

Reconsideration for motion of Japan since 25Ma, comparison between GPS data and Paleomagnetic data

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Katsumata et al. (JpGU2016) showed that there are good relation between crustal rotation angles from paleomagnetic data and crustal rotation angles from GPS data on South American continent. The paleomagnetic data are as old as 50Ma, and GPS data holds only 20 years, therefore, this result implies that long term crustal motion for million years is included in yearly GPS data. We did same analysis on Japan and similar results are obtained. We applied Yamazaki, 1988 and Hoshi et al., 2015 for paleomagnetic data, and global IGS GNSS data and GSI F3 solutions for GPS data on Japan.

The results are shown in the Figure. The vertical axis shows the crustal rotation angles from paleomagnetic data and the horizontal axis shows coeval GPS crustal rotation angles at that sites of the paleomagnetic data. The red dots are north-east Japan paleomagnetic data, the blue dots are south-west Japan data. The two independent rotation data are quite in harmony with each other, and this results strongly implies that long term crustal rotations of Japan since about 25Ma are still included in recent GPS data, and the rotation not ceased at about 10Ma (Takahashi and Ando, 2016).

Keywords: GPS data, Paleomagnetic data, Rotations of North-east and South-west Japan

