

Joint tectonics of granitic plutons in fold belts

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Fold belts were deformed post-kinematically through megakinking and/or folding of other types with vertical or subvertical rotation axes, in case they were emplaced in stress field of layer-parallel compression. Since fold belts were generally intruded by a number of granitic plutons of pre-, syn- and post-kinematic origins, the plutons should have been deformed associated with fold belt deformation. Such deformations of granitic plutons are important when discussing the upper crust deformations during arc or continent drifting. The Lachlan Fold Belt (SE Australia) and the Japan Arc show excellent examples of such deformations of granitic plutons. Such deformations are characterized by penetrative dense brittle deformation structures. They are subparallel joints in several trends with spacing less than millimeters, minor fault systems with slickensides and gouges which may indicate disposition(s) of principal stress axes, feather fractures associated with minor gouge zones, mesoscopic kink folds of jointed granitoids, gruel-like gouge zones, microcracks with dominant or subdominant trends, and others. Granitic plutons were fractured to have formed aggregates of small pieces of blocks. They were deformed by overall block-by-block displacements within granitic plutons in shallower depth of earth's crust during fold belt deformation.

As granitic plutons in fold belts are jointed generally due to fold belt deformation, joints of granitic plutons should be studied from a viewpoint of joint tectonics of fold belts.