

Tue. Jun 1, 2021

[J] Oral | U (Union) : Union

9:00 AM - 10:30 AM JST | 12:00 AM - 1:30 AM UTC | Ch.01 Zoom Room 01

[U-03] Return of Hayabusa2, The Frontier of Solar System Science

convener:Tatsuaki Okada(Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency), Taishi Nakamoto(Tokyo Institute of Technology), Daisuke Kuroda(Kyoto University), Chairperson:Tatsuaki Okada(Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency), Taishi Nakamoto(Tokyo Institute of Technology), YACHEN YANG(Center for Space and Remote Sensing Research)

9:00 AM - 9:30 AM JST | 12:00 AM - 12:30 AM UTC

[U03-01] Flight Result and Engineering Achievements of Asteroid Explorer Hayabusa2

★Invited Papers

*Yuichi Tsuda¹, Satoru Nakazawa¹, Makoto Yoshikawa¹, Takanao Saiki¹, Sei-ichiro Watanabe² (1.Japan Aerospace Exploration Agency, 2.Nagoya University)

9:30 AM - 10:00 AM JST | 12:30 AM - 1:00 AM UTC

[U03-02] Asteroid Ryugu and its evolution revealed by Hayabusa2 observations

★Invited Papers

*Seiji Sugita¹ (1.Department of Earth and Planetary Science, Graduate School of Science Sciece, The University of Tokyo)

10:00 AM - 10:30 AM JST | 1:00 AM - 1:30 AM UTC

[U03-03] The Hayabusa2 reentry capsule retrieval operation and sample analysis

★Invited Papers

*Shogo Tachibana^{1,2} (1.UTokyo Organization for Planetary and Space Science, University of Tokyo , 2.ISAS, JAXA)

[J] Oral | U (Union) : Union

1:45 PM - 3:15 PM JST | 4:45 AM - 6:15 AM UTC | Ch.01 Zoom Room 01

[U-04] Promotion of SDGs in JpGU

convener:Yukihiko Takahashi(Department of CosmoSciences, Graduate School of Science, Hokkaido University), Chiaki T. Oguchi(Institute for Environmental Science and Technology, Graduate School of Science and Engineering, Saitama University), Richard Simon Wallis(The University of Tokyo), Eiichi Tajika(Department of Earth and Planetary Science, Graduate School of Science, The University of Tokyo), Chairperson:Yukihiko Takahashi(Department of CosmoSciences, Graduate School of Science, Hokkaido University)

1:45 PM - 2:00 PM JST | 4:45 AM - 5:00 AM UTC

[U04-01] Geoscience for Beyond the Agenda 2030

*Taikan Oki¹ (1.Graduate School of Engineering, The University of Tokyo)

2:00 PM - 2:15 PM JST | 5:00 AM - 5:15 AM UTC

[U04-02] Activities of the JpGU committee for diversity management and talent pool

*Sachi Wakasa^{1,2} (1.Institute of Regional Innovation, Hirosaki University, 2.Committee for diversity management and talent pool, JpGU)

2:15 PM - 2:30 PM JST | 5:15 AM - 5:30 AM UTC

[U04-03] **SDGs-related research activities in the Biogeosciences Section**

*Minoru Ikehara¹ (1.Center for Advanced Marine Core Research, Kochi University)

2:30 PM - 2:45 PM JST | 5:30 AM - 5:45 AM UTC

[U04-04] Possibility of contributing to reach SDGs in the field of planetary science

*Junichi Haruyama¹ (1.Japan Aerospace Exploration Agency)

2:45 PM - 3:00 PM JST | 5:45 AM - 6:00 AM UTC

[U04-05] **Importance of career events to encourage education and careers for women in the marine-related fields and their future prospects**

*Erika Tanaka¹, Saki Katazakai², Mao Fujii³, Misuzu Oosawa⁴ (1.School of Engineering, The University of Tokyo, 2.Graduate School of Science and Engineering for Education, University of Toyama, 3.Graduate School of Agricultural and Life Sciences, The University of Tokyo, 4.School of Marine Resources and Environment, Tokyo University of Marine Science and Technology)

3:00 PM - 3:15 PM JST | 6:00 AM - 6:15 AM UTC

[U04-06] Promotion of SDGs activity by JpGU

*Yukihiko Takahashi¹ (1.Department of CosmoSciences, Graduate School of Science, Hokkaido University)

[J] Oral | U (Union) : Union

3:30 PM - 5:00 PM JST | 6:30 AM - 8:00 AM UTC | Ch.01 Zoom Room 01

[U-09] Advancing SDGs through inclusive partnerships II: Engaging with communities

convener:Hidenroi Nakamura(Toyama Prefectural University), Vincent Tong(University College London), Mika Shimizu(Kyoto University), Fumiko Noguchi(United Nations University, Institute for the Advanced Study of Sustainability), Chairperson:Hidenroi Nakamura(Toyama Prefectural University), Vincent Tong(University College London), Fumiko Noguchi(United Nations University, Institute for the Advanced Study of Sustainability), Mika Shimizu(Kyoto University)

3:30 PM - 3:45 PM JST | 6:30 AM - 6:45 AM UTC

[U09-01] Rethinking ESD from local community perspectives 'Inclusive' and 'Participatory' process making and Education for Sustainable Development (ESD)

*Fumiko Noguchi¹, Takako Takano² (1.United Nations University, Institute for the Advanced Study of Sustainability (UNU-IAS), 2.Waseda University / ECOPLUS)

3:45 PM - 4:00 PM JST | 6:45 AM - 7:00 AM UTC

[U09-02] The Problem of Marine Litter in Tobishima, Sakata City, Yamagata Prefecture, and the Development of Automatic Transportation and Collection Robot by the Industry-Academia-Private Collaboration

*Jun Sonoda¹, Ryuma Saito¹, Tomoki Ishii², Yasunori Endo³, Tsukasa Sato⁴, Tomoya Matsumoto⁵, Hikari Ogawa⁵ (1.National Institute of Technology, Sendai College, 2.Ishii Manufacturing Co., Ltd., 3.Dardit Co., Ltd., 4.National Institute of Technology, Tsuruoka College, 5.Tobishima Co., Ltd.)

