

- Promotion and Cooperation of Future Earth Committee
- FE-WCRP Joint Subcommittee
- Mini-committees corresponding to GRNs (GLP, IGAC, iLEAPS, IMBeR, PAGES, and SOLAS)
- Human Dimension Subcommittee

Science Council of Japan

- Represents and involves stakeholders from across sectors
 - Promotes Future Earth initiatives in Japan
 - Consortium of 40 organizations → 
- Contact: fejapancommittee@gmail.com

Governing Council members

Yukari Takamura
Vice President, Science Council of Japan

Taikan Oki
Special Advisor to the President, Professor, The University of Tokyo

Global Hub Director - Japan
Fumiko Kasuga
Senior Fellow, National Institute for Environmental Studies

Japan Committee Co-chairs

Tetsuzo Yasunari
Professor Emeritus, Research Institute for Humanity and Nature

Yuriko Yamamoto
Secretary General, AEON Environmental Foundation

Japan Committee Members

Italic: Steering Committee, blue: Hub funders

20 Universities (Includes participation by units within universities.)

Chiba University, Chubu University, Hiroshima University, *Hokkaido University*, Hokkaido University of Education, Ibaraki University, *Keio University*, Kochi University of Technology, Kyoto University, Kyushu University, Mie University, *Nagasaki University*, Nagoya City University, *Nagoya University*, National Graduate Institute for Policy Studies, Tohoku University, Tottori University, United Nations University, University of the Ryukyus, *The University of Tokyo*

8 NPOs and others

Malaria No More Japan, Remote Sensing Technology Center of Japan, 4Revs, CSO Network Japan, Global Compact Network Japan, ICLIEI Japan, Japan Civil Society Network on SDGs, National Museum of Emerging Science and Innovation

5 Research institutes

Japan Aerospace Exploration Agency, *Japan Agency for Marine-Earth Science and Technology*, *National Institute for Environmental Studies*, Institute for Global Environmental Strategies, *Research Institute for Humanity and Nature*

4 from private sectors

AEON Environmental Foundation, Kao Corporation, LUCKY Fountain, Saraya Co.,Ltd

3 from Government

Japan Science and Technology Agency, *Ministry of Education, Culture, Sports, Science and Technology*, Science Council of Japan

GRN Offices & SSC members in Japan

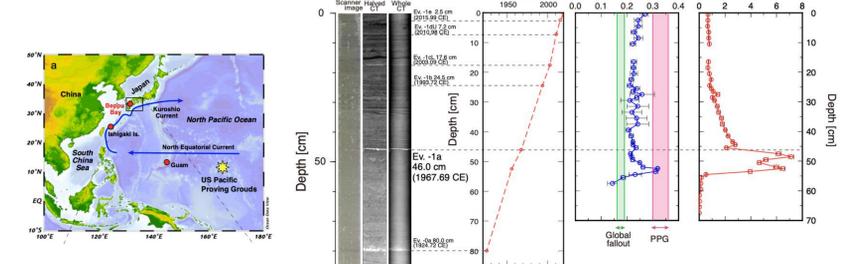
- GRN Office
- Science Steering Committee
- GRN National Committee



Recent Research Accomplishments by Future Earth Community in Japan

Long-term climate change analysis

Trace plutonium isotope signatures in geological samples in Japan mark start of Anthropocene



- Trace amount of plutonium isotopes in marine sediments from Beppu Bay, Japan captures precise timing of the Anthropocene
- Precise measurements of radiocarbon in corals record 1950s nuclear bomb tests
- No measure changes in Pu isotopes were found associated with Fukushima Nuclear Power Plant accident
- These support Beppu Bay sediment as one of the best archive to record Anthropocene

Yokoyama et al. (2022) *Scientific Reports*



Collaboration with society



Future Earth Japan Summit

The aim of The Summit was to discuss Future Earth's role in solving societal challenges in the Anthropocene. More than 200 people from various sectors attended. After having two presentations from prominent experts, every participant shared their thoughts to develop a common awareness and visions for a desirable society. Next, they explored "how" our society can create societal system change and transitions as well as Future Earth's role towards sustainability. (March 2022)



Dialogue for SDGs target setting

Collaboration with private sector - an attempt to facilitate dialogues for setting national SDGs-Targets in Japan, working together with AEON Environmental Foundation, Keio University, Global Compact Network Japan, youth and experts. Since January 2022, four dialogue meetings have been held for target setting on SDG #12, and the outcomes have been introduced into governmental pathways for promoting SDGs.



