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Qualifications

Employment

Professor

School of Earth Atmosphere and Environment
MONASH UNIVERSITY
1 Jan 2003 → present

Prizes

Bruce Hobbs Medal - Geological Society of Australia SGTSG

Betts, Peter (Recipient), 2015

Faculty of Science Deans award for Teaching excellence - Monash University

Betts, Peter (Recipient), 2015

Geological Society of Australia W.R. Browne Award

Betts, Peter (Recipient), 11 Feb 2021

Letter of Commendation for Excellence in Teaching from the Pro-Vice Chancellor - Monash University

Betts, Peter (Recipient), 2010

Letter of Commendation for Excellence in Teaching from the Pro-Vice Chancellor - Monash University

Betts, Peter (Recipient), 2012

Letter of Commendation for Excellence in Teaching from the Pro-Vice Chancellor - Monash University

Betts, Peter (Recipient), 2011

Letter of Commendation for Excellence in Teaching from the Pro-Vice Chancellor - Monash University

Betts, Peter (Recipient), 2014

Letter of Commendation for Excellence in Teaching from the Pro-Vice Chancellor - Monash University

Betts, Peter (Recipient), 2013

Monash Research Accelerator Program - Monash University

Betts, Peter (Recipient), 2011

S.W Carey Medal

Betts, Peter (Recipient), 17 Oct 2018

Stillwell Award

Moore, David Hugh (Recipient), Betts, Peter (Recipient) & Hall, Walter David Michael (Recipient), 2016

Team Awards - VC Commendation for Team Teaching - Monash University

Betts, Peter (Recipient), 10 Nov 2015

Recent research output**The effects of inward and outward dipping craton margin geometry on upper crustal deformation: Insights from analogue modelling: Craton margin geometries**

Amirpoorsaeed, F., Samsu, A., Betts, P. G., Cruden, S. & Armit, R., 23 Apr 2023. 1 p.

A geophysically constrained crustal element map of East Antarctica between Enderby Land and Princess Elizabeth Land

Giri, Y., Betts, P. G., Radhakrishna, M., McLean, M. A., Biswal, T. K. & Armit, R. J., 8 Feb 2023, In: Australian Journal of Earth Sciences. 70, 3, p. 303-322 20 p.

Exposing basement terranes of the North Australian Craton

Kumwenda, J., Betts, P. G. & Armit, R., Feb 2023, In: Earth-Science Reviews. 237, 33 p., 104310.

The Role of Slab Steps on Tectonic Loading Along Subduction Zones: Inferences on the Seismotectonics of the Sunda Convergent Margin

Zuhair, M., Gollapalli, T., Capitanio, F. A., Betts, P. G. & Graciosa, J. C., Sept 2022, In: Tectonics. 41, 9, 24 p., e2022TC007242.

Seismic Reflection Profiles Reveal the Ore-Controlling Structures of Carlin-Style Gold Deposits in Lannigou Gold Fields, Southwestern Guizhou, China

Hu, Y., Liu, W., Zhang, G., Guan, S., Lu, Y., Li, P., Zheng, S., Fan, H. & Betts, P. G., Aug 2022, In: Economic Geology. 117, 5, p. 1203-1224 22 p.

Crustal architecture of the Eastern Ghats Mobile Belt and tectonic implications: Constraints from aeromagnetic, gravity and geological data

Giri, Y., Radhakrishna, M., Betts, P. G., Biswal, T. K., Armit, R. & Sathapathy, S. K., 20 Jul 2022, In: Tectonophysics. 835, 17 p., 229386.

Unwrapping reworked crust at the Columbia supercontinent margin within central southern Amazon Craton using multi-source geophysics and geochronology data synergy

Motta, J. G., Betts, P. G., Meira, V. T., Trevisan, V. G. & de Souza Filho, C. R., May 2022, In: Geoscience Frontiers. 13, 3, 18 p., 101348.

Crustal and upper mantle density structure below the Indian Ocean Geoid Low based on 3-D constrained potential field modelling: Inferences on causative sources

Gokul, V. S., Sreejith, K. M., Srinivasa Rao, G., Radhakrishna, M. & Betts, P. G., 5 Jan 2022, In: Tectonophysics. 822, 12 p., 229161.

Strain localisation and transcurrent reactivation in the granulite facies Kalinjala Shear Zone at Port Neill, South Australia

Wilson, C. J. L., Stewart, J. R. & Betts, P. G., 2022, In: Australian Journal of Earth Sciences. 69, 8, p. 1082-1118 37 p.