4:00 PM - 4:15 PM JST | 7:00 AM - 7:15 AM UTC

[U09-03] Volcano disaster management for local community based on clinical environmental studies

★Invited Papers

*Masae HORII¹, Koshun Yamaoka² (1.Graduate School of Environmental Studies, Nagoya University, 2.Earthquake and Volcano study Research Center, Graduate School of Environmental Studies, Nagoya University)

4:15 PM - 4:30 PM JST | 7:15 AM - 7:30 AM UTC

[U09-04] Way of life after the On-site Research Training: How to fly over imaginary barriers and how to invite your serendipity

★Invited Papers

*Hiroto Nagai¹ (1.Waseda Univ., School of Education)

4:30 PM - 4:45 PM JST | 7:30 AM - 7:45 AM UTC

[U09-05] Applying Resilience Approach to SDGs: Through Cases of Community Disaster Risk Management

*Mika Shimizu¹, Tsuchida Ryo¹ (1.Kyoto University)

4:45 PM - 5:00 PM JST | 7:45 AM - 8:00 AM UTC

[U09-06] Student-led collaborative action with community stakeholders and SDGs

★Invited Papers

*Ryota Yamaura¹, Maki Watanabe¹, Misaki Suzuki¹, Yuw Kamimura¹ (1.Municipal University Corporation Toyama Prefectural University)

[J] Oral | EVENT : EVENT

10:45 AM - 12:15 PM JST | 1:45 AM - 3:15 AM UTC | Ch.01 Zoom Room 01

[EV-03] Awards Ceremony

10:45 AM - 12:15 PM JST | 1:45 AM - 3:15 AM UTC

[E-11-03] Japan Geoscience Union Fellow Award Ceremony for FY2020 and FY2021

[J] Oral | EVENT : EVENT

12:30 PM - 1:30 PM JST | 3:30 AM - 4:30 AM UTC | Ch.01 Zoom Room 01

[EV-04] Exhibitors' Pop-Up

12:30 PM - 1:30 PM JST | 3:30 AM - 4:30 AM UTC

[E-11-04] Exhibitors' Pop-Up

[J] Oral | U (Union) : Union

📅 Tue. Jun 1, 2021 9:00 AM - 10:30 AM JST | Tue. Jun 1, 2021 12:00 AM - 1:30 AM UTC | 🏠 Ch.01 Zoom Room 01

[U-03] Return of Hayabusa2, The Frontier of Solar System Science

convener: Tatsuaki Okada (Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency), Taishi Nakamoto (Tokyo Institute of Technology), Daisuke Kuroda (Kyoto University),
Chairperson: Tatsuaki Okada (Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency), Taishi Nakamoto (Tokyo Institute of Technology), YACHEN YANG (Center for Space and Remote Sensing Research)

Small Solar System bodies, including asteroids, comets, satellites, and interplanetary dust particles, are notably important for understanding the origin and evolution of our Solar System, as well as investigating the sources of building blocks of life. Many new discoveries on small bodies have been carried out by observations from ground-based and space-based observatories, and explorations by spacecraft rendezvous and flyby. New perspectives on solar system evolution have been paved by analyses of extraterrestrial materials such as meteorites, IDPs, and return samples by space missions. Numerical and laboratory simulation studies have helped interpretations for those results and proposed new insights on these topics. In this session, new results of scientific studies and new ideas of methodology for investigating small solar system bodies are highly welcome, especially the topics on the remote sensing, surface experiments, and analysis of return sample in the Hayabusa2 and OSIRIS-REx missions, as well as the expectations and preparations for future missions including MMX, Destiny+, Hera, Comet Interceptor, and Hayabusa2-Extended missions.

9:00 AM - 9:30 AM JST | 12:00 AM - 12:30 AM UTC

[U03-01] Flight Result and Engineering Achievements of Asteroid Explorer Hayabusa2

★ Invited Papers

*Yuichi Tsuda¹, Satoru Nakazawa¹, Makoto Yoshikawa¹, Takanao Saiki¹, Sei-ichiro Watanabe² (1. Japan Aerospace Exploration Agency, 2. Nagoya University)

9:30 AM - 10:00 AM JST | 12:30 AM - 1:00 AM UTC

[U03-02] Asteroid Ryugu and its evolution revealed by Hayabusa2 observations

★ Invited Papers

*Seiji Sugita¹ (1. Department of Earth and Planetary Science, Graduate School of Science, The University of Tokyo)

10:00 AM - 10:30 AM JST | 1:00 AM - 1:30 AM UTC

[U03-03] The Hayabusa2 reentry capsule retrieval operation and sample analysis

★ Invited Papers

*Shogo Tachibana^{1,2} (1. U Tokyo Organization for Planetary and Space Science, University of Tokyo, 2. ISAS, JAXA)

Flight Result and Engineering Achievements of Asteroid Explorer Hayabusa2

*Yuichi Tsuda¹, Satoru Nakazawa¹, Makoto Yoshikawa¹, Takanao Saiki¹, Sei-ichiro Watanabe²

1. Japan Aerospace Exploration Agency, 2. Nagoya University

The asteroid explorer Hayabusa2 completed its 6-year space flight in December 2020, and accomplished the sample return from the asteroid Ryugu. This presentation covers the flight result and achievements focusing mainly on the engineering aspect.

Keywords: Small Body Exploration, Asteroid Sample Return, Interplanetary Round-Trip Flight

Asteroid Ryugu and its evolution revealed by Hayabusa2 observations

*Seiji Sugita¹

1. Department of Earth and Planetary Science, Graduate School of Science Sciece, The University of Tokyo

When the spacecraft Hayabusa2 arrived at Ryugu in June 2019, it was a really unknown asteroid. However, after a year and half of remote-sensing observations, twice of touchdowns, and an artificial impact experiment, we know so much more details of asteroid Ryugu, from its birth to the present state. In this talk, I present our up-to-date results of Hayabusa2 data analysis and prospect for sample analysis.

