doerschel (Germany) et al. |
| P1_10 | Metrological evaluation of the building influence on air temperature measurements | Dr Carmen Garcia Izquierdo (Spain) et al. |
| P1_11 | Using data assimilation diagnostics to estimate correlated radiosonde uncertainties | Mr Bruce Ingleby (United Kingdom of Great Britain and Northern Ireland) |
| P1_12 | Effect of snow-reflected radiation in near surface air temperature measurements | Dr Chiara Musacchio (Italy) et al. |
| P1_13 | Quantifying and Mitigating Wind-Induced Undercatch in Rainfall Measurements | Mr Michael Pollock (United Kingdom of Great Britain and Northern Ireland) et al. |
| P1_14 | Calibration services at the Laboratory of the Deutscher Wetterdienst (DWD) to assure traceability | Dr Tilman Hofelder (Germany) et al. |
| P1_15 | Calibration Challenges In Southern Africa | Mr Webster Magwaro (Zimbabwe) |
| P1_16 | An Assessment of the UV A and UV B Radiometer Measurement and its comparison with Global Radiation | Mr Anjit Anjan (India) et al. |
| P1_17 | Interlaboratory comparisons organized by RIC-Casablanca in WMO RA-I | Mr Mounir Aziz (Morocco) et al. |
| P1_18 | A method for correcting and determining uncertainties of measurements by the EE-33 humidity sensor for climate reference measurements in Germany | Dr Sven Brinckmann (Germany) et al. |
| P1_19 | An assessment of the impact of a single-Altair windshield on snowfall accumulation reported by a heated tipping bucket gauge | Dr Samuel T. Buisan (Spain) et al. |
| P1_20 | Automatic Weather Station Architecture | Mr Luis Ca (Guinea-Bissau) |
| P1_21 | Assurance of the traceability of meteorological measurements in the Ministry of the Environment of El Salvador | Prof Saul Canjura (El Salvador) |
| P1_22 | Improving quality measurements of temperature and humidity for urban climatological services | Mr Savino Curci (Italy) et al. |

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| P1_23 | Air Temperature Measurement: The effect of sensor diameter | Dr Michael de Podesta (United Kingdom of Great Britain and Northern Ireland) et al. |
| P1_24 | Metrologie for Meteorologie and QMS | Mr Moctar Diop (Senegal) |
| P1_25 | Feasibility study for automated GRUAN radiosoundings | Dr Christian Félix (Switzerland) et al. |
| P1_26 | Intercomparison of Shelters in the RMI AWS Network | Mr Luis González Sotelino (Belgium) et al. |
| P1_27 | How to use different methods of calibration to achieve cost-effective | Dr Islam Hassan (Egypt) |
| P1_28 | Using GRUAN radiosonde data to estimate biases in NWP fields and satellite radiances | Mr Bruce Ingleby (United Kingdom of Great Britain and Northern Ireland) et al. |
| P1_29 | Calibration:Standards and Traceability of instruments in IMD | Mr Rakesh Kumar (India) et al. |
| P1_30 | Desktop siting classification | Ms Nina Elisabeth Larsgård (Norway) et al. |
| P1_31 | Evaluation of the Performance of Present Weather Sensors | Dr Jan Lenkeit (Germany) et al. |
| P1_32 | Siting Classification of Automatic Weather Station Moroccan Network | Mr Nabil Nouni (Morocco) |
| P1_33 | Determination of automatic weather station self-heating originating from accompanying electronics | Dr Peter Pavlasek (Slovakia) et al. |
| P1_34 | Centinel II: A system for the remote calibration of the pyranometers installed in the PFV of Cuba with connection to the national electricity network | Mr Juan Carlos Pelaez (Cuba) et al. |
| P1_35 | Metrological Investigation on Deep Ocean Thermometers | Dr Andrea Peruzzi (Netherlands) et al. |
| P1_36 | Wooden and plastic screen intercomparison in a Mediterranean climate - The case of Barcelona | Mr Ricard Ripoll (Spain) |
| P1_37 | Microclimate impact on minimum and maximum air temperature | Ms Elina Rudovska (Latvia) |
| P1_38 | Siting Classification Implementation in Observing Network of TSMS | Mr Selçuk Şahin (Turkey) et al. |
| P1_39 | Assessment of Propagation Effects and Radar Data Quality with Dual-Pol Target Simulator during the Olympic Winter Games | Dr Marc Schneebeil (Switzerland) et al. |
| P1_40 | Study on the Effect of Vertical Wind Components on Compact Ultrasonic Anemometers | Mr Karsten Schubotz (Germany) et al. |
| P1_41 | Calibration of scatterometers using a reference transmissometer in Korea | Dr Park Seongchong (Republic of Korea) et al. |
| P1_42 | Snow depth maps in Catalonia | Mr Aleix Serra (Spain) et al. |
| P1_43 | Dynamic calibration of two catching type drop-counting rain gauges | Dr Mattia Stagnaro (Italy) et al. |
| P1_44 | Calibration of non-catching type rain gauges: preliminary tests on an optical disdrometer | Dr Mattia Stagnaro (Italy) et al. |
| P1_45 | Towards a Reference Climate Data Management System | Mr Denis Stuber (France) |
| P1_46 | Calibration facilities, Standards available at IMD's renowned calibration Lab | Mr Shende Uday (India) et al. |

