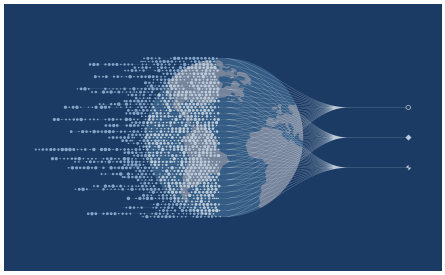

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# of data from radionuclide monitoring (RN64) station from 1 January 2010 to 31 October 2024; Insights and Recommendations

In September 2024, anthropogenic radionuclides observed from RN64 station located in Tanzania. This incident triggered us to make a review of data analyses from CDC from January 2010 up October 2024. Key finding includes the detection of both natural and anthropogenic radionuclides (fission and activation products). However, the interest was on anthropogenic radionuclides (fission and activation products) which are on the list of Comprehensive Nuclear-Test-Ban Treaty (CTBT) relevant radionuclides as an indicator of a potential nuclear test. Detected anthropogenic radionuclides were; Co-60, Cs-137, Cs-134, Na-24, I-133, Nd-147, Zn-65, Nb-95, Zr-95, Sn-113 and Co-58. Detected natural radionuclides were Be-7, K-40, U-235, and decay products of Th-232 and U-238. These results indicate that there have been instances of air pollution due to anthropogenic radionuclides released from atmospheric nuclear weapon tests or operating nuclear facilities, such as nuclear power plants. Recommendations include: perform comprehensive investigation on the source and cause of the unusual emissions, analysis of aerosol samples coupled with Atmospheric Transport and Dispersion Modelling (ATDM), perform simulation model by available computer code simulation tool and dispersion modeling to establish the extent of anthropogenic radionuclides spread in the country.

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