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Simplifying Instrument Pools: The Next Generation Family of Smart Instrumentation.

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As the community further expands their scope of study, pushing into different sub-disciplines and evermore challenging environments, the need for dynamic and highly adaptable systems grows. One of the challenges for instrument pool managers is finding a system that can cater for a wide range of possible use scenarios.

This is where traditional broadband, force-feedback sensors meet their limitations: with constrained frequency responses and sensitivities, they tend to target very narrow applications offering limited flexibility. When managing a pool of instruments, this translates into increasing pressure to acquire multiple units within different instrument ranges to meet the requirements for each specific application. This in turn leads to complex pool maintenance and may require operators to use unfamiliar instruments if their first choice is being used owing to a reduced number of instruments for each application within the pool.

Güralp's 35 years' experience in working with major national instrument pools revealed the necessity to develop flexible, easy-to use systems that could fit a wider scope of applications. This has led to a new, highly versatile smart sensor that supports extensive user configuration and ultra-wide tilt ranges.

The new sensor has a configurable long period corner allowing for rapid deployment in a range of environments: the 1s mode ensures the sensor settles quickly for rapid response purposes, and the 120s mode is ideally suited for long period observation.

The group of products that use this technology deliver high sensor reliability, sophisticated tools for ease of instrument and data management as well as industry standard data formats. The sensors have been integrated into various instruments: the Certimus for surface and shallow burial, the Radian for deeper postholes and boreholes, and the Fortimus for strong-motion applications. The same philosophy also brought about Aquarius, an Ocean Bottom Seismometer that utilises the same sensor technology for the benefit of OBS pools.

This family of just four instruments covers the vast majority of seismic monitoring requirements. They represent Güralp's solution to make instrument pool management easier and more affordable.