National Argon Map: an AuScope Initiative
$^{40}Ar/^{39}Ar$ 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: Ar-Ar geochronology of the Rylstone Volcanics
Sample Number(s) (including IGSN if one exists): IG01/18
Mineral separation required? Yes or No: Yes
Date submitted:

GEOGRAPHIC AREA/ PROVINCE/ BASIN : Lachlan Fold Belt/Sydney Basin boundary	
1:250k SHEET NAME: Dubbo	**NUMBER:** SI/55-04
1:100k SHEET NAME: Mudgee	**NUMBER:** 8832
LOCATION METHOD: (GPS: WGS84 / AGD66 / AGD84 / GDA94)	
ZONE:	
EASTING:	**NORTHING:**
LATITUDE: -32.774547	**LONGITUDE:** 149.979833

STRATIGRAPHIC UNIT FORMAL NAME *: Rylstone Volcanics
STRATIGRAPHIC UNIT INFORMAL NAME:
LITHOLOGY: A series of rhyolitic to dacitic volcanic tuffs and minor epiclastics

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 $^{40}Ar/^{39}Ar$ analysis will address?

The age of crystallisation biotite from this tuff sample which will give us a minimum age for the Rylstone Volcanics.

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:

Biotite

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

I would expect an age between the middle to late Carboniferous and Early Permian.

Sample Information

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

This sample was collected from a road-cutting on the Bylong Valley Way (type section) some 1.5 km north of the town of Rylstone.

Lithological characteristics (rock description):

A rhyolitic crystal vitric lithic ash flow tuff with relatively abundant biotite crystals.

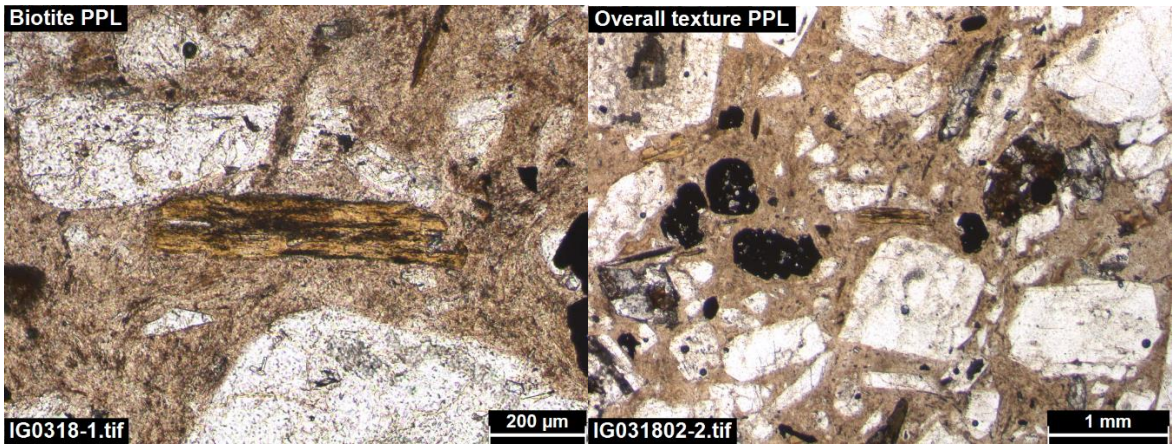
Relative age constraints (pertinent geological relationships with surrounding rock units and any previous geochronology):

The only radiometric age to date on the Rylstone Volcanics is a Rb-Sr age on biotite of 292 Ma (Shaw et al., 1989) but this lacks details as it is only reported in a conference abstract.

Thin section description (if available):

In thin-section, this sample comprises crystals of volcanic quartz, feldspars and biotite, along with former flow-banded vitric and earlier rhyolitic lithic clasts in a fine-grained quartzofeldspathic groundmass.

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



Relevant bibliographic references:

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