



From the Sky: North Korea's 2016 Nuclear Test

By David Albright, Serena Kelleher-Vergantini, and Andrea Stricker

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On January 6, 2016, North Korea [detonated](#) its fourth nuclear test. It [claimed](#) that it had detonated a miniaturized H-Bomb, although this claim must be seen as an [exaggeration](#). ISIS obtained January 6, 2016 Digital Globe satellite imagery taken at 10:40 am (North Korean time) that shows signatures consistent with activity at Punggye-ri's west (north), and possibly south, portals. This image was taken about an hour after the test explosion.

Earthquake sensors in the United States, China, and Japan recorded a 5.1 magnitude, "shallow" seismic activity, likely an explosion, at an underground location near the Punggye-ri test site. The actual explosive yield is extrapolated from the seismic data and remains uncertain at this time. Estimates so far have varied from 6 to 15 kilotons, depending on assumptions about a number of factors, including the depth of burial of the test and geological data.

West (North) Portal and Main Support Area

Several signatures of recent activity are visible both at the west portal and main support area. Others call the west portal the north portal, and it is the likely location of the 2009 and 2013 underground nuclear tests. The first signature of a nuclear test visible in satellite imagery with snow cover would be surface disturbances. In this case, surface disturbances such as landslides, snow slides, or concentric ring patterns are not visible. This could be explained by the low yield of the device tested and by the very light snow cover.

However, the light snow present at the site allows for the observation of other surface disturbances. For example, the roads leading to the west portal are clear of snow, indicating they have been heavily used since the last snowfall. In particular, much recent vehicular activity has taken place on the road connecting the main support area to the west portal. Vehicular activity is an important signature because it indicates the movement of trucks carrying materials, vehicles with instrumentation equipment, and movement of personnel. In fact, in the January 6 image, two large vehicles or trucks, possibly carrying instrumentation equipment, and four undefined objects, possibly instrumentation equipment, are present immediately east of the tunnel entrance at the west portal. It is worth noting that no camouflage netting is present above the tunnel entrance at this portal.

Finally, four large trucks are visible at the main support area. A number of personnel are also visible here.

South Portal

Unfortunately the tunnel entrances at the south portal are not clearly visible in this January 6 image. However, it is worth noting that the road connecting the main support area to one of the south portal

tunnels also appears to have been used quite frequently in recent weeks. Newer imagery is required in order to better assess the possible activity taking place at this site.

Other Portals

No signs of activity are visible at the east portal, the likely location of the 2006 test. North Korea may have recently begun digging a new tunnel, possibly for a new portal, at the Punggye-ri site. For more information on this see [38North](#).

Conclusion

The activities detected at North Korea's Punggye-ri test site on January 6, 2015 are consistent with signatures one would expect to see at a nuclear test site after a test has been undertaken. All these activities are consistent with the claim that a test occurred. However, the technical nature of North Korea's January 6, 2016 nuclear test remains largely a mystery. Its announcement that the test involved an H-Bomb needs to be treated carefully. However, its claim should not be discounted completely, since it has been investigating thermonuclear materials and concepts for some time. For more information on the technical nature of this test please see our recent report [here](#).

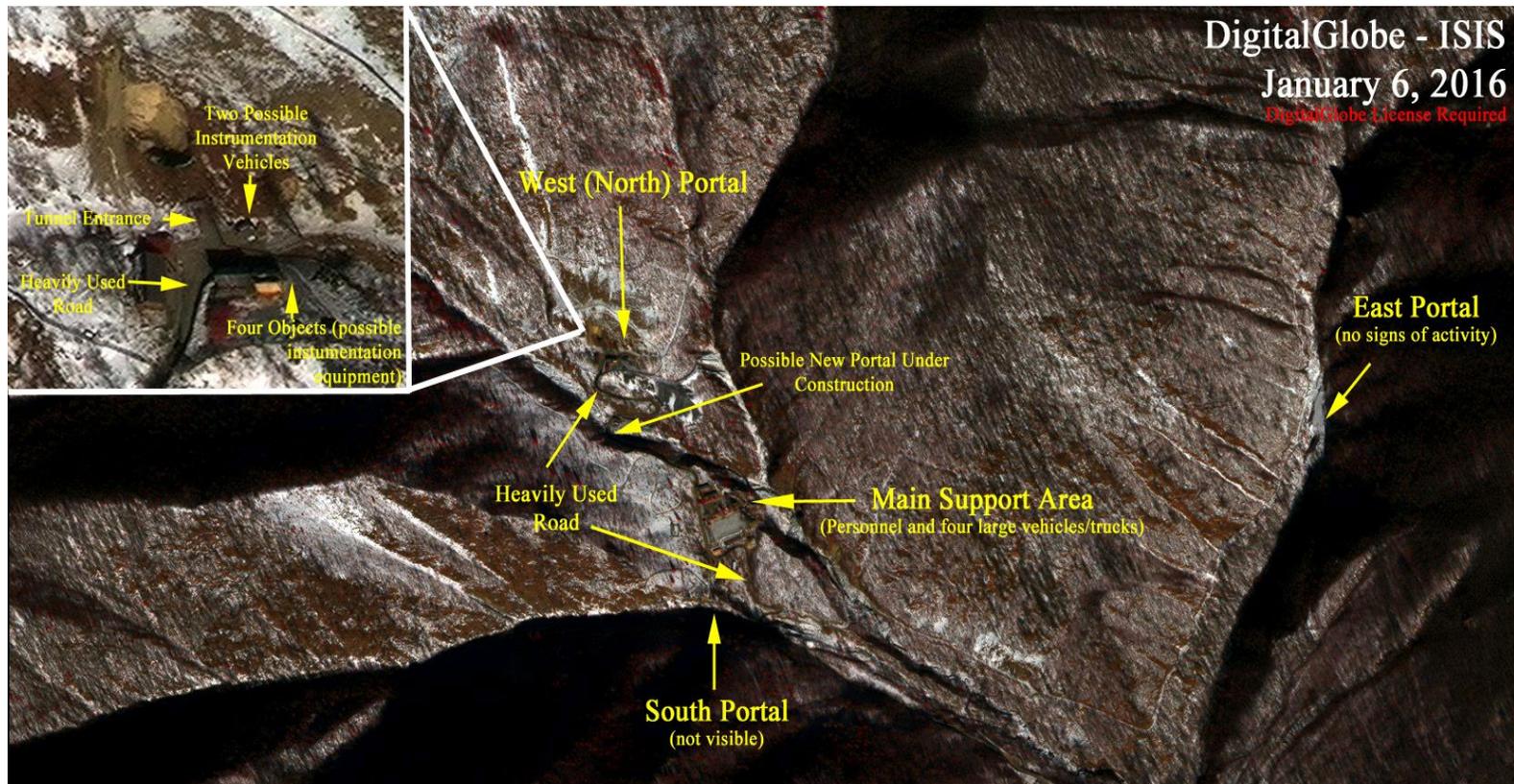


Figure 1. DigitalGlobe imagery showing North Korea's Punggye-ri test site on January 6, 2016. A special thank you to Sam Scaman and Scapeware3d for their assistance in obtaining this imagery. To purchase media license please follow instructions here: <http://www.gettyimages.com/detail/news-photo/6th-2016-digitalglobe-satellite-imagery-of-north-koreas-news-photo/503852010>