

## Fault activity history in the Suwa Basin for the past 9500 year recorded in the lacustrine sediment

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Based on the analysis of SUW-1 core sediment collected from Lake Suwa, it is estimated that Lake Suwa rapidly has expanded seven times in 1000 years interval since the past 9500 years. Then, it is estimated that rapid expansion of Lake Suwa has been caused by faulting in the Suwa Basin.

The Suwa Basin which is located in the central in Nagano Prefecture seems to be pull-apart basin with left-lateral strike-slip faulting of the Itoigawa-Shizuoka Tectonic Line. In northeast and southwest edge in the basin, NW-SE faults are clearly recognized. And, the central in the basin subsides in the graben state, and the existence of NW-SE two concealed faults have been estimated under Lake Suwa. However, the mutual relationship in the activity of each fault, whether multiple faults are slip independently or simultaneously, has not completely been examined, because it is not almost known the age when these faults were active. In this study, for the purpose of examining that mutual relationship after activity history and activity mode of each faults are clarified, three core sediments was collected from Lake Suwa. In this session, we will report result of analysis of SUW-1 core sediment collected from the lake held in concealed fault and fault of the northeastern margin of the basin and SUW-2 core sediment collected from the interval of two concealed faults.

SUW-1 core sediment was collected from the lake bed of 4.9m water depth, and it is 24m long. From the measurement of radiocarbon age of 20 horizons, it was clarified that SUW-1 core sediment continuously accumulated during 16000 years. SUW-2 core sediment was collected from the lake bed of 6.6m water depth where the deepest part in Lake Suwa, and it is 31.6m long. The measurement of radiocarbon age of 30 horizons is asked.

In the results of analysis of SUW-1 core sediment,  $a^*$  value of the spectral diffraction colorimetry analysis which is the parameter shows the change of the color from the green to the red has indicated that seven times rapid decrease in gently growing since the past 9500 years. It is known that there is the correlation between  $a^*$  value and iron content in the sediment. Then, it is reported that the iron content in the present surface layer sediment in Lake Suwa is abounding as a shore and little as a center. Therefore, gentle increase and rapid decrease of  $a^*$  value may show gentle reduction and rapid expansion of Lake Suwa. The total sulfur content rapidly increases and the organic carbon content rapidly decreases when the  $a^*$  value rapidly decreases. These changes indicate the rapid extension of Lake Suwa too. Then, it is estimated that Lake Suwa rapidly expanded seven times in the about 1000 years interval since the past 9500 years, though it had steadily gently been reduced, based on trend of variation of the  $a^*$  value. The rapid extension of this Lake Suwa indicates that the Suwa Basin have subsided by the faulting.

At present, the analysis of the SUW-2 core sediment is advanced. In the session, the relation between activity history of the fault subsided in whole Suwa Basin estimated from analysis of the SUW-1 core sediment and activity history of concealed fault will be examined.