CURRICULUM VITAE: ASSOCIATE PROFESSOR DAVID HESLOP

Research School of Earth Sciences, Australian National University (david.heslop@anu.edu.au)

PROFESSIONAL APPOINTMENTS

- **Joint Appointed Fellow**, Geological Survey of Japan. 2018-2019
- **Senior Fellow**, Research School of Earth Sciences, ANU. 2016-Present
- **Fellow**, Research School of Earth Sciences, ANU. 2011-2016
- **Deutsche Forschungsgemeinschaft Senior Scientist**, University of Bremen, Germany. 2008-2010
- **Assistant Professor**, MARUM – Center for Marine Environmental Sciences, Germany. 2002-2008
- **Postdoctoral Researcher**, Department of Earth Science, Utrecht University, Netherlands. 1999-2002

EDUCATION

- **Habilitation**, Geophysics, Bremen University, Germany. 2002-2008
- **Doctor of Philosophy**, Geophysics, Liverpool University, UK. 1995-1999
- **Bachelor of Science with Honours**, Archaeology, Durham University, UK. 1992-1995

MAJOR SERVICE CONTRIBUTIONS

- **Masters Program Convenor**, Research School of Earth Sciences, ANU. 2021-Present
- **Associate Director Science Education**, Research School of Earth Sciences, ANU. 2015-2018

HONOURS AND AWARDS

- **Bear McPhail Excellence in Teaching Award**, RSES, Australian National University. 2021
- **Privatdozent** (elected to teaching faculty), Bremen University, Germany. 2008

COMPETITIVE FUNDING (SINCE 2011, * denotes Heslop as lead-CI)

- ***DFAT New Colombo Plan 2017 - 2022**, Understanding geological hazards. $280k
- ***ARC DP210102167**, Understanding the Geodynamo: Putting Australia on the Map $470k
- **ARC DP200100765**, Single sample unmixing with machine learning. $424k
- **ARC DP19010087**, A new generation of palaeomagnetic statistics. $360k
- **ANU MEC 2011, 2012*, 2016 &2019**, Palaeomagnetic instrumentation. $489k
- **Japan AIST Projects 2018,** Development of machine learning in magnetic research. $1,100k
- **ANZIC Special funding 2012* & 2014**, Giant magnetofossils & hypothermal events. $45k
- **ARC LE120100218**, A world-class rock magnetic facility. $563k
- ***ARC DP120103952**, How do sediments become magnetised? $480k

INVITED INTERNATIONAL PRESENTATIONS

- **Magnetic NetworkZ**, Online Seminar 2021
- **IAGA-IASPEI**, Joint Scientific Assembly 2021
- **Kochi University,** International Workshop 2017
- **Peking University,** Guest lecture 2016
- **Qingdao National Laboratory for Marine Science**, Guest Lecture 2016
- **Institute for Rock Magnetism**, Conference on Rock Magnetism. 2014, 2017 (x2), 2021
- **European Geosciences Union**, General Assembly. 2005, 2012, 2016
- **American Geophysical Union**, Fall Meeting & Meeting of the Americas 2008, 2010, 2013 (x2), 2014
- **German Geophysical Society**, Annual Meeting. 2007
- **International Union of Geodesy and Geophysics**, General Assembly. 2003

PEER-REVIEWED PUBLICATIONS (CITATIONS = >8410, H-INDEX = 49, M-QUOTIENT = 2.1)

