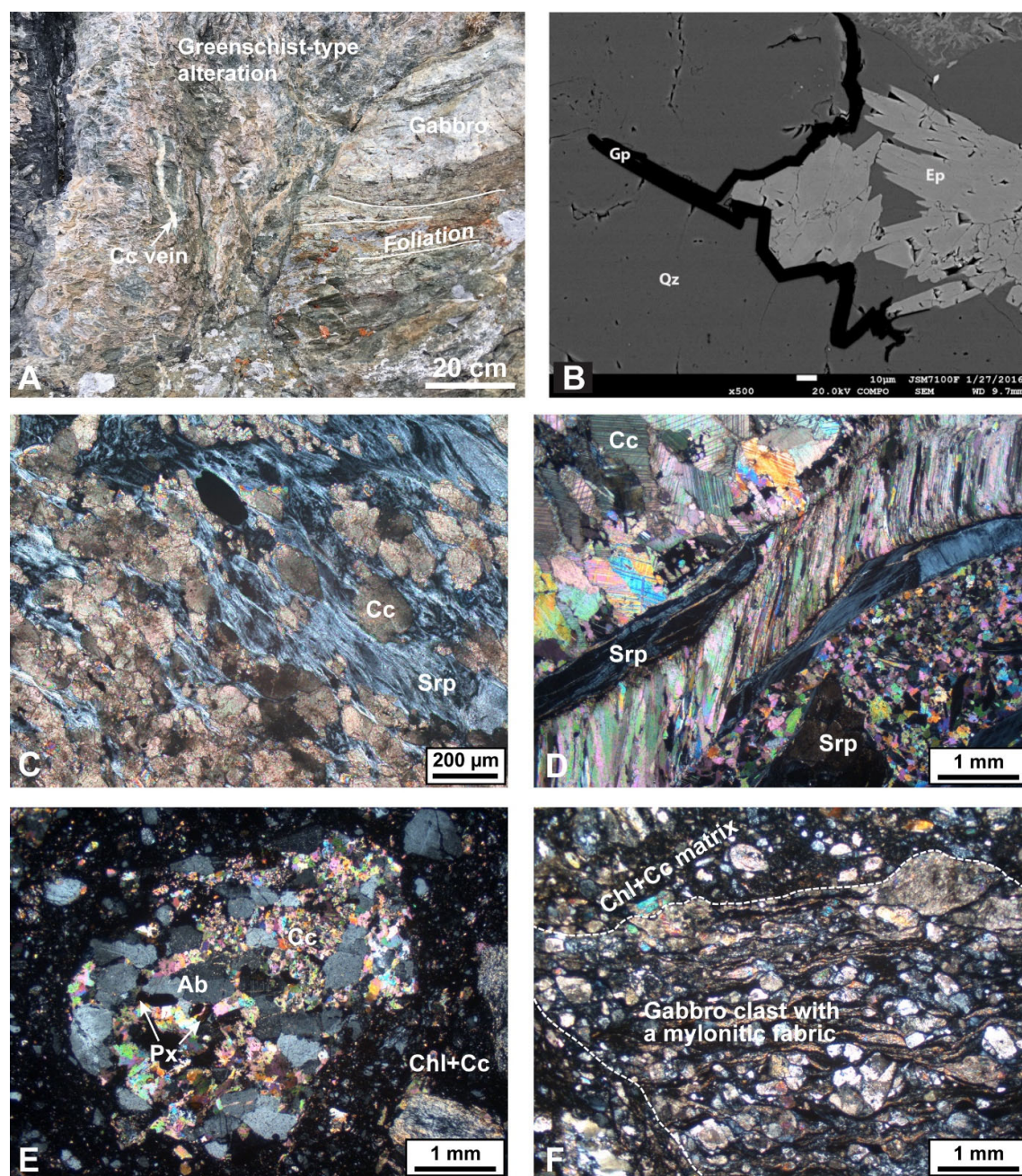


APPENDIX 1

Carbonate powders used for stable isotope and Sr isotope analyses were recovered through micro-drilling on freshly cut surfaces at the University of Rennes 1. For C and O isotopy, carbonate powders were reacted with anhydrous orthophosphoric acid at 50.0°C for a few hours. The liberated CO₂ was measured on a VG Optima triple collector mass spectrometer. In house (Prolabo) and international (NBS 18) standards were analysed continuously. For Sr isotope analyses, approximatively 10 mg of carbonate powder were reacted in 2.5 M HCl before chemical separation. Analyses were performed using a Mat Finnigan 262 instrument (TIMS). Rubidium content of carbonates was assumed to be negligible. The results are reported in table A1 using the delta notation, vs. SMOW (O) and PDB (C). Analytical precision is ±0.1‰ for δ¹³C, ±0.2‰ for δ¹⁸O.

APPENDIX 2



Field and microscopic pictures from the Tasna section. (A) Greenschist type alteration accompanied with calcite (Cc) in a high-angle structure cutting through the foliated gabbro at the Tasna 3 site. (B) Newly-formed graphite (Gp) accompanied with epidote (Ep) in a quartz-rich (Qz) migmatite from the lower continental crust in the southern domain. The scale bar is 10 μ m. (C) Calcite grains in serpentine from the southern Tasna domain (sample Tas19_47,

site Tas. 1). Note that serpentine forms an anastomosed structure surrounding calcite grains suggesting that part of the fluid-assisted deformation responsible for serpentization of mantle rocks occurred after carbonation. (D) Variability of carbonate texture observed in an ophicalcite from the northern domain (sample Tas19_68, site Tas. 4) including both carbonates pervasively replacing serpentine and calcite veins. Different granulometries are observed in the case of pervasive replacement. These different textures are interpreted as the results of complex fluid circulations during mantle exhumation. (E) Carbonated gabbro clast surrounding by a fine-grained chlorite+calcite matrix in the matrix-supported cataclasite at the base of the gabbros (sample Tas19_59, site Tas. 3). (F) Carbonated gabbro clast with a mylonitic fabric surrounding by a matrix which consist of chlorite, carbonates and gabbro-derived minerals (sample Tas19_61, site Tas. 3). The presence of carbonates in (E) and (F) both in the gabbro clasts and in the matrix indicates that carbonation occurred during extensional deformation along the detachment plane. Abbreviations: Cc=calcite, Chl=chlorite, Ab=albite, Px=pyroxene, Srp=serpentine.