

Speaker	Position(s)	Bio	Organisation Information
Richard Barker - NPL	Head of Energy and Environment	Richard is the Head of Energy and Environment at NPL, where he leads the UK science and measurement capability to address the societal grand challenges of climate change and environmental sustainability. Educated as a physicist, Richard spent over 25 years at the leading edge of the technology and creative industries, spanning multiple roles from CTO to marketing strategy to managing director. In 2011, Richard joined Climate-KIC, a European Commission funded organisation tasked with addressing climate change and developing the green economy. As the Director of Innovation and Director Research and Thought Leadership, Richard's understanding of the challenges and opportunities for progress was shaped by exposure to world-leading scientists, thought leaders, practitioners, C-suite executives and entrepreneurs.	<p><b>NPL</b> is the UK's National Metrology Institute, providing the measurement capability that underpins the UK's prosperity and quality of life.</p> <p>From new antibiotics to tackle resistance and more effective cancer treatments, to secure quantum communications and superfast 5G, technological advances must be built on a foundation of reliable measurement to succeed. Building on over a century's worth of expertise, our science, engineering and technology provides this foundation. We save lives, protect the environment and enable citizens to feel safe and secure, as well as support international trade and commercial innovation. As a national laboratory, our advice is always impartial and independent, meaning consumers, investors, policymakers and entrepreneurs can always rely on the work we do.</p> <p>Based in Teddington, south-west London, NPL employs over 600 scientists. NPL also has regional bases across the UK, including at the University of Surrey, the University of Strathclyde, the University of Cambridge and the University of Huddersfield's 3M Buckley Innovation Centre.</p>
Dr Philip DeCola	Chief Science Officer NEXQT Adjunct Professor, Department of Atmospheric and Oceanic Sciences, University of Maryland Co-Chair, World Meteorological Organization Integrated Global Greenhouse Gas Information System (IG <sup>3</sup> IS)	Phil DeCola is Chief Science Officer of NEXQT, and Adjunct Professor in the Department of Atmospheric and Oceanic Sciences at the University of Maryland. His career has focused on the use of Earth observations and models for climate change and environmental research and resource management applications. Phil served as an advisor on climate change and Earth observations for two administrations in the White House Office of Science and Technology Policy, and as a Program Scientist for the NASA HQ Science Mission Directorate. Phil was Lead Scientist on a number of U.S. Government delegations to the Intergovernmental Panel on Climate Change and worked on the second, third and fourth IPCC scientific assessments since 1994. Dr. DeCola was member of the Executive Committee of the Group on Earth Observations and led the formulation and writing of the strategic assessment of Earth observation and monitoring priorities. Phil has served as Lead Scientist for a number of Earth observing space missions including the EOS Aura Mission and the Orbiting Carbon Observatory. Phil currently chairs the World Meteorological Organization Integrated Global Greenhouse Gas Information System (IG <sup>3</sup> IS) with the mission of delivering science-based greenhouse gas emission estimates in support of national and subnational responses to climate change.	<p>For more information on the work of Department of Atmospheric and Oceanic Sciences, University of Maryland, please follow this link: <a href="https://aosc.umd.edu/">https://aosc.umd.edu/</a></p> <p>For more information on the work of IG<sup>3</sup>IS, please follow this link: <a href="https://ig3is.wmo.int/en/welcome">https://ig3is.wmo.int/en/welcome</a></p>
Dr Bruce Forgan - WMO	Vice-president of the WMO Commission for Observation, Infrastructure and Information Systems (Infrastructure Commission)	Bruce is currently the Vice-President of the the WMO Infrastructure Commission (INFCOM). He obtained his Phd from Flinders University of South Australia 1979, with a thesis on the measurement of solar Irradiance. He worked for the Australian Bureau of Meteorology from 1978 until 2016, both in research and management with a focus on meteorological metrology. He retired from the Bureau in 2016 as head of all the Bureau's measurement network infrastructure. He has over 100 publications in peer reviewed journals on topics from solar and terrestrial irradiance, meteorological metrology, atmospheric aerosols, atmospheric chemistry, meteorological satellite retrievals, and numerical meteorology. As well as his WMO activities, he is actively engaged in research on solar, infrared and spectral irradiance standardization. In 1997 he received the Prof. Vihlo Vaisala Award (12th) from the World Meteorological Organization, Geneva, and in 2014 was awarded the Barry Inglis Medal by the Australian Government, National Measurement Institute for his work in meteorological metrology.	<p>For more information on the work and mission of the WMO, please follow this link. (<a href="#">About us   World Meteorological Organization (wmo.int)</a>)</p>
Professor Nigel Fox - NPL	NPL Fellow in Earth Observation,	Professor Nigel Fox is an NPL Fellow in Earth Observation, Climate and Optical Radiometry. Nigel joined NPL from University College London in 1981 with a BSc in Astronomy and Physics. Since then he has been responsible for the establishment	<b>NPL</b> is the UK's National Metrology Institute, providing the measurement capability that underpins the UK's prosperity and quality of life.