Keywords: Hayabusa2, Ryugu, Asteroids

The Hayabusa2 reentry capsule retrieval operation and sample analysis

*Shogo Tachibana^{1,2}

1. UTokyo Organization for Planetary and Space Science, University of Tokyo , 2. ISAS, JAXA

The JAXA's Hayabusa2 spacecraft explored C-type near-Earth asteroid (162173) Ryugu and landed on Ryugu at two different surface locations for sample collection in 2019. The Hayabusa2 spacecraft delivered its reentry capsule on December 6, 2020 to Woomera, South Australia. The sample container inside the capsule was carefully taken out of the reentry capsule in Woomera, and the gas inside the container was stored into several bottles at room temperature and at liquid nitrogen temperature. The sample container was put into a nitrogen-purged anti-vibration transportation box and was securely transported to the ISAS curation facility on December 8, 2020 (~57 hours after the capsule landing).

The sample container was then installed into the container opening system, which was used to take apart the outer lid of the container with keeping the pressure load onto the inner lid constant. The container with the opening system was attached to the clean chamber, designed to maintain the Ryugu samples in vacuum and in pure nitrogen gas, on December 11. The container was opened on December 14 after the chamber evacuation.

Particles were found in two separate chambers inside the sample container, which were used for two landing operations at Ryugu. This indicates that the samples at the different surface locations were obtained successfully. The particles are black in color, consistent with the color of Ryugu boulders. There are millimeter- to centimeter-sized pebbles. Centimeter-sized grains, close to the maximum obtainable size (Sawada et al., 2017, Space Sci. Rev.), are found in the sample obtained during the second landing operation nearby the artificial crater. The total weight of the sample exceeds 5 g, which is far more than the mission requirement (100 mg) for scientific analysis (Tachibana et al., 2014, Geochem. J.). All the sample characteristics suggest that the Hayabusa2 sampler system worked efficiently and effectively at the Ryugu surface.

Because C-type asteroids have been considered to be parent bodies of carbonaceous chondrites, which contain pristine materials formed in the early Solar System, the detailed sample analysis, led by the Hayabusa2 project team, will focus on understanding the origin and early evolution of the Solar System along with the sample characterization. Carbonaceous chondrites are known to contain hydrated minerals and organic matter that could be a source of volatiles in the rocky planets including the Earth, and the presence of hydrated silicates has been confirmed spectroscopically on Ryugu (Kitazato et al., 2019, Science; Kitazato et al., 2021, Nature Astronomy). Water-related materials and organics are also the important target for the sample analysis to explore the possibility of the delivery of water and organics to the proto Earth from C-type asteroids.

Keywords: Hayabusa2, asteroid, sample return, Solar System

[J] Oral | U (Union) : Union

📅 Tue. Jun 1, 2021 1:45 PM - 3:15 PM JST | Tue. Jun 1, 2021 4:45 AM - 6:15 AM UTC | 🏠 Ch.01 Zoom Room 01

[U-04] Promotion of SDGs in JpGU

convener:Yukihiko Takahashi(Department of CosmoSciences, Graduate School of Science, Hokkaido University), Chiaki T. Oguchi(Institute for Environmental Science and Technology, Graduate School of Science and Engineering, Saitama University), Richard Simon Wallis(The University of Tokyo), Eiichi Tajika(Department of Earth and Planetary Science, Graduate School of Science, The University of Tokyo), Chairperson:Yukihiko Takahashi(Department of CosmoSciences, Graduate School of Science, Hokkaido University)

The United Nations' Sustainable Development Goals (SDGs) have come to be widely recognized as a common goal for humankind, involving the international community. For many of the 17 goals and 169 targets, earth and planetary science has a significant potential role. It is also important for us, as one of the largest academic societies in Japan, to develop activities in line with the spirit of the SDGs. In this session, we will discuss how the research activities of earth and planetary science are related to the SDGs, how to expand our contributions in the future, and how JpGU itself should be in accordance with the SDGs.

1:45 PM - 2:00 PM JST | 4:45 AM - 5:00 AM UTC

[U04-01] Geoscience for Beyond the Agenda 2030

*Taikan Oki¹ (1.Graduate School of Engineering, The University of Tokyo)

2:00 PM - 2:15 PM JST | 5:00 AM - 5:15 AM UTC

[U04-02] Activities of the JpGU committee for diversity management and talent pool

*Sachi Wakasa^{1,2} (1.Institute of Regional Innovation, Hirosaki University, 2.Committee for diversity management and talent pool, JpGU)

2:15 PM - 2:30 PM JST | 5:15 AM - 5:30 AM UTC

[U04-03] **SDGs-related research activities in the Biogeosciences Section**

*Minoru Ikehara¹ (1.Center for Advanced Marine Core Research, Kochi University)

2:30 PM - 2:45 PM JST | 5:30 AM - 5:45 AM UTC

[U04-04] Possibility of contributing to reach SDGs in the field of planetary science

*Junichi Haruyama¹ (1.Japan Aerospace Exploration Agency)

2:45 PM - 3:00 PM JST | 5:45 AM - 6:00 AM UTC

[U04-05] **Importance of career events to encourage education and careers for women in the marine-related fields and their future prospects**

*Erika Tanaka¹, Saki Katzakai², Mao Fujii³, Misuzu Oosawa⁴ (1.School of Engineering, The University of Tokyo, 2.Graduate School of Science and Engineering for Education, University of Toyama, 3.Graduate School of Agricultural and Life Sciences, The University of Tokyo, 4.School of Marine Resources and Environment, Tokyo University of Marine Science and Technology)

3:00 PM - 3:15 PM JST | 6:00 AM - 6:15 AM UTC

[U04-06] Promotion of SDGs activity by JpGU

*Yukihiko Takahashi¹ (1.Department of CosmoSciences, Graduate School of Science, Hokkaido University)

Geoscience for Beyond the Agenda 2030

*Taikan Oki¹

1. Graduate School of Engineering, The University of Tokyo

The Sustainable Development Goals (SDGs) are a set of common goals that form the core of the 2030 Agenda for Sustainable Development (Agenda 2030), adopted in September 2015. It is characterized by the fact that the goals were discussed in an Open Working Group with civil society organizations and global corporations, rather than being decided by governments and international organizations alone, as was the case with the preceding Millennium Development Goals (MDGs).

