

WORLD METEOROLOGICAL ORGANIZATION

**COMMISSION FOR INSTRUMENT AND
METHODS OF OBSERVATION
OPAG-CAPACITY BUILDING**

CIMO/OPAG-CB/ET-RICs/Doc. 5.4(2)

(31.III.2006)

EXPERT TEAM ON RICS, QUALITY MANAGEMENT SYSTEMS
AND COMMERCIAL INSTRUMENTS INITIATIVES,
Reduced Session

ITEM: 5

Original: ENGLISH ONLY

GENEVA, SWITZERLAND, APRIL 4-7 2006

Report on commercial instrument initiatives and developments

Submitted by Vaisala, HMEI representative

Summary and Purpose of Document

This document contains details, provided by VaisalaOyj, on their new products and developments.

ACTION PROPOSED

The meeting is invited to use this information during its deliberations.

NEW COMMERCIAL INSTRUMENTS AND DEVELOPMENTS

Vaisala enters the weather radar business

Vaisala is entering the weather radar business. A business unit responsible for the commercialization of the new product became operative in January 2006. The weather radar compliments Vaisala's remote sensing product offering, which currently includes lightning detection systems and networks as well as wind profilers.

Vaisala Oyj, through its US subsidiary Vaisala Inc., completed the acquisition of Sigmat, Inc. in Westford, Massachusetts, USA. Sigmat was merged to Vaisala Inc. In January, 2006, and is now a part of the Vaisala group.

Further information:

Contact: Martti Husu, Business Unit Manager, email: martti.husu@vaisala.com

www.vaisala.com/sigmat

New Compact Weather Transmitter from Vaisala

The Vaisala Weather Transmitter WXT510 revolutionizes weather measurement. It offers a full set of sensors in one instrument, enabling you to easily set up a weather station. The WXT510 measures wind speed and direction, liquid precipitation, barometric pressure, temperature and relative humidity — all in one instrument.

The WXT510 is compact, durable, simple to install and easy to integrate. As the instrument has no moving parts, it requires minimal maintenance. The WXT510 is flexible due to its various options, opening new possibilities for weather measurement.

Vaisala's experience in environmental measurements and its continuous sensor development are combined in this new weather transmitter. The wind speed and direction measurement is based on the advanced ultrasonic Vaisala WINDCAP[®] Sensor, which ensures accurate readings from all wind directions without blind angles.

The precipitation measurement in the WXT510 uses the new Vaisala RAINCAP[®] Sensor. Compared to traditional precipitation gauges, the sensor gives more detailed information about precipitation. The WXT510 measures accumulated rain fall, rain intensity and duration in real time. The Vaisala RAINCAP[®] Sensor is the only maintenance-free precipitation sensor on the market.

The humidity, temperature and barometric pressure measurements are based on the patented Vaisala HUMICAP[®], Vaisala THERMOCAP[®] and Vaisala BAROCAP[®] Sensors. The sensors utilize a capacitive measurement method for each parameter.

Further information:

Contact: Veli-Matti Miettinen, Product Manager, email: veli-matti.miettinen@vaisala.com

<http://www.vaisala.com/wxt50>

New Ultrasonic Wind Sensor from Vaisala

Vaisala introduced in January 2006 the new Vaisala WINDCAP[®] Ultrasonic Wind Sensor WMT50 developed for measuring horizontal wind speed and direction. The WMT50 is designed for numerous applications where inexpensive wind measuring is needed. The sensor has no moving parts, no field calibration is required, and it is, therefore, virtually maintenance-free. Heating is optionally available in the WMT50.

The triangular design of the WMT50 solves the mechanical shading of transducers on measurement paths. This ensures accurate wind measurement from all horizontal wind directions, without blind angles or corrupted readings. The flexible WMT50 includes several protocols and four configurable serial interfaces: SDI-12, RS-232, RS-485, and RS-422. Also the serial output modes, wind variables (minimum, average, maximum) as well as data averaging and updating intervals are all configurable.

Typical applications for the Vaisala WINDCAP[®] Ultrasonic Wind Sensor WMT50 include meteorology, wind energy, marine, transport, pollution control, and agriculture.

Further information:

Contact: Veli-Matti Miettinen, Product Manager, email: veli-matti.miettinen@vaisala.com
<http://www.vaisala.com/wmt50>.

Vaisala Radiosondes

The Vaisala RS92 Radiosonde family has been complemented with radioactivity measurement capability. The RS92 radiosonde is now available in configurations supporting GPS and LORAN-C windfinding, and PTU only measurement. Both digital and analog data links are available.