	Climate and Optical Radiometry Chair of the CEOS WGCV IVOS Subgroup UK science lead for the TRUTHS satellite mission	and dissemination of primary optical radiation measurement scales and pioneered techniques and instruments that led to an improvement of nearly two orders of magnitude in the accuracy of many radiometric measurements. These innovations have been widely adopted by the international metrology community and resulted in the award of a PhD from the University of London. Over the last three decades Nigel has expanded his interests to include a significant focus on Earth Observation and associated climate change parameters, with an emphasis on satellite observations. This has led to further innovation in both pre-flight and post-launch calibration and validation techniques and has culminated in the design and leadership of the recently funded TRUTHS satellite mission of ESA. Nigel has championed 'Earth observation metrology' on behalf of the World's metrology community representing the UK on the Working Group on Calibration and Validation (WGCV) of the international space agency committee, Committee on Earth Observation satellites (CEOS) and is chair of its Infrared, Visible and Optical Sensors (IVOS) sub-group. He is a visiting professor in the Meteorology Department of the University of Reading and provides expert advice on QA/Cal/Val to UK government, ESA and various other international organisations on topics related to earth observation and climate.	<p>From new antibiotics to tackle resistance and more effective cancer treatments, to secure quantum communications and superfast 5G, technological advances must be built on a foundation of reliable measurement to succeed. Building on over a century's worth of expertise, our science, engineering and technology provides this foundation. We save lives, protect the environment and enable citizens to feel safe and secure, as well as support international trade and commercial innovation. As a national laboratory, our advice is always impartial and independent, meaning consumers, investors, policymakers and entrepreneurs can always rely on the work we do.</p> <p>Based in Teddington, south-west London, NPL employs over 600 scientists. NPL also has regional bases across the UK, including at the University of Surrey, the University of Strathclyde, the University of Cambridge and the University of Huddersfield's 3M Buckley Innovation Centre.</p>
Dr Hong Lin - NIM	Group Leader of Greenhouse Gas and Air Pollutant Inventory Research	Hong Lin, Ph.D., is the group leader to Greenhouse Gas and Air Pollutant Inventory Research at the National Institute of Metrology (NIM), China and is responsible for the NIM-wide research program in greenhouse gas measurements. He and his group seek to advance the measurement methods, standards, and measurement methodologies supporting greenhouse gas and air pollutant measurements.	<p>The <b>National Institute of Metrology (NIM)</b> is China's National Metrology Institute (NMI) and the state-level technical centre for legal metrology. It employs over 700 staff members and operates two campuses. It stays at the top of China's traceability chain and underpins China's economic and social development by developing and applying accurate measurement standards, science and technology.</p> <p>NIM is mainly tasked with:</p> <ul style="list-style-type: none"> <li>- Developing, maintaining and improving national measurement standards including reference materials and ensuring their international equivalence.</li> <li>- Maintaining competitive national measurement capabilities and providing verification and calibration services to ensure the accuracy and uniformity of quantity values nation-wide.</li> <li>- Conducting research on fundamental and applied metrology to meet national needs.</li> </ul> <p>Providing technical services and promoting transformation of scientific and technological achievements in metrology to enhance national industrial competitiveness.</p>
