
[JJ] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-CG Complex & General

[A-CG42]Coastal Ecosystems - 1. Water Cycle and Land-Ocean Interactions

convener:Ryo Sugimoto(Faculty of Marine Biosciences, Fukui Prefectural University), Jun Shoji(Hiroshima University), Makoto Yamada(龍谷大学経済学部, 共同), Masahiko Fujii(Faculty of Environmental Earth Science)

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Substances from land which are brought by river and/or submarine groundwater discharge are important for the process of biological production in coastal areas. This session focuses on land-ocean interactions through water cycle. The aim of this session is to create interdisciplinary discussions on the research of connectivity of ecosystems, water cycles in terrestrial and coastal areas, fishery resources and biodiversity. Comprehensive discussion on the mechanisms that promote productivity and biodiversity in coastal ecosystems will be made from the viewpoint of land-ocean interactions. Presentations on water-material cycle in terrestrial and coastal areas, fishery resources, biodiversity and connectivity of the ecosystems are encouraged.

A companion session proposed as "Coastal Ecosystems - 2. Coral reefs, seagrass meadows, and mangroves" focuses on benthic communities in shallow-water ecosystems such as coral reefs, seagrass meadows and mangroves and is dedicated to promote researches on comprehensive assessment and monitoring of ecosystem functions and development of effective means for conservation and restoration. Main focuses of these two sessions are different. However, there are much of information that covers both sessions. Scientists who work on the related field will be able to obtain information and share them with other scientists if they attend to both of these sessions.

[ACG42-P01]Evaluation of the influence of terrestrial organic matter on tideland surface layer by analysis of humic acid fraction in coastal sediment of northern tidelands of the Ariake Sea

Younosuke Kurokawa¹, *Noriaki YAMAUCHI² (1.Department of Earth and Planetary Sciences, Graduate School of Science, Kyushu University, 2.Department of Earth and Planetary Sciences, Faculty of Sciences, Kyushu University)

Keywords:humic acid, Ariake Sea, isotope ratio, atomic ratio, multivariate analysis

Most of the organic matter in the sediment is a macromolecular compound called humic substances. This is made of various substances of biological origin. It has different structure depending on the origin. Among them, humic acid fraction is often used for environmental assessment from the ease of extraction process[1].

Recently, in northern Ariake Sea, the observations of decrease of counterclockwise current were reported. Therefore, the changing in circulation of organic material may be occurred it the influence the surrounding environment at the surface area of the tideland. So, in this research, the environmental characteristics of the northern Ariake Sea in terms of circulation of organic matter by researching the structural characteristic of humic acid was investigated.

Tideland sediments were collected at four locations in the northern Ariake Sea. Humic acid fractions were extracted and isolated according to the IHSS soil humic acid extraction method. For chemical analysis, elemental analysis, UV-vis spectroscopy, stable isotope ($\delta^{13}\text{C}$ and $\delta^{15}\text{N}$) analysis and

phenolic hydroxyl group concentration measurement were conducted. These data have slight difference as each sample, differences between each sample were estimated by the statistical analysis. Several characteristics of 2-D plot of each corresponding analytical value shows the correlation of each data such as atomic ratio H/C and delta 13C value. Principal component analysis picked up 5 data among the third principal component (up to the 90%). Cluster analysis of these five chemical analysis data shows the sample group was divided into mainly two clusters. Samples of HA (Hayatsue point, the eastern part, near Ariake river mouth) and TR(Tara point, the western part) were classified into different clusters. Further, each sample were classified reflecting the direction generally corresponding to the counterclockwise current. Clustering in the research seems to be classified from the viewpoint of the influence of terrestrial humic acid contained in marine humic acid, which seems to reflect the influence of organic matter transported from the Chikugo River. Thus, the influence of terrestrial organic matter can be transmitted by circulating counterclockwise circulation flow, affecting composition of organic matter and biological environment.

[1] Moreda-Pineiro et al., *Chemosphere*, **64**, 866 (2006). [2] Unoki, *Bulletin of Coastal Oceanography*, **42**, 85 (2004). [3] Yokoyama and Ishihi, *Nippon Suisan Gakkaishi*, **75**, 674 (2009). [4] Fooker and Liebezeit, *Marine Geology*, **164**, 173-181 (2000).