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2.2-P14. Open Seismic Data Supporting the Occurrence of an Event on 12 May 2010 in North Korea

From several studies in 2012 and 2013 on detections at IMS and other national radionuclide stations, the occurrence of a low-yield nuclear explosion within North Korea in April/May 2010 was inferred. The presumed explosion was assumed small, because no seismological evidence could be found, contrary to the case of the announced nuclear explosions in 2006, 2009 and, subsequently, in 2013. Recent work by Zhang and Wen (Seismological Research Letters, Jan 2015), however, suggested that seismic stations in China indeed recorded signals consistent with such a small event. Intensive search of openly available data from the IRIS Data Management Centre (DMC) was carried out and ten stations operating at the time were identified within a similar distance range as the stations used by Zhang and Wen. Applying classical seismogram analysis and interpretation techniques we identified seismic signals at three stations that are consistent with regional phases from the suggested event near or at the North Korean test site. The phases fit theoretical arrival time predictions as well as P-wave polarisation directions, thus supporting the existence of the postulated event. Our study represents an exemplary case for a suspected treaty violation which could have the potential for an on-site inspection.

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