

Practical training for environmental dynamics research in Fukushima

Twelve students participated in the internship

During summer vacation of universities, the Japan Atomic Energy Agency (JAEA) accepts internship students who are interested in nuclear energy. This year, twelve students applied for the practical training in Fukushima Prefecture. Followings are the report on the practical training related to research on the environmental dynamics in Fukushima Prefecture.

JAEA has been conducting a research project named “F-TRACE” (long-term assessment of Transport of Radioactive Contaminant in the Environment of Fukushima) to investigate the migration of radioactive cesium in the forests, rivers, dams and estuaries in Fukushima Prefecture. Two graduate students, Mr. Sakate and Ms. Kan, having an interest in this topic, joined this research. Mr. Sakate specializes in nuclear safety engineering, and Ms. Kan specializes in soil science. It is the first time for both of them to visit Fukushima Prefecture.

On August 20, the training was held in the forest of Kawauchi Village that locates about 14 km southwest of the Fukushima Daiichi Nuclear Power Station. As a first training, they measured the radiation dose rate at the ground level and 1-m height along the slope at 2-m intervals. After that, they carefully took notes of the sampling situations, such as the slope angles, status of soil and



geographical features. As the slope angle of the mountain was 20 degrees, they could barely stand up straight.

Next, they collected some samples to analyze later. They collected soil, fallen leaves and twigs of the top layer of forest soil called litter layer, and leaves and bark of trees.

On that day, the highest temperature was well over 30 degrees throughout Fukushima Prefecture. Even in the forest, it was really muggy. Nevertheless the students continued the work, wiping the sweat off their brow.

On August 21, the training was held in Tomioka Town that locates in the east of Kawauchi Village. There, they conducted the research on the lichens. Lichen is a symbion of fungi and algae. It looks like moss. Unlike plants, lichen has no roots, so it absorbs various materials throughout their bodies, and accumulates the materials for a long time. Owing to such property, JAEA has been investigating lichen as a clue to find out how radioactive substances spread in environment.

By using a Geiger-Müller (GM) survey meter, they measured the radioactivity concentration on the surface of roadside trees and the surrounding areas where lichen is living. In order to shield radiation coming from surroundings, they measured radiation using a collimator. For the purpose of investigating the relation between measured radiation and the accident of the Fukushima Daiichi Nuclear Power Station, they repeated the measurements by changing the direction and height of the survey meter.

On August 27, they analyzed the samples that they had collected in the forest. On that day, they first used the instrument called “imaging plate”. By using this instrument, the points with high radiation are displayed as black color, and thus parts of a tree and leave where radioactive materials tend to accumulate can be found. They measured leaves and tree bark that had been collected





in the forest.

Next, they measured radioactive concentration in soil samples using a Germanium (Ge) semiconductor detector. They divided the grains of the soil by size after drying it and investigated tendencies.

On the final day of the training, the students presented the results for the investigations of the forest and lichen and their analysis work that had

been conducted over 10 days. They also presented their impressions about the practical training.

One of the students said, "Through this practical training, I learned the excitement and difficulty in field works. Also I felt that the analysis of the data and summarizing the report are time-consuming. I recognized that the environmental dynamics research is hard and steady work." The other student said, "As this was my first visit to Fukushima, I was shocked to see the damage of tsunami and the earthquake with my own eyes, and the restoration has little progressed. I'd like to utilize the experience in the practical training for my future research in order to assist with the restoration of Fukushima." The students turned their steps homeward with their expectations for the future.



Also, other students that were accepted at Fukushima Office of JAEA participated in practical training of radiation monitoring using instruments developed by JAEA, or the cooperation for the decontamination work that has been conducted by the neighboring communities.

TOPICS Fukushima No.54

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