Meteorological TECHNOLOGY WORLD EXPO

IN ASSOCIATION WITH WMO HOSTING TECO

SEPTEMBER
24, 25 & 26, 2024

Messe Wien Exhibition &
Congress Center, Vienna, Austria

The leading global event for the meteorological, hydromet, metocean and environmental monitoring technologies and services sectors

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YOUR EVENT GUIDE TO THE

WORLD'S LEADING METEOROLOGICAL EXHIBITION

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SEPTEMBER 24, 25 & 26, 2024
MESSE WIEN EXHIBITION & CONGRESS CENTER, VIENNA, AUSTRIA

Join us this September, when the world of meteorology and hydromet will convene in Vienna for the industry's most important event of the year. Whether a national meteorological and hydrological service or a specialist provider serving the aviation, maritime, agriculture, transportation or renewable energy sectors, we have more than 150 of the world's leading suppliers showcasing their latest technology, instruments and data software to transform your next project. From upper atmosphere measurement technologies to sensors and weather modeling, meteorological developments continue to evolve. Discover all the latest software and tech from global innovators, engineers and strategists – all in one place at our free-to-attend exhibition (register now to receive your fast-track entry code)!

We are also proud to host the WMO Technical Conference on Meteorological and Environmental Instruments and Methods of Observation (TECO-2024) under the theme 'Measurements and new technologies for WMO priority initiatives'. Please visit the event website for the full conference program and to reserve your place.

Meteorological TECHNOLOGY WORLD EXPO

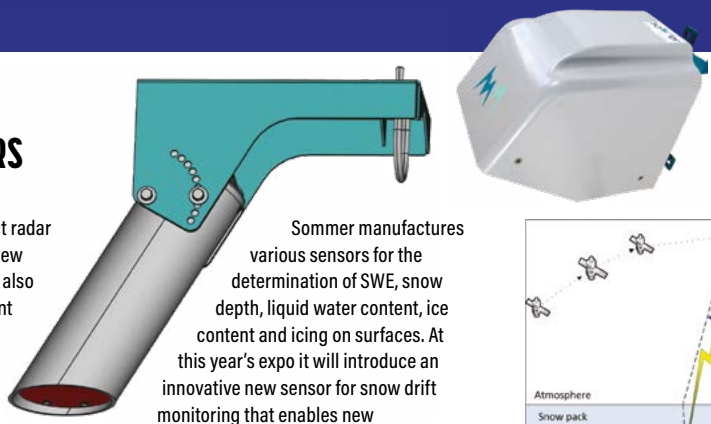
www.MeteorologicalTechnologyWorldExpo.com


WORLD METEOROLOGICAL ORGANIZATION
TECO-2024
'Measurements and new technologies for WMO priority initiatives' is the theme of this year's TECO-2024, which is free to attend. See page 15
WMO
TECO
See 150+ companies exhibiting the latest weather, hydromet, metocean and environmental forecasting technologies and services, or simply meet up with your established suppliers all in one location!
Over the next 12 pages, *Meteorological Technology International* previews just some of the technologies on show
Visit the website for the full list of exhibitors and to **register FREE!**
www.MeteorologicalTechnologyWorldExpo.com

Sommer

INNOVATIVE SNOW AND HYDROLOGY SENSORS

Booth: 5020

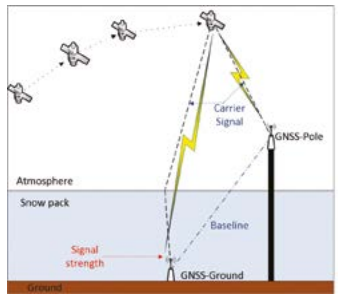


Sommer designs and manufactures innovative, high-quality devices for environmental monitoring. With more than three decades of experience, it provides instrumentation with cutting-edge technology for snow and hydrological applications.

In the field of hydrology, the company develops non-contact, radar-based discharge, flow velocity and water level sensors. At this year's show, it will introduce a new version of the market-leading RQ-30 non-contact radar discharge sensor, with a new look and a new size. It will also introduce a new instrument to measure the velocity of streams and rivers.

Other highlights for the hydrology market will be a groundbreaking new non-contact snow depth sensor and a new snow-water equivalent (SWE) sensor.

Sommer manufactures various sensors for the determination of SWE, snow depth, liquid water content, ice content and icing on surfaces. At this year's expo it will introduce an innovative new sensor for snow drift monitoring that enables new measurements to better understand the movement of snow for SWE measurements, avalanche protection or safety on roads and railway tracks.



Synoptic Data

DASHBOARDS FOR ENHANCED WEATHER AND ENVIRONMENTAL INSIGHTS

Booth: 6078

Data is the ultimate resource for real-time and historical weather and environmental insights. Synoptic aggregates, processes and distributes data to the public, private and academic sectors, as well as the general public. Its Weather API and Data Viewer products encompass data from over 320 networks and over 150,000 stations. The company's latest product offering is its dashboards and notifications tools, where users can monitor trends specific to their areas of interest and make quick, confident decisions about safety and operations. As a public benefit corporation and B Corp certified, Synoptic is a purpose-driven company, helping to expand access to weather and environmental data for all.

Visit Synoptic at the expo and ask for a demo of its products.

EUMETSAT

WEATHER MONITORING FROM SPACE

Booth: 3014

EUMETSAT, Europe's meteorological satellite agency, monitors the weather and climate from space. Based in Darmstadt, Germany, the organization provides its 30 member states with meteorological imagery and data that are essential for keeping their communities safe and for the benefit of critical sectors of their economies.

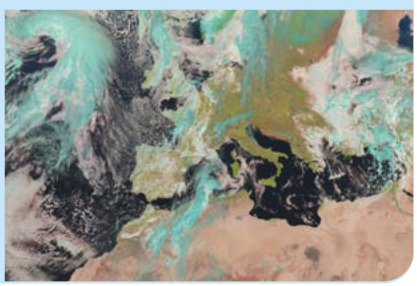
Three Meteosat second-generation satellites in geostationary orbit deliver continuous observations of fast-developing severe weather events over Europe, Africa and the Indian Ocean. Two polar-orbiting Metop satellites provide data of pivotal importance for forecasts up to 10 days ahead.

