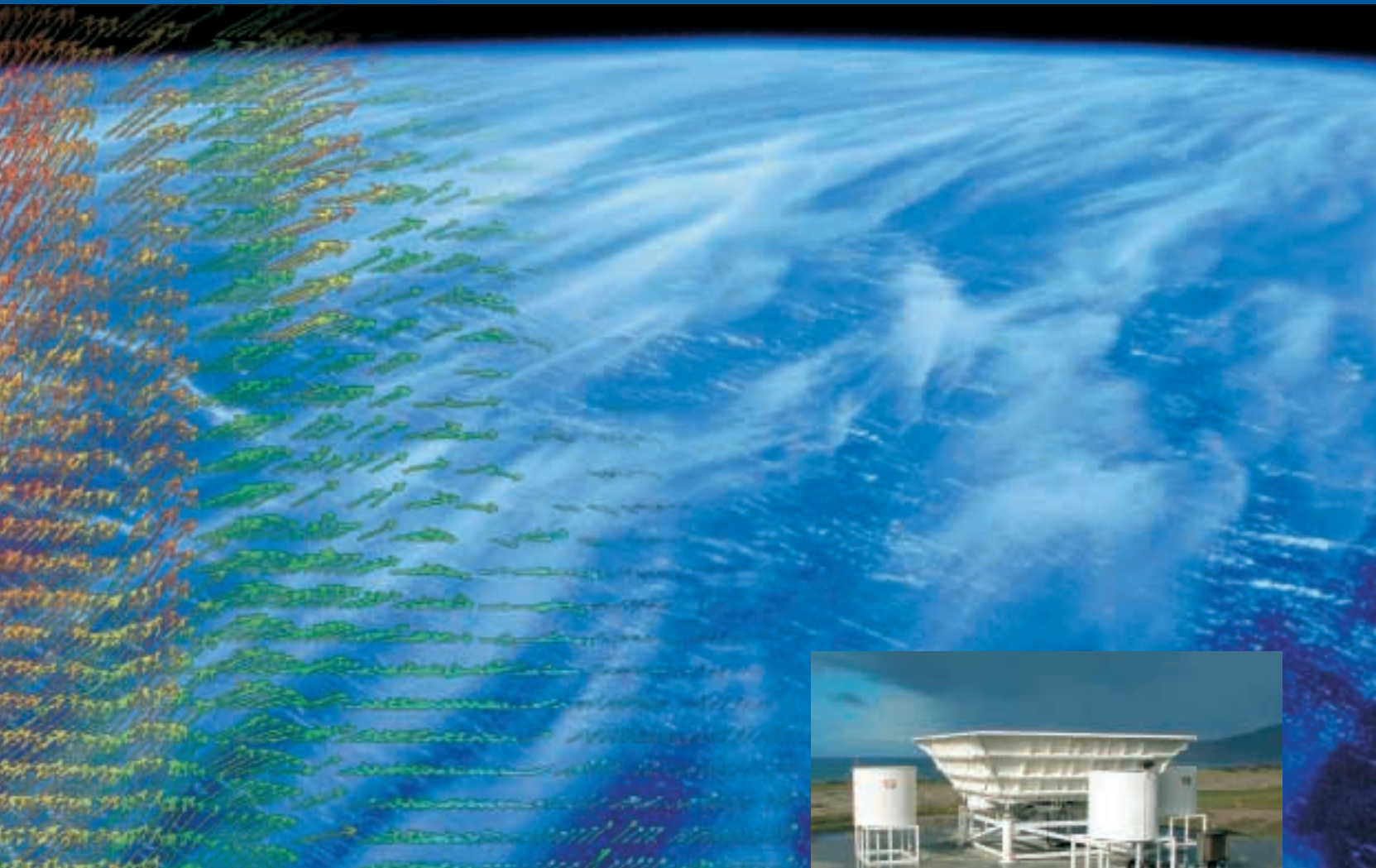


The Vaisala LAP[®]

Family of Wind Profilers



Continuous and real-time vertical profiles
of horizontal wind speed and direction,
horizontal wind components and vertical velocity

The World's Most Advanced Family of Wind Profilers

The LAP® family of wind profilers is built around a Doppler beam swinging (DBS) radar. In unattended operation, this radar reliably provides continuous and real-time vertical profiles of horizontal wind speed and direction, horizontal wind components, and vertical velocity up to the maximum range of the LAP® wind profiler in question. When an optional Radio Acoustic Sounding System (RASS) is added, virtual temperature profiles up to various maximum altitudes can be provided*.

