

## Development of fault activity in Japan estimated from the response of the faults to the tectonic stress field

MIYAKAWA, Ayumu<sup>1\*</sup>; OTSUBO, Makoto<sup>2</sup>

<sup>1</sup>Institute of Geology and Geoinformation (IGG), Geological Survey of Japan, AIST, <sup>2</sup>National Institute of Advanced Industrial Science and Technology (AIST), Institute of Earthquake and

The regional tectonic stress of the NE Japan arc continues from around 3.5 Ma to present (Sato, 1994). On the other hand, the initiation age of active faulting increased after 1.5 Ma (Doke et al., 2012). These results suggest that the response of the fault activity to the tectonic stress field takes long time (i.e. a few Ma). Then we study the maturity of the response of the fault activity to the regional tectonic stress field. In this study, we discuss the maturity of the field according to the present stress field and the present fault activity with the geodetic and geologic deformation.

The regional tectonic stress was estimated from the focal mechanisms of F-net by stress tensor inversion. The responses of the active faults and geological faults to the tectonic stress are calculated by using the slip tendency (Morris et al., 1996). The calculation results show that the most of high activity faults become active faults in the Tohoku region. On the other hand, some high activity faults have been geological faults in the Chubu and Kinki region. This difference of the response of faults to the tectonic stress in different regions is coherent with the geodetic and geologic deformation.

Sato, H. The relationship between late Cenozoic tectonic events and stress field and basin development in northeast Japan *Journal of Geophysical Research*, 1994, 99, 22261-22274

Doke, R et al. Spatial patterns of initiation ages of active faulting in the Japanese Islands. *Active Fault Research*, 2012, 37: 1-15.

Morris, A.; Ferrill, D. & Henderson, D. Slip-tendency analysis and fault reactivation *Geology*, 1996, 24, 275-278

Keywords: crustal deformation processes, tectonic zone, fault activity