

Geological structure around Mt. Hodatsu and changes of the stress field

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In the area around Mt. Hodatsu, whose summit is in Oshimizu Town, Ishikawa Prefecture, there are different strikes of faults (fault zones) which deformed the Miocene and upper strata into steeply inclined flexures. These structures cannot interpret easily that it was formed simultaneously in the same stress field, because of the difference in orientation of structure. Sumi et al. (1989) regarded this area as a dome-like structure, and the block including the summit of the mountain and surrounding blocks bounded by steeply inclined belts were uplifted in different times. Kaseno (2001) claimed that three times activities of uplifting which developed the core-complex. This study reports the results of field research in the remarkable deformation belts, and discusses the changes in style of fault movement and related stress field from a viewpoint of timing and orientation of each structural development.

The geologic structure around Mt. Hodatsu had been formed by four deformation stages as follow: (1) Kawai zone (17-16 Ma): The fault zone surrounding the granite exposed on the flattop of Mt. Hodatsu, is considered to be the structure accompanying remarkably dome-like uplifting of granite. (2) South-Ichinoshima fault (14-8 Ma): It is located in the northern margin of the Hodatsu mountainous district and also along the southern border of 'Mt.Hodatsu North Edge Steeply Inclined Belt' named by Sumi et al. (1989). This structure extends in a direction of east and west. Steeply inclined strata and the axis of syncline are reconfirmed on the north side of the fault. (3) Hanao fault (activated in the earlier half of the Quaternary time): This structure is located east of Mt. Hodatsu and extends north and south. Steeply inclined strata are observed along the fault. (4) West-Isurugi fault (around 0.5 Ma): This structure extends northeast and southwest in the southeast margin of Hodatsu mountainous district. Steeply inclined the Pleistocene formations are observed along the fault.

The similar geologic structures with the same orientations as observed around Mt. Hodatsu are well known in the Toyama and Noto areas. Hakumaisaka fault and Korosa fault extend in the direction east and west. Ebisaka fault, Sakiyama syncline and Tanayama fault strike north and south. Ouchi fault zone, Morimoto-Togashi faults, and Kurehayama fault strike northeast and southwest, individually. Because each timing of deformation roughly corresponds with those around Mt. Hodatsu, the tectonic history analyzed by this research is correlative at least in the regional range from the Toyama and the Kanazawa plains through Noto peninsula.

Consequently, the tectonic stress field in the Toyama-Noto area is considered to have changed from north-south compression (14- 8 Ma) through east-west compression (2 - 1 Ma) to northwest-southeast compression (Present). It is interesting that the term 8-2 Ma is in a calm regime, since remarkable deformation was not seen in this region, meanwhile intense fault-related folds with northeast-southwest axes started to develop during the same period in the east neighboring district such as the Toyama trough and northern Fossa Magna.