Dr Susanne Mecklenburg - ESA	Head of ESA Climate Office	Susanne is responsible for promoting and increasing the use of satellite-based Earth Observation data in climate science. Her current focus is the delivery of ESA's Climate Change Initiative programme and developing future programme activities with ESA Climate Office as the focal point for climate.	<p>The European Space Agency (ESA) provides Europe's gateway to space. ESA is an intergovernmental organisation, created in 1975, with the mission to shape the development of Europe's space capability and ensure that investment in space delivers benefits to the citizens of Europe and the world.</p> <p>ESA has 22 Member States: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland and the United Kingdom. Slovenia and Latvia are Associate Members. ESA has established formal cooperation with six Member States of the EU. Canada takes part in some ESA programmes under a Cooperation Agreement.</p> <p>By coordinating the financial and intellectual resources of its members, ESA can undertake programmes and activities far beyond the scope of any single European country. It is working in particular with the EU on implementing the Galileo and Copernicus programmes as well as with Eumetsat for the development of meteorological missions.</p> <p>Learn more about ESA at <a href="http://www.esa.int">www.esa.int</a></p>
Dr Andrea Merlone INRiM	Senior Researcher at the Italian Istituto Nazionale di Ricerca Metrologica (INRiM) BIPM - CCT WG Environment Chairperson WMO - SC-MINT Expert Team "Measurement	<p>Andrea Merlone, PhD, is senior researcher at the Italian Istituto Nazionale di Ricerca Metrologica (INRiM) and associated researcher at the Istituto di Ricerca per la Protezione Idrogeologica (IRPI) and at the Istituto di Scienze Polari (ISP) of the Italian National Research Council (CNR)</p> <p>He is chairman of the Working Group Environment of the Consultative Committee for Thermometry (CCT) of BIPM, and national delegate at the World Meteorological Organization (WMO) where he is member of the Standing Committee on Measurement Instrumentation and Traceability of the Infrastructure Commission. He also serves as chair of the WMO "Measurement Uncertainty" Expert Team and co-chair of the "Permafrost Best Practice" for the Global Cryosphere Watch WMO program. He is also nominated member of several international and national expert team and Institutions, such as GCOS, WMO, BIPM, EURAMET, Glaciology committees and others.</p> <p>Since 2010, he is promoter and coordinator of the EURAMET Joint Research Project "MeteoMet – Metrology for Meteorology", that groups a wide consortium of European Institutes of Metrology, Universities, Meteorological Institutions, including WMO,</p>	<p><b>INRiM</b> is the Italian national metrology institute and a national public body with the responsibility for carrying out and promoting scientific research in metrology. INRiM launched and coordinated the EMRP ENV07 MeteoMet and ENV58 MeteoMet2 projects. Activities in MeteoMet covered the design and construction of fixed and transportable calibration chambers for meteorological sensors and the study of the mutual influence between parameters (wind, pressure, temperature, humidity), calibration campaigns in-field including in extreme environment conditions (Everest, Arctic), and dissemination activities have been held and training course for meteorologists and instrument manufacturers. INRiM researchers are now expert members of numerous institutions operating in environmental sciences, meteorology and climatology also serving as chairperson of BIPM working groups and WMO expert teams.</p>

	Uncertainty" Chairperson	<p>manufacturers and research Institutes. MeteoMet is now progressing and extending its tasks under numerous satellite initiatives and funded projects. Andrea Merlone coordinates the EURAMET project 1459 on Air Temperature Metrology and the "INCIPIT" EMPIR project on metrology for precipitation. From 2020 he coordinates the new EMPIR project "CRS" for the installation and testing of Climate Reference Station equipment for the WMO and GCOS.</p> <p>He launched, promoted and organized the international "Metrology for Meteorology and Climate" conference series, the "Arctic Metrology Workshop" series. His recent activities ranged from the accurate measurements of phase transitions thermodynamics, to the determinations of the Boltzmann's constant for the new definition of the kelvin, to a new metrological approach for the traceability of meteorological observations and climate studies. He's promoting the new activity on Arctic Metrology, aiming at the creation of permanent calibration infrastructures in the Svalbard, one of which now is operative since 2017 in Ny-Ålesund</p> <p>Merlone is author or co-author of about 120 papers on international journals and conferences proceedings, with around 850 citations. He held a number of university lecturers and courses on metrology and is tutor of PhD and Master degrees thesis.</p>	
