

Events and Confidence in an International Monitoring Regime

There is a long history of unusual events (unexpected natural seismicity, man-made seismic events, bolides, etc.) that have caused concern in terms of international treaties or cooperative engagement. These concerns include suspicions of undeclared activities or viability of geophysical data to screen the source of signals with high fidelity. Although most “unusual events” are resolved with detailed analysis, the short term consequences can be significant. For example, a small earthquake (magnitude 3.8) off the east coast of Novaya Zemlya on August 16, 1997 led some to question whether a low yield nuclear test can be conducted and undetected at the Russian test site. The ensuing political discussion of the seismic event led to scientific efforts to quantify assessments on event identification.

Today the International Monitoring System is producing high quality geophysical data with good global coverage of the planet in support of a Comprehensive Test Ban. This rich data stream is also capturing a large number of unusual events. Timely analysis of these unusual events can significantly change the confidence of the countries in the monitoring regime. The February 15, 2013 Chelyabinsk bolide is a recent example where the data from the IMS provided invaluable information that remove uncertainty from the nature of the event.

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