## Abstract Details

**AOGS 1st Annual Meeting > Interdisciplinary Working Groups > Submarine groundwater d an important source of nutrients in Toyama Bay, central Japan >**

**Corresponding Author :** Prof. Jing ZHANG (jzhang@sci.toyama-u.ac.jp)

**Organization:** Faculty of Science

**Category:** Interdisciplinary Working Groups

**Paper ID:** 57-IWG-A693

**Title:** Submarine groundwater discharge as an important source of nutrien Toyama Bay, central Japan

**Abstract:**

The discharge of freshwater from the seafloor of the continental shel been recognized as an important, direct transport pathway for water other materials between the groundwater system of the adjacent lanc the marine environment. This submarine groundwater discharge (SGI possibly more important than its contribution to the water balance alc would suggest, because at first the concentration of dissolved materia groundwater is greater than that of river water, and furthermore muc riverine dissolved material is removed by colloids in the estuary regio purpose of this study is to clarify, by using geochemical techniques, tl circulation of SGD including its discharge mechanisms, spatio-tempor variability, and impact on the coastal marine ecosystem. Conclusions based on a case study of the Toyama Bay in central Japan. A new tec enables for the first time the collection of a large amount of SGD wat within a depth range 5 m to 33 m without contamination from the surrounding seawater. Based on hydrogen and oxygen isotope compo the SGD samples are found to originate from nearby mountain precip within the altitude range 800 m to 1200 m. From geographic/geologic conditions and tritium data, it is deduced that the SGD flowed throug buried ancient river bed and emerged from the sea floor 10 to 20 yea having entered the underground mountain aquifer. With almost no pr removal, nutrients in the SGD mix upward into the euphotic zone. In summer, nutrients are especially low in middle water depths (5 to 40r depth) because of seawater stratification. However, only near SGD ar relative high chlorophyll concentrations were observed at this ◆nutrie exhausting zone◆, which possibly is interpreted as an origination in t nutrient delivering by SGD. Compared to the riverine flux, the SGD su up 80% of the phosphates and 60% of the nitrates to the coastal mar ecosystem, even though SGD volume flux is only 30% of the river ru Because SGD provides a direct pathway between land and ocean for t natural and anthropogenic dissolved materials, it becomes an urgent clarify the role SGDs play in transporting pollutants of anthropogenic

**Presentation Mode:**

**Keywords:** submarine groundwater discharge, SGD, nutrient, coastal marine ecc