## §9. Practical Research on Radiation Education

Fukutoku, Y. (Nat. Sci. Cntr. Res. Educ. Kagoshima Univ.), Kawano, T.

## Introduction

Since the accident at the Fukushima Daiichi Nuclear Power Plant, a social trend has arisen of believing that the correct approach is to promote the dissemination, through deregulation of electric power, of locally produced and consumed forms of natural energy which do not depend on "nuclear" such as wind, geothermal, and small-scale hydroelectric power. This includes a tendency to reject the social acceptance of research and development on fusion reactors, which differ from conventional nuclear power in posing no threat of a runaway nuclear reaction such as a core meltdown; and to reject the "Newly Revised Curriculum Guidelines" which have revived the radiation education set aside for about 30 years since the introduction of a more relaxed "cram-free" curriculum<sup>1</sup>). Therefore, educators in the classroom are racking their brains trying to figure out the best way to proceed with radiation education. In this research, instructional materials were developed, taking the above situation into account, to help improve "radiation education for children" within school education, and a mutually-beneficial exchange of information is being carried out with the joint researcher, Associate Professor Takao Kawano of the National Institute for Fusion Science, in order to put into practice on a trial basis radiation education in elementary and junior high schools using the developed instructional materials.

## Efforts in FY2013

On January 9 - 10, 2014, a research representative visited the National Institute for Fusion Science, and listened to the comments of Associate Professor Takao Kawano on topics such as how to proceed with education collaboration activities relating to the understanding of radiation at the National Institute for Fusion Science. At the institute, activities are underway primarily for high school students - via SSH, SSP, open campus and so on - to deepen understanding of radiation through lectures and experiments. During the recent visit, it was decided to jointly develop instructional materials, and engage in efforts to disseminate those materials, using as an educational radiation source fertilizer containing potassium - an ordinary radiation source developed by Associate Professor Takao Kawano.

## Promotion of radiation education

The figure shows the purposes of radiation education carried out by the National Institute for Fusion Science, universities, and other organizations, and the targets of that education. To achieve a correct understanding of radiation, it is necessary to develop and put into practice education programs not only for workers in the controlled areas of facilities, but also for children and ordinary citizens. Some of the education programs being carried out by the research representative include an extension lecture called "What is Radiation?" for elementary and junior high school students which has continued since 2003, and a seminar for teachers called "Correctly

Conference to Promote Radiation Education. In recent years, lectures and training relating to radiation have been disappearing at the university. Therefore, as part of common education, it was decided to begin a course called "the world of radiation" combining lectures and training. Understanding of radiation cannot be achieved with lectures alone. At present, an opportunity has been created for learning about radiation in the classroom due to the "Revised Curriculum Guidelines," and the plan is to deepen children's interest in science, and develop training programs to serve as a foothold toward gaining correct knowledge of radiation through joint research with Associate Professor Takao Kawano. One example will be "safely and securely" providing training during class-time at school in the "Three Laws of Radiation Protection" by using ordinary chemical fertilizer as the radiation source. By linking with Android terminals, we would also like to cover topics such as cases which provide visual understanding of the distribution of natural radiation in the local area using a measuring device (e.g., the HORIBA PA-1100) with a function for mapping captured air radiation dose rate data onto maps. A cloud chamber is also an instructional tool which stimulates interest, and the plan is carry out joint research in areas such as improving the cloud chamber sets using empty cans which the research representative is preparing to be loaned out to schools.

Understanding Radiation" being carried out by the National



Fig. 1. Purpose, subjects, and implementation of radiation education

1) Fukutoku, Y.: Jpn. J. Radiat. Saf. Manag. 9 (2010) 158