

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: Joan Esterle
Affiliation: SCHOOL OF EARTH AND ENVIRONMENTAL SCIENCES, UNI QLD
Project Title: STRATIGRAPHY AND MINERALOGY OF CENOZOIC SEDIMENTS OVERLYING THE MORANBAH AND RANGAL COAL MEASURES
Sample Number(s) (including IGSN if one exists): DDG275: 42.07-42.24
Mineral separation required? Yes or No: YES
Date submitted: TBA

GEOGRAPHIC AREA/ PROVINCE/ BASIN : CENTRAL QUEENSLAND; BOWEN BASIN (EMERALD; DUARINGA)	
1:250k SHEET NAME: BOWEN BASIN REGIONAL	NUMBER:
1:100k SHEET NAME: HARRYBRANDT	NUMBER: 8554
LOCATION METHOD: (GPS: WGS84 / AGD66 / AGD84 / GDA94) WGS84	
ZONE: 55	
EASTING: 605595.1	NORTHING: 7570214.57
LATITUDE: 21.969335418° S	LONGITUDE: 148.022742584° E

STRATIGRAPHIC UNIT FORMAL NAME *: SUTTOR FORMAITON
STRATIGRAPHIC UNIT INFORMAL NAME: Basalt
LITHOLOGY: Basalt

DRILLHOLE ID (if applicable): DDG275
PROSPECT (if applicable): GROSVENOR COAL MINE
DEPTH FROM (metres): 55.98
DEPTH TO (metres): 56.12

* 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?

The timing of basalt flows by absolute age dating to determine age of basalt flows in sequences

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: pyroxenes, plagioclase, maybe biotite.

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

Sample Information

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

At Grosvenor coal mine

Lithological characteristics (rock description):

Aphanitic basalt, fresh, medium to dark grey, very strong rock, vesicular towards the top.

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

Neogene, from palynology study of lower sedimentary unit

Thin section description (if available):

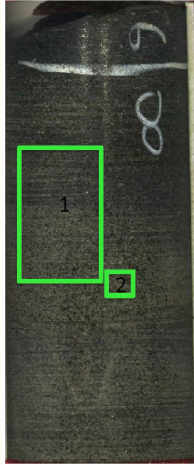
Clinopyroxene (subhedral, some are weathered, replaced by pyroxene), plagioclase

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

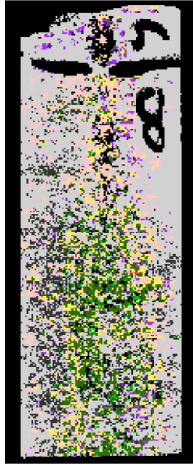
DDG275 55.98-56.12m: Thin section and XRD sampling