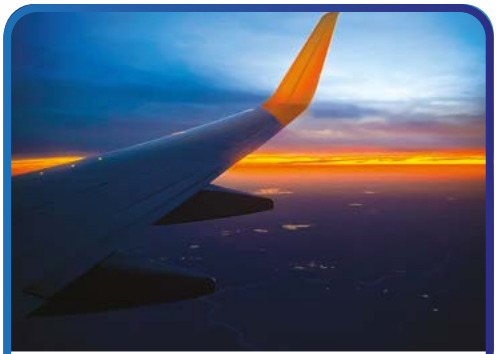
EUMETSAT's archive of satellite observations dating back more than 40 years provides climate scientists with long-term, homogeneous data necessary for monitoring climate change.

EUMETSAT is a key partner in the European Union's Copernicus Earth observation program. It operates the Copernicus Sentinel-3 and -6 ocean-monitoring missions, and will operate the upcoming CO2M mission to monitor carbon dioxide emissions.

Together with NASA, NOAA, the EU and ESA and with support from the French Space Agency CNES, EUMETSAT is a partner in the Jason and Copernicus Sentinel-6 ocean-monitoring missions.

EUMETSAT cooperates with agencies around the world, securing additional satellite data of benefit to weather forecasting and climate monitoring. Talk to the EUMETSAT experts at the expo to find out more.





IBL

SWIM IN A BOX

Booth: 6012

IBL will feature SWIM In a Box – its all-in-one solution for meteorological data exchange and communication – on its booth at the expo. The system uses the AMQP 1.0 messaging protocol and OGC API - Environmental Data Retrieval (EDR) web services, supports the IWXXM 2023-1 format and complies with the SWIM Technical Infrastructure Yellow Profile and Common Project One (EU regulation 2021/116).

Teconer

NEW RUNWAY CONDITION MONITOR FOR WATER LAYER THICKNESS MEASUREMENTS

Booth: 9028

Teconer will present its latest innovation – the RCM511W runway condition monitor for measuring water layer thickness on runways – in Vienna.
The system has been designed to measure water layer thickness up to 15mm and help with the implementation of the ICAO Global Reporting Format. RCM511W detects wet and dry contaminant types. The small sensor can be installed on a vehicle to follow water layer thickness in real time.
RCM511W can also be used with the RCM511 runway condition monitor and the RTD411 runway surface and dew point temperature sensor for full runway condition reporting, including ice, surface temperature and dew point. All data can be explored with roadweather.online on a map interface, or using the airport's management systems.
Teconer provides cost-efficient solutions for road and runway weather measurements. Its portfolio contains a compact set of instruments for mobile and stationary measurement needs. The timely information provides operators with a good understanding of the development of weather conditions. This helps optimize the use of de-icing agents, achieving considerable cost savings and providing safe conditions for drivers.

Cloud Seeding Technologies

INNOVATIVE CLOUD SEEDING PRODUCTS FIGHT DROUGHT IN WARMER CLIMATES

Booth: 8042

Cloud Seeding Technologies will feature its pneumatically driven hygroscopic cloud seeding flare at the expo.

The Taru warm cloud seeding powder flare packs an enormous number of effective particles into a single flare to generate considerable precipitation enhancement power in warm climates. The injection of artificial condensation nuclei into clouds (cloud seeding) is a practice that has been proven over almost half a century to increase precipitation significantly. This has allowed plenty of time to measure the effectiveness of cloud seeding and the effectiveness of different particles in various atmospheric situations.

Meteo France International

INTEGRATED SOLUTION FOR EARLY WARNINGS FOR ALL

Booth: 5050

MFI, in collaboration with expert partners, has developed an integrated solution that covers the whole early warning/early action chain.

Its W4ALL concept is based on public-private partnerships and relies on a design-build-operate model for maximum efficiency and sustainability. MFI provides an innovative combination of high-end information systems and exclusive consultancy, capacity building and change management services. Its goal is to coordinate all parties involved (national hydromet services, disaster management organizations, civil security, private companies, etc) and deliver a pragmatic solution over a short period of time to rise to the Early Warnings for All challenge set by the United Nations.

Visit MFI's booth to find out more about this groundbreaking concept.

Frogcast

ACCURATE WEATHER FORECASTS TO FACILITATE DECISION MAKING

Booth: 6054

Frogcast is a weather forecasting API based on physical modeling and artificial intelligence. Thanks to an optimal combination of numerical models from the most renowned meteorological agencies, Frogcast provides highly accurate forecasts for a wide range of weather parameters, anywhere in the world. In addition to a deterministic forecast, Frogcast offers a set of statistical quantiles to quantify forecast uncertainty and optimize risk management.

In regions where the coverage and/or resolution of weather models are limited, Frogcast can also integrate the very high-resolution WRF (Weather Research and Forecasting) model, tailor-made to improve the representation of local atmospheric phenomena.

The system is up to twice as accurate as individual models from national weather agencies. It provides probabilistic forecasts with confidence intervals, to quantify forecast uncertainty. Used at more than 14,000 sites worldwide, it offers reliability and easy integration. Global weather forecasts are provided for the next 15 days for all weather parameters. The data is updated up to eight times a day, and historical forecast data is also available.

Frogcast features up to 1km resolution with the WRF model, and post-processing of altitude-related parameters from topographic data at 90m for optimal accuracy. Find out more at the company's booth in Vienna in September.

WeatherXM

PRECISE HYPERLOCAL WEATHER DATA ON DEMAND

Booth: 5044

WeatherXM is a community-powered weather network that rewards weather station owners and provides accurate weather services to individuals, businesses and research organizations.

The weather stations integrate with the project's web3 infrastructure, earning rewards by collecting and validating weather data.

In less than two years, more than 5,000 stations have been manufactured and deployed in more than 80 countries around the world.

As a decentralized weather network, WeatherXM has activated an innovative mechanism that enables people to own weather stations and be rewarded for this, even without installing the stations themselves.

The WeatherXM global partner network deploys the stations in targeted areas such as LATAM and Africa, splitting rewards among all stakeholders.

Several products will be showcased on WeatherXM's booth at the expo. WeatherXM Pro provides access to the full dataset of historic and real-time weather data from WeatherXM stations worldwide.

WB1200 WiFi | D1 is ideal for areas with consistent wi-fi connectivity. It provides real-time data updates and can be integrated seamlessly with smart devices. The user-friendly system is ideal for homes and businesses.

WS2000 Helium | H1 is best for remote locations or areas with limited connectivity. It uses Helium Network and LoRaWAN technology for long-range, low-power data transmission, and is self-sufficient in terms of power.

WB3000 4G – LTE | Pulse is designed for locations not covered by wi-fi or the Helium Network.