Dr Joeri Rogelj - Imperial College London	Director of Research at the Grantham Institute and Reader in Climate Science & Policy at the Centre for Environmental Policy	<p>Dr Joeri Rogelj is Director of Research and Reader in Climate Science &amp; Policy at the Grantham Institute at Imperial College London, and a Senior Research Scholar at the International Institute for Applied Systems Analysis. He explores how societies can transform towards more sustainable futures connecting Earth system sciences to the study of societal change and policy.</p> <p>He has published on the effectiveness of international climate agreements such as the Paris Agreement, carbon budgets, net zero emission targets, 1.5°C emissions pathways, and the interaction between climate and sustainable development.</p> <p>Joeri Rogelj has contributed to several climate change assessments over the past decade. He is a long-serving lead author on the annual Emissions Gap Reports by the United Nations Environment Programme (UNEP). He also contributed to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), served as a Coordinating Lead Author on the IPCC Special Report on 1.5°C of Global Warming and as a Lead Author on the IPCC Sixth Assessment Report. In 2019, he was the youngest member serving on the UN Secretary-General's Climate Science Advisory Group.</p>	<p>For more information on the work and mission of the Grantham Institute, please follow this <b>link</b>.</p> <p><a href="https://www.imperial.ac.uk/grantham/about-us/">(https://www.imperial.ac.uk/grantham/about-us/)</a></p>
Dr David Sexton - Met Office Hadley Centre	Manager, Ensemble Climate Projection	<p>David joined the Met Office Hadley Centre in 1993, where his early work on detection and attribution culminated in a PhD with Reading University. Since 2002, David has worked on making climate projections that explore uncertainty inherent in how the climate system is represented by climate models. In 2006, David became head of the team which produced the UK's national climate projections that were published in 2009 (UKCP09). For the first time, these projections were probabilistic in nature, designed to help planners use a risk-based approach to deciding how to adapt to climate change. In 2008, David won the L G Groves Award for Meteorology for his pioneering work on probabilistic projections. Since then, David has led a team focussed on providing projections based on higher resolution climate simulations, similar to those used for Met Office seasonal forecasts, with the aim of providing information about possible future weather and its variability. The best example of this is the UKCP18 Global Projections (see <a href="https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/index">https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/index</a>).</p>	<p>The Met Office is the national meteorological service for the UK. We provide critical weather services and world-leading climate science, helping you make better decisions to stay safe and thrive.</p> <p>For more information on the work and mission of the Met Office, please follow this <b>link</b>.</p> <p><a href="https://www.metoffice.gov.uk/about-us/who">https://www.metoffice.gov.uk/about-us/who</a></p>
Dr James R Whetstone - NIST	Special Assistant to the Director for Greenhouse Gas Measurement	<p>Dr. Whetstone manages NIST's Greenhouse Gas Measurement program that seeks to advance measurement science, technology, and standards for greenhouse gas emissions. Prior to this Dr. Whetstone was Chief of NIST's Process Measurements Division, responsible for research ranging from advances in contact and remote sensing technologies to development of new approaches to the realization of standards for temperature, pressure, relative humidity, and flowrate. Dr. Whetstone received his Bachelor of Science Degree in Physics and Mathematics from Texas Western College, now the University of Texas at El Paso, and Ph. D. in Physics from Vanderbilt University in the study high energy particle interactions. He then joined the National Bureau of Standards, now NIST, and contributed to measurements and standards areas including early developments in frequency-stabilized lasers, measurements and standards for mass, fluid density, flowrate, moisture in gases, and research in low temperature plasma and semiconductor processing technologies.</p>	<p>For more information on the work and mission of NIST, please follow this <b>link</b>.</p> <p><a href="https://www.nist.gov/">(https://www.nist.gov/)</a></p>

