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dispersion assessment of radioxenon after North Korea's 6th nuclear test using LADAS model

North Korea conducted the sixth underground nuclear test on 3 September 2017 at Punggye-ri Neclear Test Site (NTS). Since North Korean government shut down the site in 2018, this event maybe the last nuclear test carried out at Punggye-ri NTS. We performed atmospheric dispersion simulations on some radioxenon emission scenarios for this event using our Lagrangian Atmospheric Dose Assessment System (LADAS) model utilizing the Unified Model (UM) based Numerical Weather Prediction (NWP) data produced by the Korea Meteorological Administration (KMA). Also, for explosion informations such as location and estimated test yield, we followed announcement of KMA. For the case of immediate radioxenon emission, it was expected that near surface radioxenon plume passed to northeast through Chongjin and Rason in North Korea and, after 5 September, arrived Hokkaido in Japan via Vladivostok in Primorsky Krai in Russia and northeast of the East Sea. Therefore, for this event, radioxenon was undetectable in Korea and southern Japan. The RUX58 station, one of the International Monitoring System (IMS) stations operated by the Comprehensive nuclear Test-Ban-Treaty Organization (CTBTO), was expected as a strong candidate for detection of radioxenon but unfortunately it was not on normal operation at that time.

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