Peridotite at this locality contains a porphyroclastic M1 mineral assemblage (ol+spl+opx+cpx), in which medium- to coarse-grained pyroxene and spinel porphyroclasts reside in a fine-grained, recrystallized matrix (Fig. 11A). The peridotite exhibits a pronounced foliation, parallel to which are several cm-scale spinel pyroxenite layers and lenses. The crystal-preferred orientation (CPO) of olivine in coarse-grained spinel peridotite shows a strong concentration of [100] subparallel to mineral lineation, with [010] and [001] girdles normal to lineation, reflecting an {0kl}[100] deformation mechanism (Kamei et al., 2010).

Minerals in the M1 assemblage are magnesian, with the following Mg #'s [100× Mg/(Mg+Fe)]: olivine, 88-91; orthopyroxene, 89-91; clinopyroxene, 90-94; and spinel, 72-77. The pyroxenes are Cr-bearing and relatively aluminous, containing >5 wt% Al_2O_3 (Fig. 6). Spinel is also aluminous, being similar in composition to disseminated spinel in abyssal peridotites, with Cr #'s [100×Cr/(Cr+Al)] ranging from 13 to 19. Based on the host compositions of exsolved pyroxene porphyroclasts, samples of spinel peridotite yield *minimum* temperatures of ~1100 ºC (two-pyroxene geothermometry, Taylor, 1998; Al-in-orthopyroxene geothermometry, Witt-Eickschen and Seck 1991), and based on the compositions of spinel, *maximum* pressures of ~21-22 kbar (O'Neill, 1981).

Stop 6-3 (Day 6). Mohelno Garnet Peridotite, Outcrop along the North Bank of the Jihlava River, ~130 m Downstream from the Highway 392 Bridge

Coordinates: N49°05′55.4″ E16°11′48.9″

Illustrated at this locality is the M2 mineral assemblage (ol+grt+opx+cpx), which has an inequigranular texture with large spheroidal grains of garnet and pyroxene (up to 7 mm) set in a fine-grained matrix of olivine, pyroxene, and spinel (0.2–0.5 mm). An important feature is the common occurrence of spinel inclusions in garnet (Fig. 11B). Typically, garnet is separated from olivine by a compound kelyphite, consisting of the M3 assemblage (spl+opx+cpx) in an outer zone and the M4 assemblage (spl+opx+am) in a fibrous, inner zone (Fig. 11C).

In contrast to the olivine fabric in spinel peridotite, the CPO of olivine in garnet peridotite shows a strong concentration of [010] normal to foliation and a concentration of [100] parallel to the lineation (Kamei et al., 2010), which is ascribed to an (010)[100] deformation mechanism.

As in the M1 assemblage, minerals in the M2 assemblage are magnesian, including garnet, which contains 82.5–84.3 mol% pyrope. M2 orthopyroxene contains less Al_2O_3 than that in spinel peridotite (Fig. 6), due to its coexistence with garnet. Spinel inclusions in garnet have higher Cr #'s (27-33) than does M1 spinel (13-19), due to re-equilibation and reaction of spinel with garnet at higher pressures. The lowest Cr #'s in spinel (3-9) are found in M3 and M4 spinel in kelyphite, where spinel formed through the reaction, ol+grt=spl+opx+cpx.

It should be emphasized that garnet (the M2 mineral assemblage) only occurs at the margin of the Mohelno and Biskoupky peridotite bodies, within a few meters of the contact with surrounding felsic granulite. We suggest that the entire Mohelno and Biskoupky bodies were subjected to elevated pressures (~20–25 kbar) during subduction of oceanic lithosphere, but that the garnet-bearing M2 assemblage only developed along the margins of the bodies, where recrystallization was promoted by deformation.

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