

## Environmental changes of prehistoric culture of the Ryukyu, reconstructed by sedimentological studies of Haneji-naikai.

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The beginning of agriculture in Ryukyu Islands goes back to the 10th-12th century (Takamiya and Itoh, 2011). Land clearing for farm lands accelerated soil discharge into water systems in Ryukyu Islands due to heavy rain in summer. In a closed bay, finer-grained clastics can remain sub-merged for long periods, causing adverse effects in fishery.

In this study we will report on the analytical results for sediment cores recovered from Haneji-naikai. Haneji-naikai is a bay closed by the Yagachi and Okubu Islands. Its maximum water depth is 10 m with the area is 10km<sup>2</sup>. The Nasata river flows into the Haneji-naikai. In 2010 and 2012, 3-m and 24-m long sediment cores were recovered from the center of the bay. These were used to reconstruct the past environmental changes and human activities. The latter longer cores consisted of clay and silt with shell fragments from the surface up to the 16-m depth, while the lower part was composed of gravels. The radiocarbon dates of terrestrial plant fragments were 2880±40, 4210±30, 6150±40 and 31680±220 at the depths of 7.42 m, 10.78 m, 14.84 m and 23.90 m, respectively. The cores were subsampled at an interval of 2.3 cm to analyze carbon, nitrogen and sulfur (CNS) contents, magnetic susceptibility and visible color reflectance. It is considered that the Haneji-naikai was dried up around 30000 yr BP probably due to marine regression. The changes in TOC, TN and TS were recognized from 4m in depth, showing drastic decrease from 4m in depth. This suggests that the deforestation induced by agricultural activities have begun since 1000 yr BP in this region.

Keywords: Haneji-naikai, CNS analysis, Magnetic Susceptibility, Human activity, Ryukyu Islands