News Letter 11

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Solar Power International
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Scintillometer Workshop New Mexico, USA

KIPP & ZONEN
SINCE 1830

Content

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Contact

If you have a news item for the news letter or want to share your experiences with Kipp & Zonen applications and contribute to our next issues, please e-mail the editor: kelly.dalu@kippzonen.com

Sunny Future in the Renewable Energy Market

Welcome to our first newsletter of 2010. I hope you have enjoyed the seasonal holidays and the year has started in a good way. I wish all of you a healthy and prosperous 2010.

2009 has been an interesting year that started slowly because of the economic recession, but throughout the year our markets appeared to be very resilient and came back very strongly. We have been able to measure strong growth in the sales of our radiometers and related products. The driving force behind this is the expanding solar energy market and the article about solar energy in the USA shows some of the opportunities there.

In November, during the International Sales Meeting for the Asia-Pacific region in Penang, Malaysia, I was able to meet our local distributors. It was good to see old friends back and to welcome new friends aboard our distribution network. I would like to congratulate Benjamin Pereira of our Singapore office with this quality network and the excellent meeting.

We discussed the various markets, presented developments, and the general conclusion was that the future looks good. I was pleased to see the very positive feedback in the results of the questionnaire that we handed out. In 2011 we will back!

The rapidly growing solar energy market will require more dedicated instruments and our R&D department is working on targeted developments. During the year we will be making new product introductions in future editions of the newsletter. We will also continue to focus on our more traditional markets, such as meteorology, hydrology and agriculture.

2010 means something else as well to Kipp & Zonen. We will have our 180 years anniversary. With an anniversary and a bright future we have the right ingredients for an exciting year. I wish the same for all of you.

Yours sincerely,

Ben Dieterink, President
Kipp & Zonen B.V.

New Total UV Radiometer

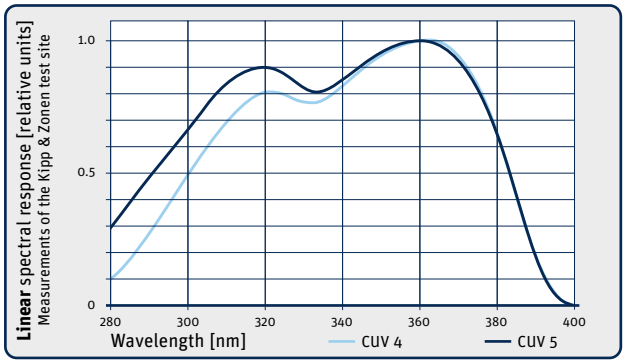
Kipp & Zonen is launching the CUV 5, an improvement of the popular CUV 4 'total' ultraviolet radiometer.

The ultraviolet region of the solar spectrum covers the wavelength ranges 100-280 nm (UVC), 280-315 nm (UVB) and 315-400 nm (UVA). Almost all UVC, and approximately 90 % of UVB, from the sun is absorbed by the Earth's atmosphere. UVA radiation at the Earth's surface is normally 15-20 times greater than UVB. Our UVS range measures solar ultraviolet radiation with specific models for UVA, UVB and UVE. For the ultimate in UV measurements there is the Brewer Mk III Spectrophotometer.

However, for many applications it is only necessary to monitor the 'total UV' irradiance, which represents the combined UVA and UVB components and for this we have the new CUV 5. The only difference from the CUV 4 is the material of the dome. This is a glass with significantly better transmission in the UVB than the glass used in the CUV 4.

Because this change is not visible from the outside, but the performance is better, we decided to give the instrument a new name and new part numbers to avoid confusion.

As can be seen in the spectral response graph, the CUV 5 has greater sensitivity to UVB radiation, particularly at wavelengths shorter than 300 nm.



