High accuracy.
Proven reliability.

/ SOUNDING SOLUTIONS

VAISALA

Vaisala: a sound decision

Atmospheric sounding technology is at the heart of Vaisala's modest beginnings over seventy years ago, when Professor Vilho Väisälä put the finishing touches on his first commercial radiosonde in 1936. Today, most atmospheric soundings around the world are performed with Vaisala sounding equipment.

We have had the time and the experience necessary to building a reputation for accuracy and reliability. And we do our utmost to provide our customers with the very best tools for the job – whether they are meteorological organizations, defense forces or any of the specialty users who rely on Vaisala equipment every day.

Better weather prediction

In today's world, weather has far-reaching socio-economic consequences. High-quality atmospheric observations provide the data necessary for accurate forecasting – to anticipate and prepare for the impacts that weather can have. Meteorological institutes need to optimize their observation systems and networks in order to maximize their benefit to society.

Weather observations and forecasting is a collaborative effort that spans the world. This effort is guided by the World Meteorological Organization (WMO) together with the International Telecommunications Union (ITU). Vaisala collaborates closely with meteorological institutes and research organizations all around the world to be able to better respond to customer needs.

Radio soundings

The WMO Global Observing System (GOS) network releases more than 1400 radiosondes every day. Radio soundings form the backbone of atmospheric profile data from the earth's surface up to altitudes of about 30 km. This data is essential for both local forecasting and Numerical Weather Forecasting (NWP) models which predict weather a few days ahead. Radiosounding data is also used by climatologists, universities, research groups, environmental agencies and defense services for a variety of purposes.

Vaisala´s core concentration is on quality of observation, as demonstrated in all WMO radiosonde comparisons.

We push the boundaries of what is possible – resulting in better weather prediction – day after day.

Value for money

Vaisala's radiosonde systems are accurate and durable. They provide excellent observation quality and a high rate of data availability. Should new WMO regulations or guidelines suggest changes to operational practices, Vaisala will ensure that systems are kept up and running.

Hundreds of users have already discovered that purchasing a Vaisala product is an investment in reliable future performance.

Meeting pertinent standards

As a leader in the field of radiosonde systems, Vaisala pays special attention to meeting standards and complying with associated regulations. The sensors used in Vaisala radiosondes are calibrated against internationally traceable reference standards. In addition, all Vaisala products meet ISO 14001, ISO 9001 and AQAP 2110 standards. Vaisala's radio soundings expertise makes life more predictable. And that makes the world an easier place to live in.

Radiosonde

Radiosondes perform PTU measurement using sensors designed to cover all atmospheric and weather conditions in every climate zone. To guarantee GPS height measurement accuracy, these sensors are individually calibrated against reference standards traceable to international standards. Wind data is computed from radiosonde movements during ascent. The movement is measured utilizing either navigation signals such as GPS or radiodirection finding.

The evolution of upper air measurement

Professor Väisälä, Ph.D. Mathematics, Prof. Meteorology, was a member of the WMO's Commissions for Aerology (CAe) and for Instruments and Methods of Observation (CIMO). He was founder and longtime Managing Director of Vaisala Oyj.

1936

The Vaisala Radiosonde RS11 wins Gold Medal at the 1937 World Fair in Paris. This was Professor Vilho Väisälä's first commercial radiosonde, delivered on July 30th, 1936.

1936

Professor Väisälä develops the Väisälä Aerogram, in use for 50 years. The Aerogram is a graphical aid to determine hydrostatic altitude for pressure levels.

1950

Väisälä Radiotheodolite for upper-air wind measurement is introduced in the early 1950s. It works in the 25 MHz frequency band.

Meet the family

Vaisala has a soundings solution for every application.
Tell us your needs.

Vaisala radiosondes

Since 1936, Vaisala Radiosondes have offered evolutionary improvements in pressure, temperature and relative humidity measurement and wind finding. Vaisala currently offers several models of radiosondes. In addition to the basic readings of pressure, temperature, humidity (PTU) and wind, Vaisala offers the ability to measure ozone. Users can even add their own sensors.

Vaisala sounding systems

Vaisala offers sounding systems for manned stations, mobile use, unmanned stations, shipboard and airborne use. The Vaisala DigiCORA® Sounding System integrates sounding control, data processing and output in customer-required format.

