

Leica VADASE - A Autonomous GNSS Monitoring Solution

Leica Geosystems has released Leica VADASE, the world's first GNSS monitoring solution integrated into a stand-alone receiver detecting fast movements of man-made and natural structures in real time.

Running onboard the Leica Geosystems reference station and monitoring receivers, Leica Velocity and Displacement Autonomous Solution Engine (VADASE) provides an in-depth look into fast movements using unique processing algorithms. In real time, accurate high-rate velocity and displacement information of various activities and structures are provided to engineers and researchers for a complete, precise and reliable monitoring solution.

Leica VADASE delivers actionable information independent of any GNSS RTK correction service in real time. Displacement events are recorded onboard a single stand-alone GNSS receiver, and the user can be notified by email. With this instant information, professionals receive a deeper understanding of how structural movements occur and can take necessary actions to mitigate damages and potentially save lives.

"When fast movements have to be detected and their effects suddenly evaluated, Leica VADASE can help researchers and engineers make the most informed decisions immediately," said Frank Pache, senior product manager. "Leica VADASE adds additional value to traditional GNSS monitoring, providing accurate velocity information that is continually available in real time for precise and reliable analysis of fast movements."

Unlike traditional GNSS monitoring systems that require additional hardware or infrastructure for differential processing (i.e., one or more reference stations or global correction services for precise point positioning), Leica VADASE provides autonomous processing capability with no extra equipment or services needed. Users can also apply the latest versions of Leica SpiderQC, Leica GeoMoS or any other customised software for advanced data visualisation, analysis, threshold verification and notification.

Leica Geosystems partnered with the Geodesy and Geomatics Division of the University of Rome, La Sapienza, to develop this autonomous GNSS monitoring solution. A long-time user of Leica Geosystems receivers and reference networks, the university dedicated hundreds of research hours studying autonomous GNSS data processing methods. Based on this research from the University of Rome, La Sapienza, the Leica Geosystems solutions development team created Leica VADASE.

"Slow displacements can be detected at millimetre level for a long time, based on several hours or daily high-precision GNSS data processing. When fast motions have to be detected and their effects to be suddenly evaluated, however, velocities have to be continually monitored and ideally the results have to be known in real time," said Mattia Crespi, professor of positioning and geomatics of the Department of Civil, Building and Environmental Engineering at the University of Rome, La Sapienza. "With this motivation, our research and ideas were brought to Leica Geosystems, a leader in GNSS, with the capability to integrate such a solution onboard a receiver."

<https://www.gim-international.com/content/news/leica-vadase-a-autonomous-gnss-monitoring-solution>