Further information:

Mikko Viilo, Product Manager, email: mikko.viilo@vaisala.com
<http://www.vaisala.com/RS92>

New Vaisala Gauge Meets Demands for Accurate Measurement of All Precipitation Types

Vaisala was proud to introduce the latest innovation for measuring all types of precipitation in early 2006: The Vaisala All Weather Precipitation Gauge VRG101. The Vaisala All Weather Precipitation Gauge VRG101 is designed to meet the challenges of measuring a broad range of precipitation, from rain and snow to hail, sleet and freezing rain. The innovative design enables the new device to measure liquid and solid precipitation accurately and in the most severe weather conditions.

The measurement principle is based on the latest high-accuracy, temperature-compensated load cell technology. A funnel element on top of the container ensures that even the lightest rain and snowfall are detected and measured. The state-of-the-art design allows for easy maintenance access and accommodates the adding of antifreeze agents and removal of the collector container. Data loss, sometimes a problem with precipitation gauges that need to be taken to the laboratory for calibration, has been eliminated in the new VRG101, which is equipped with a field-removable electronics unit that renders laboratory visits obsolete. In addition, the strong and simple design extends service intervals and lowers life-cycle costs.

Further information:

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<http://www.vaisala.com/vrg101>

Vaisala Thunderstorm Lightning Sensors LS8000 and LS7000

The LS8000, one of two principal sensor configurations offered in the Vaisala Thunderstorm Information System, integrates the two most effective lightning detection technologies: very high frequency (VHF) interferometry and low frequency (LF) combined magnetic direction finding and time-of-arrival.

The Total Lightning Sensor LS8000 is recommended for operations with responsibility for identification and nowcasting of hazardous convective weather, including meteorology, power utilities, defense, launch facilities, air traffic management, airports and hydrology. LS8000 also provides valuable data for enhanced cloud-to-ground lightning warning capabilities.

The LS7000 is the other principal sensor configurations offered in the Vaisala Thunderstorm Information System. This sensor configuration employs low frequency (LF) combined magnetic direction finding and time-of-arrival technology which offers the highest detection efficiency and most accurate location for cloud-to-ground lightning strokes. Modular sensor technology allows the LS7000 to be upgraded to the Total Lightning Sensor LS8000.

The CG Enhanced Lightning Sensor LS7000 provides real-time data that is recommended for operations focused on tracking cloud-to-ground lightning threats to humans and ground-based assets at risk: electric power utilities, forestry, airports, meteorology/climatology, telecommunications and outdoor events.

Further information:

Contact: thunderstorm.sales@vaisala.com
<http://www.vaisala.com/thunderstorm>

New Vaisala Thunderstorm Product Programs

Vaisala Thunderstorm recently announced two innovative programs to meet the needs of integrators and also current thunderstorm sensor and system owners.

The Vaisala Single Point Sensors for Integrators program offers integrators a simple product solution that will provide important thunderstorm data to existing or developing weather warning systems.

In addition, Vaisala's System Sensor Upgrade Program provides organizations a sensible solution to upgrade older sensors by working closely with budgeting, planning and asset evaluation of the organization.

Contact your Vaisala Thunderstorm sales representative or email sales at thunderstorm.sales@vaisala.com to find out more about lightning solutions.

Further information:

Contact: thunderstorm.sales@vaisala.com

<http://www.vaisala.com/thunderstorm>

New Vaisala LAP-XM[®] software and tropospheric profilers

Vaisala has released a much-improved version of the Vaisala LAP-XM[®] software for the Vaisala LAP[®] family of wind profilers. Vaisala LAP-XM[®] software version 2.3.0.0 includes many new features and improvements of operational interest to LAP[®] customers everywhere. The new LAP[®]-XM[®] software is compatible with all Vaisala LAP[®] wind profilers equipped with Digital IF. Among other benefits the new Console feature integrates operational control, dwell, event log, and profiler monitor display, and an improved data replay function into a single stand-alone user interface. It also introduces the "opposing beam dwell" display, which is very useful for checking the operational integrity of the system hardware.

Vaisala has delivered a network of 482 MHz LAP[®]-16000 tropospheric wind and temperature profilers for the German Weather Service in 2005. These profilers represent the latest technology and tropospheric wind profiling. The profilers provide high-quality continuous atmospheric wind data up to an altitude of 12-16 km.

Further information:

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<http://www.vaisala.com/windprofilers>