

National Argon Map: an AuScope Initiative

⁴⁰Ar/³⁹Ar Geochronology Laboratory Sample Submission Form

This form must be fully completed before any work can be submitted to the Laboratory.

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| Person submitting samples: Naina (PhD student- MinEx CRC), ANU |
| Project Title: Cambro-Ordovician magmatism and deformation at the eastern margin of Gondwana, South Australia: Insights into tectonic processes and mineral potential |
| Sample Number: 2746159 (2 samples) |
| Date submitted: |

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| GEOGRAPHIC AREA/ PROVINCE/ BASIN: | |
| 1:250k SHEET NAME: Olary | NUMBER: S15402 |
| 1:100k SHEET NAME: Anabama | NUMBER: 6932 |
| LOCATION METHOD: (GPS: WGS84 / AGD66 / AGD84 / GDA94) WGS84 | |
| ZONE: | |
| EASTING: | NORTHING: |
| LATITUDE: 32°43'21.65"S | LONGITUDE: 140°12'26.46"E |

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| STRATIGRAPHIC UNIT FORMAL NAME: Anabama Granite |
| STRATIGRAPHIC UNIT INFORMAL NAME: Anabama Granite |
| LITHOLOGY: Granite to granodiorite, coarse-grained, biotitic, S-type to I-type |

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| DRILLHOLE ID (if applicable): DDH AN 7 |
| PROSPECT (if applicable): Mo, Cu |
| DEPTH FROM (metres): 178.6m |
| DEPTH TO (metres): 178.8m |

Dating Objective

What is the geological question ⁴⁰Ar/³⁹Ar analysis will address?

The Anabama Granite has been poorly studied and dated in the past. It has never been dated using Ar-Ar geochronology. The granite displays evidences of multiple thermal and mineralisation events. Dating it would thus help in timing the different thermal events in the area.

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

Alteration/mineralisation, cooling, metamorphic ages.

Mineral target(s) for dating (provide approximate K content if known):

Biotite (9%K) and K-Feldspar (11%K).

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

Estimated age for this unit is Early Ordovician (468Ma).

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

Sample Information

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

The sample was collected from the Tonsley Drill Core library, Adelaide. The sample belongs to the hole DDH AN 7 (32°43'21.65"S, 140°12'26.46"E).

Lithological characteristics (rock description):

The core is an altered, weathered granodiorite with weak Bt foliation.

Thin section description (if available): No thin section description available.

Photograph(s) e.g. field site, hand-specimen, photomicrograph: Attached is a photograph of the core I sampled in June 2019 for my PhD.



Relevant bibliographic references:

Morris, B. J. (1979). Porphyry style Copper/Molybdenum Mineralisation at Anabama Hill. Department of Mines and Energy