

Magnetic fabrics of underplated mélangé in the Shimanto Belt, southwest Japan

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The underplated mélangé must have enormous information of accretionary process, nevertheless, it is so chaotic and lacking strain markers that deformation has not been quantified so far except for the sense of shear. Anisotropy of magnetic susceptibility (AMS) has been developed as a inferable method of strain tensor in the last decade. In this study, the magnetic fabrics of the underplated Mugi mélangé in the Shimanto accretionary complex were studied in terms of AMS.

The magnetic fabrics show a remarkable contrast from unit to unit of thrust sheet within the mélangé. Three investigated units, upper, middle and lower parts of the assemblage, appears to have different deformation history. There are two main trends of the AMS fabrics. Generally, Maximum and Intermediate axes of oblate magnetic ellipsoids are parallel to the foliation, which is consistent with thinning of underplated units. In addition, the AMS data from folded parts are consistent with the orientation of expected strains.

The AMS decreases in the lower part of the Mugi Assemblage in comparison with others. For example, the highly oblate AMS was detected from shale of the upper part, of which shape parameter (T) and anisotropy degree (P') are T0.8 and P'1.1, respectively. P' values are below 1.02 in the lower part. This fact suggests deformation localization in the assemblage.