
 [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-P02]Simultaneous observation of the land-ocean connection along the coast of Akahama Otsuchi: Detection of submarine groundwater discharge

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Submarine groundwater discharge (SGD) in the coastal area has been reported throughout the world. It is important to describe the influence on the coastal ecosystem caused by changes in the physical environment such as water temperature, salinity, and any disturbance in the balance of nutrients due to groundwater flow through the seabed. In Akahama Otsuchi, Iwate there are south-flowing groundwater wells near the coastline, likely draining to the bottom of the coastal area. We observed the bottom water temperature and salinity with CTD profilers to detect the presence of SGD in the shallow coastal area around Akahama. Field observations were conducted on February 8, 2017 and October 4, 2017. We measured 37 points in the southeastern area of the well in February, 72 points in the southeastern and southwestern areas in October. We also sampled the bottom water at six points and measured the concentration of radon-222 as a groundwater tracer in October. The temperature of the bottom water was 7.84 to 8.4 °C, and the salinity was 30.79 to 33.91 in February. A slight increase in water

temperature was observed around the point where salinity was lowest. The temperature of the bottom water was 17.24 to 18.5 °C, and the salinity was 33.76 to 33.89 in October. We could not distinguish differences in temperature and salinity of the bottom water. However, there were points with high radon concentrations in the southeast and southwest area. The higher radon concentrations were obtained near the point where the salinity was lowest in February. This suggested the influence of groundwater discharge. In this study, we attempted to detect groundwater discharge utilizing the difference between temperature and salinity of groundwater and sea water, but it was difficult to specify the groundwater discharge area using only CTD observation. It is necessary to carry out more detailed observations (e.g. visual observation and measurement of water temperature and electric conductivity under the seafloor) in the future, based on the groundwater discharge locations suggested by this study.