1. Moreno, R., W. Williams, A. R. Muxworthy, G. A. Paterson & **D. Heslop** (2022). The meaning of maxima and minima in forst order reversal curves: Determining the interaction between species in a sample. *Journal of Magnetism and Magnetic Materials*, 564, 170042, doi: 10.1016/j.jmmm.2022.170042.
2. Hennekam, R. K. M. grant, E. J. Rohling, R. Tjallingi, **D. Heslop**, A. P. Roberts, L. J. Lourens & G.-J. Reichart (2022). Accurately calibrated X-ray fluorescence core scanning (XRF-CS) record of Ti/Al reveals Early Pleistocene and humidity variability over North Africa and its close relationship to low-latitude insolation. *Climate of the Past*, 18, 2509-2521, doi: 10.5194/cp-18-2509-2022.
3. Rohling, E. J., G. L. Foster, T. M. Gernon, K. M. grant, **D. Heslop**, F. D. Hibbert, A. P. Roberts & J. Yu (2022). Comparison and synthesis of sea-level and deep-sea temperature variations over the past 40 million years. *Reviews of Geophysics*, 60, e2022RG000775, doi: 10.1029/2022RG000775.
4. Piedrahita, V. A., S. Galeotti, X. Zhang, A. P. Roberts, E. J. Rohling, **D. Heslop**, F. Florindo, K. M. grant, L. Rodriguez-Sanz, D. Reghellin & R. E. Zeebe (2022). Orbital phasing of the Paleocene-Eocene Thermal Maximum. *Earth and Planetary Science Letters*, 598, 117839, doi:10.1016/j.epsl.2022.117839.
5. Umarathunga, U., A. M. C. Hogg, E. J. Rohling, A. P. Roberts, K. M. Grant, **D. Heslop**, P.-X. Hu, D. Liebrand, T. Westerhold, X. Zhao & S. Gilmore (2022). Sill-controlled salinity constrasts followed post-Messinian flooding of the Mediterranean. *Nature Geoscience*, 15, 720-725, doi:10.1038/s41561-022-00998-z.
6. Roberts, A. P., **D. Heslop**, X. Zhao, H. Oda, R. Egli, R. J. Harrison, P.-X. Hu, A. R. Muxworthy & T. Sato (2022). Unlocking information about fine magnetic particle assemblages from first-order reversal curve diagrams: Recent advances. *Earth-Science Reviews* (accepted 25/1/2022).
7. Grant, K., U. Amarathunga, J. Amies, P.X. Hu, Y. Qian, T. Penny, L. Rodríguez-Sanz, X. Zhao, **D. Heslop**, D. Liebrand, R. Hennekam, T. Westerhold, S. Gilmore, L. Lourens, A. P. Roberts & E. J. Rohling (2022). Organic carbon burial in Mediterranean sapropels intensified during Green Sahara Periods since 3.2 Myr ago. *Communications Earth & Environment*, 3, 11, doi:10.1038/s43247-021-00339-9.
8. Scealy, J. L., **D. Heslop**, J. Liu & A. T. A. Wood (2021). Directions old and new: Palaeomagnetism and Fisher (1953) meet modern statistics. *International Statistical Review,* doi:10.1111/insr.12481.
9. Qian, Y., **D. Heslop**, A. P. Roberts, P.-X. Hu, X. Zhao, Y. Lin, J. Li, K. M. Grant & E. J. Rohling (2021). Low-temperature magnetic properties of marine sediments - Quantifying magnetofossils, superparamagnetism, and maghemitization: Eastern Mediterranean examples. *Journal of Geophysical Research*, 126, e2021JB021793, doi: 10.1029/2021JB021793.
10. Roberts, A. P., X. Zhao, P.-X. Hu, A. Abrajevitch, Y.-H. Chen, R. J. Harrison, **D. Heslop**, Z. Jiang, J. Li, Q. Liu, A. R. Muxworthy, H. Oda, H. St. C. O'Neill, B. J. Pillans & T. Sato (2021). Magnetic domain state and anisotropy in hematite (α-Fe2O3) from first-order reversal curve diagrams. *Journal of Geophysical Research*, 126, e2021JB023027, doi:10.1029/2021JB023027.
11. Larrasoaña, J. C., J. Pey, X. Zhao, **D. Heslop**, T. Mochales, P. Mata, E. Beamud, J. Reyes, J. C. Cerro, N. Perez & S. Castillo (2021). Environmental magnetic fingerprinting of anthropogenic and natural atmospheric deposition over southwestern Europe. *Atmospheric Environment,* 261, 118568, doi:10.1016/j.atmosenv.2021.118568.
12. Holbourn, A., W. Kuhnt, S. C. Clemens & **D. Heslop** (2021). A ~12 Myr Miocene record of East Asian Monsoon variability from the South China Sea. *Paleoceanography and Paleoclimatology*, 36, e2021PA004267, doi:10.1029/2021PA004267.
13. Rohling, E. J., J. Yu, **D. Heslop**, G. L. Foster, B. Opdyke, A. P. Roberts (2021). Sea level and deep-sea temperature reconstructions suggest quasi-stable states and critical transitions over the past 40 million years. *Science Advances*, 26, eabf5326, doi:10.1126/sciadv.abf5326.
14. Wu, Y., A. P. Roberts, K. M. grant, **D. Heslop**, B. J. Pillans, X. Zhao, E. J. Rohling, T. A. Ronge, M. Ma, P. P. Hesse, A. S. Palmer (2021). Climatically modulated dust inputs from New Zealand to the Southwest Pacific sector of the Southern Ocean over the last 410 kyr. *Paleoceanography and Paleoclimatology*, 36, e2020PA003949, doi:10.1029/2020PA003949.

