



A Critical Analysis of Changing Radon Concentration Patterns on Gyokusen-dou Cave in Okinawa Island

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Radon concentrations were measured at 1 hour intervals for a year in Gyokuse-dou Cave, Okinawa Island. An apparatus for continuous radon monitoring connected to a data logger was installed in a large chamber of the cave along the tour route for visitors. Radon concentration ranged from 8000 Bq/m³ in the summer to 100 Bq/m³ in the winter. Seasonal changes in radon concentration correlate with difference between outside and inside air densities. The same effect seems to occur in a short time period. However, changing radon concentration pattern does not synchronize with air density difference pattern in the sites. The results of statistical treatment show that the outside air takes about 8-18 hours to reach the measuring point of radon in the Cave. The average airflow velocity from the site to the exit was estimated to be about 0.52-0.23 m/min. During the summer, the south wind blowing into the cave also affects the radon concentration.