

of Infrasonic Observations from the Underground Nuclear Tests of North Korea

This study shows that the observations of infrasonic signals from the third underground nuclear test carried out by North Korea on 12 February 2013. The infrasonic signals generated from their test site were detected by South Korea's infrasonic network operated by KIGAM as well as the two nearby IMS infrasonic stations, IS45 and IS30. Compared with detection results of the second test in 2009, favorable condition in atmosphere for eastward propagation has limited the detectable range and stations located on the east side of the epicenter recorded the infrasonic signals. Infrasonic source locations are calculated based on wave parameters determined at the multiple infrasonic stations, in which azimuths deflected by the favorable condition are corrected from atmospheric specification. Detectability for the last three times underground nuclear tests can be explained by the atmospheric model and ray tracing simulations. Besides the epicentral infrasonic signals that originated at the test site, diffracted infrasonic signals generated by ground motions will be addressed by localization of its source regions.

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