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Vaisala launches AVAPS Lite the Lighter Dropsonding System

The Vaisala AVAPS Lite, the new affordable one-channel dropsonde system, is intended for applications which require real-time atmospheric data but do not need multiple simultaneous soundings. The Vaisala AVAPS Lite combines world-leading GPS technology and PTU sensor technology, proven in the full-scale Vaisala Airborne Atmospheric Vertical Profiling System AVAPS.

The Vaisala AVAPS Lite is the perfect dropsonding system for applications that require a targeted, detailed, accurate and real-time atmospheric profile of pressure, temperature, humidity and wind. The AVAPS Lite sounding software receives and displays the raw, non-processed dropsonde data on a PC in real-time. The data is stored in ASCII format on the hard disk, where it can be displayed and post-processed further.

The AVAPS Lite uses the same sounding software and data processing hardware as the full-scale AVAPS, with compatible data outputs and post-processing programs. The potential

dropsonde user now has two dropsonding system options: full-scale AVAPS for applications needing up to four simultaneous dropsondings and AVAPS Lite for applications needing only one dropsonding at a time. For instance, users who need in-situ measurements of the atmosphere from time to time or require calibration or comparison for other measurement instruments will find AVAPS Lite useful. Vaisala can also offer leasing arrangements for short-term and one-off projects.

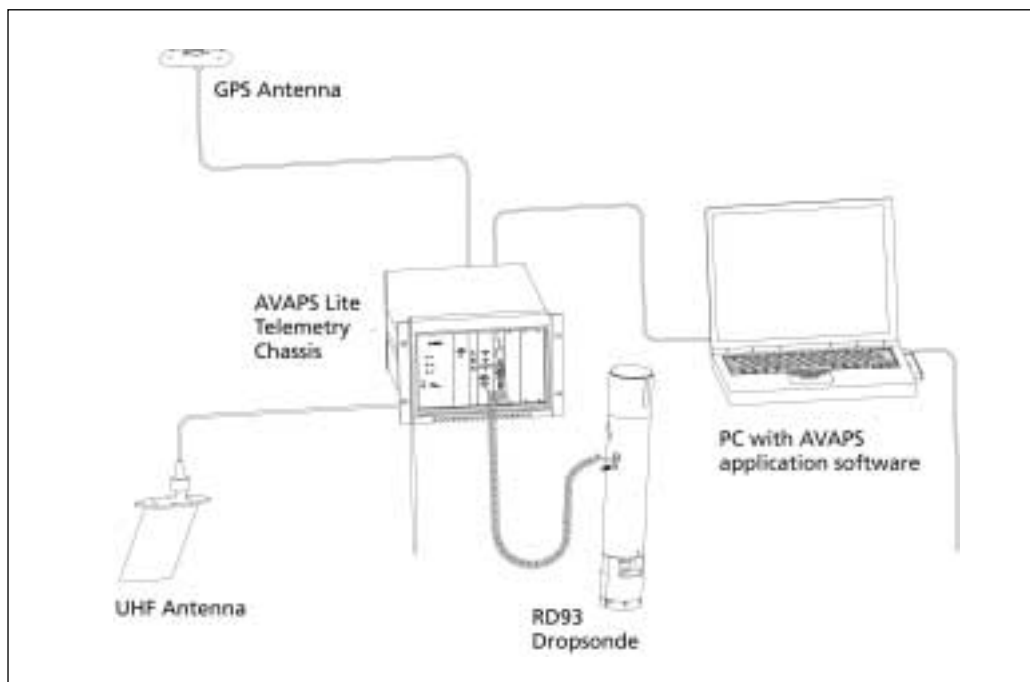
What is a dropsonde?

To perform meteorological measurements, a dropsonde is launched from an aircraft or oth-

er flying platform. Descending through the atmosphere by parachute, it measures the atmospheric profiles of pressure (P), temperature (T), relative humidity (U) and wind from the point of launch to the ground. The Vaisala RD93 Dropsonde is used with the Vaisala AVAPS Lite. It transmits data via a 400 MHz meteorological band telemetry link to the receiving AVAPS Lite system onboard the aircraft. The PTU and wind data are measured twice per second. The onboard GPS receiver tracks the dropsonde's horizontal movements, which are, naturally, caused by the wind. The RD93 descends by parachute at a rate of approximately 11 m/s. Several thousand RD93 Dropsondes are used annually in the research of hurricanes, severe storms and other atmospheric phenomena.

Compact system

The Vaisala AVAPS Lite comprises an AVAPS Lite telemetry chassis, GPS and UHF aircraft antennas, a laptop PC running the application software, and a dropsonde launcher modified either for unpressurized or pressurized aircraft. The system is



The Vaisala AVAPS Lite comprises AVAPS Lite telemetry chassis, GPS and UHF receiver antennas certified for use aboard high-flying aircraft, a laptop PC running the application software, and a dropsonde launcher for unpressurized or pressurized aircraft.

lightweight, requires little space and has a low power consumption. The application software runs on a standard laptop PC.

Installing AVAPS Lite

When the flight mission calls for dropsondings, the AVAPS Lite telemetry chassis, laptop PC and dropsonde launcher are easily carried in and mounted in the aircraft cabin. A dropsonde launcher must be installed in the user's aircraft, in an opening such as a camera well, and can then be re-

moved if not needed. The GPS and 400 MHz telemetry antennas with cables occupy little space in the aircraft interior and cause minimal drag on the aircraft exterior.

Applications

The AVAPS Lite System is ideal for the following applications:

- Supporting precision air drops of supplies
- Supporting paratroop deployments
- Air chemistry research

- Airborne validation of remote sensing data
- Atmospheric refraction studies
- Research on cloud physics
- Polar and marine environment/meteorological research
- Other research requiring detailed information on atmospheric conditions

Intellectual property rights and development

The Atmospheric Technology Division (ATD) of the National Center of Atmospheric Research (NCAR) in Boulder, Colorado, developed the hardware and software for the Vaisala AVAPS Lite and Vaisala AVAPS. The hardware and software are licensed to Vaisala Inc, USA. NCAR/ATD and Vaisala are committed to the continuous development of the AVAPS Lite and AVAPS hardware in step with the evolving requirements of our customers. ●



The AVAPS Lite is a compact system for airborne atmospheric data acquisition.



Robert Rives



Tapani Antila

Robert Rives and Tapani Antila answer for product development while Marko Keskinen is the product manager for AVAPS Lite and provides customer support.