15. Lisé-Pronovost, A., M.-S. Fletcher, Q. Simon, Z. Jacobs, P. S. Gadd, **D. Heslop**, A. I. R. Herries, Y. Yokoyama (2021). Chronostratigraphy of a 270-ka sediment record from Lake Selina, Tasmania: Combining radiometric, geomagnetic and climatic dating. *Quaternary Geochronology*, 62, 101152, doi:10.1016/j.quageo.2021.101152.
16. Chang, L. H. Hong, F. Bai, S. Wang, Z. Pei, G. A. Paterson, **D. Heslop**, A. P. Roberts, B. Huang, L. Tauxe & A. R. Muxworthy (2021). Detrital remanent magnetization of single-crystal silicates with magnetic inclusions: constraints from depositional experiments. *Geophysical Journal International,* 24, 2001-2005, doi:10.1093/gji/ggaa559.
17. Long, K., **D. Heslop** & E. J. Rohling (2021). Quantitative assessment of the oxygen isotope composition of fish otoliths from Lake Mungo, Australia. *Quaternary Research,* 102, 234-246, doi:10.1017/qua.2020.121.
18. Hu, P.-X., H. Oda, X. Zhao, R. J. Harrison, **D. Heslop**, T. Sato, A. R. Muxworthy & A. P. Roberts (2021). Assessment of magnetic techniques for understanding complex mixtures of magnetite and hematite: The Inuyama red chert. *Journal of Geophysical Research*, 126, e2020JB019518, doi:10.1029/2020JB019518.
19. Roberts, A. P., X. Zhao, **D. Heslop**, A. Abrajevitch, Y. H. Chen, P.-X. Hu, Z. Jiang, Q. Liu & B. J. Pillans (2020). Hematite (α-Fe_2O_3) quantification in sedimentary magnetism: limitations of existing proxies and ways forward. *Geoscience Letters*, 7, 1-11, doi:10.1186/s40562-020-00157-5.
20. **Heslop, D.** A. P. Roberts, H. Oda, X. Zhao, R. J. Harrison, A. R. Muxworthy, P.-X. Hu & T. Sato (2020). An automatic model selection-based machine learning framework to estimate FORC distributions. *Journal of Geophysical Research*, 125, e2020JB020418, doi:10.1029/2020JB020418.
21. Qian, Y., A. P. Roberts, Y. Lin, P.-X Hu, X. Zhao, **D. Heslop**, K. M. Grant, E. J. Rohling, R. Hennekam & J. Li (2020). Assessment and integration of bulk and component-specific methods for identifying mineral magnetic assemblages in environmental magnetism. *Journal of Geophysical Research*, 125, e2019JB019024, doi:10.1029/2019JB019024.
22. **Heslop, D.** & A. P. Roberts (2020). Uncertainty propagation in hierarchical paleomagnetic reconstructions. *Journal of Geophysical Research*, 125, e2020JB019488, doi:10.1029/2020JB019488.
23. Valdez-Grijalva, M. A, L. Nagy, A. R. Muxworthy, W. Williams, A. P. Roberts & **D. Heslop** (2020). Micromagnetic simulations of first-order reversal curve (FORC) diagrams of framboidal greigite. *Geophysical Journal International*, 222, 1126-1134, doi:10.1093/gji/ggaa241.
24. Hu, P.-X, **D. Heslop**, R. A. V. Rossel, A. P. Roberts & X. Zhao (2020). Continental-scale magnetic properties of surficial Australian soils. *Earth-Science Reviews*, 203, 103028, doi:10.1016/j.earscirev.2019.103028.
25. Abram, N. J., N. M. Wright, B. Ellis, B. C. Dixon, J. B. Wurtzel, M. H. England, C. C. Ummenhofer, B. Philibosian, S. Y. Cahyarini, T.-L. Yu, C.-C. Shen, H. Cheng, R. L. Edwards & **D. Heslop** (2020). Coupling of Indo-Pacific climate variability over the last millennium. *Nature*, 579, 385-392, doi:10.1038/s41586-020-2084-4.
26. Abubaker, R., A. R. Muxworthy, A. Fraser, M. A. Sephton, J. S. Watson, **D. Heslop**, G. A. Paterson & P. Southern (2020). Mapping hydrocarbon charge-points in the Wessex Basin using seismic, geochemistry and mineral magnetics. *Marine and Petroleum Geology*, 111, 510-528, doi:10.1016/j.marpetgeo.2019.08.042.
27. Harrison, R. J., X. Zhao, P. Hu, T. Sato, **D. Heslop**, A. R. Muxworthy, H. Oda, V. S. C. Kuppili & A. P. Roberts (2020). Simulation of remanent, transient, and induced FORC diagrams for interacting particles with unixaxial, cubic and hexagonal anisotropy. *Journal of Geophysical Research*, 124, 12404-12429, doi:10.1029/2019JB018050.
28. **Heslop, D.** & A. P. Roberts (2019). Quantifying the similarity of paleomagnetic poles. *Journal of Geophysical Research*, 124, 12388-12403, doi:10.1029/2019/JB018342.
29. Haiblen, A. M., B. N. Opdyke, A. P. Roberts, **D. Heslop** & P. A. Wilson (2019). Midlatitude Southern Hemisphere temperature change at the end of the Eocene Greenhouse shortly before dawn of the Oligocene Icehouse. *Paleoceanography and Paleoclimatology,* 34, 1995-2004, doi:10.1029/2018JB016859.

