

# How Bofors Test Center advances defense accuracy with soundings

**VAISALA**

## Case Study



### The client:

Bofors Test Centre

### Vaisala solution:

Vaisala Sounding System  
Vaisala Radiosonde RS41SGM

### THE CHALLENGE:

#### Navigating safety and precision in a demanding test environment

Modern artillery testing demands exceptional accuracy and safety standards - stringent conditions that the team at the renowned Bofors Test Centre, in Karlskoga, Sweden, fully understand and operate within. Established in 1886, the center is distinguished not only by its long history but also its narrow 25-kilometer range which amplifies the complexities of conducting precise artillery evaluations for their diverse portfolio of international defense clients, all of whom have rigorous expectations for precision and reliability.

Bofors faces critical challenges ensuring personnel safety during test firings, where minor deviations pose significant risks, while achieving high-precision data for trajectory modeling and ballistic corrections.

Variable weather conditions dramatically alter projectile flight paths, impacting test outcomes and operational readiness. Safety remains the top priority, but accuracy is equally vital for customer satisfaction and mission success.

### THE APPROACH:

#### Integrating real-time atmospheric data for superior ballistic modeling

To overcome these challenges, Bofors Test Centre has integrated Vaisala Sounding data into their daily operations. By leveraging the advanced multisounding capabilities, robust data security, and mission-specific weather data provided by Vaisala's soundings solutions for accurate forecasts, the organization has fundamentally transformed their approach to artillery testing and evaluation.

Every test conducted at the center is supported by comprehensive weather measurement, utilizing radiosondes and sounding balloons to capture real-time atmospheric profiles. These measurements, which include wind speed and direction, temperature, pressure, and humidity at various altitudes, are vital for both direct and indirect fire scenarios and are systematically incorporated into the center's ballistic modeling processes.

By feeding this accurate meteorological data into their ballistic models, Bofors can correct for wind drift, temperature effects on air density, and other atmospheric variables, ensuring that calculated projectile trajectories closely match real-world outcomes. This process significantly reduces dispersion and increases the probability of hitting intended targets, even at long ranges.

The center has also adopted a finer vertical grid for meteorological data, gathering measurements every 50 meters rather than the NATO standard of 1,000 meters – for noticeable improvements in firing accuracy. Frequent soundings provide up-to-date data, further enhancing the precision of their corrections. MW51's versatility allows Bofors to support multiple data formats, meeting the diverse reporting needs of their clients and integrating seamlessly with various fire control and tracking systems.

## Why Vaisala?

Vaisala is the world's most trusted provider of weather observation systems for tactical operations, with nearly 90 years of innovation and expertise.

Committed to excellence, we take every measure to ensure our systems are not only comprehensive in their observations but also meet the most stringent performance requirements in any situation.

We provide 24/7 global support, extensive project capabilities and thorough training throughout the entire lifespan of your system to help you make weather your ally when it matters most.

*"Using precise weather data from the Vaisala sounding system, we get accurate weather measurements that ensure we hit the right position, improving target effects and meeting our customers' expectations for precision and performance."*

*Anders Hagberg  
Manager of Measurement,  
Photo & Environmental Lab, Bofors Test Centre*

### THE RESULTS:

#### Achieving safer, more accurate, and flexible artillery operations

By integrating Vaisala's advanced sounding system into their operations, Bofors Test Centre has realized significant operational benefits that have a strong impact on meeting their clients' needs:

- Real-time weather data enables precise go/no-go decisions, minimizing risks to personnel and equipment during test firings
- The integration of high-resolution meteorological data into ballistic calculations has reduced dispersion and improved the reliability of test results, directly benefiting both research and operational artillery applications
- The ability to customize data outputs and support multiple client requirements has strengthened Bofors' reputation as a leading test center for both national and international defense programs
- The commitment to frequent, high-resolution soundings and ongoing system upgrades keeps Bofors at the forefront of artillery testing, so their clients also benefit from the latest advancements in meteorological science and defense technology

Bofors Test Centre's use of Vaisala's sounding system exemplifies how precise meteorological data can transform artillery testing and operations – delivering safer, more accurate, and more adaptable defense solutions from the test range to the frontline.

