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Metamorphism of the NE side of the Seba eclogitic basic schist in the Sambagawa metamorphic belt, central Shikoku, Japan
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The Sebadani area belongs to the albite-biotite zone and is located in the central part of the Besshi district. The Sebadani area is composed of the Sebadani metagabbro mass and surrounding Seba basic schists, pelitic and siliceous schists occur as intercalation within the Seba basic schists (Takasu and Makino, 1980; Takasu, 1984). Eclogitic mineral assemblages are sporadically preserved in both the Sebadani metagabbro and the Seba basic schists (Seba eclogitic basic schists) (e.g. Takasu, 1984; Naohara and Aoya, 1997; Aoya, 2001). The Onodani eclogites preserved within the Seba basic schists have a complex metamorphic history, undergoing three different metamorphic episodes (Kabir and Takasu, 2010). The first and second eclogite facies metamorphism is estimated as 530-590 ℃ and 19-21 kbar and 630-680 ℃ and 20-22 kbar, respectively. The second metamorphic event is similar to that of the Seba eclogitic basic schist of Aoya (2001) (610-640 ℃ and 12-24 kbar). The pelitic schists intercalated within the Seba eclogitic basic schists also underwent eclogite facies metamorphism of 520-550 ℃ and *c*. 18 kbar (Zaw Win Ko *et al*., 2005; Kouketsu *et al*., 2010).

The eclogite in the northeastern part of the Seba eclogitic basic schists consist mainly of garnet, epidote, amphibole (glaucophane, barroisite, taramite, Mg-taramite, Mg-katophorite, edinite), omphacite (X_{Jd} 0.27-0.41), phengite (Si 6.5-6.9 pfu). Minor amounts of albite, dolomite, rutile, titanite, biotite, chlorite and quartz. The schistsity is defined by preferred orientation of phengite, amphibole and epidote. Garnets are almandine-rich in composition, increasing almandine (X_{Alm} 0.54-0.60), pyrope (X_{Prp} 0.07-0.13) and decreasing spessartine (X_{Sps} 0.10-0.03) from core to the rim and contain inclusions of epidote, omphacite (X_{Jd} 0.27-0.41), dolomite, quartz and titanite. They also contain inclusions of barroisite/Mg-katophorite and albite symprectite. Amphibole in the matrix are zoned, barroisite/Mg-katophorite cores to edinite rims. Some other amphiboles in the matrix are parallel to the schistosity and occasionally occur as randomly oriented. The cores of these amphiboles are resorbed barroisite, glaucophane in the mantle and barroisite/edenite in the rim.

Based on the mineral paragenesis of the eclogites the metamorphism is divided into three events. The first eclogitic metamorphic event is deduced from symprectites of barroisite/ Mg-katophorite and albite after omphacite inclusions in garnet. The prograde stage of the second eclogitic metamorphic event is represented by the inclusions minerals within the mantle and rim of garnets consisting of epidote, barrosite and dolomite. The peak eclogite facies stage is defined by garnet rim and omphacite inclusins within the garnets with schistosity forming minerals of barroisite, omphacite and phengite. Garnet and omphacite rim-rim pairs yielded 530-570 ℃ and >11-14 kbar, and garnet and omphacite inclusion within garnet yields 520-560 ℃, >11-12 kbar (Ellis & Green, 1979 ; Bannno, 1986). THEMOCALC (Holland & Powell, 1998) average *P-T* calculation for garnet + omphacite + barroisite + phengite assemblage obtained 590-610 ℃ and 19-20 kbar. The retrograde stage is defined by symprectite of barrosite and albite after omphacite. The third metamorphic event is defined by zoned amphibole in the matrix.

The estimated matamorphic temperatures of the eclogites are lower than that of the second high-pressure metamorphic event of the Onodani eclogite and similar to that of the omphacite-bearing metapelites from the NW part of the Seba eclogitic basic schists (Kouketsu *et al*., 2010). This suggests a metamorphic thermal gradient existed within the Seba eclogitic basic schists.

キーワード: Sambagawa (Sanbagawa) metamorphic belt, Seba basic schist, eclogite, glaucophane, P-T path, thermal gradient
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