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| P1_47 | Measurement Characterisation, the reasons we should bother! | Dr Jane Warne (Australia) |
| P1_48 | Recent results from siting classification in the Nordic countries and Baltic states, applying a common metadata scheme for air temperature measurements | Dr Mareile A. Wolff (Norway) et al. |

Topic 2: Emerging measurement technologies: from development to operation

Oral presentations:

| No. | Title | Author(s) |
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| O2_1 | A Breakthrough in 24/7 Operational Observations of Lower Tropospheric Thermodynamic Profiles with High Temporal and Vertical Resolutions by Means of Raman Lidar | Prof Volker Wulfmeyer (Germany) et al. |
| O2_2 | A field assessment of a novel rain measurement system based on earth-to-satellite microwave links | Dr Matteo Colli (Italy) et al. |
| O2_3 | Rainfall retrieval from commercial microwave links: from a validated potential towards worldwide operational applications (?) | Dr Marielle Gosset (France) et al. |
| O2_4 | Last activities and results of the WMO-CIMO Testbed for Aerosols and Water Vapor Remote Sensing Instruments (Izaña, Spain) | Dr Emilio Cuevas (Spain) et al. |
| O2_5 | Operational use of Aircraft Derived Data for meteorology and other applications | Dr Paul Mark Alexander de Jong (Netherlands) et al. |
| O2_6 | Possibilities of atmosphere optical characteristics measurement during upper-air sounding | Dr Alexander Kochin (Russian Federation) |
| O2_7 | Application of Miniature Sensors in the Development of Micro-climate Stations for Urban Climate Studies in Hong Kong | Mr John Kai-Wing Chan (Hong Kong, China) et al. |
| O2_8 | Cloud Mapping by Using the Data from Different Observing Systems | Mr Kemal Dokuyucu (Turkey) et al. |
| O2_9 | First experiences with the newly-developed Swisens Pollen Monitor | Mr Erny Niederberger (Switzerland) et al. |
| O2_10 | A preliminary assessment of the biases between ECMWF forecasted winter precipitation and the adjusted winter precipitation at different WMO-SPICE sites | Dr Samuel Buisan (Spain) et al. |
| O2_11 | Remote Measurements of Volcanic Plume Electrification Using a Sparse Network Technique | Dr Jeff L. Lapierre (United States of America) et al. |
| O2_12 | Comparison of electrostatic, radio and human observation techniques for thunderstorm warning at the WMO field intercomparison site in Vigna di Valle - Italy | Dr Alec Bennett (United Kingdom of Great Britain and Northern Ireland) et al. |
| O2_13 | Uncertainty sources that limit the precipitation identification / quantification and extinction coefficient determination capabilities of optical present weather and visibility sensors | Mr Klaus Heyn (Germany) et al. |

