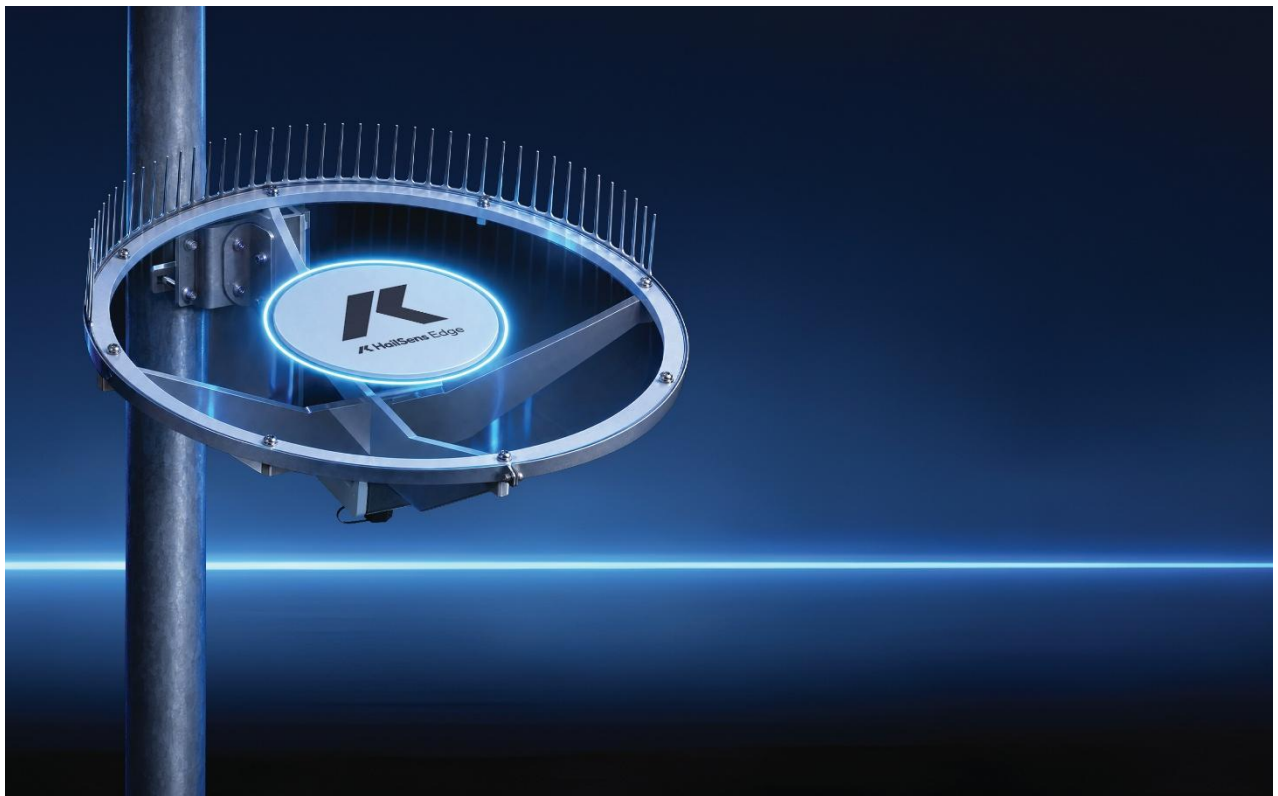


Getting an Edge on Hail:

A Conversation with Edgar Wetzel

Global Head of Product Management,
HydroMet Instrumentation

KISTERS Group



Interviewer: Edgar, welcome. Please **tell us about HailSens Edge and what makes it unique.**

Edgar Wetzel (EW): [HailSens Edge](#) is really a game changer. It's the first hail monitoring station: The robust system combines both a sensor and telemetry system in one instrument. The a 19.7 in (0.5 m) sensing plate detects and measures each hailstone -- larger than 0.20 in (5 mm) -- that strikes it. This KISTERS device is then able to provide real-time data on hailstone size, intensity upon impact, and distribution. Traditional hail sensors can't match these details. Moreover, radar doesn't confirm hailfall.

Interviewer: **Explain how the equipment works.**

EW: Sure, HailSens uses piezo microphones to record the timestamp and the kinetic energy of each hailstone that hits the sensing plate. Data are processed immediately by an integrated microcontroller that determines each stone's diameter.