Meteomodem

ROBUST RECEIVER FOR UPPER-AIR OBSERVATION

Booth: 5049

Meteomodem will launch its new receiver, the SR20, at the expo. This robust (IP54) and modular device is designed for fixed or mobile operation, and can be powered by USB C or even operated by an embedded battery. The SR20's dimensions and light weight make it ideal for outdoor and field operations.

The SR20 is compatible with Meteomodem's PS20 and M20 airborne instruments, allowing high-quality data and helping to reduce operational costs and the carbon impact of upper-air observation.

Meteomodem can help clients build and maintain an efficient radiosonde network thank to its experience and tailored maintenance and supervision tools.

Discover Meteomodem's solutions in the heart of the French Pavilion, alongside the company's Prometeo partners.

CAE

OPEN, CONFIGURABLE INFORMATION SYSTEM

Booth: 7015

CAE designs, produces, installs and maintains multihazard monitoring and early warning systems. Its solutions aim to mitigate the risk associated with extreme weather, hydrological and hydrogeological events, wildfires and water pollution.

Data collection, management and analysis are essential to real-time monitoring, which is why the company developed the innovative DataLife software suite, which will be on show in Vienna.

DataLife is an open, configurable information system that enables users to consult, classify, use, leverage and eventually share real-time and historical data in cartographic and tabular format.

The single sign-on allows the user to log in once and gain access to the different web-based modules, enabling them to surf the AeGis geodata interface, manage their monitoring systems with ForeSide, analyze data quality with Detective, notify alerts with Sentry and create hydromet reports with Journal.

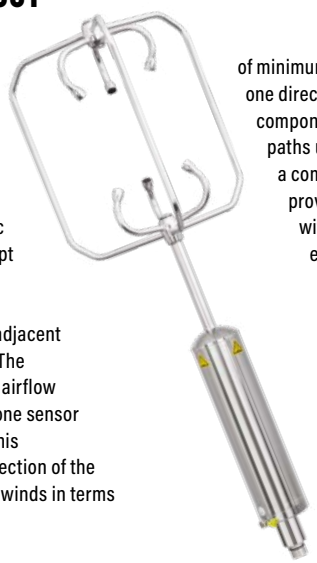
The system is geared toward ensuring an easily usable, efficient, scalable, reliable, robust and secure central unit.

To learn more about CAE, visit the company's booth and try its latest technology.

Metek

ULTRASONIC WIND SENSOR INNOVATION WITH MULTIPATH TECHNOLOGY

Booth: 2028



The uSonic-3 Cage MP ultrasonic anemometer uses an innovative, patented method for highest performance in atmospheric 3D wind and turbulence sounding. Based on Metek's proven uSonic-3 ultrasonic sensor family, the multipath concept enables a single pulse transmitted by one transducer to be received quasi-simultaneously by all three adjacent transducers of the opposite array. The independent measurements of the airflow along all 3 x 3 measuring paths of one sensor head yield 3 x 3 = 9 radial winds. This redundancy enables automatic selection of the most advantageous triple of radial winds in terms of minimum flow distortion, including one directly measured vertical wind component. All measurements of radial paths undergo quality control, with a comprehensive status report provided. The embedded electronics with data storage and optional ethernet ports allow for convenient standalone measurements.

Metek says its uSonic-3 Cage MP ultrasonic anemometer has extremely low maintenance requirements and operates reliably in all weather conditions.

Nel Hydrogen

HYDROGEN GENERATORS FOR RELIABLE METEOROLOGICAL BALLOON SOUNDINGS

Booth: 8030

Remote locations are often used for balloon soundings, which can lead to logistical difficulties and high costs associated with delivered gas, and safety issues related to high-pressure cylinders. Unreliable gas deliveries result in a reduced number of soundings and missed atmospheric data. Nel's S Series hydrogen generators use advanced proton exchange membrane (PEM) technology to offer high-performance, reliable, cost-effective solutions.

On display at the expo, the S Series hydrogen generator has a compact design with a small footprint. The PEM technology eliminates the need for the caustic material handling that is required by other hydrogen generators. Nel's advanced differential pressure design prevents oxygen from entering the hydrogen stream, enhancing the system's safety. As the hydrogen is generated on demand, hydrogen storage and hazardous gas handling are minimized.

The S Series is a fully automatic higher-pressure solution with remote monitoring and minimal installation requirements. The generator has a lower capital investment than alternative technologies and minimal annual maintenance requirements. With a reliable 99%+ uptime and start-and-stop cycling without stack degradation, the unit will provide an uninterrupted hydrogen supply.

Adolf Thies

ULTRASONIC 2D COMPACT WIND SENSORS FOR EXTREME CONDITIONS

Booth: 7042

The latest upgrades to the Ultrasonic 2D Compact wind sensor will be on display at the Thies Clima booth. The upgrades offer wind turbine operators and nacelle manufacturers useful additional functions and reportedly exceed the benchmark in terms of robustness and durability. The latest model variants, labeled Plus, include versions with anti-icing protection to MIL-STD 810G, an adaptive ultrasonic level control mechanism and a variant with a resistant coating for extreme environmental conditions. All US Compact models offer proven measurement reliability under typhoon conditions. To optimize service intervals and operational reliability and reduce downtime, the Ultrasonic 2D Compact Plus provides important information for predictive maintenance; the Profinet variant with ethernet TCP/IP interface also has extended self-diagnostic functions. The improved electromagnetic compatibility (EMC) of all models ensures trouble-free operation even in environments with very strong electromagnetic interference fields.

Geolux

ADVANCED HYDROLOGY SOLUTIONS

Booth: 6060

Geolux, a European manufacturer of hydrometeorological instruments, will showcase its radar-based instruments for measuring water level and discharge at the expo in Vienna this year. Geolux instruments, specifically designed for environmental monitoring applications, offer reliability, accuracy and ease of use.

Visitors can learn about recent projects implemented using Geolux equipment for flood protection, early warning systems and comprehensive hydrological monitoring. One of the largest recent projects involved the installation of 850 monitoring sites within just 24 months.

Geolux will also present new products, including a snow depth radar sensor, a radar for measuring wave height and periods, and, making its debut at the show, the new SmartObserverPlus datalogger. The new datalogger features dual-SIM communication, an internal programmable MicroPython engine and multiple instrument communication interfaces, offering versatility and flexibility for various datalogging needs.

Stevens Water Monitoring Systems

DATA SHARING AND ANALYTICS THAT CONNECT ALL USERS

Booth: 4050

Stevens Water Monitoring Systems and its affiliated companies, SoilMoisture Equipment, Dyacon and POGO, specialize in the design, manufacture and integration of environmental data acquisition systems with a focus on water resources, weather, soil hydrology, soil physics and agronomy. They seamlessly integrate sensors and data acquisition equipment with cloud-based Platform as a Service (PaaS) software. Stevens' SkyView360 PaaS provides data management, analytics, insight, actions and more for monitoring, controlling and optimizing water resources, climate conditions, agriculture practices and turf management for sports facilities and golf courses.

SkyView360 integrates Stevens' data acquisition platforms and collects hydrological and meteorological data from third-party data collection platforms. It also connects with third-party data sources through API links, including USGS, NOAA, programmable custom access and progressing on links to WMO's #EW4ALL and WIS 2.0 initiatives. Find out more in Vienna.

Radarmeteo

INDEX FOR HAIL-SIZE ESTIMATION

Booth: 4040

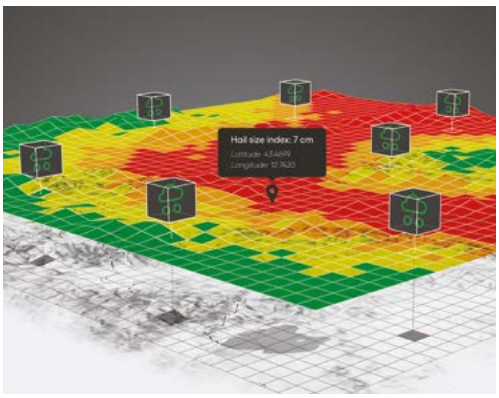
Hail events cause significant damage to agriculture, buildings and infrastructure, which has profound implications for insurance markets. Radarmeteo and Hypermeteo are working to identify the areas affected by hail and accurately estimate the size of hailstones.

The companies have developed a specific index to estimate hail size and tested it in Italy. It is based on an innovative approach – made possible by the technologies and types of data available today – that integrates observed and modeled variables, allowing the algorithm to recognize the relevance of each piece of data.

These reports were validated and processed to reduce any errors in the temporal or geographical location of the phenomenon. The resulting database consists of approximately 3,000 hail events, to which an equal number of non-hail events were added to obtain a dataset consisting of the greatest-possible variety of case histories and thus sufficient for training the algorithm. These events were combined with radar and modeling variables and a machine learning method for hailstone diameter recognition. The resulting model was then validated and tested.

The results obtained allow Radarmeteo and Hypermeteo to conclude that the proposed index effectively identifies hailstones with diameters up to 5cm.

To find out more about this new index and other services, visit Radarmeteo at its booth in Vienna.



Graw Radiosondes

HIGH-ALTITUDE LIDAR

Booth: 2012

At the expo, Graw will showcase a game-changing new high-altitude lidar that provides extremely accurate atmospheric monitoring to over 100km altitude.

The Graw LidarCube is capable of profile generation from the ground to the edge of space while being robust enough to reliably withstand the rigors of synoptic meteorological use.

Various data retrieval techniques are combined to derive continuous atmospheric profiles from the ground to well above the stratosphere. Mie scattering from aerosols, Rayleigh scattering from air molecules and resonance fluorescence from free potassium atoms are all used in different altitude sectors. Innovative spectral methods and narrowband optical components allow precise wind, temperature and aerosol measurements by analyzing the Doppler shift and broadening the scattered signals.

The complete Graw LidarCube is housed in an enclosure with a footprint of only 1m^3 and reportedly outperforms other research lidars that are generally housed in shelters the size of large shipping containers. The LidarCube is weatherproof and needs only power and data connections to be able to operate.

Finapp

INNOVATIVE WATER MEASUREMENT USING COSMIC RAYS

Booth: 7040

Finapp has patented a new generation of CRNS probes that use cosmic rays to continuously measure water without contact, on a large scale (5-10ha), in depths to 50cm.

Finapp offers a different approach to pre-warning. Surface landslides and flooding are linked to a high level of soil saturation and very dry soils are a prerequisite for wildfire development. Therefore, the site-specific soil moisture data gathered by Finapp significantly improves risk assessments. Finapp assesses the available water resource by determining the snow water equivalent on a large scale, in depth and in real time.

The company supports precision agriculture by providing unique knowledge of soil moisture for better irrigation strategy. By placing Finapp probes on a dedicated vehicle that travels along the roads above aqueduct pipes, it is possible to detect increased moisture in the soil and therefore water leaks. Finapp provides the network operator with a georeferenced pre-location map of water leaks along pipelines.

Speak to Finapp's representatives in Vienna to find out more about this technology.

LCJ Capteurs

ADVANCED ULTRASONIC WIND SENSORS

Booth: 8050

LCJ Capteurs will showcase its ultrasonic wind sensors while celebrating its 25th anniversary at the expo.

The French company has gone through continuous growth since its creation in 1999. In response to many customer requests, its productivity and warehousing capacities have been doubled thanks to new building expansions. LCJ Capteurs can now manufacture higher volumes of standard and customized/OEM products to meet increasing demand. The company specializes in the design and manufacture of compact ultrasonic wind-vane anemometers to measure wind speed and wind direction. Historically intended for the maritime market, these are also applied in various land-based applications such as precision agriculture, public security, HVAC systems, smart buildings and air quality monitoring.

Accuracy, reliability, robustness, low power consumption and good value are the key features of the CV7 and Sonic-Anemo range.

Tecnavia

AFRICA ADVANCES WITH DEPLOYMENT OF MTG, PUMA-2025 AND CLIMSA METEOROLOGICAL STATIONS

Booth: 3050

In 2025, the current Meteosat satellite will be replaced by the MTG new-generation satellite and the Eumetcast Africa service will be updated. Tecnavia, on behalf of the African Union and in collaboration with EUMETSAT and JRC, has developed stations that combine the Skyceiver software for visualization of the meteorological data (images, SynOps and NWP data) and the ClimSA software to generate, process and analyze climatological data for multiple sectors, such as agriculture and food security, health, water, disaster risk reduction and energy.

The equipment delivered to 56 meteorological services in sub-Sahara Africa will act as web servers designed to ensure excellence in the collection, analysis and use of meteorological data, offering powerful tools and extensive customization options.

Visitors to Tecnavia's booth at the expo can find out how users benefit from detailed weather and satellite data overviews through an intuitive interface. Furthermore, the entire fully redundant system can be administered both locally and remotely via a simple graphical interface without any knowledge of Linux. An innovative multiple power source to the equipment will ensure a longer lifespan throughout the next decade.