The LAP®-3000 boundary layer wind profiler was developed by the National Oceanic and Atmospheric Administration (NOAA) of the USA and refined by Vaisala under a CRADA – Cooperative Research and Development Agreement for commercial use. Vaisala has evolved the core technology beyond the boundary layer focus of the CRADA in order to develop a family of LAP® radar profilers. In the Vaisala LAP® family of wind profilers you will find the frequencies, transmitter power levels, antenna apertures and altitude coverage that you need in a remote sensing solution.

* The maximum altitude of valid measurements of wind and temperature is dependent upon atmospheric conditions.

The Vaisala LAP® family

Vaisala LAP®-3000

Boundary layer radar profiler in the 800-1500 MHz band



Vaisala LAP®-8000

Mid-tropospheric radar profiler in the 440-500 MHz band



Vaisala LAP®-12000

Tropospheric radar profiler in the 45-70 MHz band



Vaisala LAP®-16000

Tropospheric radar profiler in the 440-500 MHz band



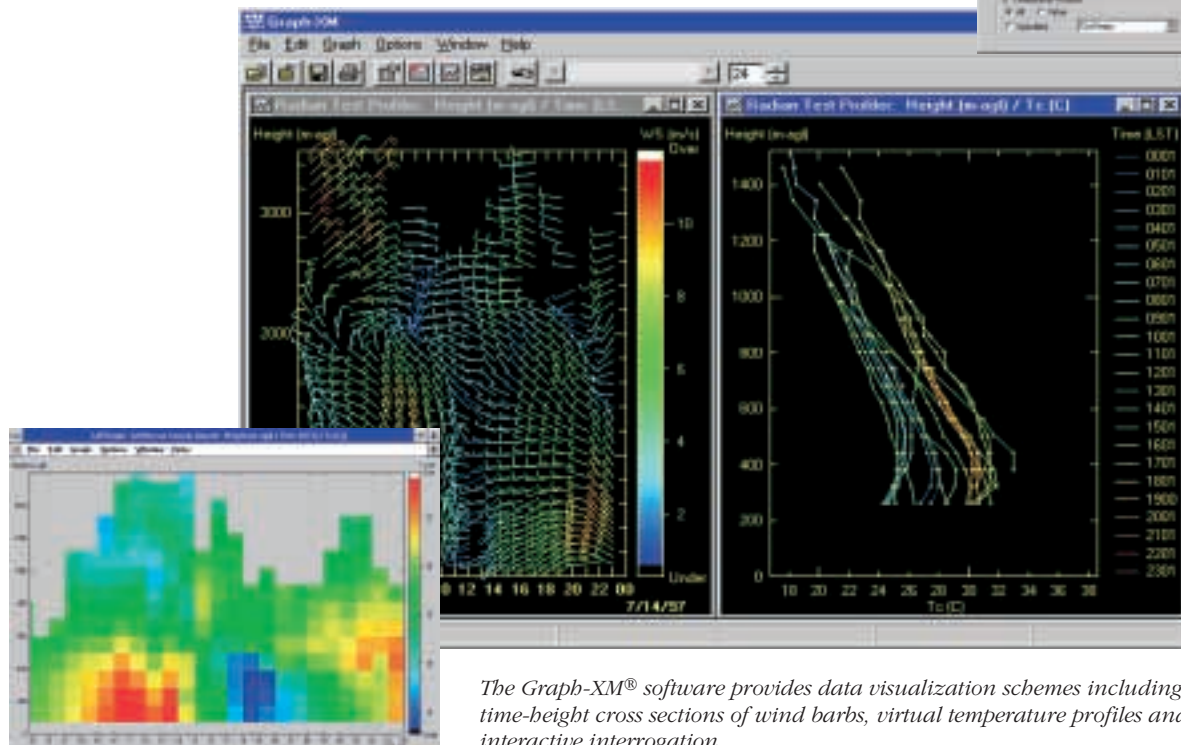
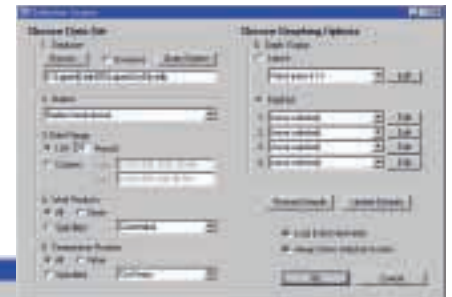
LAP-XM® software suite

