

## Petrology of mafic-ultramafic rocks in the East Taiwan Ophiolite, in the Lichi melange, Taiwan

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Taiwan is located on the border between the Philippine Sea Plate and the Eurasia Plate. The blocks of cherts, volcanic rocks, plutonic rocks (mafic-ultramafic rocks) are widely distributed as exotic blocks in the Lichi melange, southeastern Taiwan (Liou et al., 1977). These ophiolite-like rocks (cherts, volcanic rocks, plutonic rocks) are defined as the East Taiwan Ophiolite (Liou, 1977). The origin of the East Taiwan Ophiolite is still in debate. Three possible candidates are (1) Philippine Sea Plate (Liou, 1974), (2) the north extension of the Luzon volcanic arc (Ota and Kaneko, 2010), and (3) the South China Sea (Suppe et al., 1981). In this study, we focus on petrological characteristics of gabbros and peridotites in the East Taiwan Ophiolite.

In this research, we collected mafic-ultramafic rocks to cover a wide range of variations in terms of mineral variations at each outcrop. The gabbros are classified into troctolite, olivine gabbro, hornblende gabbro, and gabbronorite. Most of ultramafic rocks are extensively serpentized, but have equigranular textures based on shape of relic and pseudomorph minerals except for a few serpentine mylonites. The serpentized peridotites are classified into clinopyroxene-bearing harzburgite and dunite. The Cr# (Cr/(Cr+Al) atomic ratio) and Mg# (Mg/(Mg+Fe) atomic ratio) of spinels in the serpentized peridotites are 0.3-0.6 and 0.3-0.5, respectively. It is well characterized that the high-Cr# spinel (>0.6) coupled with the formation of secondary orthopyroxene are commonly observed in ultramafic xenoliths in Luzon arcs (Arai et al., 2004). We conclude that the East Taiwan Ophiolite is similar with abyssal peridotites and gabbros collected from mid-ocean ridges or back arc basins.