RADON MONITORING IN GROUNDWATER FROM THE MT. ETNA AREA

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Background and aims The natural radionuclides generally occurring in ground waters and those pose health risks are 222Rn, 226Ra, 228Ra and 232Th. Since no limits for radon in drinking water supplies have been set yet, radon monitoring by regulatory authorities has not been established. This had led to a lack of knowledge about the geographic distribution of radon, which is needed in water supply planning and development. Due to the high permeability of Mount Etna volcanic rocks, it hosts one of the biggest hydrogeologic reservoirs of Sicily. The Etnean groundwaters are very important being the only water resource for drinking, agricultural and industrial purposes not only for the people living in this area but also for those who live in the surrounding areas. This study reports the results of a groundwater radon survey in the Etnean area.
Methods: Evaluation radon progeny (214Pb and 214Bi) in water was developed by using gamma ray spectrometry. Groundwater samples were collected throughout the Etnean area from drainage galleries, springs and from wells with submerged pumps. These water are used for drinking purposes.
Results: The measured activity values range from 1.3 to 5.8 Bq/L.
Conclusions: The USEPA has proposed in 1991 a maximum contaminant level (MCL) of radon in public drinking water supplies serving more than 25 residences to be 11 Bq/L, that our samples are compliant. Is still necessary to integrate our results with temperature, salinity and CO_2 partial pressure and continue to make the monitoring seasonally.
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