CUV 5 is a direct replacement for the CUV 4 and will be available in January with no increase in price ■

EMS 2009 Toulouse, France

From Monday 28 September until Thursday 01 October Kipp & Zonen participated in the annual meeting of the European Metrological Society held in Toulouse, France. For many years Kipp & Zonen has attended this meeting with a booth at the exhibition, contributions to the conference and the Kipp & Zonen award. This year Kipp & Zonen was represented by Mr. Kamal Sabra - Sales Manager of our French Office, Joop Mes - R & D Manager and Martin Veenstra - Business Manager.

The 2009 Kipp & Zonen award for Boundary Layer Meteorology Research was awarded to Marco Princevac of the University of California at Riverside. His paper "Field, Laboratory and Numerical Study of Turbulent Dispersion in Built Environments" was selected by the award committee for his innovative research in the field of atmospheric science and meteorology. During the opening ceremony he received the award from Kipp & Zonen representative Martin Veenstra and presented his paper during the oral sessions.

The 2009 Kipp & Zonen award was presented to Marco Princevac

Kipp & Zonen also contributed to the scientific program of the conference. On Monday a poster was presented on retrieval of boundary layer height and aerosol profiling with Raymetrics Lidar systems. On Wednesday Joop Mes and Martin Veenstra held a workshop on solar radiation measurements, giving an in depth explanation on calibration and measurement methods as well as the inner workings of detector technology.

Next year the EMS meeting will be held over 13-17 September in Zurich, Switzerland and naturally Kipp & Zonen will be there again ■

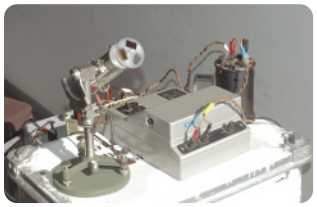
A Visit to the Rothera Station, Antarctica

by Jonathan Shanklin, British Antarctic Survey

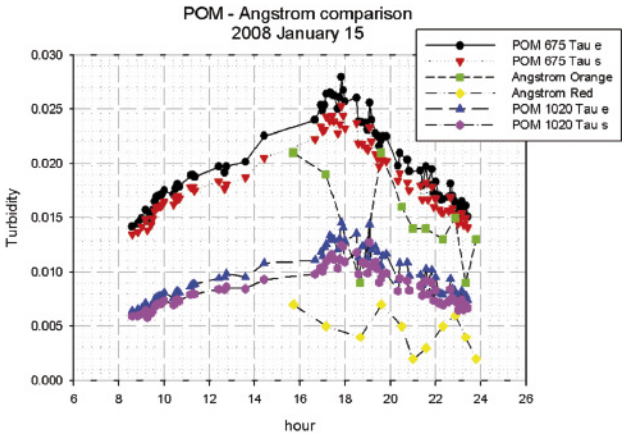
Primarily I was down in the Antarctic to commission some new instrumentation that we had installed at our Rothera Station, which is located on Adelaide Island on the Antarctic Peninsula. My arrival at the station coincided with a spell of good weather, with scarcely a cloud in the sky.

The POM-01 sky radiometer at the Rothera Station, Antarctica

These are exactly the conditions required to make observations of solar radiation, and one piece of equipment that I had to commission was a Kipp & Zonen POM-01 sky radiometer, which automatically tracks the Sun, taking observations of the solar intensity every five minutes through a series of filters.



We had purchased this to replace the old Angstrom pyrheliometer, which had not been calibrated for decades. In addition it took dedication from the observer to produce results, as a single observation needed many adjustments and the readings could take half-an-hour to complete. As a consequence observations had been made relatively infrequently at Rothera, and indeed most of them were made during my occasional visits.



Data from the instruments is used to compute atmospheric turbidity values, a critical variable when simulations of the climate are being run. It was just as well that I took the opportunity to start measurements on my arrival, as the next comparable spell of weather was shortly before my departure at the end of February.

The results from my observations were good, but in the end I decided that the Angstrom would need to have its final calibration at the World Radiation Centre in Davos, Switzerland.

January and February is the height of the Antarctic summer season, so not surprisingly weather conditions during my stay at Rothera were fairly benign.

