# GSWA 184331: Metagabbro, hanging wall of Young River Shear Zone, Footwall of Red Island Shear Zone, Munglinup Gneiss, Quagi Beach headland, STOKES INLET

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| **Person submitting samples:** Raphael Quentin de Gromard |
| **Affiliation:** Geological Survey of Western Australia |
| **Project Title:** Evolution of crustal structures in an inverted orogen, the east Albany–Fraser Orogen, Western Australia |
| **Sample Number(s) (including IGSN if one exists):** 184331 |
| **Mineral separation required? Yes or No:** |
| **Date submitted:** |

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| **GEOGRAPHIC AREA/ PROVINCE/ BASIN :** southern Western Australia/east Albany–Fraser Orogen | |
| **1:250k SHEET NAME:** RAVENSTHORPE | **NUMBER:** SI51-05 |
| **1:100k SHEET NAME:** STOKES INLET | **NUMBER:** 3130 |
| **LOCATION METHOD: (GPS: WGS84 / AGD66 / AGD84 / GDA94)** | |
| **ZONE:** 51 | |
| **EASTING:** 339642 | **NORTHING:** 6253152 |
| **LATITUDE:** -33.84975 | **LONGITUDE:** 121.26669 |

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| **STRATIGRAPHIC UNIT FORMAL NAME *:** Munglinup Gneiss |
| **STRATIGRAPHIC UNIT INFORMAL NAME:** |
| **LITHOLOGY:** metagabbro |

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| **HOLE ID (if applicable):** |
| **PECT (if applicable):** |
| **H FROM (metres):** |
| **H TO (metres)**: |

* Stratigraphic Unit names can be searched and checked within the Australian Stratigraphic Units Database via the following link: https://asud.ga.gov.au/

## Dating Objective

***What is the geological question $^{40}Ar/^{39}Ar$ analysis will address?***

Evolution of crustal structures of the east AFO - Exhumation history of the Munglinup Gneiss and evolution of the Young River and Red Island Shear Zones.

***What type of age(s) are expected? (e.g. magmatic crystallisation, metamorphism, fluid alteration/mineralisation, cooling, shearing etc):***

Cooling

***Mineral target(s) for dating:***

Hornblende

***Estimated $^{40}Ar/^{39}Ar$ age (e.g. Cenozoic, Mesozoic, Paleozoic, Proterozoic, Archean – provide estimated numerical age range if possible):***

Cooling age younger than c. 1190 Ma.

## Sample Information

***Location description (e.g. a sample of x was collected from y, z km from abc town):***

A metagabbro sample was collected from a headland west of Quagi Beach, Stokes National Park, 41km ESE of Munglinup, WA.

***Lithological characteristics (rock description):***

120 trending dolerite dyke forming gully in rock platform. Gabbro as a coarser patch within dolerite dyke; contain amphibole and localised leucosomes.

***Relative age constraints (pertinent geological relationships with surrounding rock units and any previous geochronology):***
Two samples from Quagi Beach headland were dated using U-Pb zircon:
A migmatitic gneiss yielded a crystallization age of 2709 ± 35 Ma and a metamorphic age of 1184 ± 6 Ma (GSWA 184334) and a granitic dyke yielded a crystallization age of 1187 ± 4 Ma (GSWA 194811).

***Thin section description (if available):***
Coarse-grained hbl-cpx-pl amphibolite after gabbronorite, cpx shows disequilibrium texture, one generation of hbl forms the main foliation

**Photograph(s) e.g. field site, hand-specimen, photomicrograph:**

*Figure 3. Sample site for GSWA 184331*

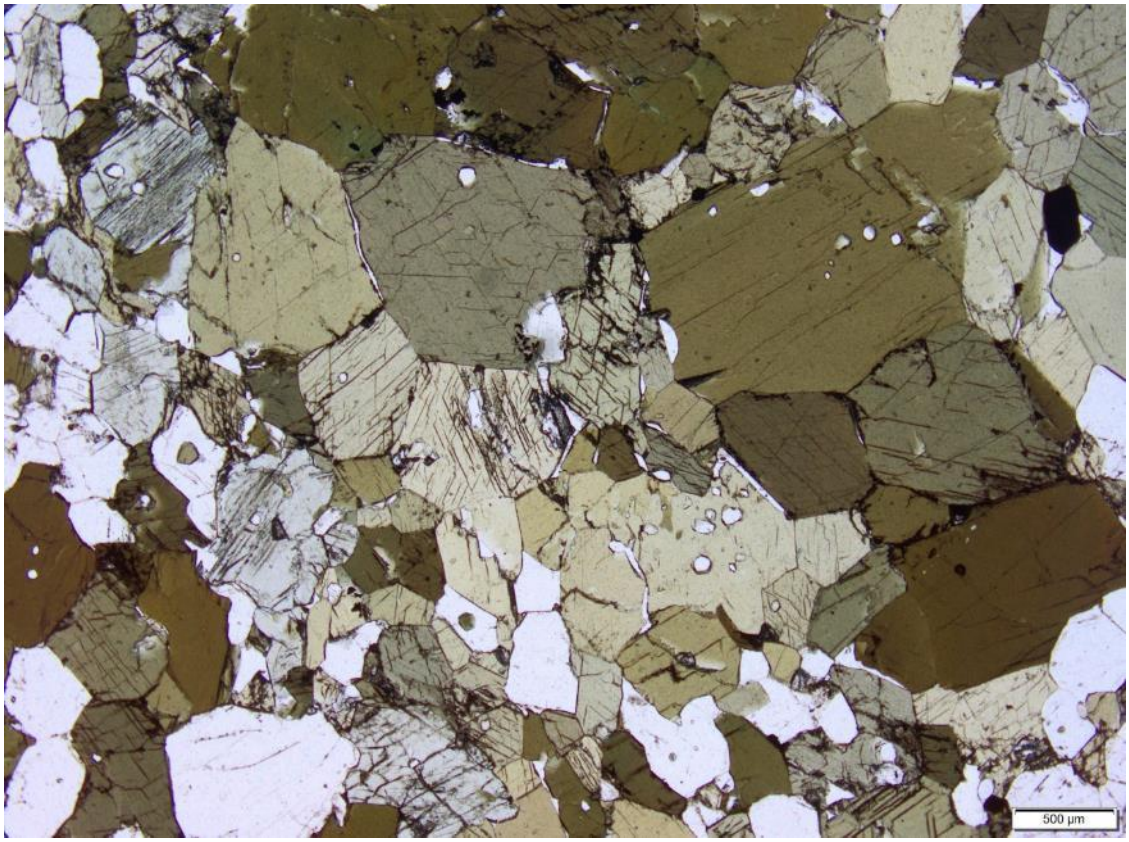

*Figure 4. 184331_Coarse-grained hbl amphibolite after cpx gabbro - PPL.*