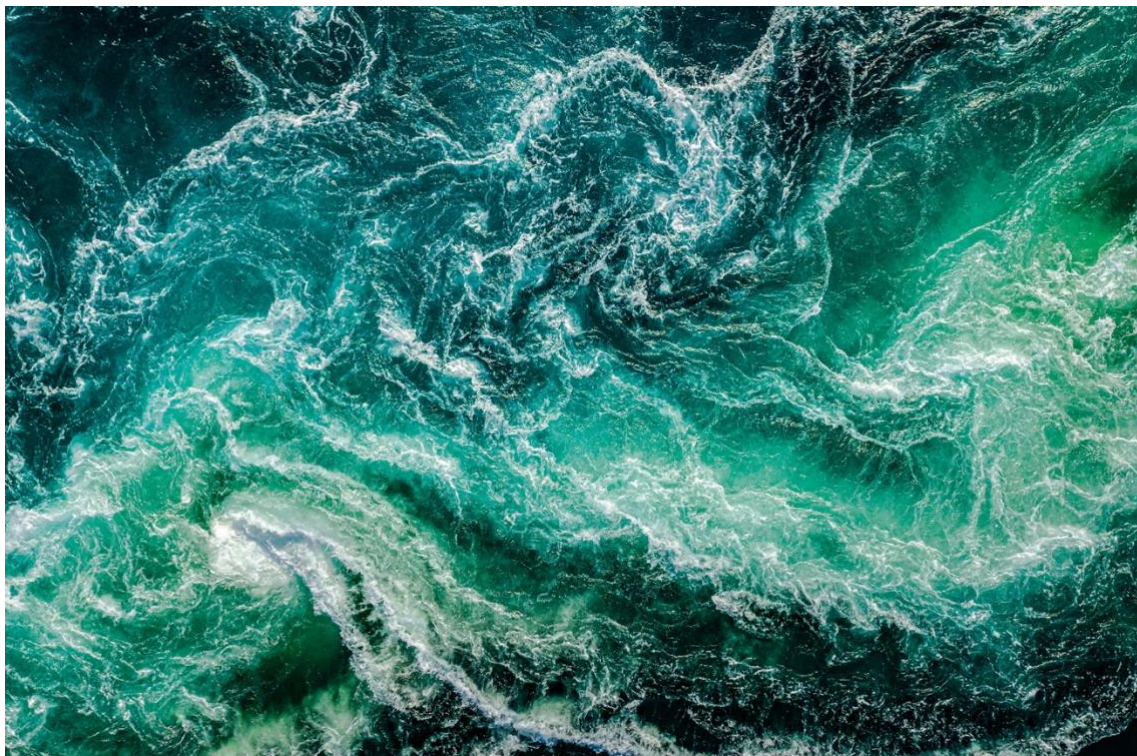


**Measuring streamflow  
in a new climate reality:  
The impact of non-contact discharge radar.**

**KISTERS Group**

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As climate change throws us curveballs with flash floods, severe droughts, and unpredictable weather, accurately measuring streamflow has become even more essential. Now more than ever, we need tools that can keep pace with these challenges. Enter Non-Contact Discharge Radar — a technology that's changing the game in water management.

This innovative technology is rapidly gaining traction in the US market as more people begin to see the same potential we did when we first introduced it to the US market a few years ago - its ability to provide accurate, real-time data on water level, velocity and discharge. And in high-risk or densely populated areas, it's proving to be an invaluable water management tool, paving the way for smarter, safer practices.

### **Real-time solutions for real-world challenges.**

Measuring discharge requires a stage-discharge relation (rating) be first established, by measuring the flow of a river with a mechanical current meter or acoustic doppler current profiler (ADCP). Data must be gathered at a wide range of water levels necessitating a large investment in time and money — much harder to find these days.

While rating curve development has served us well over the years, increasingly complex flow conditions — such as hysteresis, flow reversals and backwater can result in erroneous measurements. This can have a profound effect in situations such as fast rising rivers and threat to life.

That's where Non-Contact Discharge Radar comes in. It gives us real-time data on water level, velocity, and discharge, all without needing a pre-established rating curve. This is a major win for hydrologists and water managers alike.

### **Why non-contact discharge radar is a game changer.**

Let's talk safety. Conventional stream gauging often requires hydrographers to wade into the water, which can be dangerous, especially during high-flow or flood events. With non-contact radar technology, we can measure streamflow safely and accurately, even in extreme conditions. Plus, there's no worry about damaging the equipment.

What really makes this technology exciting is its use of machine learning. Every measurement the radar takes helps it better understand the relationship between water level and velocity, meaning it becomes smarter over time. This isn't just a small improvement; it's a leap forward in streamflow measurement.

Back in May 2017, the Falls Creek Youth Campground in Oklahoma faced a flash flood. Thankfully, thanks to a [non-contact radar-equipped early warning system](#), they were able to evacuate just in time. The radar tracked both water level and velocity, giving local authorities the critical lead time they needed. This technology isn't just theoretical; it's literally saving lives, and this was a great real-world example of just how impactful non-contact radar technology can be in emergency situations. By providing real-time data, the radar system not only detected the imminent danger but also informed decision-makers about the severity of the flood conditions. This allowed them to coordinate rescue efforts efficiently and communicate effectively with local emergency services.

In a world where weather patterns are becoming increasingly unpredictable, stories like this highlight the critical importance of advanced technology in managing water resources and protecting communities. The success at Falls Creek serves as a powerful reminder that investing in innovative tools like non-contact discharge radar can make a tangible difference, turning potential disasters into stories of survival and resilience.

### **Enhancing, not replacing, traditional gauging.**

Now, I don't want to downplay traditional methods; they still have their place. But as climate change leads to more extreme weather events, we need more than just the old-school ways. The U.S. has over 2.7 million stream reaches, and relying solely on traditional gauging is becoming less feasible. Non-Contact Discharge Radar enhances these methods, providing a safer, more efficient, and accurate way to collect vital water data.

As we navigate this uncertain climate landscape, having access to real-time, reliable discharge data is more important than ever. Non-Contact Radar technology is a significant step forward in how we manage water. It's not just an innovative tool; it's a glimpse into the future as we strive to understand and protect our most precious resource—water.

#### **About the Author:**

Peter Ward served as General Manager and Senior Hardware Specialist with KISTERS (formerly Hyquest Solutions) for over 20 years and retired in early 2024.

For more information on the [HyQuant L](#) or other non-contact radar technologies, visit us at KISTERS [here](#) or schedule a consultation with our experts today.

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