We had a few days with gale-force winds, but the coldest temperature recorded at the station was only -3 °C, several degrees warmer than the coldest recorded at the BAS base in Cambridge during my absence.

One event that I just missed was a meteor, which left a daylight smoke trail, and perhaps dropped a meteorite on some part of the continent.

Photograph by Tristan Thorne

An interesting weather phenomena was the display of steam fog, which occurred on a day of light rain

We quite often get interesting weather phenomena at Rothera, and the most unusual during my stay was a display of steam fog, which occurred on a day of light rain from very thin altostratus, which allowed a lot of solar radiation through.

Overall the average temperature was just above freezing, and this combined with the high solar irradiation meant that there was considerable ablation of the snow surface. By the end of my stay it was quite noticeable that some of the relict ice covered areas were significantly lower than in past years.

In particular, one area, which used to form an ice-dammed pond each summer, remained dry because the ice level had dropped to such an extent that water could flow over it. It is just as well we now produce fresh water by reverse osmosis as this was the source of summer fresh water when I first stayed at the station.

Jonathan Shanklin is head of the Meteorology and Ozone Monitoring Unit at the British Antarctic Survey, based in Cambridge. The Unit is responsible for the collection of long term meteorological data, such as weather observations, radiosonde data, ozone measurements and radiation measurements, that is used both for forecasting and climate research.

Rothera station is the main BAS centre for air operations, and is also a centre for research ranging from marine biology to upper atmospheric physics. It is one of the stations monitoring climate change as part of the Global Climate Observing System.

Visit to China Meteorological Administration

After our International Sales Meeting in Penang, Malaysia Kipp & Zonen Business Managers Clive Lee and Ruud Ringoir visited the China Meteorological Administration (CMA) at their headquarters in Beijing and at their research centre and BSRN station in Xilinhot, Inner Mongolia. The visit was organized with considerable help from Joe Zhou, General Manager of our Chinese distributor Beijing Techno Solutions Ltd.

Kipp & Zonen instruments at Xilinhot, Inner Mongolia

CMA has a large quantity of Kipp & Zonen products and requested this visit to discuss calibration, specifications, international standards and instrument specific questions. On Sunday 14th of November in Beijing presentations were made about Kipp & Zonen and our products, and more specifically about individual instruments and their calibrations. Beijing had blue skies, a light dusting of snow and temperatures around freezing - a contrast to the +30 °C monsoon conditions in Penang!

The next day we traveled with Joe Zhou and three CMA people to their meteorological centre in Xilinhot, Inner Mongolia. There were a lot of discussions to inform them about installation, maintenance, data management and quality control.

The main measurement station is located 1 hour drive outside the city in flat tundra. The 360 degree clear view and uniform landscape makes it an ideal location for measuring radiation. The temperatures were between -20 °C and -25 °C with strong wind, making inspections of the instruments a chilly experience.

The short mast with a UVS-AB-T and a PAR Lite

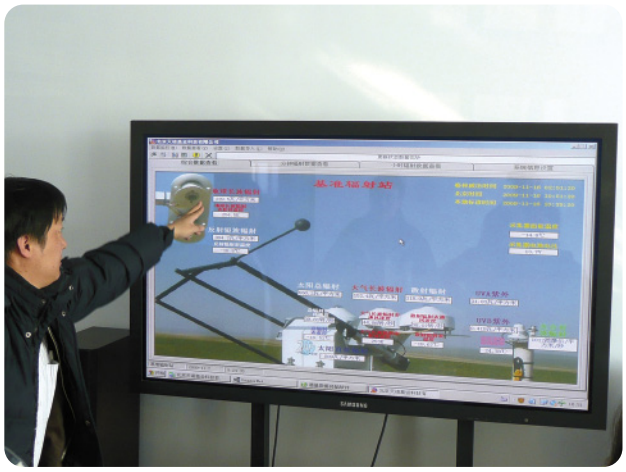
A 2AP sun tracker with shading ball assembly is fitted with a CHP 1 pyrheliometer to measure the direct radiation and ventilated CMP 21 pyranometers for global and diffuse measurement. A ventilated CGR 4 measures the downwards infrared radiation. Alongside the tracker is a short mast with a UVS-AB-T and a PAR Lite, for UVA, UVB and Photosynthetically Active Radiation.

