

Precursory Signal of Frontal Thrust Formation: Current status of Large Scale High Precision Sand Box Experiments

HORI, Takane^{1*} ; SAKAGUCHI, Hide¹ ; YAMADA, Yasuhiro² ; DOTARE, Tatsuya² ; FUKUMOTO, Yutaka³

¹JAMSTEC, ²Department of Urban Management Engineering, Kyoto University, ³Graduate School of Agriculture, Kyoto University

In order to find out the mechanism of the three dimensional complex shape formation in sequential thrust and uplift of a accretion prism, we have developed a large scale high precision sand box experimental apparatus since 2011. After a number of modifications in the experimental apparatus and experimental procedure, we finally performed productive runs in July 2013. In specimen preparation, the thickness of a sand layer is controlled with the precision of less than single particle size. As a result, the shape of a frontal thrust became uniformly straight with high reproducibility and no complex shape has been observed since then. However, with such a well-controlled experimental system, we succeeded to detect the precursory signal prior to frontal thrust formation. In this talk, detailed information of the experimental apparatus and our new findings will be given with the scope of applicability of our finding in the field.

Keywords: precursor, earthquake, sandbox experiment