

# Prediction of the Radioactive pollution due to the Accident at a Nuclear Power Plant

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## Abstract

In the event of nuclear accident in neighboring countries, radioactive materials may enter the country due to the effect of weather conditions such as air currents. In order to analyze the impact of nuclear accident in neighboring countries, we simulate fallout scenarios about Tianwan nuclear power plant accident in China. The Cs-137 was selected as the target radionuclides and The HYSPLIT 4 model of the NOAA(National Ocean and Atmospheric Administration) and meteorological data which provided by ARL(Air Resource Laboratory) were used to analyze the diffusion effect of Cs-137 and the effect of radionuclide fallout. 6 scenarios were developed to examine the effect of emission time of Cs-137 at a nuclear power plant accident and the effect of rainfall. As the simulation results showed that the higher the emission time, the higher was the concentration of Cs-137 present in the atmosphere and on the ground. Based on the calculation of the Cs-137 deposition rate (%) from Scenario I and Scenario II, it was found that the rainy season during the simulation period was deposited at a higher rate than during the dry season. In order to countermeasure for nuclear accident, it is deemed necessary to establish a contingency plan considering the conditions under which it rains in the event of an accident.

**Keywords:** *Cs-137, HYSPLIT, Fallout Scenario, Nuclear Powerplant Accident*

## References

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## Biography

Sung Won Kang is a Korean-born and based environmental engineer and researcher. He has a Ph.D degrees on environmental engineering. Over 15 years, he has worked for Korea Institute of Civil Engineering and Building technology and over 5 years, for university of science and technology. He has published many scientific articles on subjects ranging from wastewater treatment, non-point source treatment devices, algal bloom control technology and radioactive cesium adsorbents.