

GSWA 225431: Same locality as GSWA 225430, immediate footwall of the Frog Dam Shear Zone, Biranup Zone, FRASER RANGE

Person submitting samples: Raphael Quentin de Gromard
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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): 225431
Mineral separation required? Yes or No:
Date submitted:

GEOGRAPHIC AREA/ PROVINCE/ BASIN : southern Western Australia/east Albany–Fraser Orogen	
1:250k SHEET NAME: NORSEMAN	NUMBER: SI51-02
1:100k SHEET NAME: FRASER RANGE	NUMBER: 3433
LOCATION METHOD: (GPS: WGS84 / AGD66 / AGD84 / GDA94)	
ZONE: 51	
EASTING: 459412	NORTHING: 6441989
LATITUDE: -32.157827	LONGITUDE: 122.569557

STRATIGRAPHIC UNIT FORMAL NAME *:
STRATIGRAPHIC UNIT INFORMAL NAME: Biranup Zone metagranitic unit
LITHOLOGY: amphibolite

HOLE ID (if applicable):
DEPTH (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 $^{40}\text{Ar}/^{39}\text{Ar}$ analysis will address?

Evolution of crustal structures of the east AFO - Exhumation history of the Frog Dam Shear Zone

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

Ar/Ar date should reflect cooling age of below T_c (550 °C).

Mineral target(s) for dating:

Hornblende

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

Younger than c. 1183 Ma

Sample Information

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

An amphibolite sample was collected from an exposure alongside of a salt lake 25.4 km southwest of Fraser Range station.

Lithological characteristics (rock description):

Medium-grained garnet-bearing amphibolite.

Relative age constraints (pertinent geological relationships with surrounding rock units and any previous geochronology):

Sample collected for Ar/Ar Mu from same outcrop (GSWA 225430).

A granitic gneiss sample (GSWA 225432) collected 3.2 km southeast of GSWA 225431 yielded a U-Pb zircon igneous crystallization age of 1675 ± 9 and metamorphic age of 1183 ± 23 Ma.

Thin section description (if available):

Syn-tectonic generation of amphibole defines the foliation and wrap around garnet porphyroblasts.

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

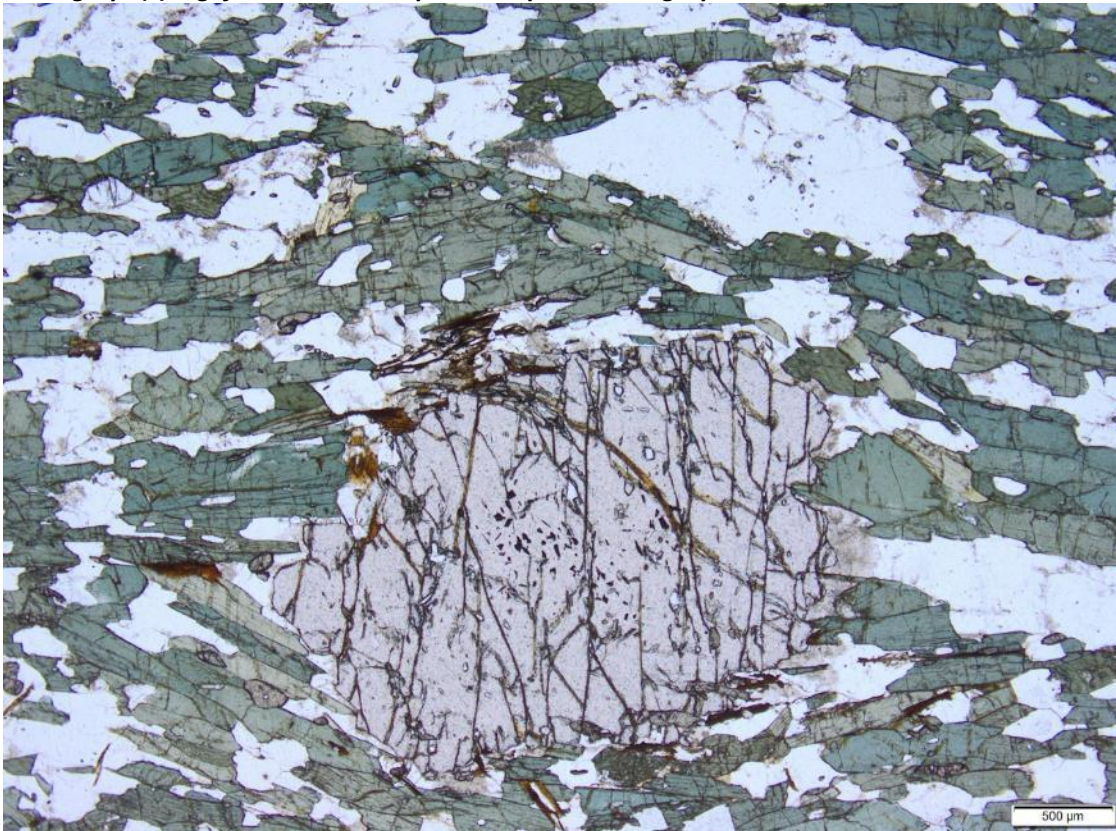


Figure 19. GSWA 225431: Garnet-hornblende-zoisite-titanite-plagioclase amphibolite