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Tectonometamorphic architecture of the HP belt of New Caledonia

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Highlights:

- We review the available structural, metamorphic, geochemical and geochronological data on the high-pressure belt of New Caledonia
- We provide new data from large-scale field survey and focused Ar-Ar data
- We revisit the tectonometamorphic architecture of the high-pressure belt of New Caledonia

Keywords: New Caledonia, Subduction and orogenesis, Southwestern Pacific, Alpine-type metamorphic belt, subducted hyper-extended margins

Abstract

New Caledonia includes a well-exposed example of high-pressure orogenic belt formed as a result of Cenozoic plate tectonic reorganizations at the Australia-Pacific plate boundary. The metamorphic belt is relatively well accessible and has deserved extensive attention mainly for its metamorphic and petrological features. The architecture of this belt, however, still lacks general consensus. The aim of this paper is (i) to review the nature and origin of the main tectonometamorphic units of the belts, and (ii) to revisit the available structural models describing its architecture and geodynamic evolution. For that, we integrate the available field, petrological, geochemical and geochronological data, together with new results from large-scale field survey and focused Ar-Ar geochronological data. All together, these data allow proposing a new model for the tectonometamorphic architecture of the belt, also comprising a newly established tectonometamorphic unit. This architecture resembles that characterizing Alpine-type metamorphic belts formed in non-Pacific settings, and clearly differs from Cordilleran-type belts found in eastern Pacific regions. Moreover, the collected data also allow

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