

[JJ] Evening Poster | U (Union) | Union

[U-08] Developing the Future Plan and Road Map for Earth and Planetary Science Research

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Mon. May 21, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

This session offers an opportunity for scientists from across the country to discuss what it takes to advance earth and planetary science research. This comes at a time when the Science Council of Japan is preparing to revise the Masterplan for Advancing Major Academic Research in 2020. In order to advance earth and planetary science studies, it is essential to have an action plan that provides the framework for building upon basic and applied research work by individual scientists to further expand the scopes of the studies. Thus, this session aims to engender discussions and ideas that would help further flesh out the Dream Roadmap for Science and Engineering Research as part of the masterplan. Cognizant of the importance of defining steps to reach its goals, the Science Council of Japan has created the masterplan, which includes the roadmap. In earth and planetary sciences, there is a separate roadmap for each of the following: Space and planetary science; hydrospheric atmospheric science; human geosciences; solid earth sciences; and earth life sciences. This segmentation corresponds with how the Japan Geoscience Union subdivides the field. The masterplan 2017 calls for large-scale research projects on 12 different themes. Of those, seven projects were selected for hearings before the Council chose one of them as the Focus large-scale research project. This Union Session kicks off the project to take a close look at the changes that occurred in the field of earth and planetary sciences since 2014 and update each of those roadmaps with the nuts and bolts. The new roadmaps should reflect the large-scale projects being considered in each research segment as well as cross-segment projects. The session should spur ambitious proposals and active discussions about the future of earth and planetary sciences and roadmaps for research in all of the five segments as well as cross-segment research.

[U08-P06] Innovative 4D imaging of subduction-zones through real-time observatories, ultra-deep drilling and high-pressure experiments

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Keywords: Seafloor cable network, Ultra-deep drilling, Ultra-high pressure experiments, GNSS buoy, Subduction zone, Mantle rheology

In 2017, we submitted a proposal for the Masterplan for Advancing Major Academic Research, entitled “Earthquake and volcanic eruption prediction science through integrated onland, seafloor and ocean drilling observations -Challenge of the spatio-temporal informatics in subduction zones-”, to the Science Council of Japan. Here, we integrate this plan with the ocean-buoy GNSS observatory project and high-pressure (down to the mantle) experiments project to create a high-precision, time-

lapse imaging around the subduction zones, in order to delineate the earthquake and volcanic eruption scenarios and eventually to predict the far fate of the Earth and ocean.

For this purpose, we propose to construct a real-time observatory network for earthquake and crustal deformation monitoring through seafloor cables and GNSS buoys. We also propose to obtain (and try to reproduce) the state and property around the subduction zones and in the mantle, by means of ultra-deep drilling and ultra-high pressure experiments. We are extremely interested in the mantle rheology, which is primarily controlled by the thermal structure and the abundance in volatiles (e.g. water), which we believe is only possible by integration of geophysical observation and by ground-truthing, insitu experiments.