Poster presentations:

| No. | Title | Author(s) |
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| P2_1 | Accurate Profiling of atmospheric temperature and Humidity with a new Lidar system from Raymetrics | Dr George Georgousis (Greece) et al. |
| P2_2 | Mode-S: the full story | Dr Edmund Keith Stone (United Kingdom of Great Britain and Northern Ireland) et al. |
| P2_3 | The solar radio flux observed by dual-polarization weather radars in Europe: examples of daily and sub-daily observations at 5 and 3 cm | Dr Marco Gabella (Switzerland) et al. |
| P2_4 | Adaptive scanning of thunderstorm cells with a X-band mobile radar integrated in an operational thunderstorm tracking context | Dr Jacopo Grazioli (Switzerland) et al. |
| P2_5 | visIvis – Evaluation of Vision based Visibility Measurement | Dr Harald Ganster (Austria) |
| P2_6 | Drone development project in FMI Observation services | Mr Jani Gustafsson (Finland) et al. |
| P2_7 | Results of tests the Fog Stability Index modification by using remote sensing and numerical model's data blending technology for fog nowcasting project in Pulkovo airport | Dr Nikolay Baranov (Russian Federation) et al. |
| P2_8 | Development of a Peltier-based chilled-mirror hygrometer "SKYDEW" for balloon sounding | Dr Takuji Sugidachi (Japan) et al. |
| P2_9 | X-Band Weather Radar for Airport Applications | Mr Jochen Mertens (Germany) et al. |
| P2_10 | Cloud Observation System | Mr Musa Mete (Turkey) et al. |
| P2_11 | Meteorological observation test of airship used in the stratosphere | Mr RongKang Yang (China) et al. |
| P2_12 | Automatic Observation Systems by AEMET in Antarctica | Mr Jose Vicente Albero (Spain) et al. |
| P2_13 | India Meteorological Department (IMD) make GPS Pilot-sonde for upper wind observations | Mr Mohd. Imran Ansari (India) et al. |
| P2_14 | Development of the SolarSIMs | Dr Richard Beal (Canada) et al. |
| P2_15 | Thermo-fluid dynamic simulations of the Hotplate precipitation gauge and wind tunnel experiments | Ms Arianna Cauteruccio (Italy) et al. |
| P2_16 | Development of Automatic Cloud Observation System(ACOS) Estimating the Amount and Base Height of Cloud | Dr Ki-Ho Chang (Republic of Korea) et al. |
| P2_17 | Improvement of Rainfall Measurements by Using Dual Tipping-Bucket Rain Gauge | Mr Jeong Hwan Choi (Republic of Korea) et al. |
| P2_18 | Prototyping a versatile, interoperable and gregarious (VIG) logger: early stages | Mr Nicolas De Coster (Belgium) et al. |
| P2_19 | Technology for automotive agrometeorological monitoring of a large agriculture plants | Dr Valerij Anatolevich Dolgij-Trach (Russian Federation) et al. |
| P2_20 | AOD and water vapor column monitoring with "Triple Photometry" at observatory MOL-RAO, Lindenberg, Germany | Dr Lionel Doppler (France) |
| P2_21 | Comparison of wind speed measurements between small and miniature Doppler Sodars and a Lidar | Mr Jean-Michel Fage (France) |

