Study on active faults in the northern part of Hida Plateau: Inagoe Fault, Taie Fault, Unehata Fault, and Sugo Fault

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The Chubu region is one of the most active fault zones in Japan, and several northeast-southwest dextral strike-slip active faults are distributed adjacent to each other in the northern part of Hida Plateau. It is important to obtain information on the activity of individual active faults in order to elucidate the fault movement in such a densely populated area with active faults.The fault zones distributed in this area are Ushikubi fault zone, Atotsugawa fault zone, and Takayama-Oppara fault zone. Inagoe fault, Taie fault, Unehata fault, Sugo fault in this area have less information on their activity than the other fault zones, and little information on their average slip rate and timing of faulting events has been obtained. In this announcement, we report the results of the geomorphological and geological survey of the four active faults mentioned above.

「Inagoe Fault」

The quaternary fault outcrop and timing of faulting events have been confirmed along the Inagoe River in the eastern part of the fault and in the western part of the fault (Gifu Prefecture Active Fault Study Group, 2008; Tamura et al, 2021; Nakamura et al. 2021). In the central part of the fault near the Shimokotori Dam identified a fault borders a breccia and shale (Nakamura et al. 2021). an active fault with a southward uplift was inferred from the hand-auger drilling survey at the bend of the ridge at the extension of the fault outcrop.

「Taie Fault」

Deciphering the aerial photographs taken in 2007, we found a fault at the road construction slope near the western end of the fault, and a series of low cliffs in the northwest-southeast direction at its surface. We estimated the displacement distribution of the fault by converting the aerial photograph taken in 1977 into DSM, and found that the vertical displacement of the fault was estimated to be about 4 m near the western end of the fault, and the displacement decreased in the southeast direction. In addition, the road wall collapsed near the western end of the Taie fault, and the gravel layer and fault gouge were observed to be in contact with each other at the collapsed area. The results of radiocarbon age indicated that the age of the gravel layer near the boundary was about 29,000 years ago.

「Unehata Fault」

Ground-penetrating radar survey, hand auger drilling, and tephra analysis were carried out at a point where the slope of the mountain slope at the Odoriyama Ranch becomes gentle, and K-Tz tephra was detected in the constituent layers of the mountain slope. These results indicate that there has been at least 1 m of vertical displacement since about 100,000 years ago.

「Sugou Fault」

In this study, we have not confirmed any geological traces of active faults, although continuous dextral strike-slip valley bending has been observed in the entire area.

In the future, it is necessary to clarify the timing of faulting events of the four active faults investigated in this study and to clarify the relationship between these active faults.

Keywords: Quaternary fault outcrop, Inagoe fault, Taie fault, Unehata fault, Sugou fault

