

## Shallow core drilling survey of the Atotsugawa fault outcrop

# Eiichi Fukuyama[1]; Ryuji Yamada[1]; Kentaro Omura[1]

[1] NIED

To investigate the 3-D structure of the fault core outcrop on the riverbed of the Atotsugawa river. In August, 2005, we conducted two drillings; one is a vertical 4m deep drilling just above the fault gauge layer and the other is 45 degrees inclined drilling perpendicular to the fault gauge layers with a depth of 6m. The drilling point is located east of the fault outcrop reported by Hasbaator et al. (2001, Active Fault Research, 20, 46-51). And the drilling site of ATG-1 is located further east of the present drilling site. ATG-1 is drilled by Omura et al. (2004, AGU Fall meeting S41A-0932) at a depth of 350m and fault zone materials including several fault gauge layers, fault breccia, and fractured host rocks. The outcrop consists of 7 major fault cores (Yamada et al., 2005, SSJ Fall Meeting, P237). The main purpose of this drilling is to understand the 3-D configuration of these fault gauge layers. Since the drilling was expected to be difficult due to heterogeneous rock composition, we employed a core tube package system to avoid the decomposition and dissipation of unconsolidated materials. In addition, to collect fine-grain materials as much as possible, we tried to supply less water during the drilling. Since the drilling point is located at the riverbed and covered with water, we could not use bubbles instead of water. From the observation of the core samples, geometry of two gauge layers could be estimated. Although there were several around these layers, we could not obtain the core samples in good condition because of the dissipation of fine grain materials. The rest materials we could obtain is very similar to that obtained at ATG-1, where a sand like material was obtained. We could speculate that the sand like materials were obtained during the drilling of fault gauge layer but fine grain materials were all dissipated. Although the fault zone drilling requires an advanced technology, it could conduct with reasonable cost and less environmental change.