

Characterization and evolution of global Xe background between 2016 and 2018

Monitoring atmospheric radioxenons is essential for confirming an underground nuclear weapon test. Accordingly, it is crucial to the international monitoring system (IMS) of the Comprehensive Nuclear-Test-Ban Treaty (CTBT) to monitor radioxenon worldwide. Four of the xenon isotopes are of interest for CTBT verification; ^{131m}Xe , ^{133m}Xe , ^{133}Xe and ^{135}Xe . In a nuclear explosion, the four isotopes are produced in sufficient quantities and have half-live times long enough to allow an appreciable amount to travel and reach IMS radioxenon stations. Therefore, understanding the Xenon background at the IMS stations is important to CTBT verification process. In this work, a comparative study between the global radioxenon background in 2016, 2017 and 2018 is conducted to determine the evolution of Xe background for all the available IMS stations. The stations with pronounced changes in its Xe background were identified and the ratios between different Xe isotopes were calculated and analyzed.

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