

National Argon Map: an AuScope Initiative

⁴⁰Ar/³⁹Ar Geochronology Laboratory Sample Submission Form

This form must be completed and returned to Marnie Forster (Marnie.Forster@anu.edu.au) before any work can be commenced in the Argon Laboratories.

Person submitting samples: Ian T Graham
Affiliation: UNSW Sydney
Project Title: Geology, Petrology and Gem Minerals of the Anakie Gemfields, central Queensland
Sample Number(s) (including IGSN if one exists): BL-B1
Mineral separation required? Yes or No: No
Date submitted:

GEOGRAPHIC AREA/ PROVINCE/ BASIN : Drummond Basin	
1:250k SHEET NAME: Emerald	NUMBER: SE-55-15
1:100k SHEET NAME: Zig Zag	NUMBER: 8351
LOCATION METHOD: (GPS: WGS84 / AGD66 / AGD84 / GDA94) GDA-94	
ZONE: 55	
EASTING: 147.29187E	NORTHING: 23.53262S
LATITUDE:	LONGITUDE:

STRATIGRAPHIC UNIT FORMAL NAME *:
STRATIGRAPHIC UNIT INFORMAL NAME: Billaboo Volcanics
LITHOLOGY: Basalt

DRILLHOLE ID (if applicable):
PROSPECT (if applicable):
DEPTH FROM (metres):
DEPTH 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 ⁴⁰Ar/³⁹Ar analysis will address? This sample of basalt is from an undocumented volcanic centre. A key question is how this volcanic edifice relates in age to the Hoy Basalt, Springsure central volcano to the south, and Peak Range central volcano to the north. Thus, adding new information concerning the volcanic architecture of central Queensland.

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

Mineral target(s) for dating: NONE (whole rock).

Estimated ⁴⁰Ar/³⁹Ar age (e.g. Cenozoic, Mesozoic, Paleozoic, Proterozoic, Archean – provide estimated numerical age range if possible): The age is expected to be in the Paleogene Period in the Cenozoic.

Sample Information

Location description (e.g. a sample of x was collected from y, z km from abc town): Collected from a topographic high in the Drummond Range – 45km SW of Rubyvale in Central Queensland.

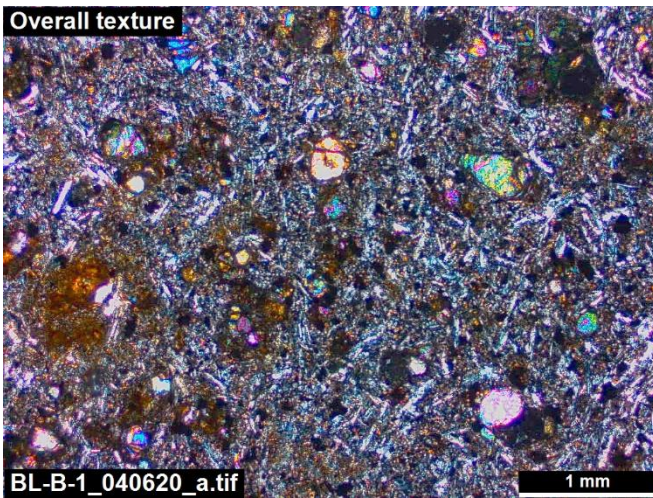
Lithological characteristics (rock description): Very fine grained, pale grey aphanitic basalt.

Relative age constraints (pertinent geological relationships with surrounding rock units and any previous geochronology): The volcanic edifice intrudes upper Devonian and lower Carboniferous sedimentary rocks of the Drummond Basin.

Thin section description (if available):

Fine grained porphyritic olivine basalt with a somewhat glomerporphyritic fabric represented by altered ferromagnesium minerals in a groundmass of feldspar microlites and opaque minerals. Olivine phenocrysts are subhedral and heavily altered along fractures. Vesicles are uncommon.

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



Relevant bibliographic references: