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# Investigation on the tectonic history related to inclined transpression of the Afro-Arabian plate with the Iranian plate: using existing structural elements in layered radiolarite setting in southwestern Neyriz, Iran

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Radiolarites have important role in reconstruction of paleogeography because of their importance in bathymetry and coexistent with ophiolite in defining and modelling of the paleoceanic crusts. They are also perfect index for understanding of formation, subsidence and evolution of oceanic crusts. Radiolarites with the Mesozoic age are common all over the world and the Jurassic radiolarites are outstanding between them. The radiolarite setting of the southwestern part of Neyriz that is assumed to be a part of the Zagros accretionary prism is emplaced beneath the Tarbur formation. The lower part of the radiolarite has not been exposed. This setting is including beds of the radiolarian chert and shale with thickness of few centimeters to 60 centimeters. They range in colour are from dark brown, light green, brown, grey and amethystine. In some cases they are intercalated with limestone and sandstone beds that are exist in some of exposures. The existent of various structural elements within the setting gives a good fortunate for studying of deformation history in collisional zone of the Arabian plate and Iranian plate. The structural elements such as folds, interference patterns of folds, boudins in this setting are indicate ductile deformation behavior. Observation of the folds that are related to thrusting is an evidence of deformation in the brittle-ductile behavior. Transformation of beds, folds and boudins along the duplex structures is an evidence of deformation in brittle conditions. With respect to field observations and performed analyses of different structures in this setting and set reasonable relationships between various deformations processes it is possible to propose a pattern for deformation history of this setting. The various evidences show that this setting has experienced different deformation conditions during ongoing evolution which include ductile, brittle-ductile and brittle conditions.Existent of pinch-and-swell boudins structures and change in thickness of layers reveal that folding processes are performed after lithification of layers and in the ductile conditions. The observation of folding interference patterns and formation of folded sheared boudins indicate synchronous folding and rotation of radiolarite layers relative to the direction of the maximum principal stress. Existent of drag folds and kink folds indicate brittle-ductile deformation conditions. Finally existent of various fractures and show more uplift of setting during deformation processes and and subject to brittle deformation conditions.