Meteorological message generation follows the latest WMO regulations, including BUFR coding.

The Vaisala Automatic Sounding Station AUTOSONDE is an integral part of many national upper-air networks. It is built to increase operational efficiency and extend observation network coverage into remote locations where a manned station is cost-prohibitive.

Vaisala MARWIN®, a ruggedized version of the DigiCORA®, is intended for applications where mobility is a must and environmental conditions are demanding.

1965

The Vaisala Radiosonde RS13 is the world's first fully transistorized radiosonde, much lighter than previous models, with better performance and new measuring elements.

1969

The Vaisala Radiosonde RS16 is equipped with a thin wire thermometer. The WMO grants it temperature reference radiosonde status.

1973

The Vaisala RS21 offers improved temperature sensor and a thin film, Humicap® humidity sensor. 400 MHz telemetry opens the door to mobile radiosonde systems.

1975

Vaisala introduces the CORA® Automatic Sounding System It features wind measurement based on the Omega NAVAID network, and automatic coding of TEMP messages. The world-famous MicroCORA (in picture) enters the market in 1981. It is in use until the termination of the Omega network in 1997.

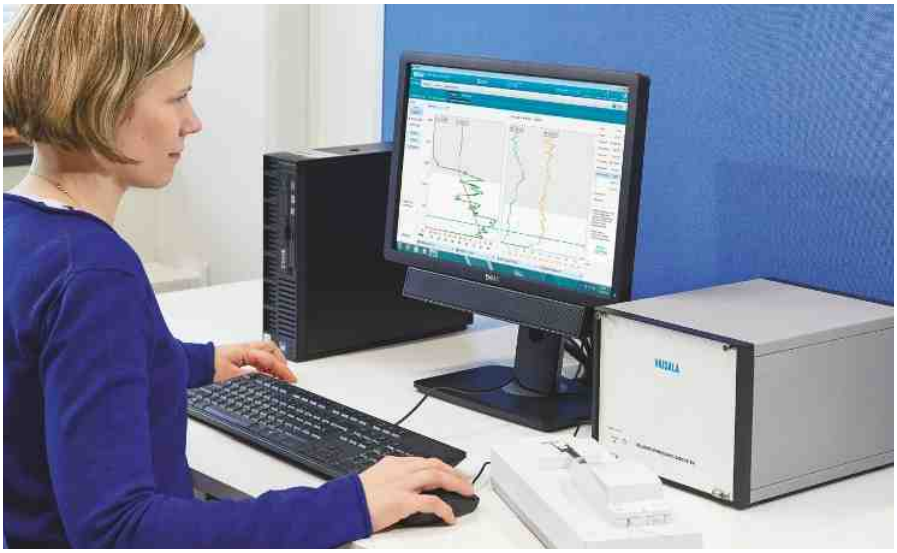
1977

WMO chooses Vaisala RS21 as the radiosonde for the FGGE (First GARP Global Experiment). This was the beginning of the great success of Omega based wind finding. Picture shows RS21 launch on board of a research ship, late 1970s

Vaisala dropsondes

A dropsonde is a radiosonde released from an aircraft or a constant level drift balloon. A stabilizing parachute provides the desired descent speed. A signal receiver is installed in the cabin of the aircraft or in the gondola of the balloon.

Dropsondes are mainly used for targeted observations over the ocean. They provide data on severe storm trajectory and intensity prediction, e.g. hurricanes in the Caribbean Sea. Dropsondes are also used to collect data in atmospheric studies, where land-based radiosonde systems cannot be used. Vaisala Dropsondes have been developed in cooperation with the National Center of Atmospheric Research (NCAR) in Boulder, Colorado, U.S.A.



Vaisala radiotheodolite

The Vaisala Radiotheodolite uses the principle of radio direction finding (RDF) in order to track movement. The antenna gives bearing and elevation angle, whereas the altitude is computed from the radiosonde sensordata. Vaisala's Radiotheodolite is the world's most advanced and accurate of its kind. It is also a vital component of defence services.

1981

The Vaisala Radiosonde RS80 sets a new standard in synoptic upper-air observation. New methods for measuring small capacitances and an electronic switch are patented worldwide. It becomes the WMO's "transfer standard" inradiosonde comparison tests.