Although the SDGs consists with 17 goals and 169 targets, as ironically called as “silo approach” , many people and organizations can find some connection between the SDGs and their own activities, and thus have become more involved in the process.

In Japan, the SDGs tend to be emphasized their environmental aspect, but Agenda 2030 states that it is an ambitious plan to harmonize the three aspects of sustainable development: economy, society, and environment, or to harmonize respect for human rights and dignity, preservation of the global environment, and prosperity. While the environment is important, human rights, social justice, and economic development are equally important, which is the heart of the SDGs in Agenda 2030.

While the MDGs set targets that are achievable with efforts, the so-called "low hanging fruit" problem arose when targets such as "halving the proportion of the population without access to safe drinking water" were set by starting with support and investment in people and regions that would contribute to achieving them relatively easily. As a result, the SDGs declare at the outset that they will "transform our world into a better future that is sustainable and equitable," with "leaving no one behind".

At first glance, it seems that earth and planetary science is deeply related to and can contribute to the safety and environment of cities (SDG 11), in addition to climate change (SDG 13), marine ecosystems (SDG 14) and terrestrial ecosystems (SDG 15). However, when we look closely at the targets and the indicators for measuring progress, we cannot find any item that pure science can directly contribute to.

However, the International Astronomical Union has set "Promote the use of astronomy as a tool for the development of all nations" as Goal 3 of its Strategic Plan for 2020-2030, and has set a number of targets, including not only education (SDG4), but also the relationship with industrial development (SDG8/SDG9) such as astronomical tourism and instrument development, astronomical diplomacy (SDG16), and gender (SDG5) sensitive workshops, activities targeting disadvantaged and underrepresented groups (SDG10), and the realization of a dark night sky with reduced light pollution (SDG7).

In earth and planetary sciences, instead of trying to strictly follow the current targets and indicators of the current SDGs, it would be better to devise various activities in line with the heart of Agenda 2030, which is to enable all people to live a better life with dignity and self-respect.

Besides, there are many issues that are not included in the current SDGs but need to be solved. Agenda 2030, for example, does not mention demographic issues such as the rapid aging of the population and the declining birthrate, nor does it address conflicts over religion.

However, I do not think that the society in 2030, or the future world beyond that, will need the satisfaction of intellectual curiosity or the arts. It would be good to envision our future life and intellectual life as we want it to be, not as a solution to an apparent problem or as an extension of the current state of society, and to share in language explicitly how education and research in earth and planetary science will support the realization of the vision.

Keywords: Science and Society, sustainable development goals, satisfaction of intellectual curiosity

Activities of the JpGU committee for diversity management and talent pool

*Sachi Wakasa^{1,2}

1. Institute of Regional Innovation, Hirosaki University, 2. Committee for diversity management and talent pool, JpGU

Diversity is an essential factor to achieve the SDGs goals, especially, 5. Gender Equality, 8. Decent Work and Economic Growth, 10. Reduced Inequalities, 16. Peace, Justice and Strong Institutions, 17. Partnerships.

The JpGU Committee for diversity management and talent pool respects every diversity, including gender, age, origin, nationality, background, physical characteristics, values, religions, employment status, work styles and family-styles. Among them, the following activities are carried out.

- 1) Management diversity while balancing gender, generation, and nationality in the Earth and planetary science.
- 2) Create environments and networks where various people can demonstrate their individualities and abilities.
- 3) Career support such as providing information on research activities and employments.

Two sessions will be held by our committee at the JpGU Conference 2021 (U-11 Diversity and Equality - Where do we stand on gender equality or equity in the geosciences?; O-05 How to become a scientist? What can they do?). Childcare support is also provided at the conference to make it easier for participants who are raising children to attend.

Keywords: diversity management, JpGU committee, talent pool

SDGs-related research activities in the Biogeosciences Section

*Minoru Ikehara¹

1. Center for Advanced Marine Core Research, Kochi University

The six major fields in the Biogeosciences Section are Astrobiology, Geomicrobiology, Origin of Life, Biogeochemistry, Paleoenvironmental Science, and Evolutionary Paleontology. These fields are basic science fields that provides a bird's-eye view of the Earth's history from its birth to the future, and an understanding of the various conditions of the Earth as a planet inhabited by life, and based on such knowledge, the Sustainable Development Goals (SDGs) can be understood. The main goals of the SDGs, which are directly or indirectly related to the keywords "Earth", "Life", "Environment", and "Diversity" are "13 Climate Action", "14 Life below Water", and "15 Life on Land". In addition, JpGU can make a significant contribution to "4 Quality Education" by returning the knowledge gained through research to society at large and promoting open science, where anyone can access the knowledge and data. In the future, the Biogeosciences Section will consider visualizing the relationship between research activities and the SDGs.

Keywords: SDGs, Biogeosciences

Possibility of contributing to reach SDGs in the field of planetary science

*Junichi Haruyama¹

1. Japan Aerospace Exploration Agency

In this presentation, we will discuss how we contribute toward reaching SDGs in the field of planetary science.