50µ Core Photo



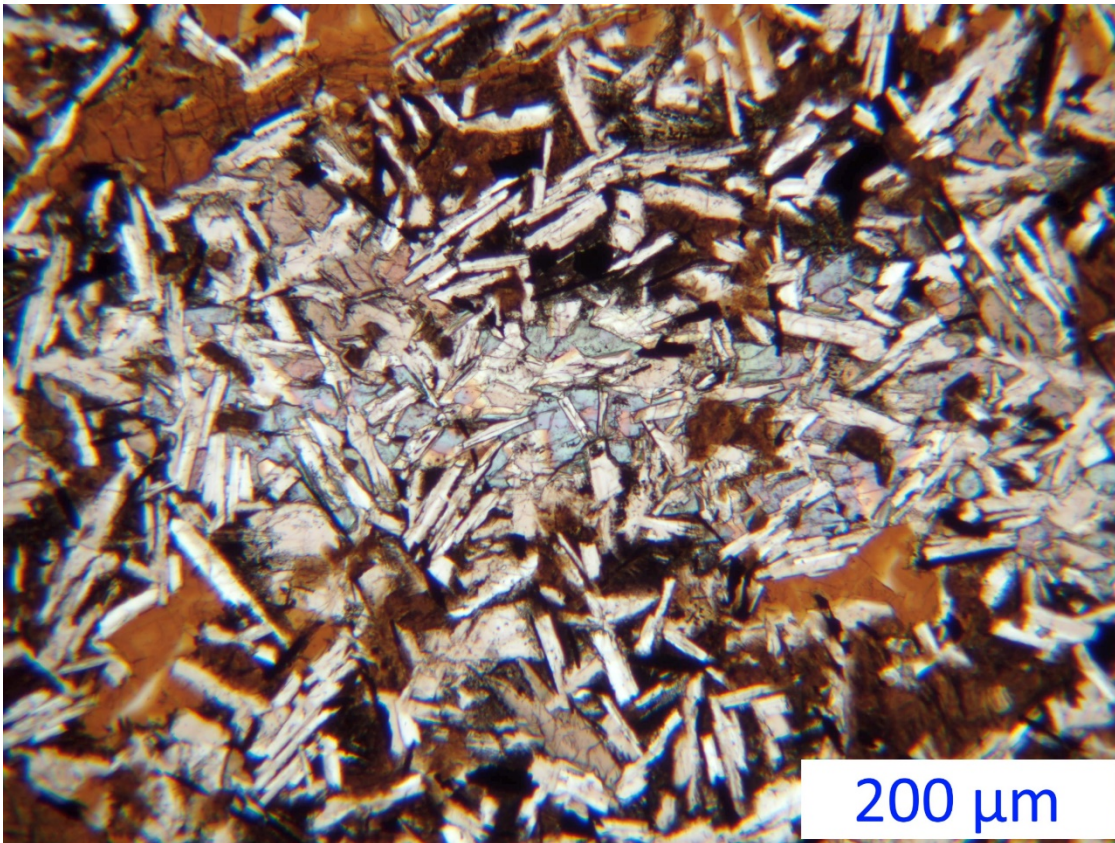
Mineral Class Map



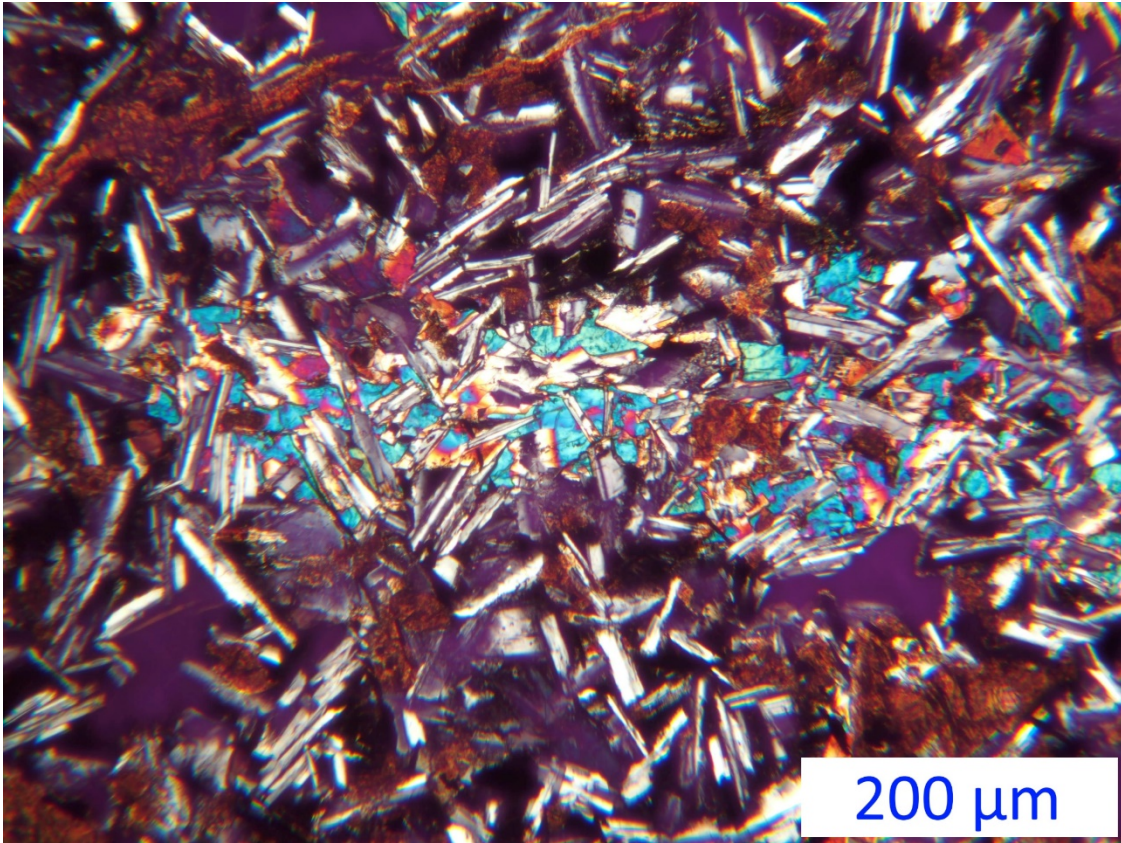
To be sampled out:

#	CoreScan Mineralogy	Comments
1	Aspectral, Smectitised pyroxene, hydrous mineral	thin section
2	XRD to confirm the presence of smectite	
Sample comment: competent enough for thin section (age date candidate)		

[Link to Coreshed](#)

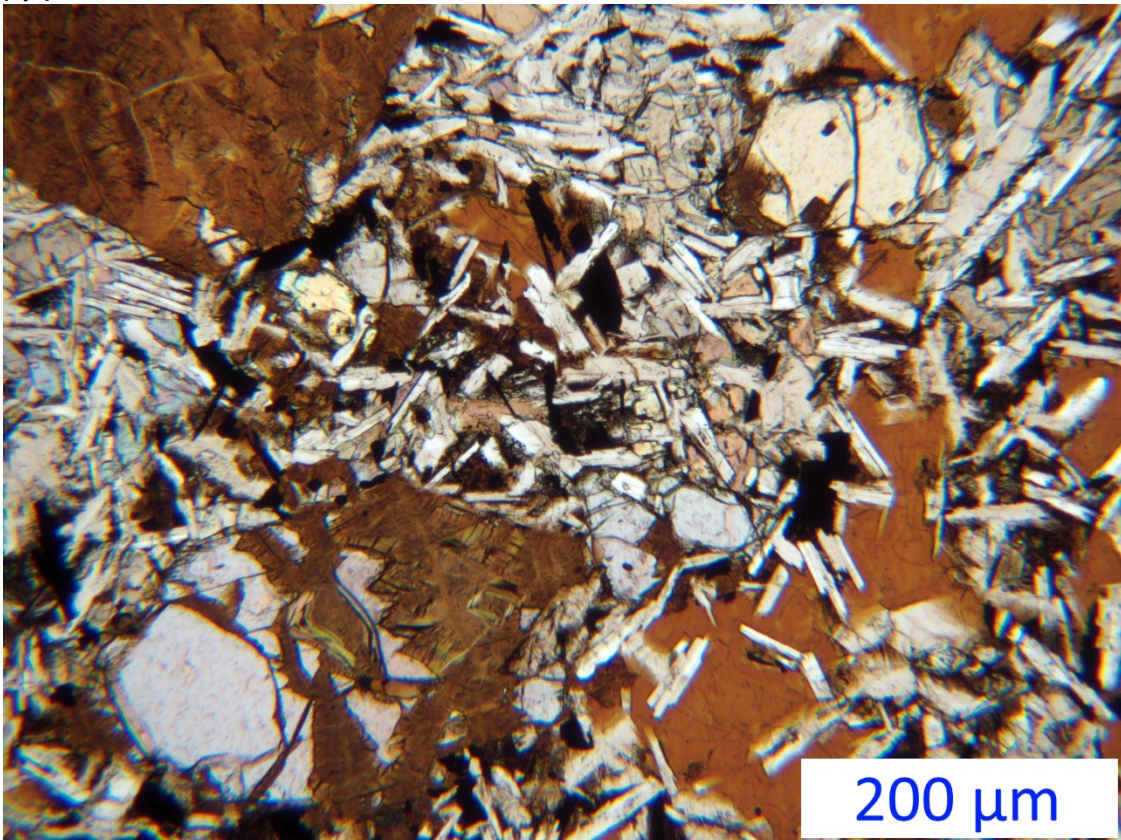


(ppl)

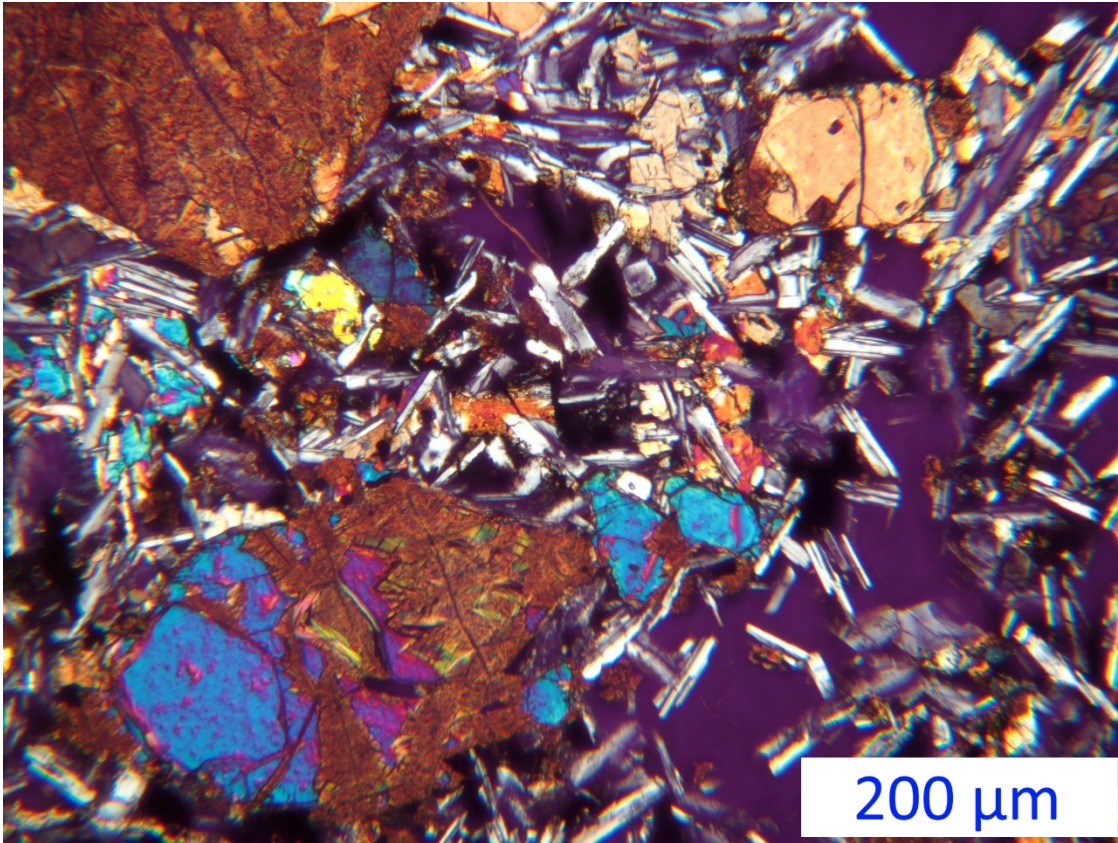


200 μm

(xpl)



200 μm



Relevant bibliographic references: