Diagenesis and deformation of bedded chert from research on white chert in the Mino Belt, Inuyama area

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Subduction zone is one of most important settings when we discuss about the generation of large and/or slow earthquakes. Many workers have been pointed out the role of diagenesis in respect of earthquake generation, although the relationship between diagenetic process, accompanying sediment deformation, and earthquake still remains unclear. Especially, the role of pelagic sediment is not well known. In this study, we try to reveal the relationship between diagenesis and deformation of pelagic bedded chert in ancient acccretionaly complex, then discuss the role of diagenesis for earthquake generation in subduction zones.

The studied section, Inuyama area, is located in the Mino Belt, Jurrasic accretionary complex. Inuyama area is famous for many previous researches on bedded chert (e.g. Matsuda and Isozaki, 1991) and thought to be a type locality of well-preserved oceanic plate stratigraphy. In the studied area, chert-clastics sequence is imbricated by thrust faults, and lots of intraformational folds and faults are observed within it (Kimura and Hori, 1993).

Chert layers in the studied area are dominated by red ones. They contain white, gray and black chert layers. White chert layers show a few meters in thickness, and located within red chert layers. They often folded and faulted strongly. White chert is assemblage of small quartz veins in matrix of microcrystalie SiO2 mineral. The orientations of quartz veins are parallel to bedding in the limb part of intrafolial folds, while scattering in the hinge part.

Dense concentration of quartz veins suggest that white chert worked as a conduit of fluid. The stage of quartz veining seems to have been during folding, because orientation of veins differ between hinge part and limb part. Stacking and duplexing of white chert layers suggest that the white cherts act more brittle than red ones. These observations imply close relationships between diagenesis and deformation. We will show detailed microchemical and microstructural features in the presentation.