

## Recreating and exploring the DPRK nuclear test site in 3D to calculate possible overburdens for detonations

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In 2018 the Democratic Peoples Republic of Korea invited selected journalists to its nuclear test site where they photographed and videoed the destruction of some features. The imagery revealed detail previously unseen by the outside world, including a map showing the tunnel entrances (adits) and test locations. We have used that imagery and other data to recreate the test site in 3D; explore it in virtual reality and make estimates of indicative minimum overburdens for the tests. We geolocated the map then extracted locations for the tests and adits by using imagery from the event, a digital elevation model and satellite imagery. During the process 3D visualisation software was used to reconstruct the test site, geolocate the adits and explore the site in immersive virtual reality. Virtual poster boards showing some of the photographs were created and positioned to replicate the original photograph locations, which helped to geolocate the adits and understand the wider site layout. Previous work that calculated the testsâ&gt; locations, using seismic data was repeated using the locations from the map. The two datasets were compared and the minimum overburden for each test was calculated assuming a straight line between the adit and test location.

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