Preliminary summary and to be corrected
Please send your correction to
tsumune@criepi.denken.or.jp

GI2.8
Geoscience problems related to massive release of radioactive materials by nuclear accidents and other human activities
Co-organized by AS4/BG1/ERE4/GM12/NH9
Convener: Daisuke Tsumune | Co-conveners: Nikolaos Evangeliou, Yasunori Igarashi(ECS), Liudmila Kolmykova(ECS), Masatoshi Yamauchi

D638 |EGU2020-10066   Mykola Talerko et al
Radionuclide atmospheric transport after the forest fires in the Chernobyl Exclusion zone in 2015-2018: An impact of the source term parameterization and input meteorological data on modeling results
Mykola Talerko, Ivan Kovalets, Shigekazu Hirao, Mark Zheleznyak, Yuriy Kyrylenko, Tatiana Lev, Vladimir Bogorad, and Serhii Kireev
As a step toward real-time warning of re-suspended radionuclide transport due to wild fire, the dispersion models are tested to wild fire events since 2015, including the best choice of a source term.

D639 |EGU2020-15257   Joffrey Dumont Le Brazidec et al
Bayesian inference and uncertainty quantification for source reconstruction of radionuclides release: application to recent European radionuclide detection events
Joffrey Dumont Le Brazidec, Marc Bocquet, Olivier Saunier, and Yelva Roustan
Enhanced inversion method to estimate the source from remote observation is applied on Ru-106 detection   in October 2017.   We propose several approaches to improve evaluation of the uncertainties.

D640 | EGU2020-233   Sheng Fang et al
Release rate estimation of both long- and short-lived radionuclides for the Fukushima Daiichi nuclear accident based on local-scale observations
Sheng Fang, Xinpeng Li, and Shuhan Zhuang
Their inversion model now includes observations at the source region (as the source term). This improves fall-out calculation for both local and regional scale

D642 | EGU2020-233   Elena Korobova et al

A study of Cs-137 and Sr-90 distribution in the soil and vegetation cover of elementary landscape-geochemical systems in the zone of the East Ural Radioactive Trace

Elena Korobova, Sergey Romanov, Oleg Tarasov, Vladimir Baranchukov, Victor Berezkin, Denis Dolgushin, Lyudmila Mikhailovskaya, Makar Modorov, and Vitaly Lukyanov

Examined whether local (soil-level horizontal) transport of C-137 and Sr-90 is in a consistent manner (one-way) on 3% slop landscape, but the result is more complicated on the depth distribution.

D643 | EGU2020-2252   Misa Yasumiishi et al   ECS

Predicting Cs-137 Distribution Patterns from Soil Samples - The Relationships Between Topographic Parameters, Soil Properties, and Cs-137 Concentration Levels

Misa Yasumiishi, Taku Nishimura, Thomas Bittner, Jared Aldstadt, and Sean Bennett

Using sampling observation of two different year, deduced which property of lands (topographic, soil property) the most important.   Using this result, past contamination level is estimated.

D645 | EGU2020-13220   Yuichi Onda et al (solicited/Highlights)

Temporal changes of the radiocesium activity concentration in river bottom sediment and suspended sediment in Eastern Japan

Yuichi Onda, Chen Tang, Xiang Gao, Yukio Takeuchi, Keisuke Taniguchi, Momo Kurihara, and Katsumi Hirose

Sumarized particle-size collected Cs concentration of bottom sediment samples (MOE, 461 sites), SS samples (30 sites)   around Fukushima affected area, and variation of temporal changes and Kd were analyzed.

D647 | EGU2020-13965   Fumiaki Makino et al   ECS

Effect of decontamination on sediment discharge from mountain stream to river and cesium transfer in Yamakiya district

Fumiaki Makino, Yuichi Onda, Keisuke Taniguchi, Mitbaa Slim, Yoshifumi Wakiyama, Syohei Kozuka, Hiroaki Kato, and Syo Iwagami

Examine the effect of decontamination on sediment discharge from mountain stream to river and cesium transfer in Yamakiya district, and downstream effects takes around 1 year after the upstream downstream decontamination works were conducted.

D648 |EGU2020-12301   Michio Aoyama et al

Mass balance of radiocaesium derived from Fukushima accident and estimation of latest fluxes among atmosphere, land and ocean

Michio Aoyama, Daisuke Tsumune, Yayoi Inomata, and Yutaka Tateda

The movement of 137Cs from one domain to another for several years including decontamination after the Fukushima accident was quantified based on mass balance analysis.

D651 |EGU2020-22136   Yasuhito Igarashi et al

Rain-enhanced/induced bioecological resuspension of radiocaesium in a polluted forest in Fukushima

Yasuhito Igarashi, Kazuyuki Kita, Takashi Kinase, Naho Hayashi, Masahide Ishizuka, Kouji Adachi, Motoo Koitabashi, and Yuichi Onda

Radiocaesium resuspension mechanisms during the warm season in a forest area in Fukushima Pref. was determined. Rain enhanced/induced bioaerosol resuspension.

D652 |EGU2020-12465   Hikaru Iida et al   ECS

Effects of stemflow on infiltration flux of rainwater and dissolved Cs-137 to forest soil

Hikaru Iida, Hiroaki Kato, Tomoki Shinozuka, Satoru Akaiwa, Tatsuya Yokoyama, Sean Hudson, Janice Hudson, and Yuichi Onda

Enhanced inversion method to estimate the source from remote observation is applied on Ru-106 detection in October 2017.   We propose several approaches to improve evaluation of the uncertainties.

D656 |EGU2020-19250   Mark Zheleznyak et al

Distributed modeling of radionuclide washing out from the watersheds in solute and with suspended sediments: case studies Abukuma River, Fukushima Prefecture and Pripyat - Dnieper river system, Ukraine

Mark Zheleznyak, Oleksandr Pylypenko, Sergii Kivva, Kazuyuki Sakuma, Yasunori Igarashi, Yoshifumi Wakiyama, Aleksey Konoplev, and Kenji Nanba

A comparative study was carried out by applying a river Cs model to Chernobyl and Fukushima. The flood events in 2018 and 2019 at the Abukuma river were also examined.

D657 |EGU2020-12477   Yoshifumi Wakiyama et al

Plot-scale wash-off of Cesium-137 and Strontium-90 after three decades since the Chernobyl accident

Yoshifumi Wakiyama, Yasunori Igarashi, Yuichi Onda, Dmitry Samoilov, Hlib Lisovy,

Volodymyr Demianovych, Gennady Laptev, Alexei Konoplev, Kenji Nanba, and Serhii Kirieiev

Field observations of surface wash-off were made at Chernobyl. Wash-off rates and normalized concentrations tended to be higher at the post-fire site than in the undisturbed forest site.

D660 |EGU2020-3175   Michio Aoyama et al

Long range transport of radiocaesium derived from global fallout and the Fukushima accident in the ocean interior of the Pacific Ocean since 1960s through 2017

Michio Aoyama, Yasunori Hamajima, Yayoi Inomata, Hideki Kaeriyama, Yuichiro Kumamoto, Toshiya Nakano, and Eitaro Oka

A long term history of 137Cs in the North Pacific was summarized since the 1960s. Key processes of transport of radiocaesium in the ocean interior were the formation of CMW and STMW by subduction.

D661 |EGU2020-11813   Yayoi Inomata and Michio Aoyama

Analysis of 60-yr record of surface 137Cs concentrations in the global ocean

Yayoi Inomata and Michio Aoyama

Temporal change of 137Cs concentrations in the global database was analyzed. 137Cs activity concentrations were exponentially decreased. In the North Pacific Ocean, the decreasing rate was rapid until 1990s, that was decreased after 2000s.

D662 |EGU2020-12627   Daisuke Tsumune et al

Comparison of 137Cs activity between an ocean general circulation model and the global database

Daisuke Tsumune, Frank Bryan, Keith Lindsay, Kazuhiro Misumi, Takaki Tsubono, Yayoi Inomata, and Michio Aoyama

[137]Cs activity derived from the atmospheric weapons tests by an OGCM from 1945 to 2010 was simulated by new deposition data. Simulation provided useful information to understand the phenomena in the interpretation of sparse observed database.

D664 |EGU2020-21319   Susumu Yamada et al (Masahiko Machida)

Analysis of temporal variations of Cs-137 discharge inventory from the port of Fukushima Daiichi Nuclear Power Plant over 9 years after the accident

Susumu Yamada, Masahiko Machida, Ayako Iwata, Shigeyoshi Otosaka, Takuya Kobayashi, Masahisa Watanabe, Hideyuki Funasaka, and Takami Morita

Cs-137 discharge inventory from 1F port over 9 years after the accidents was estimated using the averaged Cs-137 concentration in the port and exchange rate of the port. 1F port discharge inventory has significantly decreased.

D665 |EGU2020-6987   Hikaru Miura et al   ECS
Discovery of radiocesium-bearing microparticles from ocean samples emitted from the Fukushima Daiichi Nuclear Power Plant accident
Hikaru Miura, Takashi Ishimaru, Yukari Ito, Jota Kanda, Atsushi Kubo, Shigeyoshi Otosaka, Yuichi Kurihara, Daisuke Tsumune, and Yoshio Takahashi
Radiocesium-bearing microparticles (CsMPs) from ocean were separated and analyzed. These CsMPs were classified in Type-A particles from Unit 2 or 3 of the Fukushima Daiichi Nuclear Power

Closing remark
We had fruitful discussion with maximum 54 active users in our live chat.
We hope to have session next year, 35 years after Chernobyl accident, 10 years after Fukushima accident.