

[JJ] Evening Poster | H (Human Geosciences) | H-QR Quaternary research

[H-QR04]Quaternary, Diachronic dynamics of human-environment interactions

convener:Mamoru Koarai(Earth Science course, College of Science, Ibaraki University), Toshihiko Sugai(Department of Natural Environmental Studies, Institute of Environmental Studies, Graduate School of Frontier Science, The University of Tokyo), Kiyohide Mizuno(国立研究開発法人産業技術総合研究所地質情報研究部門, 共同), Minoru YONEDA(The University Museum, The University of Tokyo)
 Sun. May 20, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
 Humans have attained their specific development by indigenous cultures and evolved through environmental adaptation. The session raises issues of human-environmental interactions, views from diverse changes of climate, ocean, land and biota having made striking influence on humans. It welcomes various fields from human-environment change and their chronometric dating among Quaternary disciplines.

[HQR04-P12]Geological stratigraphy of a drilling core based on analysis of tephras and pollen assemblages in the western part of Aizu Basin, Northeast Japan

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Keywords:Aizu Basin, subsurface stratigraphy, tephra, fossil pollen

1. Introduction

The Fukushima Renewable Energy Institute, AIST (FREA) has surveyed shallow subsurface geological analysis (ca. 100 m depth) in the Aizu basin as part of researches to compile a suitability map for installation of ground source heat pump system. Ishihara et al. (2015, 2016, 2017) reported two all-cores (GS-SOK-1, 175.99 m asl, 130 m depth; GS-AZU-1, 208.36 m asl, 100 m depth) in the eastern margin of the Aizu basin and Suzuki et al. (2016) reported a tephro-stratigraphy of AB-12-2 core drilled in the western margin of the Aizu basin. In this study the authors drilled a new all-core (GS-NT-1, 201.6 m asl, 100 m depth) in the Aizu-Misato town (former Niitsuru village), western part of the Aizu basin and show lithofacies, tephra and fossil pollen stratigraphy.

2. Description of GS-NT-1 core

Lithofacies: In the depth from surface to 30 m, dark grey or green grey silt and sand beds with 1-4 m thickness are dominant. Facies from 30 to 100 m consist of alternating beds of gravel (pebble), and sand and mud with 1-4 m thickness.

Tephra analysis: 5 tephra layers (volcanic glass or pumice sand beds) were detected from GS-NT-1 core on the basis of lithofacies, refractive index, and chemical compositions of volcanic glass shards and heavy minerals: Nm-NM (5.4 ka) in the depth of 2.30 to 3.90 m, AT (30 ka) in 25.58 to 25.62 m, Nm-KN in 38.70 to 38.90 m, TG (129 ka) in 51.90 to 52.20 m, and unnamed tephra in 99.90 to 100.00 m. The unnamed tephra also detected AB-12-2 core with the depth of 99.25 to 99.26 m drilled in the Aizu-Bange town, about 6 km NNW from GS-NT-1 core (Suzuki et al., 2016) and it is below Sn-MT tephra (180-260 ka).

Pollen analysis: 28 muddy sediment samples were collected from GS-NT-1 core for fossil pollen analysis. The Pleistocene-Holocene sediments in the GS-NT-1 core were divided into 11 local pollen assemblage

zones (NT-1, -2…, and -11, in descending order). Pinaceae and *Betula* are dominant in NT-2, -5, and -7 zones and *Fagus* and *Quercus* are detected slightly, indicating that climate in these zones were relatively cool condition. NT-1, -4, -8, -10 zones, by contrast, were relatively warm climate condition because *Fagus* and *Quercus* are relatively dominant.

The authors correlated fossil pollen assemblage zones with Marine isotope stage (MIS) based on tephra ages; NT-1 zone is correlated to MIS 1, NT-2 zone to MIS 2-3, NT-3 and -4 zones to MIS 3, NT-5 zone to MIS 4, NT-6 zone to MIS 5, NT-7 zone to MIS 6, and NT-8 ~ -11 zones to MIS 7, respectively.