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| P2_22 | Development of a prototype spectrophotometer based on an acousto-optic tunable filter for measurements of total column ozone | Mr Eric Gonzalez Peralta (Mexico) |
| P2_23 | Preliminary results from the use of free ADS-B data acquisition system for meteorological purpose in the Basque Country | Mr Gómez de Segura José Daniel (Spain) et al. |
| P2_24 | Development of the Technology for total cloud cover based on machine learning | Mr HyeongGuk Kim (Republic of Korea) |
| P2_25 | Wind LIDAR verification campaign at the Cesar Observatory in Cabauw | Dr Steven Knoop (Netherlands) et al. |
| P2_26 | Independent field test of the solar monitoring system RaZON+ | Dr Marc Korevaar (Netherlands) et al. |
| P2_27 | SUV, the new series of Smart UV radiometers | Dr Marc Korevaar (Netherlands) et al. |
| P2_28 | Validation of the Satellite-derived Atmospheric Motion Vectors (AMVs) from INSAT-3D Imager | Mr Amit Kumar (India) et al. |
| P2_29 | Latest Development of the Lightning Location Network over the Pearl River Estuary and Data Analysis Related to Tropical Cyclone Monitoring | Ms Olivia Shuk-Ming Lee (Hong Kong, China) |
| P2_30 | An Improvement of the Doppler Weather Radar Network in China | Dr Haihe Liang (China) et al. |
| P2_31 | A self-draining paired buckets for the weighing rain gauges | Prof Gyu-Ho Lim (Republic of Korea) et al. |
| P2_32 | Research on Comparison Analysis and Inversion Algorithm of Temperature and Humidity Profiles of Ground-based Microwave Radiometer | Mrs Jiajia Mao (China) et al. |
| P2_33 | High Wind Speed Recorder: Full Solution | Mr M Danish Mohammad Danish (India) et al. |
| P2_34 | Automatic Weather Station: Full Solution | Mr M Danish Mohammad Danish (India) et al. |
| P2_35 | Design Construction and Calibration of Self Recording Precipitation, Temperature and Relative Humidity Measurement Equipment | Mr Babatunde Abraham Okunlola (Nigeria) |
| P2_36 | Frequency Interference and Detection Methods in Meteorological Radars | Mr İsmail Temir (Turkey) et al. |
| P2_37 | Development of X-band Dual-pol Phased-Array Weather Radar (DP-PAWR) | Dr Masakazu Wada (Japan) |
| P2_38 | Estimation and Analysis of Integrated Precipitable Water Vapor (IPWV) from a Network of 25 Ground-Based GNSS Receivers over Indian Subcontinent | Mr Ramashray Yadav (India) et al. |
| P2_39 | Validation of Total Precipitable Water Vapor Retrieved from INSAT-3DR Sounder Using estimation of a network of 25 Ground-Based GNSS Receivers over Indian Subcontinent | Mr Ramashray Yadav (India) et al. |
| P2_40 | The observations of sub-tropical weather by a prototype water vapour Differential Absorption LIDAR (DIAL) in Hong Kong | Mr Wai-Lung Yeung (Hong Kong, China) et al. |
| P2_41 | Development of new thermometer shields with the ventilation speed controller | Mr Daiki Yoshida (Japan) et al. |

Topic 3: Ensuring sustainability of measurements

Oral presentations:

| No. | Title | Author(s) |
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| O3_1 | Sustainability of measurements post donor-funded programmes | Mr Andrew Harper (New Zealand) et al. |
| O3_2 | Experiences with Quality Evaluation of AMDAR Observations | Dr Jitze van der Meulen (Netherlands) |
| O3_3 | GCOS Upper Air Network (GUAN) Radiosonde Observations – Past, Present and Future | Mr Tim Oakley (United Kingdom of Great Britain and Northern Ireland) |
| O3_4 | Quality Assurance & Quality Control of IAGOS In Service Aircraft Measurements: Concept & Experiences Made | Dr Herman G.J. Smit (Germany) et al. |
| O3_5 | Forecast Sensitivity to Observational Impact as an Evaluation Tool for Global Observing Networks | Dr Lawrence Morgan (United Kingdom of Great Britain and Northern Ireland) |
| O3_6 | Field intercomparison of some candidates for measuring the reference surface air temperature | Mr Akira Yamamoto (Japan) et al. |
| O3_7 | Challenges in transition from mercury measuring instruments to alternative measurement technologies in Zimbabwe | Mr Webster Magwaro (Zimbabwe) |
| O3_8 | Lessons from the Modernisation of National Meteorological and Hydrological Services (NMHSs) - A Case Study of the Zambia Meteorological Department | Mr Oliver Mudenda (Zambia) |
| O3_9 | Effects of different shelter types on temperature measurements | Ms Lisa Hannak (Germany) et al. |
| O3_10 | Barcelona's radiosounding station: implications of the transition from a Manned Balloon Launching (MBL) to an Automatic Balloon Launcher (ABL) | Mr Roger Vendrell (Spain) et al. |
| O3_11 | Freezing Prevention and Open Area Control System | Mr Ahmet Şahan (Turkey) et al. |
| O3_12 | Review of the history and future of automatic upper air soundings | Mr Aki Lilja (Finland) et al. |
| O3_13 | Historical siting classification | Mr Gabriel Kielland (Norway) et al. |

