*wind*RASS™

Doc71029090

RASS Wind and Temperature Profiler

Photo and data courtesy of Servei Meteorologic de Catalunya

Features

- **immune to ground clutter and noise**
- **tolerates precipitation**
- **tolerates turbulence-free atmospheres**
- **ESI technology increases data availability**
- **maximum range up to 600 / 800 m with Sodar SFAS / MFAS**
- **monitors inversion heights with 5 / 10 m precision with Sodar SFAS / MFAS**
- **easy installation**
- **fully-automated self-test**
- **remote access**

Applications

- **atmospheric dispersion**
- **air quality**
- **nuclear power plant safety**
- **airport safety**
- **fog forecasting**
- **defence weather**
- **micrometeorology**
- **climate change**
- **urban climate**
- **wind energy**

The Scintec *wind*RASS™ upgrades the sodar models SFAS or MFAS to work in radio-acoustic mode for precise measurements of both wind and temperature. This differs from conventional RASS where radio-acoustic sounding is used for temperature measurements only.

With *wind*RASS™, acoustic and electro-magnetic beams are emitted in vertical and tilted directions. The electromagnetic waves are backscattered at the acoustic waves and a Doppler analysis is performed. Wind and temperature are derived via their influence on the speed of sound. *wind*RASS™ is the first wind and temperature profiler that works anywhere, anytime. It is immune to ground clutter and ambient noise, making it a perfect

solution for urban or industrial environments. Since *wind*RASS™ does not depend on the existence of atmospheric turbulence, it operates at full performance in the marine boundary layer (coastal sites), foggy conditions or calm nights, each characterized by low turbulence levels. In addition, *wind*RASS™ is not compromised by precipitation.

The Extended-Sweep Inversion technique (ESI) significantly increases the signal-to-noise ratio and allows for measurement ranges far wider than those of traditional RASS systems.

*wind*RASS™ is operated using APRun with extensive graphical display options and remote access support.
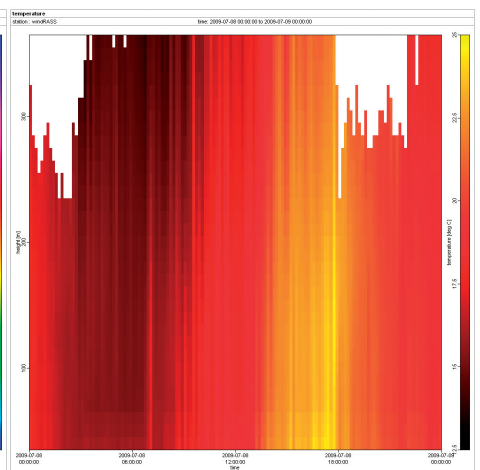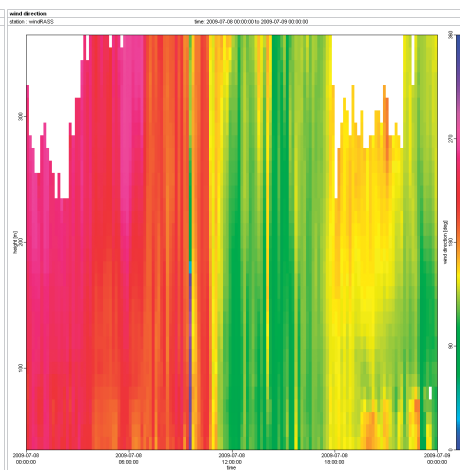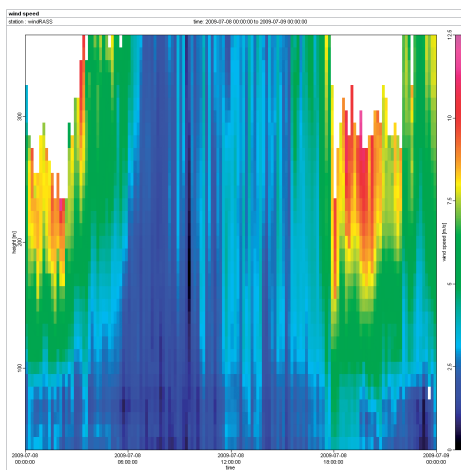
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*wind*RASS™

Data output (in addition to Sodar output)

- wind speed and direction (RASS mode)
- standard deviations of wind components (RASS mode)

- standard deviation of wind directions (sigma phi, sigma theta) and stability class for air quality applications (RASS mode)
- wind shear for airport applications (RASS mode)

- temperature and virtual temperature
- inversion identifier
- data quality (RASS mode)

Description	Specifications	Remarks
Radio antenna	dual-bar slot antenna	easy disassembly for transport
Radio frequency	1290 MHz, 915 MHz	other frequencies on request
Vertical resolution	5 / 10 m with SFAS / MFAS	depending on Sodar model
Minimum range	40 m	depending on settings, environment and atmosphere
Maximum range	600 / 800 with SFAS / MFAS	
Averaging time	1 - 60 min	user-defined
Accuracy of horizontal wind speed	0.3 to 0.5 m/s	depending on mode, average over varying conditions
Accuracy of temperature	0.2 °C	virtual temperature
Measurement range	-50 °C to +60 °C	
Operating temperature	-35 to +50 °C (-30 to +120 °F)	
Power requirement DC operation	14 VDC, 7A	depending on mode
Power requirement AC line operation	104 to 132 VAC, 160 W (120V model) 207 to 264 VAC, 160 W (230V model)	

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