

Dendrochronology of a fossil log from the dammed lake deposit by Dondokosawa rock avalanche, the Southern Japanese Alps

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Large-scale rock avalanche deposits (Dondokosawa rock avalanche deposits; DRAD, $V=1.9 \times 10^7 \text{ m}^3$) are present in the east side of Mount Jizo, the Akaishi Range. The age of DRAD has been determined by a ¹⁴C-method as AD780-870 or as AD778-793 (with help of wiggle matching). However, precise age determination of DRAD is further required as the some uncertainties remain in the previous age data. Therefore, we performed dendrochronology of a fossil wood log of Japanese cypress (*Chamaecyparis obtusa*) with 226 tree rings and bark obtained from the dammed lake deposits formed by DRAD. As a result, the fluctuation pattern of tree ring width of the sample log (DDK-A) clearly coincided with the pattern during a period from AD662 to AD887 of the 2705-year-long standard curve (705BC-AD2000) established from some tree ring samples of Japanese cypress. Statistical analysis showed that a degree of agreement between DDK-A's tree ring curve and the standard curve (t) is 7.9. Generally, it can be judged that there is high agreement between two tree ring patterns when t -value is more than 3.5. We also observed cell structures of the outermost tree ring for determining the kill season of DDK-A. The early wood ring was completely formed and the late wood ring was almost invisible. Therefore we concluded that DDK-A was dead in the late summer of AD887.

The old Japanese documents *Nihon-Sandai-Jitsuroku* and *Fuso-Ryakki* described the mega earthquake (M 8-8.5), the *Goki-Shichido* earthquake, in AD887 August. This earthquake was considered to occur along the Suruga and Nankai Troughs off central Japan. Slope movement related to DRAD would be caused by this historical earthquake.

Keywords: dendrochronology, large landslide, Gokishichido earthquake, Akaishi Range