

North Korean underground nuclear test larger than previous tests

The seismological observatory NORSAR at Kjeller, Norway, has been able to calculate the size and location of the latest underground nuclear test by North Korea.

The magnitude of the explosion was recorded to be 5,2 mb, and the explosive yield is estimated to be approximately 20 kilotons TNT.

- This explosion resembles the previous North Korean nuclear tests in characteristics, but is larger in size, reports CEO Anne Lycke.

The magnitudes (mb) are based on NORSAR's recordings and the explosive yield estimates are given in kiloton equivalent of TNT.

The explosive yield has a comparable size to the bombs that were dropped on Hiroshima and Nagasaki in 1945.

- Data obtained from the international network of seismic stations pinpoints the location of the explosion to be 41.28N, 129.07E. The explosion was carried out in the same mountain structure as the previous two tests. It is slightly further to the north than any of the preceding tests – to the West of 2009, to the East of 2016 January 6, and to the North of 2013.

- Our conclusion is that it is the same tunnel system used as for 2009, 2013, and in January 2016 and presumably deeper into the mountain and with greater overburden, adds Anne Lycke.

The new information indicates:

- The explosion has taken place further into the mountain than the previous tests.

- There is likely to be a greater overburden than previously.

- There may therefore be a lower likelihood of leakage of radioactivity.

- Without radioactive leakage, it will be more difficult to determine the kind of weapon that has been tested.

- There is nevertheless the possibility that radioactive noble gasses can leak from the site of the explosion.

- It can take some time, maybe up to 60 days, before the gasses from such a leakage would reach radionuclide stations in the vicinity. The nearest stations are in South Korea, Japan, China and eastern Russia.

About NORSAR

NORSAR is responsible for the operation of some of the world's largest seismic monitoring deployments and has more than 45 years of experience in research and development for monitoring of nuclear tests, advanced seismological data processing, and analysis of data from seismic instruments.



NORSAR is the designated National Data Center (NDC) for Norway for verifying compliance with the Comprehensive Nuclear-Test-Ban Treaty and operates seismic stations located in Hedmark and Finnmark on mainland Norway, Adventdalen on Svalbard and on the island of Jan Mayen, in addition to a radionuclide station at Platåberget on Svalbard and an infrasound station near Bardufoss. The global network consists of 321 stations in 89 countries which ensures that no nuclear tests could be carried out undetected.

Text to seismogram:

Seismic signals from each of the five North Korean nuclear tests recorded in Hedmark, Norway, plotted to the same scale. The magnitudes (mb) are based on NORSAR's recordings and the explosive yield estimates are given in kiloton equivalent of TNT.

Background:

North Korea's nuclear test on 9 September 2016

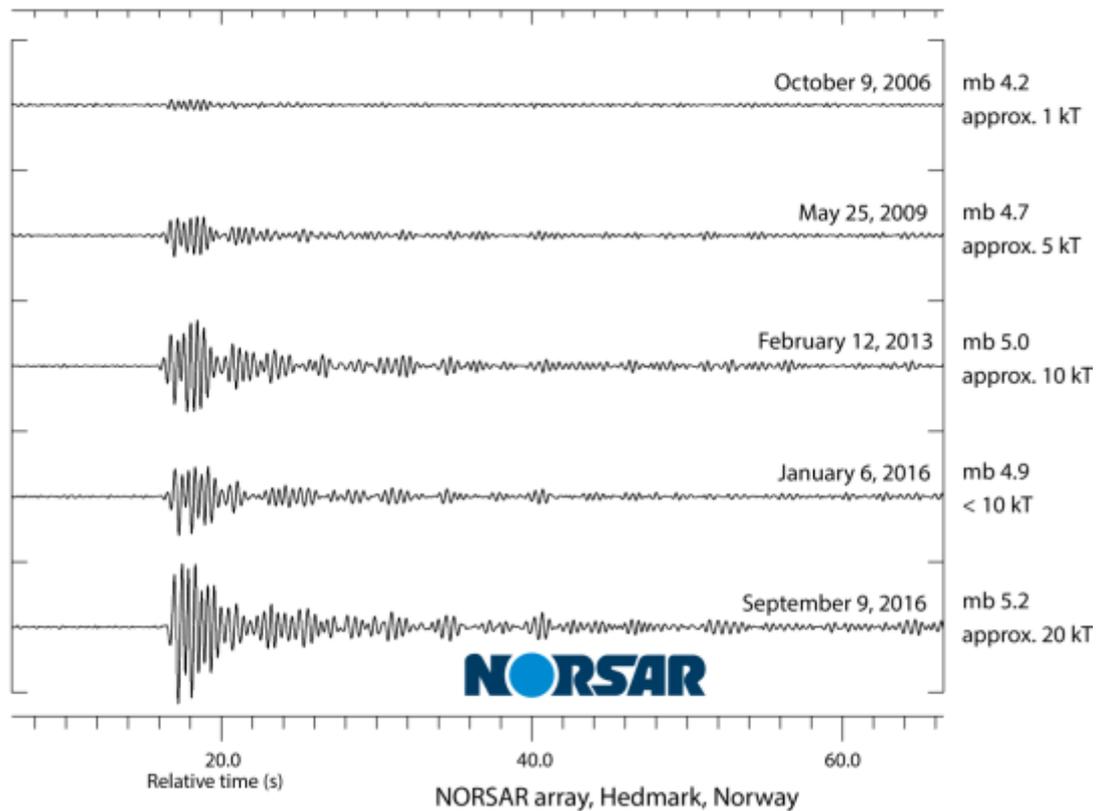
Observations

The seismological observatory NORSAR at Kjeller, Norway recorded today, 9 September 2016, at 00:40:49 UTC, seismic signals from the announced underground nuclear test in North Korea. This is the fifth in a sequence of tests carried out by North Korea since 2006, and the second in 2016. The previous test was conducted on 6 January 2016.

Date: 2016/09/09 00:30:00 UTC
Place: North Korea (41.28°N 129.07°E)
Magnitude: 5.2
Depth: 0 km

The figure below shows seismic signals from each of the five North Korean nuclear tests recorded in Hedmark, Norway, plotted to the same scale. The magnitudes (mb) are based on NORSAR's recordings and the explosive yield estimates are given in kiloton equivalent of TNT.





The event is estimated by NORSAR to have a magnitude of 5.2. In comparison, the largest previous North Korean nuclear test which took place on February 12, 2013, had a magnitude of 5.0. The location is estimated to be 41.28N, 129.07E, which is in the region where the previous nuclear tests have taken place. Preliminary analysis indicates that the test was conducted in the same tunnel system as used for the tests in 2009, 2013 and in January 2016, and presumably deeper into the mountain and with greater overburden. This location is at a distance of approximately 7360 km from NORSAR's seismic station in Hedmark. Given that the seismic waves take approximately 11 minutes to propagate from North Korea to Norway, the measurements indicate that the event took place at 00:30 UTC.

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