

National Argon Map: an AuScope Initiative

$^{40}\text{Ar}/^{39}\text{Ar}$ 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: Joel Fitzherbert
Affiliation: GSNSW
Project Title: Cobar Basin geochronology
Sample Number(s) (including IGSN if one exists): NSWJAF0199.02H
Mineral separation required? Yes or No: Yes
Date submitted:

GEOGRAPHIC AREA/ PROVINCE/ BASIN : Cobar Basin	
1:250k SHEET NAME:	NUMBER:
1:100k SHEET NAME: Nymagee	NUMBER: 8133
LOCATION METHOD: (GPS: WGS84 / AGD66 / AGD84 / GDA94) GDA94	
ZONE: 55	
EASTING: 415170.999	NORTHING: 6413428.291
LATITUDE: -32.412875222923	LONGITUDE: 146.09786743708

STRATIGRAPHIC UNIT FORMAL NAME *: Amphitheatre Group
STRATIGRAPHIC UNIT INFORMAL NAME: Vivigani formation
LITHOLOGY: Biotite altered siltstone with minor pyrrhotite

DRILLHOLE ID (if applicable): MDB003
PROSPECT (if applicable): Mallee Bull
DEPTH FROM (metres): 363.8
DEPTH TO (metres): 364.0

* 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?

Biotite-rich alteration is associated with the Cu mineralising phase of the Mallee Bull prospect. An age date would provide the first timing constraints on Cu mineralisation in the central Cobar Basin.

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

Alteration/mineralisation

Mineral target(s) for dating:

Biotite

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

Paleozoic 420-380 Ma

Sample Information

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

Sample from Drill core that intersected the mineralised horizon at Mallee Bull

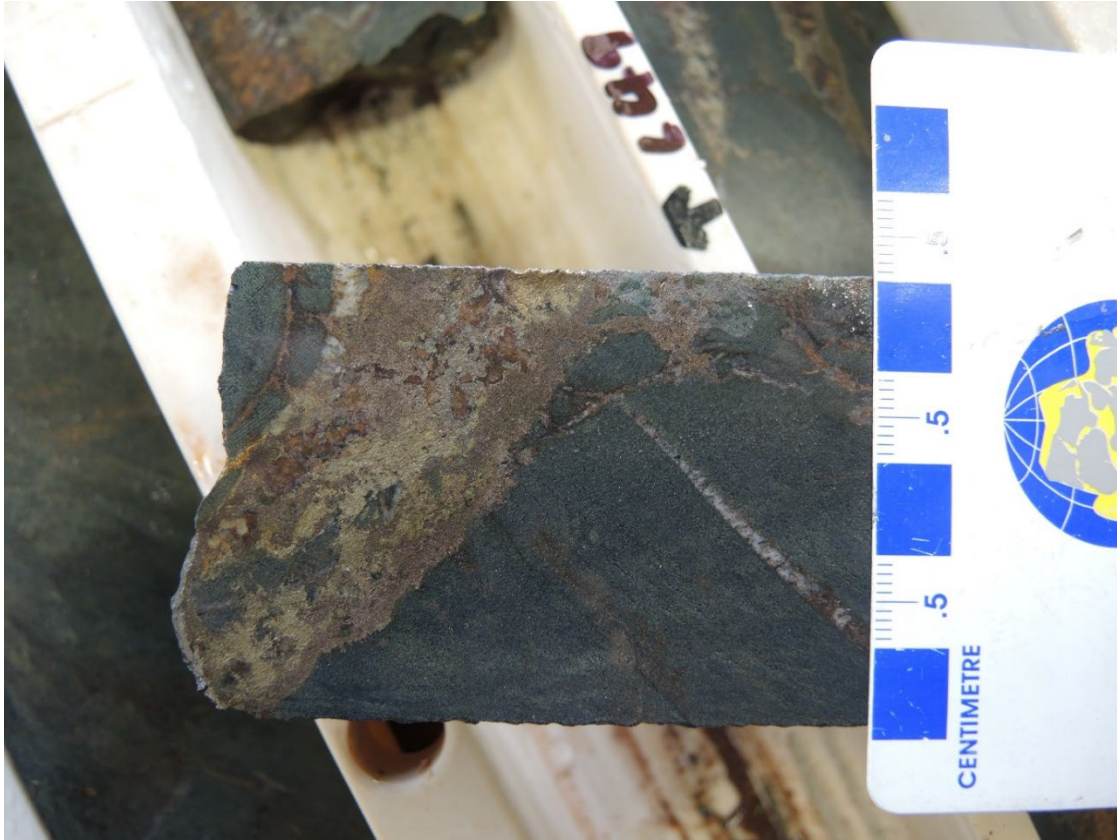
Lithological characteristics (rock description):