All hailstorm insights are transmitted immediately via Modbus to SCADA systems, giving operating teams situational awareness. Users can configure alarms / alerts, such that teams can prioritize specific areas or assets for inspection, maintenance or repair as soon as conditions are safe again.

New to HailSens Edge is the larger 4GB on-board memory, in the event that communication is interrupted. The station is able to store sensor data and relay it when connectivity is restored.

Interviewer: **Who can benefit the most from using HailSens?**

EW: HailSens Edge is versatile. Meteorologists can use this precision instrument to study hailstorms in detail and improve weather predictions. Operators of sensitive infrastructure, such as utility-scale solar farms, wind farms, and large commercial buildings, will find it valuable for damage or condition assessment. Re/Insurance companies can use the data to expedite claims processing with more accuracy in addition to evaluating coverage. Even emergency management teams can coordinate better with the real-time information it provides.

Interviewer: **Why is hail monitoring so important?**

EW: Hailstorms cause significant damage every year. Between 2008 and 2019 hailstorms are cited for approximately \$14 billion in insured losses in the U.S. alone. For industries such as renewable energy, building management, and agriculture, understanding and mitigating hail damage is critical. This type of precipitation remains an under-studied peril. Providing precise and timely data to inform decisions that protect lives and valuable assets is consistent with the mission of KISTERS hydromet.

Interviewer: **What are some of the key benefits of using HailSens Edge?**

EW: One key benefit is the real-time alerts. As soon as hail is detected, users are notified immediately. Operations teams can confirm workers are sheltered, out of direct harm.

The other major benefits are the ability to ground-truth forecasts and to corroborate hail damage mitigation measures – for example, tilted and stowed PV modules. The objective information helps in process insurance claims and other replacement costs more effectively, allocating resources more efficiently during recovery.

With machine learning & AI, data from hail events – from hailstone size, kinetic energy & distribution – and non-events (i.e. heartbeats) can be used to refine hail and performance optimization models.

Interviewer: How was the HailSens sensor developed?

EW: HailSens Edge is the result of extensive research and development. In the preliminary R&D phase, KISTERS partnered with the Hochschule für Technik und Wirtschaft (HTW) University of Applied Sciences, conducting both laboratory and field tests. The initial collaboration helped us create a sensor that performs accurate and consistent hail monitoring. Even without a global standard for hail measurement, HailSens maintains continuity in data collection and long-term evaluation – making it invaluable for scientific research. Field testing was also conducted in Switzerland, one of the most hail-prone countries in Europe.

Interviewer: How does HailSens specifically benefit utility-scale solar installations?

EW: For utility-scale projects, many of which are located in hail-prone states like Texas and Colorado, HailSens Edge offers a unique advantage: Real-time hail monitoring and records of hailstone size, hailstorm intensity, and hailfall distribution over the project's exposed acreage. The comprehensive data supports inspection triage, damage assessment, claims filing. In addition, empirical data facilitates productive conversations with insurers and reinsurers to sustain cost-effective operations. Hail sensing is a proactive approach to lower catastrophic risk and protect valuable assets needed for a reliable supply of clean energy.

Interviewer: What makes HailSens Edge a must-have?

EW: HailSens Edge is more than just a hail detection system. It gives owners and operators an edge, an advantage to *understanding* the phenomenon of hail and limiting its damage. Its advanced technology and comprehensive data capabilities set a new standard in hail measurement. The addition of [KIPTEC](#), KISTERS Intelligence Platform for Embedded Connectivity, bring secure cellular telemetry to remote monitoring sites when meteorologists or emergency managers want to deploy temporary hail stations. As we face increasing challenges from severe weather and rely on renewable energy sources, solutions like HailSens Edge will be critical to asset management, risk management, business continuity and resilient communities.

Interviewer: And the last word?

EW: "HailSens represents the culmination of years of dedicated research. As the only hail sensor that seamlessly integrates with hailpad data, which has been the standard for scientists worldwide, HailSens Edge delivers continuity and accuracy in hail impact data collection. Proven in the field, HailSens provides unparalleled real-time insights, making it the first choice for both insurance claims and scientific research."

For more information on KISTERS comprehensive hail mitigation solutions, visit us the KISTERS [HailSens360](#) webpage or schedule a consultation with our experts today.

KISTERS is a global leader in environmental data management solutions, providing cutting-edge technology to address the challenges of climate change and extreme weather. With decades of experience and a commitment to innovation, [KISTERS](#) empowers industries to make data-driven decisions for a sustainable future.