Keywords: SDG, planetary science

Importance of career events to encourage education and careers for women in the marine-related fields and their future prospects

*Erika Tanaka¹, Saki Katazakai², Mao Fujii³, Misuzu Oosawa⁴

1. School of Engineering, The University of Tokyo, 2. Graduate School of Science and Engineering for Education, University of Toyama, 3. Graduate School of Agricultural and Life Sciences, The University of Tokyo, 4. School of Marine Resources and Environment, Tokyo University of Marine Science and Technology

Today, the percentage of women in the marine industry and science is low in Japan; the proportions of Japanese female ocean researchers in 2017 and crews on a ship in 2014 are only 12% [1] and 1.6% [2], respectively. Achieving an increase in the proportion of women in the marine sector requires at least the following three actions: (1) create an environment where the next generation of young females can develop ocean literacy, (2) establish a youth network centered with interdisciplinary and specialized knowledge of the ocean, and (3) provide young generation studying in a marine-related field with female role models. This approach can promote the conservation of sustainable use of the sea (SDG14) and contribute to work towards gender equality (SDG5).

Based on the background above, we held a two-day online career event to empower women studying/learning the ocean in March 2021. The objectives of the event were “Sharing the knowledge on the ocean” , “Having the opportunity to recognize the current situation and problems related to the ocean, to enhance ocean literacy, and to think about future activities” , and “Providing participants with guidance on their careers prospects” . In the presentation, we will report the outline of the event and the results of the questionnaire answered by the participants before and after the event.

[1] IOC-UNESCO (2020) Global Ocean Science Report 2020–Charting Capacity for Ocean Sustainability. K. Isensee (ed.), Paris, UNESCO

[2] Kitada, M. (2015). Promoting Women in the Maritime Industry. Annual report on Maritime Transportation Research, 64, 13-22.

[3] UNDP (2016) UNDP Support to the Implementation of the Sustainable Development Goals

Keywords: Ocean, Outreach, Women's career, Work-life balance, SDGs

Promotion of SDGs activity by JpGU

*Yukihiro Takahashi¹

1. Department of CosmoSciences, Graduate School of Science, Hokkaido University

The United Nations' Sustainable Development Goals (SDGs) have come to be widely recognized as a common goal for humankind, involving the international community. Earth and planetary science should play a major academic role in the realization of the SDGs. It is also important for JpGU itself to develop activities in line with the spirit of the SDGs. Furthermore, as an academic society that actively promotes the SDGs and contributes to the SDGs, we can expect to obtain support from companies that are not directly related to earth and planetary sciences. Against this background, JpGU has launched the SDGs Promotion Task Force. We will introduce its purpose and activity policy.

Keywords: SDGs, task force

[J] Oral | U (Union) : Union

📅 Tue. Jun 1, 2021 3:30 PM - 5:00 PM JST | Tue. Jun 1, 2021 6:30 AM - 8:00 AM UTC | 🏠 Ch.01 Zoom Room 01

[U-09] Advancing SDGs through inclusive partnerships II: Engaging with communities

convener: Hidenroi Nakamura (Toyama Prefectural University), Vincent Tong (University College London), Mika Shimizu (Kyoto University), Fumiko Noguchi (United Nations University, Institute for the Advanced Study of Sustainability), Chairperson: Hidenroi Nakamura (Toyama Prefectural University), Vincent Tong (University College London), Fumiko Noguchi (United Nations University, Institute for the Advanced Study of Sustainability), Mika Shimizu (Kyoto University)



Sustainable Development Goals (SDGs) provide a comprehensive framework underpinning a wide range of interdisciplinary initiatives in Earth Sciences. With interconnected objectives and impact across natural, social and human sciences, inclusive partnerships between academics, students, citizens, industry, businesses and other stakeholders are critical to the success of these initiatives. Such partnerships involving academics and students across all types of higher education institutions and high schools have profound impact on the local communities across Japan. In this session, we examine the significance of inclusive partnerships in SDG-aligned research, outreach and education initiatives in Japan. We will focus on ways to engage with local communities and the wider Japanese society, including marginalised individuals and groups. We welcome contributions based on i) critical reflections on research and education projects from the perspectives of academics, students and non-academic partners, ii) theoretical examination of the nature of inclusive partnerships in the Japanese cultural contexts, and iii) evidencing impact of inclusive practices in SDG initiatives.

3:30 PM - 3:45 PM JST | 6:30 AM - 6:45 AM UTC

[U09-01] Rethinking ESD from local community perspectives 'Inclusive' and 'Participatory' process making and Education for Sustainable Development (ESD)

*Fumiko Noguchi¹, Takako Takano² (1. United Nations University, Institute for the Advanced Study of Sustainability (UNU-IAS), 2. Waseda University / ECOPLUS)

3:45 PM - 4:00 PM JST | 6:45 AM - 7:00 AM UTC

[U09-02] The Problem of Marine Litter in Tobishima, Sakata City, Yamagata Prefecture, and the Development of Automatic Transportation and Collection Robot by the Industry-Academia-Private Collaboration

*Jun Sonoda¹, Ryuma Saito¹, Tomoki Ishii², Yasunori Endo³, Tsukasa Sato⁴, Tomoya Matsumoto⁵, Hikari Ogawa⁵ (1. National Institute of Technology, Sendai College, 2. Ishii Manufacturing Co., Ltd., 3. Dardit Co., Ltd., 4. National Institute of Technology, Tsuruoka College, 5. Tobishima Co., Ltd.)

