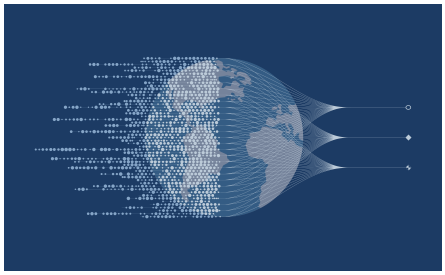

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# of turbulent diffusion coefficient using atmospheric radon concentration

The turbulent diffusion coefficient is the rate at which turbulent motion disperses radionuclides. It controls the rate of spread of their concentrations into the atmosphere, thus influencing their behaviour. The turbulent diffusion coefficient is an essential parameter in the study of atmospheric transport, and the accurate determination of its value in the atmosphere is crucial. This study aims to develop a novel method for accurately determining the turbulent diffusion coefficient using atmospheric radon concentration. The Alpharad Plus radiometers were used to measure radon activity concentration simultaneously at two different heights. The turbulent diffusion coefficient was calculated using a formula dependent on activity concentration and height. The results showed that precipitation affects the radon activity concentration near the earth's surface. It also shows that radon activity concentration is inversely correlated with the turbulent diffusion coefficient in the atmosphere. The validation findings indicate that the turbulent diffusion coefficient in the atmosphere can be calculated using radon concentration. This method can be used in an atmospheric transport model to accurately study and predict the behavior of radionuclides in the atmosphere during a nuclear incident.

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