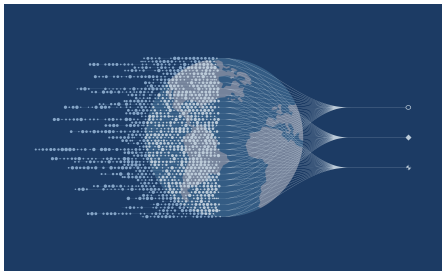

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CTBTO in the Face of Climate Change and Natural Disasters: How to Adapt

Thursday 11 September 2025 10:00 (1 hour)

The Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) faces evolving challenges in its mission to monitor and verify nuclear-test-ban compliance due to the intensifying effects of climate change and the increasing frequency of severe natural disasters. The CTBTO's International Monitoring System (IMS) must now contend with heightened environmental noise, data anomalies and system vulnerabilities caused by climate-driven disruptions. Rising sea levels, extreme weather events and shifting atmospheric conditions can complicate the interpretation of monitoring data, leading to potential ambiguities in distinguishing between natural and anthropogenic phenomena. Furthermore, damage to monitoring stations from disasters such as earthquakes, tsunamis and hurricanes can temporarily compromise network integrity, delaying critical evaluations. These challenges necessitate innovative approaches to data analysis, enhanced station resilience and robust protocols for disaster recovery. This paper wishes to underscore the imperative for the CTBTO to adapt its systems and methodologies to ensure the continued accuracy and reliability of its global monitoring efforts in an era of environmental uncertainty. By addressing these issues, the CTBTO can maintain its vital role in promoting international security and nuclear non-proliferation amidst the challenges posed by a changing planet.

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