

METAMORPHISM AND TECTONIC IMPLICATIONS FOR THE ECLOGITES AND THE RELATED METAMORPHIC ROCKS IN THE SAMBAGAWA BELT, JAPAN

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The Sambagawa belt is glaucophanic metamorphic belt with coherent metamorphic sequences ranging from the pumpellyite-actinolite facies and the glaucophane schist facies through the epidote amphibolite facies, and locally up to the eclogite facies. There are two types of eclogites, i.e. one being of prograde eclogite and occurring scattered in the ordinary Sambagawa schists, and the other occurring within large-scale tectonic blocks. There is a variety of protoliths and metamorphic histories for the tectonic blocks, and two groups of protoliths have been identified, one probably of oceanic materials including basaltic volcanoclastic rocks and pelitic and siliceous sedimentary rocks, and the other of lower crust-upper mantle materials of the hanging wall of the subduction zone including layered gabbro and peridotite. The former suffered prograde metamorphism through the glaucophane schist facies or high-pressure part of the epidote amphibolite facies up to the kyanite eclogite facies. In contrast the protoliths of the latter suffered higher temperature metamorphism than the epidote amphibolite facies, and most of them were equilibrated in the eclogite facies. They finally suffered the Sambagawa metamorphism of the epidote amphibolite facies. The geotherm estimated from the tectonic blocks corresponds to that along the top of the subducted slab. They reached the base of the accretionary prism or, more plausibly, the space between the subducted slab and the wedge mantle. A mixing of supracrustal and mantle- or lower crust-derived eclogites could have occurred here. They were subsequently emplaced into the coherent sequences of the epidote amphibolite facies.