4:00 PM - 4:15 PM JST | 7:00 AM - 7:15 AM UTC

[U09-03] Volcano disaster management for local community based on clinical environmental studies

★Invited Papers

*Masae HORII¹, Koshun Yamaoka² (1. Graduate School of Environmental Studies, Nagoya University, 2. Earthquake and Volcano study Research Center, Graduate School of Environmental Studies, Nagoya University)

4:15 PM - 4:30 PM JST | 7:15 AM - 7:30 AM UTC

[U09-04] Way of life after the On-site Research Training: How to fly over imaginary barriers and how to invite your serendipity

★Invited Papers

*Hiroto Nagai¹ (1. Waseda Univ., School of Education)

4:30 PM - 4:45 PM JST | 7:30 AM - 7:45 AM UTC

[U09-05] Applying Resilience Approach to SDGs: Through Cases of Community Disaster Risk Management

*Mika Shimizu¹, Tsuchida Ryo¹ (1.Kyoto University)

4:45 PM - 5:00 PM JST | 7:45 AM - 8:00 AM UTC

[U09-06] Student-led collaborative action with community stakeholders and SDGs

★Invited Papers

*Ryota Yamaura¹, Maki Watanabe¹, Misaki Suzuki¹, Yuw Kamimura¹ (1.Municipal University Corporation Toyama Prefectural University)

Rethinking ESD from local community perspectives ‘Inclusive’ and ‘Participatory’ process making and Education for Sustainable Development (ESD)

*Fumiko Noguchi¹, Takako Takano²

1. United Nations University, Institute for the Advanced Study of Sustainability (UNU-IAS), 2. Waseda University / ECOPLUS

The root causes of the sustainability problems that we face in everyday life at local community level, have complex interlinkages across different sectors and fields. Holistic approach is required for the fundamental solution. This is why making inter-linkage between the goals and targets holds the key to achieving 2030 Agenda (UN, 2018). In this regard, multi-stakeholder partnership holds the key to success. Multi-stakeholder partnership is the process of mutual learning and actions where diverse stakeholders such as policy makers, academics, NGOs, residents and marginalised groups, bring their knowledge and experience to create a new knowledge and work together for local sustainability.

In this process, it should be noted that knowledge that they share is not singular. There are multiple knowledges including not only modern/scientific knowledge of experts, but also diverse local knowledges of stakeholders such as indigenous, ethnic, elderly, women, sexual minorities, children, traditional, people with disability. The approach to learning the local knowledges is also diverse, involving the experience based, hands-on and contextualised. Local knowledges are different in its nature from the modern scientific knowledge; the modern/scientific knowledge can be deductive, logical, conceptual, verbal and explicit, while the local knowledges can be inductive, experiential, contextual, tacit and implicit. These knowledges and the ways of learning are identified, highlighted or overlooked and trivialized in policy, practice and research, in a very complex relationship to modern values and way of thinking that often puts superiority in modern knowledge, modern approach to learning, and its knowledge holders (often those who are called experts) to the others.

Education for Sustainable Development (ESD), which is addressed in SDGs Target 4.7, is the interplay between the empowerment and participation of multistakeholders and their active collaboration and action for social transformation. The role of ESD in SDGs is neither just one of the 17 Goals nor one of the 169 Targets. As clearly stated in ESD for 2030, which will be launched in 2021 and led by the United Nations Educational, Scientific and Cultural Organization (UNESCO), ESD is “an integral element of the SDGs on quality education and a key enabler of all the other SDGs” (UNESCO, 2019). ESD provides the framework for developing critical and contextualized understanding of the efforts for sustainable community development by raising questions on the inter-linkages and tensions among different SDGs (UNESCO, 2017).

This presentation investigates how the inclusive and participatory process can be created when the multi-stakeholders are working tougher for local sustainability, and how the process aligns with the policy making process for SDGs, through a dialogue of co-authors. Takano and Noguchi have committed to working with diverse local community stakeholders, bridging the multiple gaps between local and global; rural and urban; human and nature; modern and local/traditional and indigenous; and policy, research and practice across the world. Takano provides some insights based on her extensive experience leading research and NGO practice with local communities on the learning and knowledge creation process in the

multistakeholders partnership. Noguchi facilitates the discussion, aligning key discussions with the global SDGs and ESD policies, emphasising the importance of creating a participatory and collaborative process for policy making.

UN. (2015). *Transforming our world: the 2030 Agenda for Sustainable Development (A/RES/70/1)*. United Nations.

UN. (2018). *The Sustainable Development Goals Report 2018*. NY, USA. United Nations.

UNESCO. (2017). *Education for Sustainable Development Goals: Learning Objectives*. Paris, France.

UNESCO

UNESCO. (2019). *Framework for the Implementation of Education for Sustainable Development (ESD) beyond 2019 (40 C/23)*. Paris, France. UNESCO

Keywords: Multi-stakeholder partnership, Community empowerment, Local Knowledge, Education for Sustainable Development (ESD)

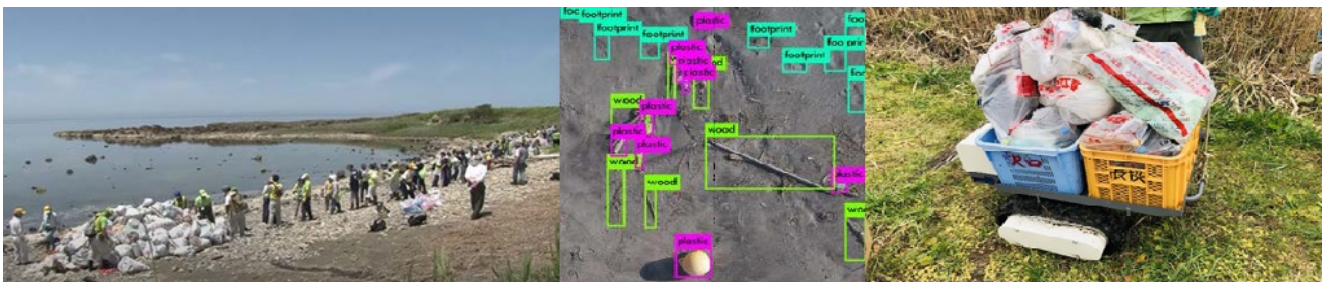
The Problem of Marine Litter in Tobishima, Sakata City, Yamagata Prefecture, and the Development of Automatic Transportation and Collection Robot by the Industry-Academia-Private Collaboration

*Jun Sonoda¹, Ryuma Saito¹, Tomoki Ishii², Yasunori Endo³, Tsukasa Sato⁴, Tomoya Matsumoto⁵, Hikari Ogawa⁵

1. National Institute of Technology, Sendai College, 2. Ishii Manufacturing Co., Ltd., 3. Dardit Co., Ltd., 4. National Institute of Technology, Tsuruoka College, 5. Tobishima Co., Ltd.