Poster presentations:

| No. | Title | Author(s) |
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| P3_1 | The Interactive Weather Radar Visibility Analysis Tool | Dr Kurtuluş Öztürk (Turkey) et al. |
| P3_2 | Summary of JMA/WMO Workshop on Quality Management of Surface Observations – RA II WIGOS Project | Mr Yoshiaki Hirano (Japan) et al. |
| P3_3 | Automatic Weather Station Design for Primary AWS networks | Mr Jorma Islander (Finland) |
| P3_4 | The International Surface Temperature Initiative | Dr Kate Willett (United Kingdom of Great Britain and Northern Ireland) et al. |
| P3_5 | Increasing the quality of homogenized long-term time series by combining novel homogenization routines and siting classification | Ms Elin Lundstad (Norway) et al. |
| P3_6 | Ozone Sonde Data Quality Assessment: Resolving Inhomogeneities With New Insights from the JOSIE 2017-SHADOZ Campaign | Dr Herman G.J. Smit (Germany) et al. |
| P3_7 | Performance of Electronic Sunshine Duration Sensors in IMD network and its comparison with Campbell-Stokes sunshine recorder | Mr Anjit Anjan (India) et al. |
| P3_8 | Analysis of variation characteristics for aerosol mass concentrations by different observation methods at Shangdianzi Station in China | Prof Yang Li (China) et al. |
| P3_9 | METTELSAT : weather and climate data/information Collection, processing and dissemination | Mr Adelbert Muhanga (Democratic Republic of the Congo) et al. |
| P3_10 | Analysis of parallel meteorological observations of co-located conventional and automatic instruments in Indonesia | Dr Ardhasena Sopaheluwakan (Indonesia) et al. |
| P3_11 | AHP a New Method for Selection of AWOS | Mr Ahmed Saad Abdelnaby (Egypt) |
| P3_12 | Remote sensing as a complementary data source for meteorological measurement in Nigeria | Mr Samuel Akande (Nigeria) |
| P3_13 | Kuwait Meteorological Department Services | Mr Mohammad Alsaffar (Kuwait) et al. |
| P3_14 | Investigating the Homogeneity of Monthly Rainfall Records in Kenya | Mr Hezron Andang'o (Kenya) et al. |
| P3_15 | Sustenance of Global Climate Observation System Upper Air Network (GUAN) standard network of IMD | Mr Mohd. Imran Ansari (India) et al. |
| P3_16 | Rehabilitation of Environmental Conditions of Observing Stations for Improving Data Quality | Mr Mustafa Atılan (Turkey) et al. |
| P3_17 | New architecture of the meteorological observation network in view of the migration from obsolete to electronic instruments | Mr Mounir Aziz (Morocco) et al. |
| P3_18 | Impact of wind and temperature on snowfall measurements by three Thies LPM and three OTT Parsivel2 compared with DFAR (Double Fence Automated Reference) measurements at WMO.SPICE Formigal-Sarrius site | Dr Santiago Begueria (Spain) et al. |
| P3_19 | Ecuador: Preliminary Results of the UV Radiation Network | Mr Manuel Carvajal (Ecuador) et al. |
| P3_20 | Modernization of the Surface Network observation in Tunisia | Mrs Saoussen Cheriaa (Tunisia) |
| P3_21 | Malawi Experience with Automatic Weather Station (AWSs) Challenges and Possible Solutions | Mr Francis John Chithila (Malawi) |

