

fluid source in the diagenesis of pelagic sediments

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The behavior of fluids in subduction zones is thought to be related to the occurrence of earthquakes. Pelagic siliceous ooze constitutes a primary component of the sediments incoming plate boundaries where the age of subducting plate is old, and the depth of trench is below the carbonate compensation depths. Although dehydration from amorphous silica (opal-A) might occur within subducting pelagic sediments (Kameda et al., 2012; Kimura et al., 2012), there are a lot of unknowns on fluid sources along plate interfaces of old oceanic plates. To understand evolution of fluid sources in subduction plate interfaces where old oceanic plates are subducting, such as the Japan Trench, we investigated cherts in the Inuyama section in the Mino Belt as an on-land analog of subducted pelagic siliceous deposits. The Inuyama Section is characterized by thick bedded chert which have deposited over ~60 million years, suggesting that the section was formed by subduction of an old oceanic plate (Matsuda and Isozaki, 1991). Quartz precipitation occurs in red chert, white chert, and veins in this order (Kameda et al., 2012). Veins show echelon patterns in outcrop scale, and composed of quartz and chlorite. In a polished slab, most of the orientations of quartz veins are parallel to the bedding, with minor perpendicular ones. Chlorite veins are mostly perpendicular to the bedding. In this presentation, we will report $\delta^{18}\text{O}$ values for red chert, white chert, and quartz veins, respectively, and discuss the source of fluids that caused precipitation of quartz.