A suitable distance away to avoid shadows is a 30 m mast with downwards facing CMP 21 and CGR 4 for reflected radiation and upwards infrared. This means that all four net radiation components are measured and albedo can be calculated. There is also a fully instrumented 200 m high meteorological tower that includes a CNR 1 net radiometer. With the addition of ventilation units to the downwards facing radiometers the site will comply with the requirements for an Extended Baseline Surface Radiation Network Station (BSRN).

The 30 m mast with downwards facing CMP 21 and CGR 4

A few hundred meters from the measurement site is a building used to collect and analyse the data.

Beijing Techno Solutions carried out the installation, provided the data loggers, and developed software to graphically display all the parameters on a large LCD screen.



Joe Zhou explains the radiation parameter display

We would like to thank **all the China Meteorological Administration staff** in Beijing and Xilinhot for their hospitality, and **Joe Zhou** for his assistance and enthusiasm.

Operational centre at the Xilinhot station

Solar Power International and the California Solar Energy Market

We are proud to report that Solar Power International 2009 was a huge success! It was held in Anaheim, California from 27-29 October. With record breaking attendance, the exhibit hall was packed and conference sessions highly attended by key players from across the solar energy industry.

This event provided an opportunity to showcase the new Kipp & Zonen booth design which received rave reviews, drawing over seventy visits from both existing and potential customers over the three day exhibition period. Overall, our existing customers offered high praise for the quality and performance of Kipp & Zonen equipment. A major highlight was the very positive comments received for the design of the new SP Lite2 pyranometer. One customer was so impressed that they purchased the system right off the booth's shelf!

The new Kipp & Zonen booth design which received rave reviews

When asked how we could do better, customers stated that the frequency with which the equipment needs to be cleaned was a concern as well as indicating a market need for a lower priced alternative to a sun tracker system. Customer's questions were mainly on sensors in remote areas and the accuracy of the data if the domes were not cleaned on a regular basis.

Solar Power International is North America's largest business-to-business solar industry event. The show hosted over nine hundred exhibitors from all solar technologies, including PV, CSP, solar hot water, solar heating and cooling and solar pool heating. Over twenty five thousand people attended; ranging from sellers to buyers and stake-holders, including manufacturers, integrators, installers, utility companies, financial investors, builders, architects, large energy users and policy makers. In addition to the exhibition, over two hundred speakers giving technical presentations, sixty five educational sessions, two CEO panels and two keynote presentations were offered.

This year's theme focused on the potential of the U.S. to be the biggest solar energy market in the world and the impact that this would have on the domestic economy; in particular the role of policy makers, the participation of utility companies and the falling costs of solar energy equipment. In addition, innovative new technologies and business models that are driving the market's adoption of the sun as a viable alternative energy source were discussed in detail.

With the U.S. House of Representatives passage of the Solar Technology Roadmap Act, the excitement about solar energy's acceptance in the U.S. energy marketplace continues to grow. The Solar Technology Roadmap Act was modeled after the National Technology Roadmap for Semiconductors, which many experts credit as being instrumental in the semiconductor industry's rapid advancement over the past two decades. In addition to favorable legislative news, the country's leading generator of wind and solar power, NextEra Energy Resources, LLC, recently announced that it has entered into a contract to sell 250 megawatts of solar thermal power from the proposed Genesis Solar Energy Project to Pacific Gas and Electric Company (PG&E).

Genesis will be located on an approximately 1,800-acre site between Desert Center and Blythe, on land managed by the Bureau of Land Management (BLM) in Riverside County, California. More than 500,000 parabolic mirrors will be assembled in rows to collect and concentrate the solar energy to produce steam for powering a turbine generator. Genesis is one of about a dozen solar projects identified by BLM for fast track consideration and due to receive permits by the end of 2010.