1985

The Vaisala DigiCORA® Sounding System MW11 is introduced. It features self-guiding menu for operation through front panel keys, a comprehensive self-testing, and built-in battery back-up for eventual mains power break. Automatic telemetry system control is introduced. The next version - DigiCORA® Sounding System MW15 (in picture) - is compact and portable.

1987

Vaisala introduces the first version of the 1680 MHz radiotheodolite for defense applications.

1994

The first Vaisala Automatic Sounding Station AUTOSONDE is delivered – a robot that prepares and releases a radiosonde without human intervention.

1996

Vaisala introduces GPS for upper-air wind measurements. GPS technology offers substantially more detailed profiling of upper-air wind patterns.

Vaisala Services - life cycle partner

Vaisala is the life cycle partner for your environmental observations from the start of the investment planning to the end of the equipment life cycle. According to each customer's needs, we provide many services individually, through predefined service activities or modular service agreements. Increase the efficiency of daily operations and concentrate on core activities with the reliable support of our professional services.

Project services

We can provide a guiding hand in managing ambitious programs. Project services include project management, installation, training, acceptance testing, engineering and consulting.

Operation support services

It is easy to build a service level that exactly meets your requirements. Maximize the lifetime value of your equipment with maintenance contracts that are tailor-made to the Vaisala equipment you own. We perform and keep track of scheduled maintenance, send spare parts, take care of software upgrades and much more – offering priority care to

1997

The first Vaisala dropsondes are delivered. NCAR and Vaisala enters into a licensing agreement on dropsonde design. NCAR designs the "GPS Dropwindsonde" using Vaisala core technology for PTU and wind finding. This dropsonde is renamed the Vaisala RD93 Dropsonde.

1999

Vaisala DigiCORA® Sounding System MW21 is introduced. It features data and messages transmitted over the Internet, together with a user-friendly graphical interface. A BUFR message coding program is implemented in 2001.

2003

The Vaisala RS92 radiosonde features new high performing sensors designed for radiosonde use. Vaisala's method of applying GPS to wind measurement is uniquely designed for radiosonde use.

The next version of sounding system, Vaisala DigiCORA® Sounding System MW31, gives a meteorologist comfortable control over the sounding process by integrating sounding controls, archiving the sounding data, and meteorological message creation

2009

Vaisala introduces the second generation Vaisala MARWIN® Sounding System for demanding environmental conditions. It meets a number of focal MIL-STD and other applicable requirements concerning operating environment and electromagnetic compatibility.

2012

The first part of next generation radiosonde system, Vaisala DigiCORA® Sounding System MW41, is launched. MW41 takes the operational experience of the sounding totally to the new level.

2013

The Vaisala Radiosonde RS41 is launched and combined with the Vaisala DigiCORA® Sounding System MW41. It introduces new standards in both technology and usability.

Cases

ensure that the highest-quality data is available when you need it.

Our technical support is available 24/7/365 to assure a rapid response time to your requests. We want to make sure you are able to get accurate and on-time information on environmental conditions that are critical to the safety and success of your operations.

With approximately 250 employed professionals in various locations around the world, Vaisala's services staff ensures that you can make most out of your Vaisala equipment with the least possible effort. Our field service staff is dedicated to on-site support varying from installations to preventive and corrective maintenance.

Courtesy: U.S. Department of Energy's Atmospheric Radiation Measurement Program.

