

The 7th emergency recommendation regarding the response to the Great East Japan Earthquake

Scientific Survey and Analysis of Movement of Radioactive Substances over a Wide Area

August 3, 2011

Science Council of Japan

Great East Japan Earthquake Task Force

As a result of the accident at the Tokyo Electric Company Fukushima No.1 Nuclear Power Plant caused by the Great East Japan Earthquake, radioactive substances were discharged into the atmosphere and the ocean, falling over a wide area. The Science Council's Second Emergency Proposal already stressed the necessity for early, quick, and detailed measurement of the distribution of these substances, in conjunction with recovery plans being made and with evacuees returning to their homes. Presently, the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) is leading a detailed investigation of the radiation rates in the air and deposited in soil in Fukushima and neighboring prefectures, and a distribution map is scheduled to be released in August.

A continuous investigation on the movement and the distributions of radioactive substances released by this accident should be carried out over a wide area including the ocean. It is the responsibility of Japan also to give information on international effects – the dispersion of radiation throughout the world. Investigations must determine radiation rates in the air, in the soil, in wild animals and plants, and in the sea, movements of radioactive materials from forests to rivers and on to the ocean, accumulation in the sea bottom and radiation in seawater, over a wide area, not just Fukushima and neighboring prefectures. Various agencies local government organizations are taking such measurements, but they all have their own objectives in making these investigations and the data formats vary widely. Further, in order to elucidate the movement of substances over wide areas, data must be collected and compiled, and in so doing the sample taking procedures, measurement methods, dates and times of measurements, and weather conditions must be standardized so as to correlate all measurements as closely as possible. Also, the items which need to be investigated over long periods of time must be clearly determined.

From the results of such investigations alone, it will be difficult to elucidate radiation movements, so in addition, analysis using a movement model is necessary.

The presently used models are insufficient to calculate the present situation and future movements from the results of previous studies and of ongoing investigations. It is an important task now to construct a more suitable model, and then use this to elucidate radiation movements over a wide area.

Cooperation among the organizations involved is necessary for long term investigations and storage of these results, construction and administration of a database, and analysis of movements using the movement model. Of course, the results of these efforts must be made public throughout the world.

In order for the Japanese people to lead safe and secure lives into the future, and to meet the expectations of the international community, the government in cooperation with academic institutions must scientifically ascertain the movements of radioactive substances. The Science Council hereby proposes the following activities regarding radioactive substances.

1. Investigations of the environment including the ocean over a wide area, establishment of a plan to carry out such investigations for the necessary length of time, and long term continuous elucidation of the movements of radioactive substances over a wide area
2. Collection of the results of various investigations up to the present and the results of ongoing and future investigations into a database with a uniform format, and making this database available to researchers around the world.

We request that the above proposals be considered at the monitoring organization meetings held by MEXT in order to coordinate the radiation monitoring being done by related agencies, local governments and businesses.