Australia's Unfolding Geoscience Malady

Boone, S., Quigley, M., Betts, P., Miller, M. & Rawling, T., 1 Nov 2021, In: Eos (United States). 102, 11, p. 28-30 3 p.

Plume Versus Slab-Pull: Example from the Arabian Plate

Aldaajani, T. Z., Almalki, K. A. & Betts, P. G., 17 Jun 2021, In: Frontiers in Earth Science. 9, 8 p., 700550.

Gulf of Aden spreading does not conform to triple-junction formation

Almalki, K. A. & Betts, P. G., 1 Jun 2021, In: *Geology*. 49, 6, p. 672-676 5 p.

Re-assessment of the depth to the base of magnetic sources (DBMS) in Australia from aeromagnetic data using the defractal method

Kumar, R., Bansal, A. R., Betts, P. G. & Ravat, D., Apr 2021, In: *Geophysical Journal International*. 225, 1, p. 530-547 18 p.

Structural overprinting criteria determined from regional aeromagnetic data: An example from the Hill End Trough, East Gondwana

Leseane, K., Betts, P., Armit, R. & Ailleres, L., 20 Dec 2020, In: *Tectonophysics*. 797, 10 p., 228660.

3-D Analog Modeling Constraints on Rifting in the Afar Region

Khalil, H. M., Capitanio, F. A., Betts, P. G. & Cruden, A. R., 1 Oct 2020, In: *Tectonics*. 39, 10, 23 p., e2020TC006339.

Interpretation of a ca. 1600–1580 Ma metamorphic core complex in the northern Gawler Craton, Australia

Tiddy, C. J., Betts, P. G., Neumann, M. R., Murphy, F. C., Stewart, J. R., Giles, D., Sawyer, M., Freeman, H. & Jourdan, F., Sept 2020, In: *Gondwana Research*. 85, p. 263-290 28 p.

The role of inherited crustal and lithospheric architecture during the evolution of the Red Sea: Insights from three dimensional analogue experiments

Molnar, N., Cruden, A. & Betts, P., 15 Aug 2020, In: *Earth and Planetary Science Letters*. 544, 11 p., 116377.

Onset of the supercontinent cycle: Evidence for multiple oceanic arc accretion events in the Paleoproterozoic Sefwi Greenstone Belt of the West African Craton

McFarlane, H. B., Thébaud, N., Parra-Avila, L. A., Armit, R., Spencer, C., Ganne, J., Aillères, L., Baratoux, L., Betts, P. G. & Jessell, M. W., 1 Dec 2019, In: *Precambrian Research*. 335, 18 p., 105450.

Tectonic analysis of regional potential field data

Betts, P., Armit, R., Tiddy, C., Armistead, S. & Ailleres, L., 11 Nov 2019, In: *Exploration Geophysics*. 2019, 1, p. 1-5 5 p.

Interpreting geology from geophysics in poly-deformed and mineralised terranes; the Otago Schist and the Hyde-Macraes Shear Zone

Blundell, C. C., Armit, R., Ailleres, L., Micklethwaite, S., Martin, A. & Betts, P., 2 Oct 2019, In: *New Zealand Journal of Geology and Geophysics*. 62, 4, p. 550-572 23 p.

Interactions between propagating rifts and linear weaknesses in the lower crust

Molnar, N. E., Cruden, A. R. & Betts, P. G., 1 Oct 2019, In: *Geosphere*. 15, 5, p. 1617-1640 24 p.

Episodic collisional orogenesis and lower crust exhumation during the Palaeoproterozoic Eburnean Orogeny: Evidence from the Sefwi Greenstone Belt, West African Craton

McFarlane, H. B., Ailleres, L., Betts, P., Ganne, J., Baratoux, L., Jessell, M. W. & Block, S., 1 Jun 2019, In: *Precambrian Research*. 325, p. 88-110 23 p.

Proxies for basement structure and its implications for Mesoproterozoic metallogenic provinces in the Gawler Craton

Motta, J. G., Betts, P. G., Filho, C. R. S., Thiel, S., Curtis, S. & Armit, R. J., 14 Feb 2019, In: *Journal of Geophysical Research: Solid Earth*. 124, 3, p. 3088-3104 17 p.

Utilising potential field modelling to better inform on the 3D structural architecture in regions of excellent structural control

Armit, R., Blaikie, T., Betts, P. & Ailleres, L., 2019, In: *Exploration Geophysics*. 2019, 1, p. 1-2 2 p.