Overall, Kipp & Zonen's presence at Solar Power International was considered both extremely timely and highly successful in making thousands of solar energy customers aware of our brand name and our high quality product line ■

Kipp & Zonen Asian International Sales Meeting in Penang, Malaysia

The Kipp & Zonen Asian International Sales Meeting is a well known two-day event which takes place every two years and has a focus on products, applications, mutual sales and marketing activities and improvement in the collaboration with our distributors.

This year Kipp & Zonen held its Asian International Sales Meeting on 11 and 12 November. We picked the island of Penang in Malaysia as the location. The main city, George Town, is a UNESCO World Cultural Heritage Site.

We can look back at a very successful and interesting 2 days, where we have welcomed 11 different distributors from Asia and Oceania and 5 customers from different meteorological departments in the Far East and South East Asia region.

The main topics of the first day of presentations were Solar Radiation Instruments and the market for renewable energy, in particular the solutions that Kipp & Zonen has to offer for all the different applications in that market.

On the second day many different topics were reviewed with the emphasis on Atmospheric Science; including the Brewer Spectrophotometer, Lidar Remote Sensing Systems, MTP 5 Temperature Profilers, Large Aperture Scintillometers and Sun Photometers.

A very enjoyable time was had by all, mixing business with socializing, and we would like to thank all the participants for their contributions and hope that they will look back on this Asian International Sales Meeting with the same satisfying feeling that we do ■

Participants at the Kipp & Zonen Asian International Sales Meeting in Penang, Malaysia

Brewer User Group Meeting Aosta, Italy

The Brewer User Group Meeting (BUGM) is normally held every two years and is organised by Environment Canada on behalf of the World Meteorological Organisation (WMO). The 12th BUGM was held from 20-26 September 2009 in Italy and hosted by the Agenzia Regionale per la Protezione dell'Ambiente (ARPA) Valle d'Aosta.

Aosta is located in the Italian Alps, not far from Monte Bianco (Mont Blanc), the highest mountain in Western Europe at 4810 m.

Highlights of the meeting were a tour of the ARPA facilities and a visit to the Astronomical Observatory and newly-opened Planetarium at Saint-Barthélemy, at 1675 m in the mountains above the town of Nus. This was followed by a dinner hosted by Kipp & Zonen at the Maison Rosset in Nus.

Topics covered the science and technical issues of the Brewer, the global Ozone and ultraviolet radiation monitoring network, data processing advances and the exchange of information by those involved in the use of Brewers and the data from them. Tutorials focussed on the operation, maintenance and basic science of the Brewer Spectrophotometer.

Kipp & Zonen takes an active part in these meetings and provides a Brewer for the hands-on practical sessions. Brewer Specialist Arjan Hoogendoorn and Business Manager Clive Lee made presentations, and R&D Manager Joop Mes was also present to discuss scientific issues. BUGM is an excellent opportunity to catch up with our Brewer customers, to hear about their latest research and to discuss possible future improvements to the instrument.

BUGM 2009 was very interesting and enjoyable with more than 40 participants from around the world ■

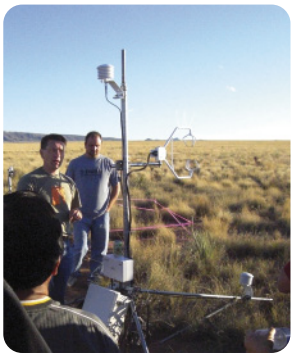
Participants at the 12th Brewer User's Group Meeting 2009 Valle d'Aosta, Italy

Scintillometer Workshop New Mexico, USA

Large Aperture Scintillometers are instruments for measuring atmospheric turbulence, sensible heat flux and Evapo-transpiration averaged over large path lengths. In order to offer a chance to exchange experiences between the users of these instruments a workshop was organized by the US National Science Foundation through CUAHSI (Consortium of Universities for the Advancement of Hydrologic Science).