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| P3_22 | Comparison of the Lightning Detecting and Tracking System's Rain Output and Automated Weather Observing System's Output for Izmir and Istanbul Regions | Mr Yusuf Salih Eroğlu (Turkey) et al. |
| P3_23 | Ensuring Sustainability of measurements of upper air observing system | Mrs Zeinab Sayed Fahmy (Egypt) |
| P3_24 | Improvements in the observation of the canopy layer Urban Heat Island in Milano | Dr Giuseppe Frustaci (Italy) et al. |
| P3_25 | Meteorological observation network automation in the underdeveloped countries for a better adaptation of the vulnerable zones to the climatic change (case of Guinea) | Mr Laddah Gberegbe (Guinea) et al. |
| P3_26 | Automatic identification of the type of atmospheric obscurity phenomena by AWS | Prof Jianxia Guo (China) et al. |
| P3_27 | Achievements of Reflectivity - Rainfall Rate Conversion Coefficients for 8 Radars of TSMS | Mr Aytaç Hazer (Turkey) et al. |
| P3_28 | Storage Stability of Ultrasonic Wind Sensors | Dr Jarmo Hietanen (Finland) |
| P3_29 | Introduction of Radiosonde Humidity sensor testing method and the analysis of measurement results | Mr Liu Hou (China) et al. |
| P3_30 | Can manual instruments be replaced by automatic instruments? | Mr Fouad Issoufa Ali (Comoros) |
| P3_31 | Aids for Automatic quality control of AWS data at Basque Meteorology Agency | Mr Otxoa de Alda Kepa (Spain) |
| P3_32 | Local Manufactured Farmer Rain Gauges in Mali | Mr Adama Konate (Mali) |
| P3_33 | Analysis of meteorological parameters in Schirmacher oasis, East Antarctica | Mr Rakesh Kumar (India) et al. |
| P3_34 | Technical Regulation as a Key Component of Quality Assurance of Hydrometeorological Products and Services | Dr Viacheslav Manukalo (Ukraine) et al. |
| P3_35 | Integration of Rainfall Data from Various Agencies in Gridded Map | Mr Zabani Md Zuki (Malaysia) et al. |
| P3_36 | A coordinated effort to improve precipitation data quality over Canada: Precipitation Round Table | Dr Eva Mekis (Canada) et al. |
| P3_37 | Evolution of extreme values in a dense Automatic Weather Station network - A case study of temperature time series of the Basque Country | Dr Maruri Mercedes (Spain) |
| P3_38 | Automatic Weather Station: Data Management | Mr M Danish Mohammad Danish (India) |
| P3_39 | Preliminary results of UVER measurements in a high-altitude station in the Pyrenees and comparison with a UVI forecasting system | Mr Juan R. Moreta (Spain) |
| P3_40 | Cooperative flood forecasting and warning system | Mr Ayoub Nafii (Morocco) et al. |
| P3_41 | Radiosonde and Ozonesonde | Mrs Lynete Awuor Ochieng' (Kenya) |
| P3_42 | On the Automation and Modernisation of the Irish Climate Station Network | Mr Tony O'Leary (Ireland) et al. |
| P3_43 | Magnitudes of Climate Variability and Changes over the Arid and Semi-Arid Lands of Kenya between 1961 and 2013 Period | Mr Jully Ouma (Kenya) et al. |
| P3_44 | Automatization of Meteorological Instruments on Surface Weather Observation In BMKG | Mr Fahmi Pahlevi (Indonesia) et al. |
| P3_45 | Comparison of average daily temperatures from manual measurements and from AWOS | Mrs Elena Paneva Gjorgievski (The former Yugoslav Republic of Macedonia) |