Menapia

METSPRITE WEATHER DRONE LIVE AND OPERATIONAL FROM ICELAND

Booth: 1004

Menapia is a UK-based startup that develops, manufactures and operates wxUAS (weather drones) for routine atmospheric measurements.

Its mission is to add wxUAS to the global observing system to improve NWP forecast skill. In 2024, the company established a site in Iceland to demonstrate routine atmospheric boundary layer profiles at hourly intervals. The operation is remotely supervised from the UK with no on-site pilot necessary.

Menapia has airspace permissions up to 6km experimentally and routinely runs 2km operations.

On the company's booth at the expo will be a live stream from Iceland to witness this technology in action.

Menapia offers routine vertical profiling with weather drones, along with hardware sales, project-based operations and long-term data capture services. Learn more in Vienna.

WindBorne Systems

GLOBAL LOW-COST IN-SITU ATMOSPHERIC DATA GATHERING

Booth: 3052

Current observing systems lack comprehensive in-situ atmospheric data for 85% of the planet, resulting in incomplete forecasting, delayed severe weather response and uncertainties in climate adaptation plans.

WindBorne aims to address this by scaling WindBorne Atlas, a comprehensive global sensing network that will provide two or more daily soundings every 60 miles (96km) over the entire planet, including oceans and the poles, at a fraction of current costs and material use. This comprehensive in-situ data will improve weather forecasting and, in turn, disaster preparedness and response, leading to significant cost savings and the protection of human life.

Although at a fraction of its future size, Atlas is already the most prolific balloon constellation in the world. The WindBorne Global Sounding Balloon (GSB), a lightweight, AI-enabled radiosonde, is the platform that powers WindBorne Atlas.

The GSB can collect 30-50 vertical atmospheric soundings in each weeks-long flight; collect 150x more data per dollar than traditional in-situ methods; and be launched and directed anywhere, targeting specific regions, countries, emerging storms and other phenomena even in the most remote locations.

At scale, Atlas will comprise over 10,000 aloft GSBs at any given time, thus closing the global in-situ sensing gap. Find out more at the expo.

LSI Lastem

HEAT STRESS MONITORING

Booth: 2026

The increase in global temperatures has led to growing awareness of the importance of assessing human thermal sensation during heat stress events, to protect public health and ensure safer working conditions for outdoor workers.

LSI Lastem provides weather stations with embedded criteria to evaluate heat stress using indices such as the WBGT index, heat index and UTCI index. These criteria offer the highest potential for assessing the physiological strain experienced by individuals exposed to heat.

The company has developed two solutions that it will be discussing in Vienna: a standalone monitoring station for outdoor permanent deployment and a transportable monitoring station for medium-term outdoor and indoor use. Both include sensors, a data acquisition device, a communication device and mounting accessories. Each system measures the key quantities used for the calculation of the indexes, such as air temperature, relative humidity, radiant temperature and wet temperature.

Additional meteorological and air quality parameters can be integrated into the same monitoring station.

The system transmits real-time measurements and calculations as well as the stored values remotely and can trigger local alarm devices and send alarms via both SMS and email.

Baron Weather

RADAR TECHNOLOGY FOR ENHANCED WEATHER FORECASTING

Booth: 2020

Baron Weather offers groundbreaking meteorological technology and intelligence advances, with state-of-the-art radar systems, machine learning, high-resolution modeling and a robust forecasting and communications tool.

The combination of these technological innovations is essential for enhanced weather forecasting accuracy and increased public safety.

At the heart of Baron's early warning system solutions – and on display at the expo – is a radar system that employs machine learning techniques to clean and refine radar data. Any RF anomalies or 'noise' are removed, producing exceptionally accurate, reliable weather data.

Baron offers forecast models, such as custom domain modeling, high-resolution numerical weather prediction models, or the company's exclusive three-way-coupled atmosphere-ocean-wave (CAWO) model, to provide a holistic view of potential weather impacts. Any model can be improved using high-resolution radar data to improve the model initiation. Baron's Lynx, a powerful visual engine, seamlessly ingests and displays data from a country's meteorological network into one software display solution. Lynx also delivers strong visual graphics to communicate alerts, warnings and everyday weather information to the public.

Hwoyee Meteorological Balloon

HIGH-QUALITY, AFFORDABLE BALLOONS

Booth: 7032

Hwoyee Meteorological Balloon will have several new products on display at the expo, including double-mode weather balloons (used for Beidou's positioning round-trip drifting sounding system), balloons with a neck diameter of 3cm and various large, colored balloons used for advertising and high-altitude research purposes.

Rotronic

HIGH-ACCURACY HUMIDITY AND TEMPERATURE MEASUREMENT

Booth: 6048

The Rotronic HC2A-S3A advanced high-end humidity and temperature probe provides high reliability and long-term stability and sets standards among non-heated temperature and humidity probes for meteorological applications.

The sensor has an additional protective polymer coating, ensuring minimal drift and consistent performance over time. It enables precise measurements with an accuracy of ±0.8%rh and ±0.1K at 23°C. The meteorological probe covers a wide range, measuring humidity from 0% to 100% and temperatures from -50°C to +80°C, making it suitable for various environments and applications.

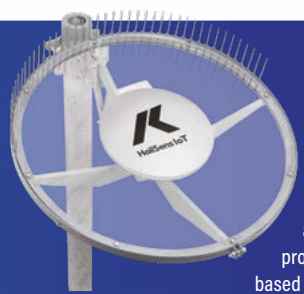
Enhanced drying capabilities allow the probe to dry up to four times more quickly after condensation, ensuring reliable and efficient measurements. The PST-Rotronic development process is rigorous, incorporating extensive testing in a state-of-the-art climate chamber. This enables the simulation of a wide range of environmental conditions, ensuring sensors can withstand and perform accurately in the most extreme scenarios.

For more information, visit Rotronic's booth at the expo in Vienna.

