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# Partial melting triggered by differential kinetics of prograde reactions in eclogites: a process for transient weakening

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## Résumé

Partial melting along retrograde pressure-temperature path of the continental crust at (Ultra) High Pressure conditions has been acknowledged as a weakening mechanism responsible for the decoupling and subsequent exhumation of large scale (U)HP units in collision zones. At the shear zone scale, additional transient weakening mechanisms have to be considered, when exploring the development of eclogite-facies shear zones at peak conditions. Fluid flux, grain-size reduction, weak phase connectivity, have been for instance explored in this prospect. Here we present new petrological evidence from the Holsnøy Caledonian eclogite-facies overprint in hydrating granulites that transient weakening may also occur due to partial melting during prograde reactions. Post-melting analcime-kyanite-bearing textures appear at grain boundaries as a result of the reaction kinetics contrast between the Na and Ca end-members of the plagioclase solid solution during prograde hydration. Partial melting could therefore be an additional transient weakening mechanism occurring early during the eclogitization process of the continental crust.

**Mots-Clés:** eclogite, partial melting, weakening

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