

An introduction of Wenchuan Earthquake Fault Zone Scientific Drilling and determination of stress states by a core-based method

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A great and destructive earthquake (Ms 8.0; Mw 7.9), Wenchuan earthquake struck on the Longmen Shan foreland thrust zone in Sichuan province, China on 12 May 2008 (Dong et al., 2008; Xu et al., 2008a). Two almost parallel surface ruptures were observed, the main coseismic rupture developed along the Yingxiu-Beichuan-Qinchuan fault (YBQF) over a length of 275 km; and the other rupture was along Guanxian-Anxian fault (GAF) over a length of 100 km approximately. On 6 November 2008 shorter than a half of year from the date of earthquake main shock, a very rapid scientific and deep drilling project (Wenchuan Earthquake Fault Zone Scientific Drilling, WFSD) by support of Chinese government was started at Hongkou, Dujiangyan, Sichuan to investigate physical and chemical properties of the active faults that slipped during the Wenchuan earthquake (Xu et al., 2008b). This drilling project consists of four drilling holes which will be drilled to maximum depths of 1 - 3 km approximately at different sites to penetrate in different faults. We planned and have started to determine in-situ stress states in the boreholes especially around the faults by a core-based method, anelastic strain recovery (ASR) method (Lin et al., 2006) based on a collaboration agreement between Chinese and Japanese researchers. We will introduce the outline of the drilling project and show the preliminary results of ASR measurements in the meeting.

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