



Second nuclear test conducted by North Korea on 25 May 2009

25 May 2009, 12 am (UTC)

On Monday, 25 May, the official news agency, KCNA, of the Democratic People's Republic of Korea (DPRK) announced its successful conduct of a second nuclear test: "The Democratic People's Republic of Korea successfully conducted one more underground nuclear test on May 25 as part of the measures to bolster up its nuclear deterrent for self-defence in every way as requested by its scientists and technicians." It further claimed that the test was safely conducted "on a new higher level in terms of its explosive power and technology of its control. The results of the test helped satisfactorily settle the scientific and technological problems arising in further increasing the power of nuclear weapons and steadily developing nuclear technology."

Several seismic observatories all over the world recorded an event that took place in the North East of the country. The U.S. Geological Survey determined the event time as 00:54:43 UTC. The location is close to the first nuclear test. The seismic body wave magnitude of 4.7 is larger as compared to the value of 4.1 ± 0.1 in 2006. According to the assessment of Martin Kalinowski, this corresponds to an explosive yield of about 3 to 8 kilotons TNT equivalent with a most likely yield of 4 kt TNT. In 2006 the yield was unexpectedly low with an estimate of 0.5 to 0.8 kt TNT.

The International Monitoring System of the Preparatory Commission (PrepCom) for the Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO) as well as national seismic networks immediately detected the seismic signals. The International Data Centre (IDC) of the Provisional Technical Secretariat in Vienna analysed the waveform data and determined the event origin. The member states receive detailed analysis from the IDC.

In his early statement on the announced North Korean nuclear test, Tibor Tóth, the Executive Secretary of the CTBTO PrepCom said: "Today's nuclear test claimed by the Democratic People's Republic of Korea (DPRK) constitutes a threat to international peace and security and to the nuclear non-proliferation and disarmament regime. I am gravely concerned by this action. In particular, it is a serious violation of the norm established by the Comprehensive Nuclear-Test-Ban Treaty (CTBT) and as such deserves universal condemnation."

Background

The Democratic People's Republic of North Korea (DPRK) had carried out a first nuclear test at Phunggye-ri on 9 October 2006.¹ The test site is located in the northeastern county of Kilju in the North Hamgyong province.

¹ Kalinowski, M.B.; Ross, O.: Data analysis and interpretation of the North Korean nuclear test explosion of 9 October 2006. INESAP Information Bulletin No. 27, pages 39-43. <http://www.inesap.org/bulletin27/art12.htm>
Kalinowski, M.B.; Ross, O.: Starke Indizien. Alles deutet auf einen Teilerfolg des nordkoreanischen Nukleartests vom 9. Oktober 2006. Physik Journal 5 (2006) Nr. 12, Dezember 2006, Seiten 17-19.

On Sunday, 5 April at about 11:30 a.m. local time, North Korea started a missile flight test from its launch site at Musudan-ri. This is located in the northeastern part of the country close to the coast. One week later, the U.N. Security Council (UNSC) passed a resolution that condemned this test. As a response, the North Korean government terminated the six-party talks, expelled the IAEA inspectors and announced that it would resume plutonium production. It demanded the UNSC to apologize for the rocket launch that was explained to have lifted a civilian satellite into space. Otherwise, North Korea would conduct a second nuclear test.

On 7 May, the the South Korean newspaper Chosun Ilbo reported that, according to South Korean governmental officials, increased activity of personnel and vehicle movements were observed at the Phunggye-ri nuclear test site.

Explosion characteristics

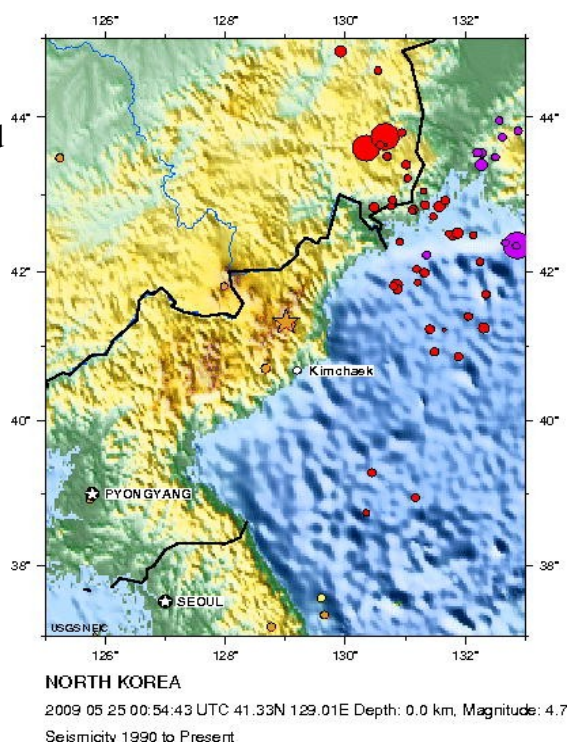
The U.S. Geological Survey (USGS) provides the following data after the automatic analysis was reviewed by a seismologist:²

Earthquake Details

Magnitude 4.7
Date-Time May 25, 2009 at 00:54:43 UTC
(09:54:43 AM at epicenter)
Location 41.331°N, 129.011°E
Uncertainty horizontal +/- 5.3 km
Depth not determined
(fixed to 0 km by location program)

Distances

75 km (45 miles) NNW of Kimchaek, North Korea
95 km (60 miles) SW of Chongjin, North Korea
180 km (110 miles) SSW of Yanji, Jilin, China
380 km (235 miles) NE of Pyongyang, North Korea



The tectonic summary of the USGS reads:³

„The shallow seismic event that occurred on 25 May 2009 at 00:54:43 UTC has been claimed as a nuclear test by North Korea, according to news reports. While the USGS cannot confirm that the recent event was a nuclear test, it was shallow and located in the vicinity of the October 2006 North Korean nuclear test (magnitude 4.3). “

Conclusion

The nuclear physicist and peace researcher Martin Kalinowski concludes: “The DPRK has again violated the Nonproliferation Treaty. The second nuclear test is in strong contradiction to the UNSC Resolution 1718 of 14 October 2006 as well as against the global norm not to conduct any nuclear test explosions. The yield of about 4 kilotons TNT implies that the North Korea was more successful than at the first time in testing a first generation nuclear weapon. However, it is still short of the explosion energy released by the Hiroshima (15 kt TNT) and Nagasaki (22 kt TNT) bombs.”

² <http://earthquake.usgs.gov/eqcenter/recenteqsww/Quakes/us2009hbf.php>

³ <http://earthquake.usgs.gov/eqcenter/recenteqsww/Quakes/us2009hbf.php#summary>