

Subsurface structure in and around the Tegano Fault

Toshiyuki Tanaka[1]; Masayoshi Tajikara[2]; Kyozo Nozaki[3]; mio Shimoyama[4]; Akihiko Yamamoto[5]; Harumi Aoki[1]

[1] TRIES; [2] Fukken Co. Ltd.; [3] OYO; [4] Yamagata Univ.; [5] Ehime University

<http://www.tries.jp/>

The Tegano fault (TF), which belongs to the Byobusan fault (BF) zone in the southeastern part of Gifu prefecture, is an active fault of full length about 7km. This fault is important in the eyes of disaster prevention because it is relatively younger than other one around here and locates just under urban area. In the past report [Tanaka et al. (2008, ASC)], we estimated the basement geometry around the Tegano fault. This report will discuss to the origin of the fault and an ideal method of active fault assessment.

Togo and Ikeda (2002, Atlas of Quaternary Thrust Faults) suggests that thrust-front migration of the BF that has parallel strike of the TF is the origin of TF.

We can draw the conclusion that the TF has low dip angle whereas the BF is high from gravity survey with constraint of the depth section of reflection survey. Moreover, we can estimate that the fault plane of TF passes through the Quaternary and Tertiary layers from the vicinity of ground surface and continues the boundary between sedimental layer and basement at about 300 m under the ground. Therefore, the TF may not make the basement displace. These consequences support that the origin of TF is thrust-front migration of the BF.

Furthermore, we can derive the following by simple extrapolation: the fault plane of TF connects the one of BF about 1 ~1.5 km under the ground. We can say that the fault plane of TF is under low rigidity condition. Gifu Prefecture (2002) does not find direct evidence of the activity of TF though they estimates 6 (southwestern part) ~26 (northeastern part) meters of vertical displacement during 0.2 ~0.3 million years. Consequently, we think that the ability to generate earthquake is low for the TF alone. The deeper part of BF, main body of the TF, is essential in terms of disaster prevention.

On active fault assessment, we do not deny the significance of tectonic landform and surface geology but insist the importance of comprehensive assessment includes deep structure, seismicity, and crustal movement.