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The Role of Small Seismometers and Infrasound Sensors in On-Site Inspection (OSI) Verification for the CTBT

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Emerging small seismometers and infrasound sensors hold transformative potential for strengthening the CTBT verification regime. These portable, relatively inexpensive instruments provide high-resolution data that are essential for the detection and location of events that may indicate nuclear testing. Unlike traditional equipment, they are more affordable and accessible, allowing deployment in diverse and challenging environments. Their integration into OSI enhances event characterization by reducing uncertainties and enabling rapid, reliable data acquisition.

This study will explore a range of small seismic and infrasound equipment, focusing on their operational advantages, affordability and innovative design. By analyzing real-world applications and case studies, it will highlight their potential to complement existing verification systems.

The scalability of these technologies will be considered in terms of their potential contribution to enhancing OSI mission efficiency and effectiveness.

It will also investigate how these tools can expand the participation of young scientists in CTBT verification, especially from underrepresented regions, through training activities. Small sensors push technical boundaries and open up more accurate and inclusive verification possibilities.

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