Informing 3D structural architecture in regions of excellent structural control – an example from the Leichhardt River Fault Trough, Queensland

Armit, R. J., Betts, P., Blaikie, T. N. & Ailleres, L., 16 Jun 2018. 1 p.

Unzipping continents and the birth of microcontinents

Molnar, N. E., Cruden, A. R. & Betts, P. G., 1 May 2018, In: *Geology*. 46, 5, p. 451-454 4 p.

Cu-Au mineralisation in the Curnamona Province, South Australia: A hybrid stratiform genetic model for Mesoproterozoic IOCG systems in Australia

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Laurentian crust in northeast Australia: Implications for the assembly of the supercontinent Nuna

Nordsvan, A. R., Collins, W. J., Li, Z. X., Spencer, C. J., Pourteau, A., Withnall, I. W., Betts, P. G. & Volante, S., Mar 2018, In: *Geology*. 46, 3, p. 251-254 4 p.

The ca. 1740–1710 Ma Leichhardt Event: inversion of a continental rift and revision of the tectonic evolution of the North Australian Craton

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Late Palaeoproterozoic evolution of the buried northern Gawler Craton

Armit, R., Betts, P., Schaefer, B. F., Yi, K., Kim, Y., Dutch, R. A., Reid, A., Jagodzinski, L., Giles, D. & Ailleres, L., 1 Apr 2017, In: *Precambrian Research*. 291, p. 178-201 24 p.

Interactions between propagating rotational rifts and linear rheological heterogeneities: Insights from three-dimensional laboratory experiments

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Controls on volcanism at intraplate basaltic volcanic fields

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Spatial analysis of an intra-plate basaltic volcanic field in a compressional tectonic setting: South-eastern Australia

van den Hove, J., Grose, L., Betts, P. G., Ailleres, L., Van Otterloo, J. & Cas, R. A. F., 2017, In: *Journal of Volcanology and Geothermal Research*. 335, p. 35-53 19 p.

Constraining the VanDieland microcontinent at the edge of East Gondwana, Australia

Moore, D. H., Betts, P. G. & Hall, M., 26 Sept 2016, In: *Tectonophysics*. 687, p. 158-179 22 p.

Incipient seafloor spreading segments: insights from the Red Sea

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The Australo-Antarctic Columbia to Gondwana transition

Aitken, A. R. A., Betts, P. G., Young, D. A., Blankenship, D. D., Roberts, J. L. & Siegert, M. J., 1 Jan 2016, In: *Gondwana Research*. 29, 1, p. 136-152 17 p.

Australia and Nuna

Betts, P. G., Armit, R. J., Stewart, J., Aitken, A. R. A., Ailleres, L., Donchak, P., Hutton, L., Withnall, I. & Giles, D., 2016, In: *Geological Society Special Publications*. 424, p. 47-81 35 p.

Mesoproterozoic Tasmania: witness to the east Antarctica-Laurentia connection within Nuna

Moore, D. H. & Betts, P. G., 2016, In: *Geology*. 44, 2, p. 380 - 380 1 p.

Classification of basins, with special reference to Proterozoic examples

Allen, P. A., Eriksson, P. G., Alkimi, F. F., Betts, P. G., Catuneanu, O., Mazumder, R., Meng, Q. & Young, G. M., 2015, In: *Geological Society, London, Memoirs*. 43, p. 5-28 24 p.

Crustal architecture of the Thomson Orogen in Queensland inferred from potential field forward modelling

Spampinato, G. P. T., Ailleres, L., Betts, P. G. & Armit, R. J., 2015, In: Australian Journal of Earth Sciences. 62, 5, p. 581-603 23 p.

Early tectonic evolution of the Thomson Orogen in Queensland inferred from constrained magnetic and gravity data

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Evidence for and relationship between recent distributed extension and halokinesis in the Farasan Islands, southern Red Sea, Saudi Arabia

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Fragmented Tasmania: The transition from Rodinia to Gondwana

Moore, D. H., Betts, P. G. & Hall, W. D. M., 2015, In: Australian Journal of Earth Sciences. 62, 1, p. 1 - 35 35 p.

Geodynamics of oceanic plateau and plume head accretion and their role in Phanerozoic orogenic systems of China

Betts, P. G., Moresi, L., Miller, M. S. & Willis, D., 2015, In: Geoscience Frontiers. 6, 1, p. 49-59 11 p.

