

Aftershocks From the Novaya Zemlya Earthquake

- [Arms Control Today](#)

Spurgeon M. Keeny, Jr.

A small earthquake beneath the Arctic Ocean off the coast of Novaya Zemlya has led to reports that Russia conducted a clandestine nuclear explosion at its former test site on the island. Although it is now clear that the earthquake occurred over 100 kilometers from the test site, some in the U.S. intelligence community apparently have not abandoned their initial assessment that the seismic signal was produced by a nuclear explosion. Failure of the Clinton administration to acknowledge the natural origin of the event will call into question the verifiability of the Comprehensive Test Ban (CTB) Treaty and Russia's good faith in honoring its testing moratorium and signature of the CTB. The current flap became public on August 28 when The Washington Times quoted one Pentagon official as confirming that a seismic event on August 16 was suspected of being caused by a nuclear explosion, and reported that Pentagon officials had "high confidence" that the activity detected was a nuclear test equivalent to between 100 tons and 1,000 tons of TNT. In addition to being in the "vicinity" of the Russian test site on Novaya Zemlya, the seismic event was alleged to have "explosive characteristics" and to have been accompanied by suspicious activity at the test site.

In sharp contrast to this alarming report, U.S. and foreign non governmental seismologists, who have studied extensive unclassified data from many nearby seismic stations, have concluded that the event was located over 100 kilometers from the test site beneath the bottom of the Arctic Ocean and had the characteristics of other small earthquakes in the area. Subsequently, it was reported that the Air Force Technical Applications Center, which monitors worldwide seismic activity, had located the event 130 kilometers from the test site.

Immediately after The Washington Times story, the Russian government unequivocally denied that there had been a nuclear test on Novaya Zemlya. With regard to the reported activity at the test site, the Russian minister of atomic energy said Russian scientists were carrying out "hydrodynamic" explosive experiments there, and other Russian spokesmen indicated that Russia would also be conducting "subcritical" experiments. Such experiments, which are too small to produce measurable seismic signals, do not result in any nuclear yield and are therefore not banned by the CTB.

Ironically, the aboveground activity observed at Novaya Zemlya closely paralleled similar activity at the U.S. nuclear test site in Nevada where preparations were also underway for a mid September subcritical experiment deep underground. To complete the parallel, a few days before the scheduled U.S. subcritical experiment, a comparable earthquake occurred in the vicinity of the Nevada Test Site.

Failure to resolve the nature of the Arctic seismic event promptly could adversely affect the Senate's advice and consent to ratification of the CTB. An official position that the matter is under "continued study" will be seized upon by treaty opponents both as an attempted cover up of a clandestine Russian test and as proof that the treaty is unverifiable. This would be a tragic outcome to what has actually been an impressive demonstration of the ability of the treaty's not yet fully operational monitoring system to identify as an earthquake a suspicious event which was of a smaller magnitude than the completed system's estimated capability.

Aftershocks From the Novaya Zemlya Earthquake

Published on Arms Control Association (<https://www.armscontrol.org>)

Looking to the future, unless the U.S. government can establish a rapid and secure decision making process without premature charges of violations, the United States will lose its credibility as the objective agent of verification for this important treaty. There will be a daily average of more than 50 seismic events worldwide with magnitudes equal to or greater than this event. Unless obvious screening criteria, such as location, depth and aftershocks are given the overriding weight they logically warrant, the system will soon be overwhelmed with unresolved events. Once the treaty is in effect, on site inspections will be useful to resolve truly difficult cases; however, the factual basis for such inspections will have to be persuasive and consistent with available technical intelligence. In this case, the event was so located that treaty provisions would not provide for an on site inspection of the test site or even any land area on Novaya Zemlya because the inspection would be limited to a 1,000 square kilometer area beneath the Arctic Ocean where the event occurred.

Verification will be the most difficult issue in the Senate's debate on advice and consent to ratification. How the administration handles the Novaya Zemlya event will be a key to that debate. Equivocation on identification will feed doubts about the treaty's verifiability; a reasoned and decisive stance on identification will demonstrate the power of the monitoring system and the value of the treaty.

Source URL: <https://www.armscontrol.org/act/1997-08/issue-briefs/aftershocks-novaya-zemlya-earthquake>