Jadeite and nepheline in the Gran Paradiso Massif, W. Alps: stability vs. metastability in the high-pressure evolution of continental crust

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The formation and preservation of high-pressure (HP) mineral assemblages in subducted continental crust are a long-standing issue with kinetic aspects and important geophysical implications. The issue is especially acute in those granite-dominated terranes in which the dominant rock-type hardly bears evidence for high-*P* transformation whereas the subordinate metapelite, metabasite and magnesian schist ('whiteschist') clearly point to high or very high *P* conditions. The Monte Rosa, Gran Paradiso and Dora-Maira massifs in the Western Alps are a prime example in this respect. The lack of relict jadeite in the HP metagranites of all three massifs has remained like a petrological vexation and the hint for a peculiar behaviour of granite at HP [1, 2].

The discovery of jadeite-bearing ortho-gneiss in the western Gran Paradiso revives this questioning. These rocks occur at the contact of K-feldspar-porphyritic albitite dykes with country-rock augen gneiss and lenses of 'whiteschist'. They contain uncommon mineral assemblages involving i) jadeite, phengite, with late nepheline, albite, biotite, ii) jadeite, quartz, chloritoid, glaucophane, garnet, paragonite, with late preiswerkite. Their interpretation is the opportunity to address local Na-metasomatism, its timing, and their bearing on jadeite formation and preservation in felsic rocks.

[1] Proyer (2003) *Lithos* **70**, 183-194. [2] Gabudianu Radulescu *et al*. (2011) *J. metam. Geol*. **29**, 851-874.