Scenery of New Mexico, USA

The workshop was held at the Sevilleta National Wildlife Refuge in Socorro, New Mexico. Kipp & Zonen's Business Manager for scintillometers Martin Veenstra participated in the workshop as one of the instructors during the theoretical and practical sessions.



The conference consisted of a combination of theoretical and practical sessions dealing with the theory behind scintillometry and its practical applications. In addition a number of scintillometers were set up for hands-on experience. The goal of the workshop was to train people in the correct use of the instruments and education on the scientific background, as well as the exchange of experiences.

The workshop was attended by participants from all over the world, showing the growing interest in the use of scintillometers. The workshop was very successful in achieving it's goals and we hope that similar events will be organized in the future to serve the ever growing scintillometer community. For Kipp & Zonen, as a manufacturer of scintillometer systems, these meetings are also important for the ongoing development and improvement of our instruments ■

Equinox Instruments Limited

In close cooperation with Peter and Lesley Redgrave, Kipp & Zonen B.V. has decided to close down its U.K. sales office by September 30th 2009 and to offer the employees the opportunity to establish their own company. Peter and Lesley Redgrave have accepted this challenge and founded Equinox Instruments Limited on October 1st 2009.

Equinox Instruments Limited will market high quality meteorological Instruments for applications in Climatology, Hydrology, Agriculture, Meteorology, Renewable Energy and Industry. Equinox is the sole distributor for Kipp & Zonen B.V. and Mierij Meteo B.V. in the United Kingdom and Ireland. In addition they will distribute in the U.K. products from Lufft of Germany.

They will still be closely associated with Kipp & Zonen B.V. in the Netherlands, but for the UK company to grow in the future they needed to be independent from the parent company. This strategy means that Equinox can focus on more than one supplier of meteorological Instruments, offering the customer a wider range of complimentary equipment and more added value with complete solutions.

The team behind Equinox Instruments Limited are the same as with Kipp & Zonen Limited, therefore customers can be sure of a friendly, knowledgeable, committed and dedicated team to meet all their needs.

We wish Peter and Lesley a successful future and are confident that they will continue to grow our business in the British market ■

EQUINOX INSTRUMENTS LTD
SUPPLIER OF QUALITY METEOROLOGICAL INSTRUMENTS

www.equinoxinstruments.co.uk

Mierij Meteo Automatic Weather Stations for Renewable Energy Applications

Mierij Meteo has recently delivered several Automatic Weather Stations (AWS) for the renewable energy market.

These AWS are used to provide meteorological data for operators of wind and solar energy farms. The operators need accurate local weather data to predict the wind or solar energy that will be generated by their farms over the next 12-48 hours. The configuration of these AWS is adjusted to suit the customer's application. Mierij Meteo meteorological sensors are used in combination with Kipp and Zonen solar instruments.

The measured weather data is stored locally in the AWS on an SD card (2 GB) and can be retrieved remotely via GSM/GPRS/ADSL, or even by satellite communication. The operators have access to all the measured data and are saving costs by using reliable local weather information.

Mierij Meteo has a wide range of masts and mountings available and power supply by solar panels and batteries is also possible. Our AWS are pre-configured and easy to install by local engineers.

If you want to know more about the advantages of using Mierij Meteo AWS for your applications we would kindly ask you to contact us. We are ready to help you with our knowledge and experience ■

Fairs & Events

AMS 90th Annual Meeting Atlanta - Georgia - USA	17 - 21 January 2010
EGU General Assembly Vienna - Austria	02 - 07 May 2010

Passion for Precision

Kipp & Zonen is the leading company in measuring solar radiation and atmospheric properties. Our passion for precision has led to the development of a large range of high quality instruments, from all weather radiometers to complete measurement systems.

We promise our customers guaranteed performance and quality in: Meteorology, Climatology, Hydrology, Industry, Renewable Energy, Agriculture and Public Health.

We hope you will join our passion for precision.

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