Marine litter, like microplastics, has become a social problem not only in Japan but also in the world and is included in Goal 14, "Protect the richness of the sea," of the SDGs set by the United Nations. For example, in Tobishima Island, Sakata City, Yamagata Prefecture, much marine litter drifts ashore. In the past, the islanders collected it for use as fuel, but with the spread of gas and the increase of plastic in recent years, the islanders no longer collect it for use as fuel. However, due to the spread of gas in recent years and the increase of plastics, the islanders' collection for fuel use is no longer carried out. Therefore, a manual collection project has been carried out every year. However, due to the new corona infection's influence, it could not be carried out, and marine litter was left as it was, which has become an environmental problem. To solve marine litter in Tobishima, we are developing an automatic marine litter transportation and collection robot using AI and automated driving technology in collaboration with organizations working on this problem in Tobishima, researchers in various fields, and companies (TECH ISLAND). This problem occurs in Tobishima Island and other remote islands and coastal areas in Japan. This research can contribute to the realization of a sustainable society by automatically collecting marine litter, which is expected to become difficult to collect in the corona disaster and a society with a declining and aging population, with a small number of people low cost.

Keywords: Marine litter, Local issues, Industry-Academia-Private Collaboration, TECH ISLAND conception, Transportation and collection and robots, AI and Automatic driving



Volcano disaster management for local community based on clinical environmental studies

*Masae HORII¹, Koshun Yamaoka²

1. Graduate School of Environmental Studies, Nagoya University, 2. Earthquake and Volcano study Research Center, Graduate School of Environmental Studies, Nagoya University

From 2015 to 2017, we have carried out the project "Development of problem-solution methods in volcano disaster management as a methodological application of clinical environmental studies (clinical volcano disaster management)"* (1-4). In this presentation, we will present the outline and results, and the subsequent efforts.

Clinical environmental studies are proposed mainly by researchers at Nagoya University as an ideal way of environmental science in collaboration with society (5). In order to deal with complex problems such as environmental problems and sustainability, it is necessary to build a system that consistently performs all "clinical" process from "diagnosis" to "treatment", and inter-disciplinary collaboration. In addition, in order to "treat" for problem-solution, it is necessary to collaborate with various stakeholders in the local community, and trans-disciplinary (social cooperation) practice is required. They proposed "Clinical environmental studies" in which researchers are consistently involved in society from "diagnosis" to "treatment" .

The clinical volcano disaster management project is an application of clinical environmental studies to volcanic disaster management. Volcano eruptions are less frequent than other natural disasters and the damage is limited. In addition, each volcano has various characters, for example the potential eruption damage and eruption frequency. With the eruption of Mt. Ontake on September 27, 2014, which killed a large number of climbers at volcanoes with relatively low activity, disaster management is reviewed by the government.

The project targets Mt. Ontake, Mt. Yake-dake (Gifu / Nagano Prefecture border), and Mt. Haku-san (Gifu / Ishikawa Prefecture border) volcano area. Core-members of the project are from Crisis Management Policy Division of Gifu prefecture, Nagano prefecture and Ishikawa prefecture, researchers in Nagoya University, Kyoto University, and Kanazawa University. The Volcanic Disaster Prevention Council, which is responsible for volcanic disaster prevention in volcanic areas, is related to many institutions. It is difficult for many of participants to have sufficient discussions at formal meetings. In the project, with the aim of creating a "Ba (a shared time and space for emerging relationships among individuals and groups to create knowledge)" for the development of volcanic disaster management, we held study meetings and workshops with core-members and participants in Volcanic Disaster management Councils and stakeholders such as tourist operators and residents. The themes of the study meeting are the eruption history of each volcano, tourism and disaster management, etc., reflecting interests of core-members. Different from the official meeting, the workshop was held in a group work format of 7-8 people to facilitate dialogue.

As a result of verifying the effects of these meetings and workshops at the end of the project, participants in workshop can exchange opinions frankly from an individual standpoint and build a face-to-face relationship. Even after the project is completed, the Gifu Prefecture Crisis Management Policy Division plays a central role in holding discussion meetings with core members and on-site inspections of other

areas once a year. At Mt. Ontake area, Kiso Ontake Volcano Observatory, Nagoya University was established to meet the need to strengthen the observation system on Mt. Ontake, and the Volcano Meister System was established to meet the need for a leader in volcanic disaster management education. At Mt Yake-dake area, Gifu Prefecture Crisis Management Policy Division held a workshop for local residents. At Mt. Haku-san area, researchers in Kanazawa University lectures volcanic disaster management for elementary school students in local area.

* This research was funded by the Research Project to Support Regional Disaster Management of Ministry of Education, Culture, Sports, Science and Technology, Japan.

(1) https://all-bosai.jp/chiiki_pj/index.php?gid=10116

(2) Nakamura H., Yamaoka, K., Horii, M. (2017) Rinsho kazan bosai-gaku no kokoromi, Chiri, 62, 25-31. (in Japanese)

(3) Yamaoka, K. (2018) Genba kara kangaeru Rinsho kazan bosai-gaku, Gakujutsu no Doko, 23(3), 88-90. (in Japanese)

(4) Nakamura, H., Yamaoka, K., Horii, M., Miyamae, R. (2019) An Approach to Volcano Disaster Resilience and Governance: Action Research in Japan in the aftermath of Mt. Ontake Eruption, Journal of Disaster Research, 14, 829-842.

