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## in quality assurance for the International Monitoring System and calibration challenges for seismic and infrasound technologies

The International Monitoring System (IMS) network relies on four technologies: seismic, infrasound, hydroacoustic and radionuclide. The draft IMS Operational Manuals for waveform technologies outline the requirements for establishing, maintaining and verifying the performance of IMS stations. Since 2011, the Provisional Technical Secretariat (PTS) has collaborated with the global community to establish a robust quality assurance framework for IMS measurements, with focus on infrasound technology: significant progress in setting standards and refining calibration methods was achieved. Recent PTS activities focused on seismic technology. The IMS seismic stations are required to perform regular calibration, maintaining a maximum deviation of five percent in amplitude and five degrees in phase over the frequency range relevant for detecting nuclear explosions. This necessitates precise calibration processes to ensure consistent measurement standards between IMS facilities. Currently, seismic stations undergo yearly electrical calibrations. However, this approach is not traceable and may not capture long-term trends influenced by multiple factors, including environmental components. Alternative or complementary methods, such as calibration by comparison might provide additional insights and support measurement accuracy for seismic technology. This work reviews recent advancements in seismic sensor quality assurance and invites experts to collaborate on developing alternative calibration methods to improve traceability and measurement reliability.

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