Imaging the basement architecture across the Cork Fault in Queensland using magnetic and gravity data

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Signatures of Late Neoproterozoic Gondwana assembly and Maronian glaciation in Lesser Himalaya: a palaeogeographical and stratigraphical approach

Umar, M., Betts, P., Khan, M. M. S., Sabir, M. A., Farooq, M., Zeb, A., Jadoon, U. K. & Ali, S., 2015, In: Acta Geologica Polonica. 65, 1, p. 1-19 19 p.

Structural architecture of the southern Mount Isa terrane in Queensland inferred from magnetic and gravity data

Spampinato, G. P. T., Betts, P. G., Ailleres, L. & Armit, R. J., 2015, In: Precambrian Research. 269, p. 261-280 20 p.

Subsurface structure of a large basaltic maar volcano examined using geologically constrained potential field modelling, Lake Purrumbete Maar, Newer Volcanics Province, southeastern Australia

van den Hove, J. C., Ailleres, L., Betts, P. G. & Cas, R. A. F., 2015, In: Journal of Volcanology and Geothermal Research. 304, p. 142-159 18 p.

The Red Sea - 50 years of geological and geophysical research

Almalki, K. A., Betts, P. G. & Ailleres, L., 2015, In: Earth-Science Reviews. 147, p. 109-140 32 p.

The erupted volumes of tephra from maar volcanoes and estimates of their VEI magnitude: Examples from the late Cenozoic Newer Volcanics Province, south-eastern Australia

Blaikie, T. N., van Otterloo, J., Ailleres, L., Betts, P. G. & Cas, R. A. F., 2015, In: Journal of Volcanology and Geothermal Research. 301, p. 81-89 9 p.

A geophysical comparison of the diatremes of simple and complex maar volcanoes, Newer Volcanics Province, south-eastern Australia

Blaikie, T. N., Ailleres, L., Betts, P. G. & Cas, R. A. F., 2014, In: Journal of Volcanology and Geothermal Research. 276, p. 64 - 81 18 p.

Data fusion and porphyry copper prospectivity models, southeastern Arizona

Lindsay, M. D., Betts, P. G. & Ailleres, L., 2014, In: Ore Geology Reviews. 61, p. 120 - 140 21 p.

Dynamics of continental accretion

Moresi, L-N., Betts, P. G., Miller, M. S. & Cayley, R. A., 2014, In: Nature. 508, 7495, p. 245 - 248 4 p.

Episodic sea-floor spreading in the Southern Red Sea

Almalki, K. A. S., Betts, P. G. & Ailleres, L., 2014, In: *Tectonophysics*. 617, p. 140 - 149 10 p.

High-heat geodynamic setting during the Palaeozoic evolution of the Mount Painter Province, SA, Australia: evidence from combined field structural geology and potential-field inversions

Armit, R. J., Ailleres, L., Betts, P. G., Schaefer, B. F. & Blaikie, T. N., 2014, In: *Geophysical Journal International*. 199, 1, p. 253 - 275 23 p.

Interpreting subsurface volcanic structures using geologically constrained 3-D gravity inversions: examples of maar-diatremes, Newer Volcanics Province, southeastern Australia

Blaikie, T. N., Ailleres, L., Betts, P. G. & Cas, R. A. F., 2014, In: *Journal of Geophysical Research: Solid Earth*. 119, 4, p. 3857 - 3878 22 p.

Provenance of the Early Mesoproterozoic Radium Creek Group in the northern Mount Painter Inlier: correlating isotopic signatures to inform tectonic reconstructions

Armit, R. J., Betts, P. G., Schaefer, B. F., Pankhurst, M. J. & Giles, D. L., 2014, In: *Precambrian Research*. 243, p. 63 - 87 25 p.

The subglacial geology of Wilkes Land, East Antarctica

Aitken, A. R. A., Young, D., Ferraccioli, F., Betts, P. G., Greenbaum, J. S., Richter, T. G., Roberts, J. L., Blankenship, D. D. & Siegert, M. J., 2014, In: *Geophysical Research Letters*. 41, 7, p. 2390 - 2400 11 p.

U-Pb and Hf isotopic evidence for Neoproterozoic and Paleoproterozoic basement in the buried northern Gawler Craton, South Australia

Reid, A. J., Jagodzinski, E. A., Armit, R. J., Dutch, R. A., Kirkland, C. L., Betts, P. G. & Schaefer, B. F., 2014, In: *Precambrian Research*. 250, p. 127 - 142 16 p.

