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Anomaly of Radon Gas Concentration Before The Deadly Earthquake on 28 September 2018 In The Central Sulawesi Region

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An Earthquake with a magnitude of 7.4 Mw with a depth of 10 Km that occurred in the Central Sulawesi province on Sept. 28, 2018, at 18:02 (WITA) triggered a Tsunami with a height of up to 5 meters and Liquefactions in Palu City. Based on the results of radon gas monitoring at Tadulako station, which is ~71 Km from the earthquake epicenter shows before the earthquake occurred indicating an increase concentration radon gas since August 13 2018 until the maximum increase which was quite significant when the earthquake occurred. Monitoring of the water level at the radon borehole also showed a drastic decrease and increase within two days, precisely on August 20, 2018. Ground water temperature data show that there has been a slow decline since July 20, 2018 and began to rise again after the earthquake occurred. At the Palolo station, which has a distance of 107 Km from the earthquake epicenter, there was no anomaly of gas radon concentrations, water level and ground water temperature. Based on these results, monitoring of radon gas concentration is very promising to be carried out in active fault areas that are scattered throughout to improve the Earthquake precursor results.

Promotional text

This research can provide information on how promising monitoring of radon gas concentrations, geotemperature and water levels in monitor fault activity a few days before an earthquake occurs.

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