Kisters

HAIL IMPACT MONITORING AND FORECASTING

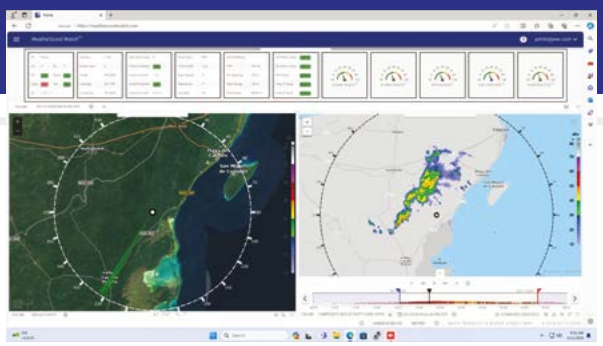
Booth: 6056



Kisters will showcase its HailSens IoT sensor at the expo. The advanced hail monitoring sensor delivers real-time data on hailstone size, intensity, duration and distribution. This technology is designed to provide immediate, accurate and comprehensive hail impact data. Rapid damage detection minimizes downtime, protecting renewable-energy assets such as solar panels and wind turbines.

Kisters has also developed the HailSens360 system, which combines the sensor with software to create high-resolution hail forecasts that minimize impacts on renewable-energy operations and assets. It delivers extensive forecasts and nowcast data to mitigate hail damage. Real-time measurements of hailstones – their size, velocity and distribution – and in-depth post-event analytical tools support damage assessment and claims.

This intuitive cloud and sensor solution provides decision support before, during and after a storm. Users receive alerts 48 hours in advance and nowcasts 60-90 minutes ahead of potential impacts, with actionable insights every six minutes for stowing, locking and other asset protection strategies based on VIL density, nowcast algorithms and the strong correlation between hail size and VIL density. This means that users not only know what hail is coming, but also when and where and the expected impact.



EWR Radar Systems

WEB-BASED WEATHER DISPLAY AND ANALYSIS TOOL

Booth: 6000

EWR's WeatherScout Watch is a new web-based weather display and analysis tool that reportedly provides an industry-leading experience, surpassing even the best client-based weather analysis tools.

WeatherScout Watch has a simple yet highly customizable user interface, giving users of all experience levels the ability to analyze and display critical events and information. It provides a simple, easy-to-use application that unifies all radar functionality into a single program. WeatherScout Watch includes synchronous multiwindow support, a highly customizable user interface, support for up to nine individual display panels with individual memory and settings retention, multiple radar support, real-time radar status/control, easily accessible past data through an easy-to-use color-coded calendar and non-weather data layers for purposes such as emergency management.

Weather alerts are controlled through a simple, intuitive user interface that automatically notifies the user of any alerts by highlighting the panel with the alert details. Data archives and retrieval are also managed to easily retrieve critical events.

Visit EWR in Vienna for a live demo of WeatherScout Watch and to learn about EWR's complete line of advanced SSPA weather radar systems.

Raymetrics

ATMOSPHERIC MONITORING USING LIDAR

Booth: 6046

Raymetrics develops and deploys innovative lidar technology, seamlessly transitioning from laboratory research to real-world applications. Its cutting-edge products are designed to serve a wide range of markets where remote sensing, monitoring, data analysis and predictive capabilities can significantly enhance environmental management and impact.

Accurate profiling of atmospheric temperature and humidity is crucial for many meteorological studies, including nowcasting, model evaluation and data assimilation. However, existing instrumentation often falls short in providing the necessary temporal or vertical resolution.

To bridge this gap, Raymetrics has developed a state-of-the-art temperature and humidity lidar instrument, capable of simultaneously acquiring atmospheric temperature profiles, water vapor mixing ratio profiles and aerosol extinction, backscatter and depolarization coefficient profiles.

This advanced system can be optimized for either planetary boundary layer (PBL) monitoring or observation in the middle and upper troposphere, ensuring unparalleled accuracy and detail in atmospheric data.

Visit Raymetrics' booth to see the company's innovative solutions to improve environmental monitoring.

Softec

IOT SOLUTION TO IMPROVE WINTER ROAD MAINTENANCE

Booth: 9016

Accurate weather forecasting is crucial for planning winter road maintenance. If grit is applied too early, vehicles and wind will scatter it or it will be diluted by liquid precipitation. If it is applied too late, there is a risk that the roadway will freeze.

For such a forecast to be made, it is necessary to measure basic meteorological parameters with special weather stations deployed at key locations in the road network, and to process these measurements in a special mathematical model for winter maintenance.

Softec, a leading IT services provider in Central and Eastern Europe, has designed and developed a new series of low-cost weather stations for winter road maintenance that can be densely deployed in the road network.

The solution, which will be on display at Meteorological Technology World Expo in Vienna, is designed to predict a variety of parameters, and forecasts can be made up to 72 hours ahead. The prediction system is based on a mathematical and physical model specifically created for winter road maintenance.

Dispatchers use the web application to view current and historical measurements and forecast values.

Since the solution was implemented in the Slovakian capital of Bratislava, the number of car accidents during the winter season there has decreased by 30%.

Vaisala

EARLY WARNINGS FOR ALL

Booth: 1000

True weather resilience begins with accurate and reliable meteorological observations. With this in mind, Vaisala develops next-gen technology and GBON-compliant solutions that support Early Warnings for All initiatives.

These include high-performance SSPA weather radars for smart early warning decisions; the DA10 atmospheric profiler for continuous water vapor monitoring; the RS41 E-model upper air radiosonde, which provides world-class data with 66% less plastic; the MW51 Cirrus sounding system for receiving, processing and visualizing radiosonde data for accurate upper-air observations; the AS41 Autosonde, which works seamlessly with Vaisala's radiosondes and provides round-the-clock sounding data even in the harshest, most remote locations; and the AWS810 automatic weather station, which enables modern, high-quality surface weather observation networks anywhere in the world.

Visit the company's booth at Meteorological Technology World Expo in Vienna to talk about how to enhance your country or island state's capacity to detect, track and warn of hazardous weather events and monitor climate change, minimizing the loss of lives and property.

Campbell Scientific

CLIMATE DATA ANYWHERE, ANYTIME

Booth: 3028

Facing increasingly frequent extreme climate events, emergency managers and weather authorities seek novel monitoring solutions to help them make informed, data-driven decisions and take decisive action. To truly bring early warnings to all, national meteorological and hydrological service (NMHS) organizations need to supplement automatic weather station (AWS) data with targeted environmental measurements, especially for vulnerable populations.

In addition to providing Global Basic Observing Network-compliant (GBON) AWS stations worldwide, Campbell Scientific now offers Aspen 10, an Internet of Things (IOT) edge device to obtain real-time measurements more simply where they make a significant impact on local observations. Accurate, defensible data is visualized through CampbellCloud, a new secure and resilient cloud-based service for remotely managing environmental monitoring station networks.