Geodiversity: exploration of 3D geological model space

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North Australian Craton

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Towards understanding the early Gondwanan margin in southeastern Australia

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Constraints on long-lived Mesoproterozoic and Palaeozoic deformational events and crustal architecture in the northern Mount Painter Province, Australia

Armit, R. J., Betts, P. G., Schaefer, B. F. & Ailleres, L., 2012, In: *Gondwana Research*. 22, 1, p. 207 - 226 20 p.

Evidence for rapid tectonic switches and long lived structural reactivations in the northern Mount Painter Province, South Australia

Armit, R. J., Betts, P. G., Schaefer, B. F. & Ailleres, L., 2012, p. 5 - 6. 2 p.

Locating and quantifying geological uncertainty in three-dimensional models: analysis of the Gippsland Basin, southeastern Australia

Lindsay, M., Ailleres, L., Jessell, M., de Kemp, E. A. & Betts, P. G., 2012, In: *Tectonophysics*. 546, p. 10 - 27 18 p.

The influence of a mantle plume head on the dynamics of a retreating subduction zone

Betts, P. G., Mason, W. G. & Moresi, L.-N., 2012, In: *Geology*. 40, 8, p. 739 - 742 4 p.

Three-dimensional potential field modelling of a multi-vent maar-diatreme - The Lake Coragulac maar, Newer Volcanics Province, south-eastern Australia

Blaikie, T. N., Ailleres, L., Cas, R. A. F. & Betts, P. G., 2012, In: Journal of Volcanology and Geothermal Research. 235, p. 70 - 83 14 p.

Using uncertainty simulations and automated 3D geophysical forward modelling to optimise inversion workflows

Lindsay, M., Williams, N. (ed.), Ailleres, L., Lambert, I. (ed.), Jessell, M., Perrouty, S., de Kemp, E. A. & Betts, P. G., 2012, p. 3920 - 3920. 1 p.

Using uncertainty simulations and geodiversity to identify structural end members in three dimensional geological model suites

Lindsay, M., Perrouty, S., Jessell, M., Ailleres, L., de Kemp, E. A. & Betts, P. G., 2012, p. 78 - 79. 2 p.

A mesoproterozoic continental flood rhyolite province, the Gawler Ranges, Australia: the end member example of the large igneous province clan

Pankhurst, M., Schaefer, B., Betts, P., Phillips, N. & Hand, M., 2011, In: Solid Earth. 2, p. 1 - 9 9 p.

Categorising features of geological terranes with geodiversity metrics: Enhancing exploration of multiple geological models

Lindsay, M. D., Perrouty, S., Jessell, M. J., Ailleres, L., Kemp, B. E. & Betts, P. G., 2011, *MODSIM 2011 - 19th International Congress on Modelling and Simulation - Sustaining Our Future: Understanding and Living with Uncertainty*. Chan, F., Marinova, D. & Anderssen, R. S. (eds.). Modelling and Simulation Society of Australia and New Zealand (MSSANZ), p. 648-654 7 p.

Geodynamics of rapid voluminous felsic magmatism through time

Pankhurst, M., Schaefer, B. & Betts, P., 2011, In: Lithos. 123, 1-4, p. 92 - 101 10 p.

Locating a major Proterozoic crustal boundary beneath the Eastern Officer Basin, Australia

Baines, G., Giles, D., Betts, P. & Backe, G., 2011, In: Precambrian Research. 191, 3-4, p. 120 - 140 21 p.

Palaeoproterozoic accretion processes of Australia and comparisons with Laurentia

Betts, P., Giles, D. & Aitken, A., 2011, In: International Geology Review. 53, 11-12, p. 1357 - 1376 20 p.

Using P-T paths to interpret the tectonothermal setting of prograde metamorphism: An example from the northeastern Gawler Craton, South Australia

Forbes, C. J., Giles, D., Hand, M., Betts, P. G., Suzuki, K., Chalmers, N. & Dutch, R., 2011, In: Precambrian Research. 185, 1-2, p. 65 - 85 21 p.

Grants

GMK: Investigating the Link between Mineralised Shear Zones and Subsurface Granites for Rare Earth Element Exploration in Australia: A Geophysical Study of the Mary Kathleen Syncline

Betts, P. & Olesch-Byrne, A.

Australian Society Of Exploration Geophysicists (ASEG): A\$20,000.00

18/10/23 → 31/12/24