

## Mesoproterozoic age for andalusite in the lower Rocky Cape Group, northwest Tasmania

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### SUPPLEMENTAL DATA

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### Supplemental data

Appendix A. Sample locations and details, metamorphic mineral map (excel file)  
Appendix B. Whole rock geochemistry, Pedder River Siltstone (excel file)  
Appendix C. EPMA data and standards.  
Appendix D. ICPMS data (excel file)

## Appendix C. Monazite systematic error summary

| Standard      | Literature |            | Utas LA-ICP-MS |            | EPMA U–Th–Pb |            |
|---------------|------------|------------|----------------|------------|--------------|------------|
|               | Ma         | 2 $\sigma$ | Ma             | 2 $\sigma$ | Ma           | 2 $\sigma$ |
| Thompson Mine | 1782       | 21         | 1747           | 8          | 1748         | 7          |
| RGL 04B       | 1566       | 3          | 1569           | 10         | 1600         | 12         |
| 14971         | 909        | 3          | 913            | 4          | 896          | 14         |
| RW-1          | 904        | 0.3        | 905            |            | 898          | 6          |
| GNS           | 487.1      |            |                |            | 476          | 6          |
| VK1           | 488        | 1          |                |            | 477          | 4          |
| 94-222        | 453        | 13         | 481            | 5          | 476          | 6          |

Weighted Mean Difference from standard:

Absolute  $-10 \pm 3$  Ma

Relative  $-0.6 \pm 0.4\%$

Source of data on Standard monazite.

Thompson Mine, 94-222: Richter, M., Nebel-Jacobsen, Y., Nebel, O., Zack, T., Mertz-Kraus, R., Raveggi, M., & Rosel, D. (2019). Assessment of Five Monazite Reference Materials for U–Th/Pb Dating Using Laser-Ablation ICP-MS. *Geosciences* 2019, 9, 391; <https://doi.org/10.3390/geosciences9090391>

RGL4B: Rubatto, D., Williams, I. S., & Buik, I. S. (2001). Zircon and Monazite response to prograde metamorphism in the Reynolds Range, central Australia. *Contributions to Mineralogy and Petrology*, 140, 458–468. <https://doi.org/10.1007/PL00007673>

14971 (CODES in house standard: analysis MC-ICP-MS University of Melbourne)

RW-1: Ling, X.-X., Huykens, M. H., Li, Q.-L., Yin, Q.-Z., Werner, R., Liu, Y., Tang, G.-Q., Tang, Y.-N., & Li X.-H. (2017). Monazite RW-1: a homogenous natural reference material for SIMS U–Pb and Th–Pb isotopic analysis. *Mineralogy & Petrology*, 111, 163–172. <https://doi.org/10.1007/s00710-016-0478-7>

GNS: Kennedy, A., & Kinney, P. D. (2004). Identifying inter- and intra-laboratory SIMS monazite standards: SHRIMP workshop abstract volume, Hiroshima, Japan, p. 11–14.

VK1: Fletcher, I. R., McNaughton, N. J., Davis, W. J., & Rasmussen, B. (2010). Matrix effects and calibration limitations in ion probe U–Pb and Th–Pb dating of monazite. *Chemical Geology*, 270, 31–44. <https://doi.org/10.1016/j.chemgeo.2009.11.003>