The CampbellGo app – a mobile companion to CampbellCloud – simplifies the deployment and management of cloud-connected sensors such as Aspen-enabled RainVUE precipitation gauges.

Deploying Aspen 10 cloud-connected devices to fill data gaps in a weather network ensures real-time data access for effective decision making during high-impact severe weather events and helps localize observations for long-term climate monitoring. Visit Campbell Scientific at the show to find out more.

Meteomatics

ATMOSPHERIC PROFILE DATA COLLECTION

Booth: 4014

At this year's expo, Meteomatics will present its latest Meteodrone models including Meteobase, the central operational hub for the drones. The Meteodrones can be used as mobile systems for different locations and as stationary autonomous systems (thanks to the Meteobase) for fixed locations.

Meteodrones fly up to an altitude of 6km and thus create unique vertical profiles of the atmosphere. The collected data can be used directly in the calculations of weather models, analogous to radiosonde data.

Compared with radiosondes, Meteodrones are more reliable, durable, cost-effective and sustainable. Each Meteodrone can be used several times a day, which makes the data much more comprehensive than that obtained by radiosondes.

Visit the Meteomatics booth and experience the Meteodrone and Meteobase up close. The company's experts will be on hand to offer advice and explain all there is to know about this technology.

Sagim

HYDROGEN GENERATOR IN A MARITIME CONTAINER

Booth: 6052

Sagim will exhibit its hydrogen generators at the show. Committed to sustainability, the company offers dedicated solutions that reduce its clients' carbon footprints.

Hydrogen buildings and shelters made from concrete often do not comply with ATEX recommendations. Necessary refurbishment work or rebuilding is expensive and does not meet environmental objectives.

Sagim's solution avoids the CO_2 impact of concrete by embedding the hydrogen generator in an all-in-one hydrogen module, recycling a maritime container customized at Sagim premises. Come and visit Sagim at the expo.

Meteopress

SOLID-STATE WEATHER RADARS

Booth: 3000

Meteopress has been a leading provider of cutting-edge meteorological solutions for over 30 years. It serves a diverse range of clients, including national meteorological services, aviation, energy generation, insurance and the private weather industry.

Central to Meteopress's offerings is its groundbreaking solid-state technology for weather radars. These radars are distinguished by their unparalleled data accuracy, low operational costs and ease of deployment and maintenance. They have zero consumables and can run on solar power, underlining Meteopress's commitment to sustainability and cost-effectiveness.

Beyond manufacturing top-tier radars, Meteopress is at the forefront of advances in artificial intelligence with its award-winning AI nowcasting solutions. These tools provide real-time weather forecasting, crucial for managing and mitigating the impacts of severe weather events.

Meteopress's mission is to protect people from the effects of dangerous weather, driving continuous innovation and exceptional service. Its radar term sheet details the technology, benefits and specifications of its products, underscoring the company's dedication to safeguarding lives through advanced meteorological technology. Talk to Meteopress at the expo to find out more.

Zoglab Microsystem

METEOROLOGICAL OBSERVATION AND CALIBRATION INSTRUMENTS

Booth: 8036

Zoglab Microsystem will be at the expo to showcase its professional meteorological observation systems and automatic meteorological calibration laboratory solutions. The company manufactures equipment for fixed meteorological observation, mobile meteorological observation, unmanned meteorological observation, low-altitude meteorological observation and vehicle-mounted mobile meteorological emergency observation. It also has a mature 3MS meteorological metrology management system, which provides fully automatic meteorological metrology calibration for temperature, humidity, air pressure, wind speed, rainfall and other parameters. Zoglab has been deeply involved in the meteorological field for more than 20 years, with a strong technical R&D team and a software and hardware platform with independent intellectual property rights. It can develop and integrate complex systems, such as world-leading national visibility laboratories and artificial cloud chambers.

Xiamen Beogold Technology Co

LIDAR PM PULSED LIGHT SOURCE

Booth: 8010

Beogold's lidar PM pulsed light source adopts MOPA structural design and integrates a self-developed laser, the width of which can be as narrow as 100~200kHz, with built-in AOM, optical switches and optimized multi-stage amplified optical path.

The output energy of the single pulse is 10uJ, 100uJ and 300uJ optional. Operating temperature covers -40°C to 60°C. The integrated module measures 180 x 150 x 45mm. The waveform can be adjusted according to requirements. It is easy to operate, with one-step startup.

The company offers integrated modules and a decentralized solution (laser + EDFA) for customers to choose. Beogold's solutions are mature and can be developed for different customer systems. They have been widely used in wind power generation, airport wind measurement, environmental monitoring, atmospheric particle detection, weather forecasting and other fields. The lidar can be used for nacelle radar, and the radar can accurately detect wind speed and direction information directly in front of the turbine hub at any distance from 50-400m.

Orbisens

MODULAR ENVIRONMENTAL SENSOR FOR CITIES AND BEYOND

Booth: 5058

Developed by experts in environmental monitoring, Orbisens is a multi-parameter sensor concept which, thanks to its modular, streamlined design, serves a wide range of environmental and weather-critical applications.

Within the complex urban environment, parameters such as temperature, radiation, wind, precipitation and air quality can vary significantly from one location to another. Therefore, even the most expensive measurement solutions provide only a local and limited perspective of the conditions. To conduct a meaningful analysis or issue early warnings, a higher density of measurement points is required.

The modular environmental sensors from Orbisens help municipalities that want to build reliable and scalable measurement networks. By getting rid of cables and moving parts, they minimize the need for maintenance while ensuring a quick installation and calibration process. By adding one module they can measure another environmental parameter. By changing one module they can adapt to the required communication interface.

Orbisens is an ecosystem featuring numerous modules tailored to various measurement and communication needs while seamlessly adapting to its environment both technically and visually. Find out more at the expo.

Furuno

X-BAND DOPPLER RADARS FOR ADVANCED 3D WEATHER MONITORING

Booth: 3042

Furuno will present its two X-band weather Doppler radars at the expo. The WR110 single polarimetric radar is extremely efficient for normal rain observations. The dual polarimetric WR2120 enables even more sophisticated observations including 3D analysis of heavy precipitation cumulonimbus and localized rainfall prediction.

By creating a multiradar system consisting of synchronizing several WR2120 and WR110 radars, real-time 3D monitoring of meteorological phenomena can be achieved with an affordable and reasonable investment.

Furuno's weather radars use solid-state technology, reducing operating and maintenance costs thanks to low power consumption and fewer required replacement parts. Moreover, its solid-state technology provides high-precision monitoring of precipitation with a wide range of signal processing and data format capabilities.

