

# International Conference on the Management of Naturally Occurring Radioactive Materials (NORM) in Industry

## VIRTUAL EVENT

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## Spatial distribution of gamma dose rates due to enhanced naturally occurring radioactive materials at the environs of Mrima Hill and Kwale heavy mineral sand deposit in South Coastal Kenya

A bGeigie Nano Monitor has been used to map the distribution of gamma dose rates around titanium base mine and Mrima Hill, both situated in south coastal region of Kenya. An increase in absorbed dose rates from a value below the global population weighted mean of 60 nGy/h to more than three times this value is observed in some areas around the titanium base mine. The absorbed dose rates obtained before mining ranged from 9.8 nGy/h to 50.0 nGy/h with a mean of 29.2 nGy/h while values obtained during mining process ranged from 21 nGy/h to 248 nGy/h with an average of 102 nGy/h. The absorbed dose rates around and within Mrima hill, a high background radiation area, ranged from 105 nGy/h to 5144 nGy/h with a mean of 749 nGy/h. However, the isolated spots of dose rates above 2000 nGy/h were found within Mrima forest where excavation of sediments had been done. The results of this study indicates that mining and processing of heavy mineral sand and any other anthropogenic activities in areas considered to be high background radiation areas elevates the radiation levels.

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