Silicified and sericitized siltstone and lesser fine sandstone laminae. Sample is crosscut by biotite veins with locally pervasive biotite flooding of the host rock, particularly at lithological contacts. Weak overprinting foliation that deforms biotite veins.

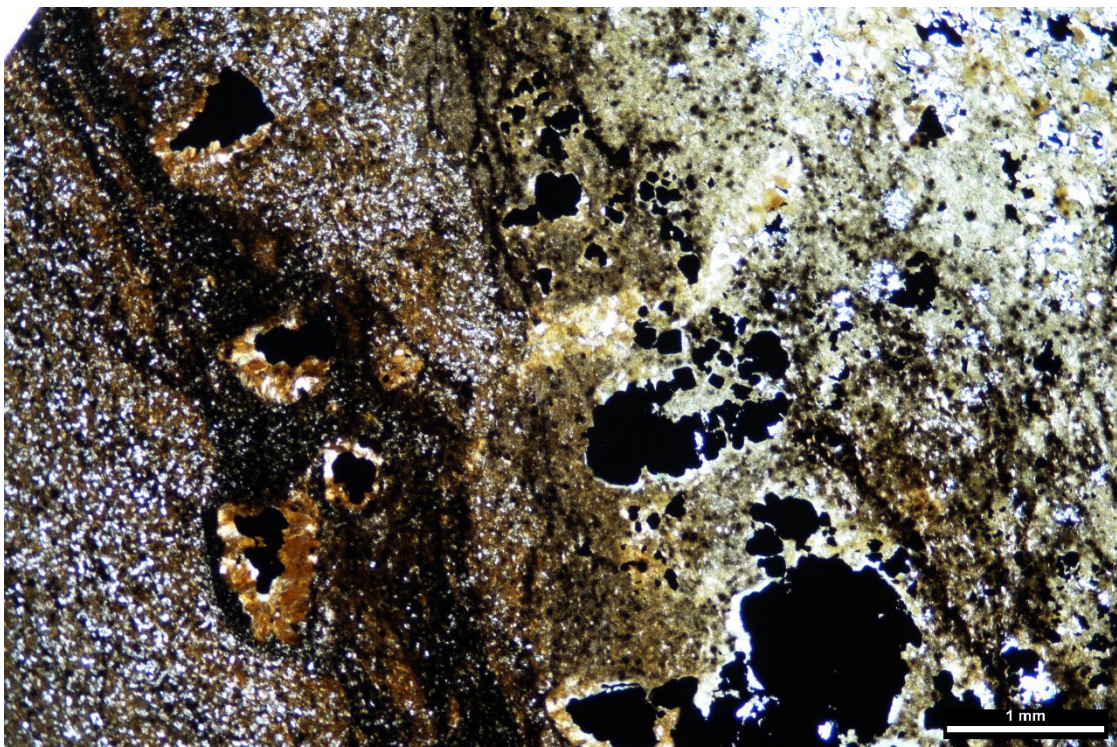
Relative age constraints (pertinent geological relationships with surrounding rock units and any previous geochronology): Biotite-bearing veins pre-date first observable deformation.

Thin section description (if available):

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



Core photograph of biotite altered siltstone with associated pyrrhotite-chalcopyrite vein.



Photomicrograph of biotite altered siltstone (left) associated with sulfides (mostly pyrrhotite) In drill core BMD003

Relevant bibliographic references: