

## Sulfur concentration and isotopic composition in gas-charged marine sediments from the Sea of Okhotsk, off Abashiri

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Gassy sediments have been recovered from the continental slope, approximately 1000m in the Sea of Okhotsk, off Abashiri, Hokkaido, in which gas chimney like structures are identified on the sub-bottom profilers. Geochemical analyses of gas and pore water collected from this area result sulfate-methane interface locating at <1mbsf, indicating very high methane flux and high potential of gas hydrate accumulation near the seafloor. Because oxidation of organic matter in sediments and ascending methane (anaerobic oxidation of methane; AOM), with dissolved sulfate produces hydrogen sulfide in pore water, pyrite can precipitate just below the seafloor. The isotopic composition of sulfur from pyrite, thus, reflects processes of shallow diagenesis associated with sulfate reduction. Variations of sulfur concentration and isotopic composition are useful to characterize geochemical environment in sediments constrained by methane flux. Environmental impact of shallow gas and AOM are discussed in relation with pyrite precipitation.

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