

## Role of the atmosphere numerical model at the time of the nuclear power plant accident and the earthquake disaster

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### 1. Introduction

About 30,000 people of life were taken with the tsunami by the earthquake that occurred on March 11, 2011. And, tsunami took all the power supplies of the 1st Fukushima nuclear power plants. As a result, many radioactive substances were emitted into the atmosphere and the ocean. Many of the radioactive deposited around Fukushima Pref. and the citizen is exposed to long time radiation.

### 2. Nuclear power generation accident and refuge action

Fig.1 shows the refuge route associated with the 1st Fukushima nuclear power plant accident. Many of the refuge routes are passing a high dose rate area. The numerical simulation model such as SPEEDI was predicted a completely the high dose area. However, the result of this model sometimes is not utilized effectively. If we are able to use the result of the model effectively we don't exposed by the high radiation in the early period. The numerical simulation model is very useful in the dispersion prediction of a radioactive substance. We can use it effectively when the accident occurred by disclosing the result of the model. It is important to use the daily application system of the simulation model result.

### 3. Role of atmospheric model

The model can predict the contamination situation of the radioactive substance. And the model can understand contamination distribution as the area. The prediction is effective in our low expose. The understanding as the area of the radioactive substance is important to know the movement. It is necessary to understand of the exact composed process and move process of the radioactive substance. There is indeterminacy in the simulation model. Therefore, we need to compare the result of several models. It is important at the time of a disaster that we disclose one conclusion as the result.

### 4. Conclusion

The atmosphere simulation model collects the essence of science and technology. The model is the indispensable tool to disaster prediction. However, many of the nations don't know the usefulness of the model. It is important to always disclose the result for the advanced utilization, accuracy improvement of the model.

Keywords: Numerical simulation model, SPEEDI, exposure dose, radioactive contamination, natural disaster, artificial disaster

