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 [JJ] Evening Poster | H (Human Geosciences) | H-CG Complex & General

## [H-CG29] Disposal of high-level radioactive waste: Viewpoints of science and engineering

convener: Daisuke Suetsugu (Department of Deep Earth Structure and Dynamics Research, Japan Agency for Marine-Earth Science and Technology), Kohta Juraku (Department of Humanities, Social and Health Sciences, School of Engineering, Tokyo Denki University), Satoshi Kaneshima (九州大学大学院理学研究院地球惑星科学部門, 共同), Takeshi Sagiya (Disaster Mitigation Research Center, Nagoya University)

Thu. May 24, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

We have organized sessions in the JpGU meeting on nuclear power plants in Japan mainly from a viewpoint of earthquake science since 2013. Topics in the sessions include risks of nuclear power plants by earthquakes, volcanic activities, tsunamis, and a communication gap between scientists and engineers on the risks of the nuclear power plants. In the 2018 JpGU meeting, we propose the session that focuses mainly the disposal of high-level radioactive waste in Japan. This is an unavoidable issue in discussing future of the nuclear power plants and requires mutual discussion and understanding between scientists and engineers. Recently the Japanese government has published "Nationwide map of scientific features for geological disposal" and has planned to proceed "geological disposal" as the best disposal method. However, geological and social stabilities in a time scale of 100,000 years, which is critical in the disposal issue, are difficult to be assessed in Japan where crustal activity is high. We still consider that feasibility of the geological disposal in Japan is to be discussed and subjects in implementing geological disposal is to be clarified. We would like to promote discussions on issues such as how earth scientists can contribute to the disposal issue and a social decision making on the issue. We would encourage discussions from a broad viewpoint across science and engineering. We are welcome to papers of other topics relevant to relationship of earthquake science and nuclear power plants.

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## [HCG29-P02] What I learned through the series of JpGU sessions about earth science and nuclear power plants

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Keywords: earth science, nuclear power plant, public debates

In this poster I summarize the discussions that were made in the series of JpGU sessions focused on the relationship between nuclear power plants and earth science, and discuss about the issues associated with high level radioactive waste management. In the sessions held in the JpGU meeting during the last several years, we discussed about various earth science issues relevant to nuclear power plants, such as estimating strong seismic ground motions, evaluating activity of faults, forecasting of mega-thrust earthquakes at trenches, forecasting of tsunami and volcano eruptions. Through the presentations given by the experts of each issue and the following discussions, it was clearly recognized that earth science cannot provide with clear answers to many of the problems associated with the issues that the society needs to deal with. It was also clearly recognized that possible risks and benefits of nuclear power plants associated with these issues need to be discussed publicly in the places where people of many different fields and backgrounds join. It was also clear that earth science community needs at least to enhance conversations with engineering people. We must discuss what earth scientists should do in the immediate future in order to address these requirements, either personally or as a community. As technical experts we must present our knowledge needed by the society, with its limitation and uncertainty clearly manifested. Based on this understanding I discuss in my poster about possible choices that we can take. Finally, with all of these points in mind, I also discuss about the issue of high level

radioactive waste management, attempting to clarify features that it shares with the other issues as well as its uniqueness.