

Record of the lake sediment at Unagi Lake in Ibusuki city, Kagoshima

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Unagi Lake is 1.3km in diameter and 56m in depth, which was formed at the same time with eruption of Ikeda pyroclastic flow, 5600 years ago. Its surface altitude is 122 meters and the crater wall is about 200 meters. It has both one outflow and inflow. There are three of slope failure along the wall especially the northeast side the Unagi area is over 1 kilometers wide collapse. At the Unagi area fumarolic gas and alteration zone grows with welling of hot spring at 85 degrees (Sakaguchi, et al., 2005). In this research, we focused on that the sedimentation of these hydrothermal generated closed lake.

Four successive samples, UNG06-01 (6m), 02 (3.5m), 03 (3.5m), 05 (4m), were taken at the bottom of Unagi lake by 8m piston corer. In KOCHI core center, we described lithology and measured for magnetic susceptibility and bulk density. We did lateral correlation of each core. Especially, we focused UNG06-01, which is the longest core, to describe more detail such as smear slides, volcanic material contents, and SEM observation. These core contains volcanic scoria, diatoms and clay minerals.

In the result of the observation, it was divided into two units that were named U1 and U2 from the under consisted the stratum. In U1, there were 6 subunits U1S1-S6. U1S2-S6 were cycles of sedimentation, which had three beds named a, b, c. a was scoria layer with diatoms, b was clay layer with diatoms, and c was laminated layer that alternated the light where a single diatom was abundant with clay, and the dark where several kinds of diatoms were abundant. S1 was composed only of c. U2 was divided into S1 and S2. While U2S1 was composed only of a, U2S2 was composed only of b.

There was a form change of the dominant kind of the diatoms in each subunits. It had often appeared the needle shape or the cylindrical shape as the most in the layer c. And the round shape did in other parts layer a and b.

Mineral variations in each unit were not so changeable. Magnetic susceptibility showed almost 200 all in the scoria layer. The scoria rich subunits indicate that the origin of these volcanic matters came from the same volcano, which might be compared to the Kaimon-dake.

According to Fujino and Kobayashi, 1997, the Kaimon-dake had erupted from 4000 years ago to A.D. 885. The 12 layers of its tephra had been named Km1-12 from lower. Especially Km1, Km7, Km9, and Km12, etc. were confirmed to the Osumi peninsula, which are more intensive tephra there than that of other tephra.

On land out crops in the Kawajiri, Kaimon-cho area, there are all units identified (Kawanabe and Sakaguchi, 2005). These tephra layers can be compared to the U1 and U2 in UNG06-01. Therefore, the UNG06-01 core contains volcanic history of the Kaimon-dake erupted layers. Now we will try to identify the other input evidence the Kaimon-dake eruption.