

Assessment of Radiological in the Beach Sand from Pattani Province

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Abstract : Specific activities of natural (^{40}K , ^{226}Ra and ^{232}Th) radionuclides in 250 beach sand samples collected from 5 beaches in 5 districts which are Rachadapisek beach in Nong Chick district, Talokapo beach in Yaring district, Panarae beach in Panarae district, Wasukri beach in Saiburi district and Pamai beach in Mai Kaen district in Pattani province, have been studied and measured. Experimental results were obtained by using a high-purity germanium (HPGe) detector and gamma spectrometry analysis system and also evaluated by using the standard reference materials IAEA-SOIL-6 which were obtained from Office of Atoms for Peace. Experimental set-up and measurement were operated and carried out at laboratory research building, Office of Atoms for Peace, Bangkok. It was found that, the mean values of specific activities of ^{40}K in Rachadapisek, Talokapo, Panarae, Wasukri and Pamai beaches were 427.58 ± 14.09 , 1090.62 ± 54.28 , 463.95 ± 14.06 , 449.07 ± 13.80 and 433.49 ± 12.77 Bq/kg, respectively. The mean values of specific activities of ^{226}Ra were 31.10 ± 7.63 , 160.68 ± 8.07 , 84.41 ± 13.09 , 33.98 ± 7.76 and 44.42 ± 10.17 Bq/kg, respectively. The mean values of specific activities of ^{232}Th were 11.40 ± 1.75 , 356.65 ± 6.59 , 74.50 ± 3.07 , 16.04 ± 1.78 and 26.86 ± 2.08 Bq/kg, respectively. Furthermore, the results of the specific activities of natural radionuclides (^{40}K , ^{226}Ra and ^{232}Th) in this areas were also used to evaluate the absorbed dose rates in air (D), the radium equivalent (Raeq), the external hazard index (Hex) and the annual effective dose rate in this area. Furthermore, experimental results were also compared to research data in the southern region of Thailand, the Office of Atoms for Peace (OAP) annual report and the recommended values which were proposed by United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR, 1988, 1993, 2000).

Primary author: Ms DAOH, MURNEE (poster)

Co-authors: Dr TONGSANG, BANCHONG; Dr CHANLERT, PURINTORN; Dr KESSARATI KOON, PRA-SONG; Ms BOONKRONGCHEEP, RUTHAIRAT

Presenter: Ms DAOH, MURNEE (poster)

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