

[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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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-P03]New frontier of Earth, Space and Life Sciences pioneered by the Science-oriented developments of innovative mass spectrometer

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Keywords:development on the sass spectrometer, on-site analysis, in-situ analysis, isotope measurement, Time of Flight, Mass spectrometry

So far, various mass spectrometers, which can determine elemental abundance, isotopic composition and molecular weight of macromolecules, have greatly contributed to understanding of the Earth, Space and Life sciences. Above all, high-precision isotopic measurements of natural samples using sensitive mass spectrometers provide us an important clue to decipher the origin and evolution of the Earth and Planetary system. On the other hand, it is well known that many unknown/unresolved scientific issues are still remained because of technical restrictions of “general-purpose” commercially-available mass spectrometers. Therefore, “science-oriented” development of mass spectrometer has been highly desired.

At the conference, we will talk about an on-going Interdisciplinary research project (new development for the Life-Sciences), our recent remarkable finding based on the on-site mass spectrometers (“Biogenic oxygen from Earth transported to the Moon by a wind of magnetospheric ions”, Terada et al. Nature Astronomy 2017), and the future scope of this project.