

## Stress field did not change at 15 Ma in SW Japan: Counterevidence from dike orientations

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The drastic change in dike orientations at 15 Ma in SW Japan has been thought to indicate the termination of the extensional tectonics accompanied by the Japan Sea opening. We found counterevidence to this picture in the Tajima-Myokensan area, northern Hyogo Prefecture, SW Japan—a representative area where previous researchers reported an older ENE-trending eight dikes and a younger NNW-trending 51 ones (Kobayashi, 1979a, b; Tsunakawa, 1983). The host strata lie subhorizontally, which make tilt correction unnecessary. They judged the stress regimes from the faults that were activated before and after 15 Ma. However, it is difficult to determine the timing of faulting, because few syntectonic deposits along faults have been found in SW Japan.

The recent development of paleostress analysis of dilational fractures allows us to determine all the three stress axes, stress ratio and driving pressure of magma from dike orientations. In case dikes were resulted from polyphase tectonics, the technique not only separates the stresses, but also determines the appropriate number of stresses (Yamaji and Sato, 2011).

In this study, we measured the 388 orientations of dikes and sills in the Early to early Middle Miocene strata called the Hokutan Group, and applied the latest technique by Yamaji and Sato (2011) to them. It was found that NE-SW extensional stress with a low stress ratio was found from the group. The base and top horizons are correlated to ca. 20 and 14 Ma, respectively (e.g., Takayasu et al., 1992). We obtained three couples of fission-track ages between ca. 17 and 13 Ma, which was consistent with the youngest fractions of the U-Pb ages of the same samples. Therefore, stress condition did not change at 15 Ma in this area.

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