Every LAP® wind profiler is controlled by Vaisala's proprietary, flexible LAP-XM® software suite. LAP-XM® allows the operator to optimize the wind profiler's performance according to the installation site. The variable temporal and vertical range resolution can be adjusted to suit various applications. The operator can select the signal processing parameters, quality control features and data formats. The optional Graph-XM® graphical display software provides a wide variety of data visualization schemes including time-height cross sections of wind barbs (vectors) and virtual temperature profiles, as well as interactive interrogation. The PC Access® database can archive up to one year's worth

of wind and temperature data in text format. Averaged time series, spectra, and moments data can also be archived.

Defining your requirements

Vaisala project managers and engineers will work closely with you to define your requirements and assemble the appropriate wind profiling solution. We offer a complete range of installation and training services to help you get the most from your Vaisala wind profiling system. Service after the sale continues with optional service contracts that cover both software and hardware components. Finally, Vaisala operates a 24/7 helpdesk to respond to your inquiries around the clock.



The Graph-XM® software provides data visualization schemes including time-height cross sections of wind barbs, virtual temperature profiles and interactive interrogation.

Applications

LAP® radar profilers for a variety of applications including:

- Atmospheric boundary layer research and operations
- Air pollution research and operations
- Emergency response
- Global climate change studies
- Aviation operations
- Mesoscale and synoptic scale meteorological forecasting
- Battlefield operations
- Forest fire management
- Urban airshed modeling
- Weather modification
- Offshore, shipboard and airborne platform applications
- Arctic/antarctic research
- Optical turbulence support
- Space launch/landing support



Users of the LAP® family of radar profilers

Governmental users:

- Australia Bureau of Meteorology
- Austro-Control and other national agencies
- Basque Meteorological Office, Spain
- Beijing Institute of Atmospheric Physics
- The Deutscher Wetterdienst (DWD – German Weather Service)
- Environment Canada
- Greenland Airport Authority
- The Hong Kong Observatory

- Japan Meteorological Research Institute
- Macau Meteorological Bureau
- MeteoSwiss
- The National Center for Atmospheric Research (NCAR)
- The National Aeronautics and Space Administration (NASA)
- The Royal Netherlands Meteorological Institute (KNMI)
- Shanghai Meteorological Bureau
- Thailand Pollution Control Department
- The UK Meteorological Office (UKMO)

- The U.S. Department of Defense (DoD)
- The U.S. Department of Energy (DoE)
- U.S. National Oceanic and Atmospheric Administration (NOAA)

Current U.S. and international private sector users include air quality districts, universities, and utility companies.



About Vaisala

Vaisala sensors, instruments and systems are used the world over by organizations that need to measure the environment with great accuracy and consistency.

The Vaisala Group is a successful international technology company that develops and manufactures electronic measurement systems and equipment for meteorology, the environmental sciences, traffic safety and industry.

Vaisala employed over 1,100 skilled professionals and achieved net sales of EUR 183.5 million in 2001. Exports accounted for 96% of net sales. Vaisala's A-series shares are listed on the Helsinki Exchanges.

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www.vaisala.com

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All specifications subject to change without prior notice.