

## How JAHS will manage the Great East Japan Earthquake?

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JAHS (Japanese Association of Hydrological Sciences) is an academic society that treat hydrological cycle on the Earth. Water is one of the most important component that makes feature of earth's surface. Water also is indispensable resources for human's life and activity, so hydrological sciences involves the relationship between hydrological cycle and human activities. JAHS have deep concern to human dimensions of environmental changes. To realize "Hydrological Sciences in the society" becomes important subject to be accomplished after the great earth quick in March 11, 2011.

After the great disaster, we carried out the studies both on Tsunami and on nuclear disaster. At a lecture, we will focus on the nuclear disaster in Fukushima District, because we think our knowledge and experiences on hydrology will be useful to understand the actual situation and future perspectives of radioactive contamination, and also useful to propose measures to restore the region contaminated by radioactive fallout.

The research works on the behavior of radioactive nuclides in the environment are divided into mechanism study and distribution study. In the latter, the distribution map should be discussed with the scales, because often what looks important at one scale is less important at another.

The small scale dose rate maps published by the government was useful to determine the evacuation area at the initial stage of the nuclear disaster, however, large scale map is necessary at the restoration stage. In the mountain village, the life and livelihood are strongly dependent to water and material cycles in SATOYAMA watershed. We have to know the distribution of radioactive materials, water and material cycles in the watershed. The knowledge and experiences in hydrology have great effect to make measures to cope with radioactive materials based on the SATOYAMA watershed scale. We are now conducting hydrological research in the small watershed in one of evacuation area. The outcomes are shared with local people and make them the materials to discuss the future of the region.

At the Fukushima Dai-ichi nuclear power plant, control of polluted water flowing from nuclear reactor buildings becomes an urgent issue to be solved. The buildings are located on the independent plateau. At this situation, local groundwater flow system, recharged on the surface and discharge to surrounding lowland, is the main system of hydrologic cycle. Groundwater from Abukuma Mountains belongs regional groundwater system, and its flux should be very low and residence time should be extremely long. This is hydrological knowledge, however, why accumulated knowledge does not apply to the field in problem?

Science is in the society, and supported by the society. We, scientists, have to consider how to use scientific knowledge in the framework that have common purpose.

Keywords: Japanese Association of Hydrological Sciences, nuclear disaster, FUKUSHIMA, the roll of hydrological sciences, distribution map and its scale, groundwater flow system