

Distribution and geochemistry of gas seepage on Boso peninsula, Chiba

*yasuha Wakabayashi¹, Hitoshi Tomaru¹

1. Chiba university

Within the area of Southern Kanto gas field in Chiba, with methane concentration of >99%, natural gas seepage is observed widely on land in the central part of Kujukuri plain to Otaki. Such gas has been used as a fuel by local residents, however, it may cause an accidental explosion and agricultural damage. In addition, if the gas is continuously released from the subsurface environment to atmosphere through the seepage, the impacts on the local carbon cycle should be taken into account. In this research, we aim to characterize the source, migration and seep processes of these gases by analyzing their chemical and isotopic compositions. Gas samples were collected from the boundaries between alluvial mudstone and sandstone or Kazusa Group, with a methane concentration generally of >75% and trace amounts of carbon dioxide and ethane with nitrogen from atmosphere. According to the methane/ethane ratio and stable carbon isotopic composition of methane, it is suggested that the majority of methane is of biogenic origin. Together with the stable carbon isotopic composition of carbon dioxide, it is considered that the methane is produced mainly by reduction of carbon dioxide and fermentation of acetate with some contribution of methane oxidation.

Keywords: gas seepage, methane, Boso peninsula