Dialogue between Finance and Academia

The National Institute for Environmental Studies, major banks, insurance companies, and relevant ministries and agencies, etc. held a series of workshops to discuss necessary actions for decarbonization (November 2021). The Report from the Workshops provided input to the Stockholm+50.



Future of Washing initiative

In partnership with Kao Corporation, the initiative aims to discuss global sustainable life, using washing as an entry point and by sharing knowledge, with dialogue among the private, academic and public sectors.

Capacity building



Transdisciplinarity for Early career Researchers in Asia School (TERRA School)

- short term intensive course · 50+ young researchers, 10+ countries in Asia · transdisciplinary research tools and methods · collaboration and networking · seeding ideas for research to address sustainability issues · hosted by Research Institute for Humanity and Nature and Future Earth Global Hub Japan

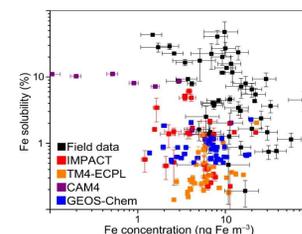
Ocean and Global Environment

Selected Achievement of SOLAS Japan



From the Atmosphere to the Ocean Surface

Deposition of bioavailable iron (Fe) can partially control biological productivity in the ocean.

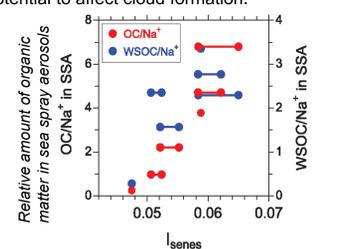


A statistical analysis of aerosol Fe solubility estimated by both models and observations suggested that pyrogenic aerosols are the main sources of Fe aerosols with high Fe solubility at low concentration.

Ito et al., *Science Advances*, (2019).

From the Ocean Surface to the Atmosphere

Quantitative understanding of the amount of organic matter in sea spray aerosols (SSAs) is essential for estimating their potential to affect cloud formation.



Senescent status in marine phytoplankton was suggested to control organic mass enrichment in sea spray aerosols.

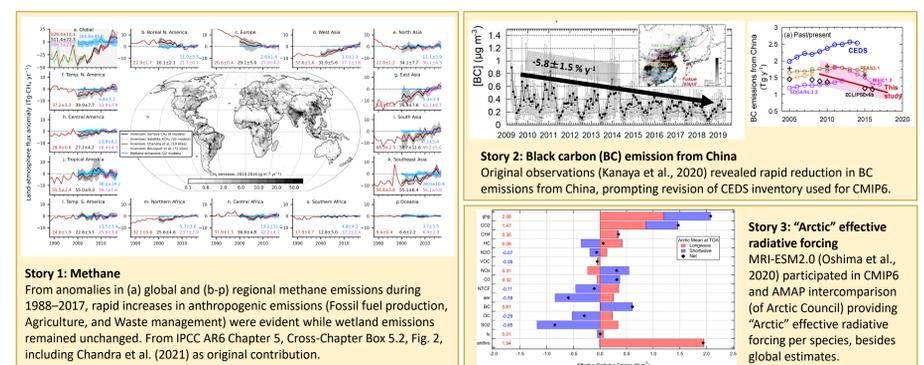
Miyazaki et al., *Scientific Reports*, (2020).

Atmospheric chemistry

IGAC-Japan: International Global Atmospheric Chemistry Project



We aim systematic understanding of natural and human-related processes, driving changes in the atmospheric composition and properties, and provide scientific evidence to solve global atmospheric environment issues such as global warming and air pollution.



Story 1: Methane
From anomalies in (a) global and (b-p) regional methane emissions during 1988-2017, rapid increases in anthropogenic emissions (Fossil fuel production, Agriculture, and Waste management) were evident while wetland emissions remained unchanged. From IPCC AR6 Chapter 5, Cross-Chapter Box 5.2, Fig. 2, including Chandra et al. (2021) as original contribution.

Story 2: Black carbon (BC) emission from China
Original observations (Kanaya et al., 2020) revealed rapid reduction in BC emissions from China, prompting revision of CEDS inventory used for CMIP6.

Story 3: "Arctic" effective radiative forcing
MRI-ESM2.0 (Oshima et al., 2020) participated in CMIP6 and AMAP intercomparison (of Arctic Council) providing "Arctic" effective radiative forcing per species, besides global estimates.