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| P3_46 | Thermal Study of Costa Rica by means Automatic Meteorological Stations | Mrs Marta Eugenia Pereira Molina (Costa Rica) |
| P3_47 | Evaluation of Hydrometeorological Network of ABHBC | Mr Hamza Rachidi (Morocco) et al. |
| P3_48 | The important role of the State Hydrological Institute played by the water-balance metrology | Mr Yuri Romanov (Russian Federation) et al. |
| P3_49 | Ensuring Sustainability of Measurements in Meteorological Instruments | Mr Christopher Sambana (Zimbabwe) |
| P3_50 | The Basque Automatic Weather Station Mesonetwork in perspective | Mr Gaztelumendi Santiago (Spain) |
| P3_51 | Methods of Meteorological Observations | Ms Elikem Setsoafia (Ghana) et al. |
| P3_52 | The Use of Onsite Hydrogen Generation to Improve Upper Air Operations | Mr John Speranza (United States of America) et al. |
| P3_53 | Comparison of Automatic weather Observing Station and Conventional Instrumens Temperature Data Maxim and Minimum between the period of 2010 to 2015 at Namulonge AgroMet Station and Serere Agro-Met station Uganda | Mr Andrew Ssali (Uganda) |
| P3_54 | Modernisation of the Meteorological Monitoring Network in Croatia | Dr Nataša Strelec Mahovic (Croatia) et al. |
| P3_55 | Real Time Calibrating Differential Phase of Dual Polarization Weather Radar using Ground Clutter | Mr Zhaoping Sun (China) et al. |
| P3_56 | Vaisala Radiosonde RS41 Cover Update – Analysis of Comparative Soundings to Study Possible Effects on Atmospheric Profiling | Mr Petteri Survo (Finland) et al. |
| P3_57 | Ensuring sustainability of measurements in Solomon Islands | Mr Barnabas Tahunipue (Solomon Islands) |
| P3_58 | South Sudan Meteorological Department | Mr Juma Ali Mohammed Taradain (South Sudan) et al. |
| P3_59 | Toward the Fit Weather Observation for Development of Meteorological Services in Myanmar | Mr Hla Tun (Myanmar) et al. |
| P3_60 | Optimization of Observation Network Based on the Requirements | Mr Özden Tüten (Turkey) et al. |
| P3_61 | IoT based modern surface meteorological observatory | Mr Shende Uday (India) et al. |
| P3_62 | Network of environmental monitoring in Chile | Mr Luis Valdés (Chile) |
| P3_63 | Sphere calibration of two co-located polarimetric X-band radars | Ms Floortje van den Heuvel (Switzerland) et al. |
| P3_64 | Alternative of gradual modernization of manned measurement instruments | Mr Augusto Vargas (Peru) |
| P3_65 | Development of the weather observations network at the Icelandic Meteorological Office (IMO) | Dr Sibylle von Löwis (Iceland) et al. |
| P3_66 | Extraction of atmospheric vertical velocity from observations of WPR combined with millimeter-wavelength radar during precipitation | Dr Lei Wulfmeyer (China) et al. |

Topic 4: Measurement and integration challenges in the next 20 years

Oral presentations:

| No. | Title | Author(s) |
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| O4_1 | Neural network approach for automatic fog detection using traffic camera images | Mr Giuliano Andrea Pagani (Netherlands) et al. |
| O4_2 | Megacities Experiment on integrated Meteorological Observation in China (MEMO) | Dr Bai Li (China) et al. |
| O4_3 | Data Collection Network Modernisation - What You Need to Know | Mr Bruce Hartley (New Zealand) |
| O4_4 | Development of an integrated on-demand observing system | Mr Seiichiro Kigawa (Japan) |
| O4_5 | Towards a global land surface climate fiducial reference measurements network | Mrs Caterina Tassone (Switzerland) |
| O4_6 | Including Upper Air Measurements in Operational Weather Observing Networks: Example of the New York State MesoNet | Dr Ludovic Thobois (France) et al. |
| O4_7 | Operational Early Warning System in Southern Brazil - Blending Remote Sensing and Surface Observations for Precipitation Nowcasting | Dr Cesar Beneti (Brazil) et al. |
| O4_8 | An Internet-of-Things (IoT) system development and implementation for Automatic Weather Station (AWS) of BMKG based on MQTT Protocol | Mr Ariffudin Ariffudin (Indonesia) et al. |
| O4_9 | Towards a unified central information processing system to operate the various automatic weather stations composing the Moroccan AWS network | Mr Youssef Darari (Morocco) et al. |
| O4_10 | Leveraging Public-Private Partnerships for Sustainability of Enhanced National Weather Information Services – Conceptual Basis and Global Case Studies | Mr Jim Anderson (United States of America) |
| O4_11 | Crowdsourced data improves temperature forecasts on Yr | Dr Thomas Nipen (Norway) et al. |

Poster presentations:

| No. | Title | Author(s) |
|-------|---|---|
| P4_1 | Crowdsourcing observations with FMI Weather App | Mr Ismo Karjalainen (Finland) et al. |
| P4_2 | The Internet of Things and Environmental Monitoring | Mr Rod McKay (New Zealand) et al. |
| P4_3 | Development of Innovative Technology to Provide Low-Cost Surface Atmospheric Observations in Data Sparse Regions | Dr Paul Anthony Kucera (United States of America) et al. |
| P4_4 | Towards simplified expression of uncertainty in meteorological observations | Dr Stephanie Bell (United Kingdom of Great Britain and Northern Ireland) et al. |
| P4_5 | Analysis of West African Challenges Towards Fit-For-Purpose Environmental Measurements and Integration | Dr Stella Uche Obikwelu (Nigeria) et al. |
| P4_6 | Challenges of Utilizing AWOS Information for Nowcasting and Weather Observation - A Pictorial/Graphical Perspective | Mr Humphrey Geoffrey Angulu (Kenya) |
| P4_7 | Combining satellite infrared, lightning and ground precipitation gauges for better estimation of severity of lightning and associated flash floods across Nepal | Mr Chiranjibi Bhetuwal (Nepal) |
| P4_8 | Technology versus computer science | Mrs Raul Burgos (Chile) |
| P4_9 | Developing high-resolution surface analyses from filtered, bias corrected home AWS data | Mr Matthew Clark (United Kingdom of Great Britain and Northern Ireland) |
| P4_10 | A new way to monitor the present weather through community participation | Mr Muhammad Elkarfous (Egypt) et al. |
| P4_11 | New design of AWS network in Egypt | Mr Hamza Mohamed Hamza (Egypt) |
| P4_12 | Southeast Asian Radar Network (Regional WIGOS Project) | Mr Koichiro Kakihara (Japan) et al. |
| P4_13 | Improving Efficiency and Quality in Weather Observation and Climate Monitoring by Using Artificial Intelligence and Information Communication Technology (ICT) Infrastructure | Mr Wilberforce Kahwa Kikwasi (United Republic of Tanzania) |
| P4_14 | Volumetric measurements of meteorological parameters to improve the weather forecast | Dr Alexander Kochin (Russian Federation) |
| P4_15 | Challenge associated with observation and reporting of maximum temperature in East Africa - A case study of Dar Es Salaam, Tanzania | Mr Zephrean Lufurano (United Republic of Tanzania) et al. |
| P4_16 | Difficulties for integrating data from partner's observing networks: data transmission and integration as an example | Dr Rabia Merrouchi (Morocco) |
| P4_17 | Rainfall Error Correction Estimation by Wind Flow Modelling | Mr David Ndiritu Muchemi (Kenya) |
| P4_18 | National Environmental Meteorological Services in India | Dr Vijay Kumar Soni (India) |
| P4_19 | Argentina: challenges of integration of observation networks | Mr Lucas Stel (Argentina) et al. |