U.S. Atmospheric Radiation Measurement Program

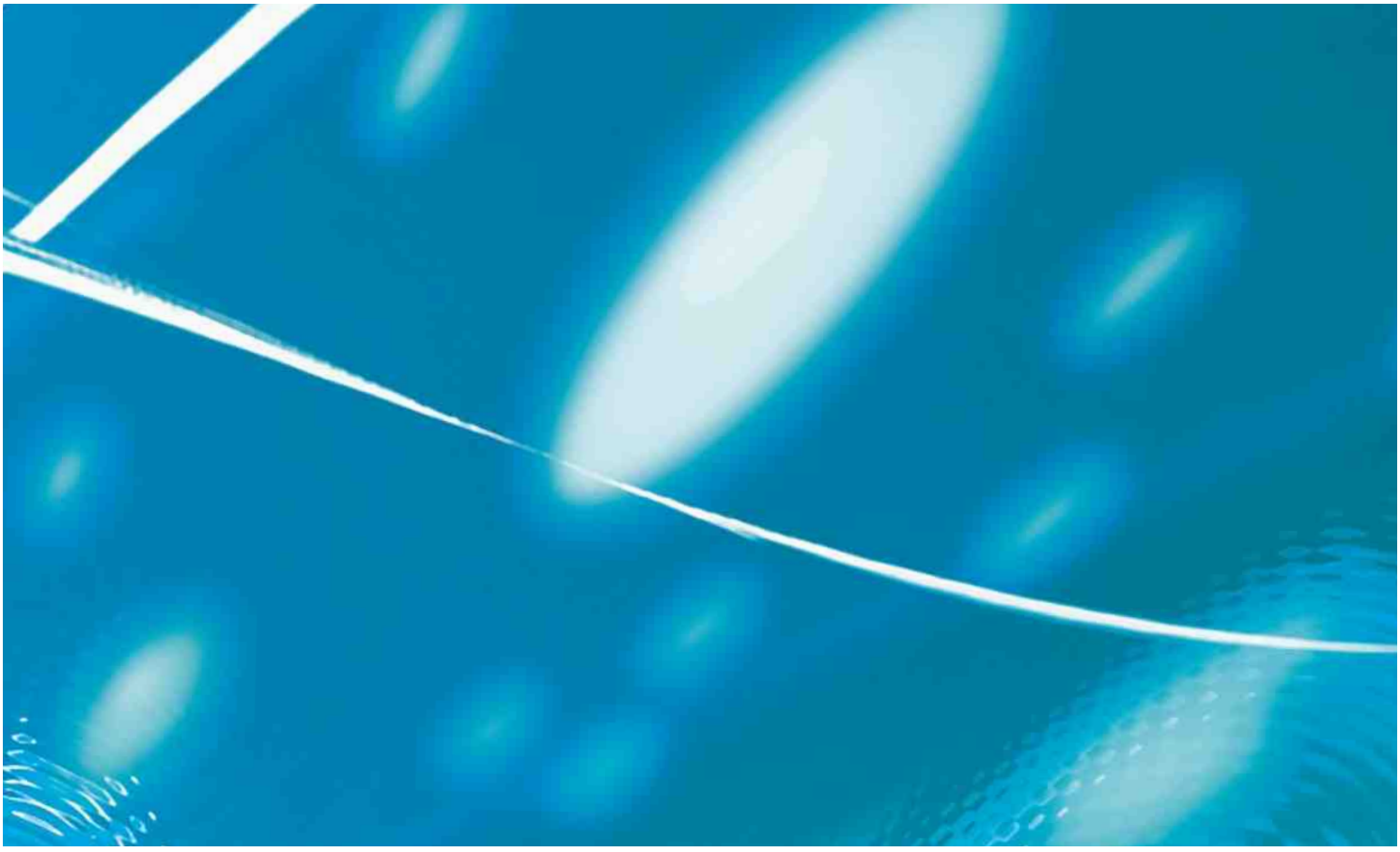
For over 20 years Vaisala DigiCORA® Systems and radiosondes have contributed to an improved scientific understanding of the fundamental physics related to interactions between clouds and radiative feedback processes in the atmosphere. The Vaisala DigiCORA® is a core part of the U.S. Department of Energy's Atmospheric Radiation Measurement (ARM) program, begun in 1992.

The operational capabilities of the ARM program were recently designated a National User Facility and now support the broader global climate change research community. Fixed research sites include the U.S. Southern Great Plains, the North Slope of Alaska, and the Tropical Western Pacific. The ARM mobile facility (AMF) supports remote field campaigns, notably in North Africa, Germany, and China. A second AMF will soon support marine deployments.

AUTOSONDES® create efficiencies in Australia

The Australian Bureau of Meteorology operates a widely dispersed network of Vaisala Automatic Sounding Station AUTOSONDES® in often harsh climatological conditions. Currently 15 AUTOSONDES® are operational at observing stations in coastal, rural and remote areas. Since the first system was installed twenty years ago, comprehensive operational experience has been gained.

Since remote operation and diagnostics contribute to operational and cost efficiencies, an increased reliance on automated systems helps keep programs on track in an environment of reduced staffing resources. Remote operation of AUTOSONDES® allows central forecasting staff to initiate adaptive soundings at any time during severe weather events, even when the observing station is not staffed.



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