

## Implications of Meteorological Parameters in Decision Making for Public Protective Actions during a Nuclear Emergency

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**Abstract :** Plume dispersion modeling is a computational procedure to establish a relationship between emissions, meteorology, atmospheric concentrations, deposition and other factors. The emission characteristics (stack height, stack diameter, release velocity, heat contents, chemical and physical properties of the gases/particle released etc.), terrain (surface roughness, local topography, nearby buildings) and meteorology (wind speed, stability, mixing height, etc.) are required for the modeling of the plume dispersion and estimation of ground and air concentration. During the early phase of Fukushima accident, plume dispersion modeling and decisions were taken for the implementation of protective measures. A difference in estimated results and decisions made by different countries for taking protective actions created a concern in local and international community regarding the exact identification of the safe zone. The current study is focused to highlight the importance of accurate and exact weather data availability, scientific approach for decision making for taking urgent protective actions, compatible and harmonized approach for plume dispersion modeling during a nuclear emergency. As a case study, the influence of meteorological data on plume dispersion modeling and decision-making process has been performed.

**Keywords :** decision making process, radiation doses, nuclear emergency, meteorological implications

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