Dr Robert Wielgosz - BIPM	Steering Committee Member: BIPM-WMO Metrology for Climate Action Initiative	Dr Wielgosz is the Director of the Chemistry Department of the International Bureau of Weights and Measures (BIPM) based in France, with its gas metrology laboratory coordinating international comparisons for air quality and greenhouse gas standards. The comparisons form part of the CCQM-GAWG programme supporting measurement services from National Metrology Institutes (NMIs) worldwide. His department also delivers laboratory-based knowledge transfer programmes for laboratories developing metrology services and standards. A steering committee member of the 2010 WMO-BIPM event on Measurement Challenges for Global Observation Systems for Climate Change Monitoring, and the 2015 BIPM Workshop on Global to Urban Scale Carbon Measurements, he is currently leading BIPM efforts in the organization of the 2022 BIPM-WMO Metrology for Climate Action Workshop. He has contributed to over sixty publications related to measurement science including WMO guidelines on atmospheric gas composition measurement. He holds an M.A. in the Natural Sciences from Emmanuel College, Cambridge University (UK), a Ph.D. from the University of Bath (UK) and completed his Royal Society European Exchange Fellowship at the University of Ulm (Germany).	The <b>International Bureau of Weights and Measures (BIPM)</b> is the international organization established by the Metre Convention, through which Member States act together on matters related to measurement science and measurement standards. With its offices and laboratories based in Sèvres, France, and over 100 states as Members or Associates, it is home to the International System of Units (SI) and its supervisory board (International Committee for Weights and Measures, CIPM) brings together the world's experts in metrology across many disciplines of measurement science. The BIPM works in close cooperation with many other international bodies concerned with different aspects of metrology, strengthening use of the SI, and interaction with the global metrology system. Working arrangements were established with the World Meteorological Organization (WMO) in 2002, and WMO participation in the CIPM's Mutual Recognition Arrangement in 2010. Most recently, the CIPM has established a Sectorial Task Group on Climate Change and Environment, to address evolving needs in metrology worldwide.
Dr Emma Woolliams - NPL	NPL Departmental Head of Science Co-chair of the steering board for the BIPM-WMO "Metrology for Climate Action" workshop Chair of the European Metrology Network for Climate and Ocean Observation	Emma Woolliams researches the application of metrological techniques to climate data records from satellites. As NPL's Departmental Head of Science for Thermal and Radiometric Metrology, Emma provides scientific leadership and supports the development of NPL's strategy and decision making in these areas. Emma is co-chair of the steering board for the "Metrology for Climate Action" workshop, to be held in 2022, and jointly hosted by the World Meteorological Organization and the International Bureau of Weight and Measures. As the inaugural Chair of the EMN for Climate and Ocean Observation, Emma oversees balancing the needs of a diverse group of European metrology institutes to address metrology needs of the future. Established by EURAMET, European Metrology Networks (EMNs) aim to support the long-term sustainability of the organisation through partnerships with stakeholder and funding organisations. Emma received a first-class degree, MSci Physics with a year in Germany, from Imperial College London, followed by a part-time PhD at the University of Manchester on "Development and evaluation of a high temperature blackbody source for the realisation of NPL's primary spectral irradiance scale". She has since authored over 60 publications.	<p><a href="#">NPL</a> is the UK's National Metrology Institute, providing the measurement capability that underpins the UK's prosperity and quality of life.</p> <p>From new antibiotics to tackle resistance and more effective cancer treatments, to secure quantum communications and superfast 5G, technological advances must be built on a foundation of reliable measurement to succeed. Building on over a century's worth of expertise, our science, engineering and technology provides this foundation. We save lives, protect the environment and enable citizens to feel safe and secure, as well as support international trade and commercial innovation. As a national laboratory, our advice is always impartial and independent, meaning consumers, investors, policymakers and entrepreneurs can always rely on the work we do.</p> <p>Based in Teddington, south-west London, NPL employs over 600 scientists. NPL also has regional bases across the UK, including at the University of Surrey, the University of Strathclyde, the University of Cambridge and the University of Huddersfield's 3M Buckley Innovation Centre.</p>