Every Drop Matters

New patented technology
for complete precipitation analysis
»Thies CLIMA Precipitation Analyzer «

SAFE

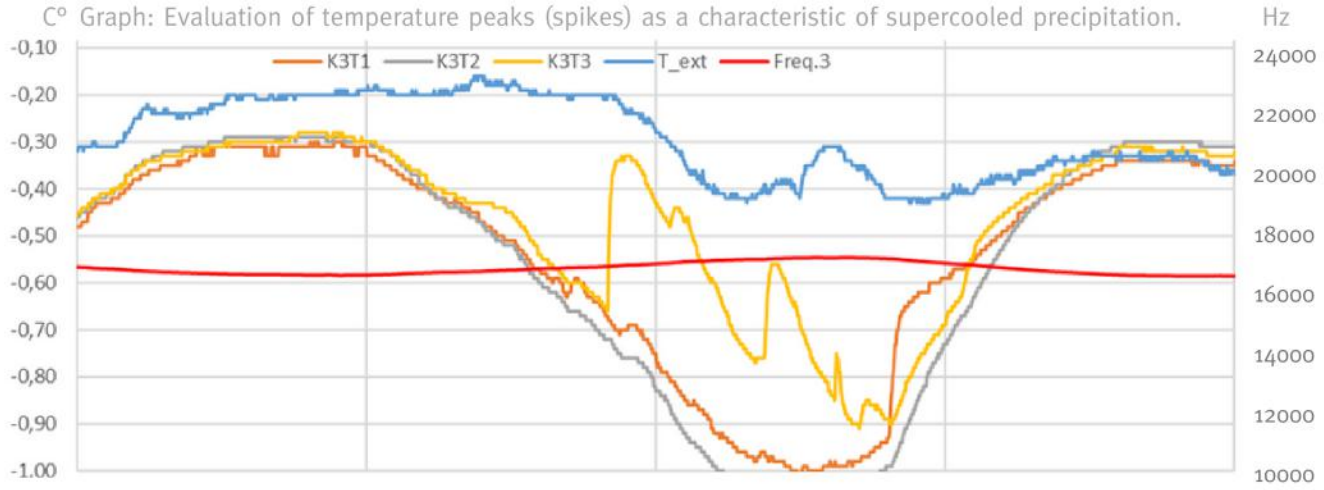
from supercooled precipitation, FZRA, FZDZ, FZFG & sliding ice.

The » Precipitation Analyzer « is suitable for early warning systems in applications where icing is a safety risk. With its innovative method for early detection, the device contributes to efficient winter maintenance and the timely initiation of safety measures.

With our groundbreaking technology you can detect and measure different types of precipitation, especially supercooled precipitation (automated METAR code output).

Thanks to the unique design with a pyramidal measuring surface made of special ceramic material and resistant glass coating, precise surface temperatures are recorded. Our analyzer uses the evaluation of temperature peaks for the detection of crystallization heat and the changing dielectric properties of water and ice as measuring principles. This allows us to accurately distinguish and quantify precipitation events, including phase changes. The instrument was developed and tested in cooperation with the "German Weather Service (DWD)" for use at airports.

THE WORLD OF WEATHER DATA



All-IN: Precipitation Analysis:

Accurate for all precipitation types, intensity, wetting phases and phase change:

- Freezing fog (FZFG)
- Freezing drizzle (FZDZ)
- Freezing rain (FZRA)
- Black ice
- Supercooled water on the sensor
- Hail, ice, drizzle, rain, sleet, sleet, dew, hoarfrost ...

Sensors & Measuring Principles

The Precipitation Analyzer has four sensor surfaces whose electrical capacitance changes upon wetting. This is combined with a calorimetric measurement method in which the released crystallization heat is measured and evaluated as a characteristic temperature increase. In addition, the capacitance of the device is determined at several frequencies, which makes it possible to distinguish between solid and liquid wetting of the device.

By using these measurement principles, such as the evaluation of characteristic temperature peaks and the changing dielectric properties of water and ice, the Precipitation Analyzer offers a novel method to distinguish and quantify solid and liquid precipitation events, especially supercooled precipitation components.

Not only the precipitation amount and intensity are recorded, but also phase changes during the precipitation process are precisely determined. The temperature peak detection identifies even the smallest supercooled precipitation components in otherwise normal appearing precipitation events and thus warns of the acute danger of slippery conditions, e.g. freezing rain and sleet.

The device indicates impending icing even before the dangerous formation of black ice by reliably detecting supercooled liquid components on the sensor.

Applications

Safety First & Prediction & autom. METAR code

The Thies Precipitation Analyzer enables automated METAR Code issuance of supercooled precipitation (FZRA, FZDZ, FZFG). This technology, which safely warns of icing hazards on wings and on the tarmac in air traffic, also lends itself to economical icing warning in the following applications:

- Safe traffic routes: Our technology warns in real time of icing hazards on roads, bridges, shipping routes and in ports.
- Infrastructure protection: Timely icing warnings enable protection of wind turbines and power lines from structural damage.
- Real-time protection from hazards:
  - Black ice warnings: fast and accurate, detection for timely warning of slippery roads, fractures in trees and buildings
  - Damage prevention: precise warnings enable rapid initiation of protective measures (clearing services, closures, etc.)

Smart weather station supplement: The Precipitation Analyzer extends existing stations with data on sub-freezing precipitation fractions and black ice.
Increase the quality of hazard warnings!

Black Ice Freezing Rain

Freezing rain (synoptically: freezing rain, colloquially: black ice, with accompanying strong wind event: ice storm) is a meteorological phenomenon in which rain drops fall through a layer of air close to the ground whose temperature is less than o°C. If the precipitation does not crystallize, but cools down to below o°C without a phase change, it is called supercooled precipitation. When such liquid precipitation hits the ground, black ice forms. It occurs as supercooled fog, super-cooled drizzle and supercooled rain (FZFG, FZDZ, FZRA).

For more information, please feel free to contact us:
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More details
Precipitation Analyzer ›