(5) Watanabe, S., Nakatsuka, T., Ou, T. (2014) Rinsho Kankyo-gaku, Nagoyadaigaku Shuppankai, pp. 318. (in Japanese)

Keywords: local community, volcano disaster management, trans-disciplinary

Way of life after the On-site Research Training: How to fly over imaginary barriers and how to invite your serendipity

*Hiroto Nagai¹

1. Waseda Univ., School of Education

Most of Ph.D. candidates would only train scholarly thinking in graduate school. In addition to this, by repeating training to freely adjust scholarly thinking, educator thinking, and managerial thinking, you will be able to obtain your own balanced “blue ocean”. In this presentation, I would like to discuss whether it is possible to establish an educational program and/or training service for early-career scientists after obtaining Ph.D., based on findings in the on-site research training carried out at Nagoya University (2009-2013).

Keywords: On-site research training, SDGs, Ph.D. career path

Applying Resilience Approach to SDGs: Through Cases of Community Disaster Risk Management

*Mika Shimizu¹, Tsuchida Ryo¹

1. Kyoto University

Extreme complex challenges are converged in SDGs. Especially in a modern risks society with complexity and uncertainty, "how to" address those challenges holds a key. With this background, resilience approach built upon resilience thinking with systems approach 1) have been applied to SDGs to seek for how to shape systemic approach for SDGs, and 2) relevant education and practices have been tackled. In this presentation, by introducing resilience approach and related research/education/practical activities, community disaster risk management cases through the response and recovery in flood-prone areas in Sri Lanka will be focused to demonstrate how resilience approach and practices are linked (or disilinked). With this effects of inclusive activities for SDGs will be drawn.

Keywords: SDGs, Resilience, Disaster Risk Management, Community

Student-led collaborative action with community stakeholders and SDGs

*Ryota Yamaura¹, Maki Watanabe¹, Misaki Suzuki¹, Yuw Kamimura¹

1. Municipal University Corporation Toyama Prefectural University

COCOS, or Center of Community Operating System, is student group at Toyama Prefectural University, Japan, founded in April 2014 when TPU was appointed as COC by Japanese Ministry of Education, Science, Technology, Culture and Sports. COCOS serves as student-led project formulation and management for solving community problems and promoting attractiveness of Toyama prefecture. This presentation introduces the cases of student-led collaborative actions with community stakeholders. In doing so, we put ideas for JpGU community members regarding student-staff partnership and university-community collaboration in SDGs era. The case includes collaborative work with Nanto city, Toyama prefecture, one of the SDGs Future Cities appointed by the Japanese national government. We discuss the impacts of engaging collaborative action with local partners on university students. We argue that equal partnership between students and staffs (teachers and University Education Administrators) in community engagement would lead to better relationship development between local community and university.

Keywords: Community engagement, Local collaboration, Student-staff partnership, Project based learning

[J] Oral | EVENT : EVENT

📅 Tue. Jun 1, 2021 10:45 AM - 12:15 PM JST | Tue. Jun 1, 2021 1:45 AM - 3:15 AM UTC | 🏠 Ch.01 Zoom Room 01

[EV-03] Awards Ceremony

[Contents]

Award Ceremony for

Japan Geoscience Union Scientific Award "Miyake Prize,"

Award Ceremony for The 4th Nishida Prize for Promotion of Geo- and Planetary Science

Introduction of The Asahiko Taira International Scientific Ocean Drilling Research Prize recipients

The ceremony will be followed by presentations of the JpGU 30th Anniversary Distinguished Service Certificates

We will have live comments from the award winners, and we look forward to your participation.

10:45 AM - 12:15 PM JST | 1:45 AM - 3:15 AM UTC

[E-11-03] Japan Geoscience Union Fellow Award Ceremony for FY2020 and FY2021

[J] Oral | EVENT | EVENT

[EV-03] Awards Ceremony

Tue. Jun 1, 2021 10:45 AM - 12:15 PM Ch.01 (Zoom Room 01)

[Contents]

Award Ceremony for

Japan Geoscience Union Scientific Award "Miyake Prize,"

Award Ceremony for The 4th Nishida Prize for Promotion of Geo- and Planetary Science

Introduction of The Asahiko Taira International Scientific Ocean Drilling Research Prize recipients

The ceremony will be followed by presentations of the JpGU 30th Anniversary Distinguished Service Certificates

We will have live comments from the award winners, and we look forward to your participation.

10:45 AM - 12:15 PM

[E-11-03]Japan Geoscience Union Fellow Award Ceremony for FY2020 and FY2021

Japan Geoscience Union Fellow Award Ceremony for FY2020 and FY2021

[J] Oral | EVENT : EVENT

📅 Tue. Jun 1, 2021 12:30 PM - 1:30 PM JST | Tue. Jun 1, 2021 3:30 AM - 4:30 AM UTC | 🏠 Ch.01 Zoom Room 01

[EV-04] Exhibitors' Pop-Up

New for 2021 Meeting !

Exhibitors will introduce the highlights of their organizations and exhibits in about one minute in real time. Exhibitors will be given one minute to introduce their organization and exhibit highlights in real time.

This is a great chance to meet unexpected exhibitors and find information you never knew
There will be an exchange with the moderator, and you may be able to hear things you can't hear anywhere else.

12:30 PM - 1:30 PM JST | 3:30 AM - 4:30 AM UTC

[E-11-04] Exhibitors' Pop-Up

[J] Oral | EVENT | EVENT

[EV-04] Exhibitors' Pop-Up

Tue. Jun 1, 2021 12:30 PM - 1:30 PM Ch.01 (Zoom Room 01)

New for 2021 Meeting !

Exhibitors will introduce the highlights of their organizations and exhibits in about one minute in real time. Exhibitors will be given one minute to introduce their organization and exhibit highlights in real time.

This is a great chance to meet unexpected exhibitors and find information you never knew

There will be an exchange with the moderator, and you may be able to hear things you can't hear anywhere else.

12:30 PM - 1:30 PM

[E-11-04]Exhibitors' Pop-Up

Exhibitors' Pop-Up