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background within the African continent as monitored by the CTBTO – IMS Radionuclide network

Effective emergency preparedness in nuclear accidents requires understanding the observed radionuclide background, which the African continent is rarely studied for this purpose. This has made it necessary to evaluate the regional radiological baseline data that could be used for radiation impact assessment. The study fills this gap by cataloguing and monitoring radionuclides as detected by the Comprehensive Nuclear-Test-Ban Treaty Organization's (CTBTO's) International Monitoring Systems (IMS) from certified and operational particulate radionuclide stations MRP 43, CMP 13 and TZP 64 within the African continent. This report analysed data from the first quarter of 2011. MRP 43 recorded typical background radiation until days 85 to 108 when multiple anomalous anthropogenic radioactive isotopes of iodine (I-131, I-132), caesium (CS-137, CS-136, CS-134), tellurium (TE-129, TE-129M, TE-132) and lanthanum (LA-140) were detected. CMP 13 recorded anomalous anthropogenic radioactive iodine (I-131) and caesium (Cs-134, Cs-137) between days 91 and 107. However, typical background radiation was detected at TZP 64. The activity concentrations of the fission product at MRP 43 were more than 10% higher than that detected at CMP 13. The study gives insight into the dynamics of the background radiation within the African continent.

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