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Author	吉川, 英樹(Yoshikawa, Hideki) 遠藤, 和豊(Endo, Kazutoyo) 中原, 弘道(Nakahara, Hiromichi)
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**$^{220}\text{Rn}$  and  $^{222}\text{Rn}$  in Volcanic Gas\***

Hideki YOSHIKAWA, Kazutoyo ENDO\*\* and Hiromichi NAKAHARA\*\*

吉川英樹, 遠藤和豊\*\*, 中原弘道\*\*

Studies on the underground source, transport, and detection methods of  $^{220}\text{Rn}$  and  $^{222}\text{Rn}$  in volcanic and hot-spring gases are reviewed first. Model equations for understanding radon concentrations in gas are then proposed. The ratio of the concentration of  $^{220}\text{Rn}$  to that of  $^{222}\text{Rn}$  is expected to give useful information on the time required for the gas transport to the earth's surface. Some data on the  $^{220}\text{Rn}$  and  $^{222}\text{Rn}$  concentrations in volcanic and hot-spring gas measured in various geothermal areas in Japan, are given. The  $^{222}\text{Rn}$  concentration was higher in hot-spring gas (50—2000 Bq/L-gas) than in volcanic gas (50—100 Bq/L-gas) and found almost constant within the same geothermal area, while the  $^{220}\text{Rn}$  concentration had a tendency to vary from site to site even within the same area. The observed data are briefly discussed in terms of the proposed model. Some future course of radon studies to be followed is also suggested.

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\*\* 東京都立大学理学部