No heavy machinery is needed to transport or install the radar. It can easily be installed by a two-person crew. Power requirement is a standard AC power outlet used for domestic appliances (100V/200V). It can be installed almost anywhere with no special structures or configurations.

Furuno X-band radars can supplement, reinforce and fill in areas that other global surveillance weather radars cannot reach.

By increasing the number of radars, it is possible to cover a wider area. When the radars are installed in the same area, their observation data can be combined, increasing accuracy and providing vector Doppler velocities and enhanced 3D imaging.

RadarToRain

ADVANCED REAL-TIME RADAR IMAGING FOR ACCURATE RAINFALL DETECTION

Booth: 9036

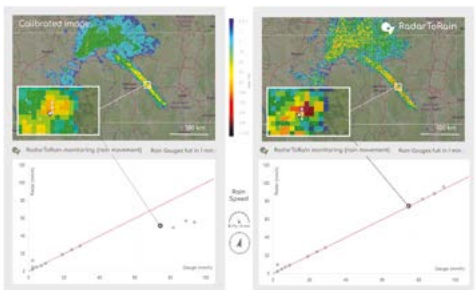
Radar images of precipitation are used in many areas, but few users are aware of the discrepancy with reality: to transform radar data (dBZ) into rainfall intensity (mm/h), point measurements on the ground (rain gauges) are used to 'calibrate' the thousands of square kilometers of images, but the results can be improved, particularly for intense rainfall.

RadarToRain uses innovative processing models based on new learning technologies to generate real-time rainfall images as close to reality as possible, without calibration.

In addition, image pixel intensities are controlled with the real, instantaneous filling of rain gauges on the ground (five- to six-minute cumulations), also taking the rainfall dynamics into account (distance from the radar, horizontal and vertical movement, speed of drops).

On the image below, the legacy correction on the left is insufficient to see intense rainfall (moderate calibration due to light and heavy rainfall). On the right, RadarToRain corrects the entire image, pixel by pixel, without calibration.

The company's objective is that radar alone should be considered as a device for measuring real rain. The forecasts from these images will also be improved. Talk to RadarToRain's experts at the expo to find out more.



Swisens

REAL-TIME ENVIRONMENTAL MONITORING

Booth: 5028

Visit the Swisens booth to discover the company's latest advances in real-time pollen monitoring and forecasting. The company will showcase its mature real-time pollen monitoring network solution, which enables precise pollen forecasting with validated AI classifiers. The technology provides concentrations with hourly resolution, enhancing the accuracy and reliability of environmental monitoring.

Its innovative approach integrates seamlessly with existing meteorological networks, supporting the growing need for accurate pollen data. With Swisens solutions, meteorologists can deliver timely and precise pollen warnings, helping the public manage allergy risks more effectively. The company's real-time data capabilities also improve predictive modeling and studies of allergenic trends and environmental changes.

Join Swisens at the expo to explore how its advances can enhance met services with high-resolution, real-time pollen data.

Steadysun

SOLAR AND WIND ENERGY FORECASTING

Booth: 6054

Steadysun offers products and services to address the various challenges of solar and wind generation variability faced by the energy value chain.

The company supports clients throughout the lifecycle of their projects, from decision making to solution implementation and operational monitoring. Its core competencies are structured around three activities (solar, wind and weather forecasting solutions; live irradiance data; and consulting) and its products provide global coverage with high resolution.

The company offers forecasts for all time horizons, aggregates, technologies and weather parameters, with easy access via API. Its solutions have been installed in more than 14,000 sites in 25 countries. Find out more at Meteorological Technology World Expo in Vienna.

TECO-2024

SEPTEMBER 24, 25 & 26, 2024

MESSE WIEN EXHIBITION & CONGRESS CENTER, VIENNA, AUSTRIA

For more information on TECO-2024, scan the QR code or visit: https://wmo.int/site/teco-2024

Running alongside Meteorological Technology World Expo 2024 in Vienna, the World Meteorological Organization's Technical Conference on Meteorological and Environmental Instruments and Methods of Observation (TECO-2024) is a unique event that will bring together measurement experts from several communities and the private sector to share experience and knowledge. The theme of TECO-2024 – which starts a day before the expo – is 'Measurements and new technologies for WMO priority initiatives'.

The conference is organized by the WMO Technical Commission for Observation, Infrastructure and Information Systems (INFCOM) Standing Committee on Measurements, Instrumentation and Traceability (SC-MINT), and promotes collaboration between WMO members and related communities (public sector, industry, science, academia, etc).

WORLD METEOROLOGICAL ORGANIZATION

Goals of TECO-2024

- Strengthen the WIGOS measurement community by enhancing knowledge of observing and measurement techniques, methodologies and related quality procedures for Earth system observations, and to foster collaboration among WIGOS stakeholders, including national meteorological and hydrological services (NMHS), public and private agencies, manufacturers, research institutions and academia;
- Enable exchange of experiences and achievements in operational measurement practices;
- Support the transition of the latest technologies and techniques from research to operations;
- Increase awareness of the environmental sustainability of observing systems;
- Provide opportunities for direct interaction between the WIGOS community, including manufacturers;
- Contribute to and foster knowledge transfer, training and capacity development;
- Share measurement practices and technologies relevant for the implementation of WMO priority initiatives such as Early Warnings for All (EW4All), Global Basic Observing Network (GBON) and Regional Basic Observing Network (RBON), and Global Greenhouse Gas Watch (G3W).

Conference program

There will be six conference sessions:

1. **New measurement technologies** and innovative integrated approaches
2. **Environmental sustainability** of observing systems
3. **Characterization and testing** of instruments and methods
4. **Traceability of measurements** to recognized standards
5. **Quality assurance and maintenance** of the observing systems
6. **Capacity development** for sustainable and quality measurements

There will be 56 oral presentations and 175 poster presentations from experts representing NMHSs, other public agencies and research institutions, and manufacturers of measurement equipment.

Panel discussions

Panelists from different communities will discuss measurement-related issues, with active engagement of the audience. The three sessions will cover:

1) Trends and innovation in measurement technologies
2) Evolving measurement requirements for WMO priorities (EW4All, G3W, GBON, RBON and WIGOS Vision)
3) Capacity development and challenges in maintaining measurement networks

See 150+ companies exhibiting the latest weather, hydromet, metocean and environmental forecasting technologies and services, or simply meet up with your established suppliers all in one place!

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IN ASSOCIATION WITH
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