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# 西南日本の沈み込み帯メランジュ中のヒスイ輝石岩に記録された塩水
# Saline fluids recorded in jadeitites in subduction-zone melanges of southwest Japan

森 康 [1*] ; 重野 未来 [1] ; 川本 竜彦 [2] ; 西山 忠男 [3]
MORI, Yasushi[1*] ; SHIGENO, Miki[1] ; KAWAMOTO, Tatsuhiko[2] ; NISHIYAMA, Tadao[3]

[1] 北九州市立自然史・歴史博物館, [2] 京都大学地球熱学研究施設, [3] 熊本大学自然科学研究科
[1]Kitakyushu Mus. Nat. Hist. Hum. Hist., [2]Inst. Geotherm. Sci., Kyoto Univ., [3]Grad. Sch. Sci. Tech., Kumamoto Univ.

Slab-derived fluids play essential roles in mass transfer along subduction-zone channels between the subducting slab and mantle wedge (e.g., Bebout 2013 Metasomatism and the chemical transformation of rocks; Spandler and Pirard 2013 Lithos). Salinity of such slab-fluids probably affects solubility and fluid-rock partitioning of elements; therefore, it remains to be investigated in various rocks. Jadeitite is a rock composed mainly of jadeite (sodium pyroxene, $NaAlSi_2O_6$) and occurs typically in serpentinite mélanges intercalated to high-pressure and low-temperature metamorphic belts. This curious rock is thought to be the product of direct precipitation from aqueous fluids and/or of fluid-induced metasomatism of a protolith (Harlow *et al*. 2007 Geology of gem deposits, Tsujimori and Harlow 2012 Eur J Mineral, and references therein). Fluid inclusions are commonly observed in jadeitites, and they may provide information about the fluid composition in subduction-zone mélanges. We determined major components and salinity of fluid inclusions in the jadeitites collected from eight localities in Japan: Omi-Itoigawa (Omi-Renge belt), Oya and Osa (Suo belt), Kochi (Kurosegawa belt), Mie and Tone (Nishisonogi metamorphic rocks), and Shimonita and Yorii (the origin unclear). In all of the studied rocks, primary fluid inclusions consist of a liquid phase and a gas bubble. Raman spectra show the presence of $H_2O$ liquid and vapor with or without minor $CH_4$ gas. The freezing point of the liquid phase indicates high-salinity (up to 8 wt% NaCl equivalent) of the primary fluid inclusions. The salinity varies among the localities of the jadeitite. For example, the salinity of the primary fluid inclusions is about 7.1 $\pm$ 0.1 wt% NaCl equivalent in the albite jadeitite from Oya and about 4.6 $\pm$ 1.2 wt% NaCl equivalent in quartz inclusions bearing jadeitite from Tone. Some jadeitite samples contain secondary $CH_4$-rich fluid inclusions along healed microcracks. The presence of minor $CH_4$ is also reported in the saline fluids inclusions with 5.1 $\pm$ 1.9 wt% NaCl equivalent from the Myanmar jadeitite (Shi *et al*., 2005 Geochem J). The present findings suggest that saline fluids with or without $CH_4$ are common in subduction-zone mélanges in Japan as well as in Myanmar. The reduced conditions can be caused by serpentinization processes. This is contrast to the $CO_2$-bearing saline fluids in the peridotite xenoliths from fore-arc mantle wedge (Kawamoto *et al*., 2013 PNAS). The high-salinity of the slab-fluids probably enhances the mobility of elements such as Pb in subduction-zone channels (Keppler, 1996 Nature, Shigeno *et al*., 2012 Eur J Mineral).

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