

## **Quick HP & HT subduction in an ultra-recent geodynamic context: the Wandamen peninsula (Western Papua)**

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The Lengguru wedge in West Papua is younger than 10 Myr and is a result of oblique and fast subduction (11cm/yr) of the Bird's Head, a part of the Australian margin beneath the Melanesian Arc. Thus, the formation of this wedge, recently and very rapidly, may be attributed to a single tectonic event. High pressure (HP) metabasic and metasedimentary rocks have been discovered in the internal part of the wedge in the Wandamen peninsula. Locally, these rocks are overprinted by migmatization during the decompression. Here, we report characterization of petrology and thermobarometry of metasediments and metabasic samples, all included in a former mélange-type rock association, as well as geochronology of metasediments. Pressure-Temperature (PT) conditions highlight two stages of metamorphism close in time. In metasediments, a first stage of relatively HP (~13-17 kbar; garnet-kyanite-phengite) is observed. Garnet, kyanite and phengite are then destabilized in favor of biotite during the decompression (5-12 kbar and > 550°C). In metabasic rocks, the peak of pressure is occurred from 15 to 23 kbar and from 525 to 650°C. Geochronology was conducted using U-Pb dating (LA-MC-ICPMS) on zircons from the metasedimentary and migmatitic rocks. Most of zircons presents a low Th/U ratio attesting their metamorphic origin, confirmed by inclusions of kyanite and are dated between  $5.61 \pm 0.04$  Ma and  $8.1 \pm 1.1$  Ma. We therefore document a subduction of metasediment and metabasic rocks at about 8 Ma down to 45 km depth at least, followed by a rapid exhumation associated with local migmatization about 5.6 Ma. Interestingly, the HP and HT stages are confined in a 3 Myr bracket of time. Thus, the rapid evolution of the Lengguru accretionary wedge allows us to discuss a whole cycle of burial and exhumation within a narrow bracket of time. These observations underline how short the life of mountain ranges situated at the edge of continental plates can be.