30. Hong, H., L. Chang, A. Hayashida, A. P. Roberts, **D. Heslop**, G. A. Paterson, K. Kodama & L. Tauxe (2019). Paleomagnetic recording efficiency of sedimentary magnetic mineral inclusions: implications for relative paleointensity determinations. *Journal of Geophysical Research*, 124, 5286-5314, doi:10.1029/2018JB016859.
31. Sato, T., N. Nakamura, K. Goto, Y. Kumagai, H. Nagahama, K. Minoura, X. Zhao, **D. Heslop** & A. P. Roberts (2019). Dating of tsunami boulders from Ishigaki Island, Japan, with a modified viscous remanent magnetization approach. *Earth and Planetary Science Letters*, 520, 94-104, doi:10.1016/j.epsl.2019.05.028.
32. Roberts, A. P., P. X. Hu, R. J. Harrison, **D. Heslop**, A. R. Muxworthy, H. Oda, T. Sato, L. Tauxe & X. Zhao (2019). Domain state diagnosis in rock magnetism: evaluation of potential alternatives to the Day diagram. *Journal of Geophysical Research*, 124, doi:10.1029/2018JB017049.
33. Valdez-Grijalva, M. A, A. R. Muxworthy, W. Williams, P. Ó Conbhuí, L. Nagy, A. P. Roberts & **D. Heslop** (2018). Magnetic vortex effects on first-order reversal curve (FORC) diagrams for greigite dispersions. *Earth and Planetary Science Letters*, 501, 103-111, doi:10.1016/j.epsl.2018.08.027.
34. Chang, L., R. J. Harrison, F. Zeng, T. A. Berndt, A. P. Roberts, **D. Heslop** & X. Zhao (2018). Coupled microbial bloom and oxygenation decline recorded by magnetofossils during the Palaeocene - Eocene Thermal Maximum. *Nature Communications*, 9, 4007, doi:10.1038/s41467-018-06472-y.
35. **Heslop, D.** & A. P. Roberts (2018). Revisiting the paleomagnetic reversal test: A Bayesian hypothesis testing framework for a common mean direction. *Journal of Geophysical Research*, 123, 7225-7236, doi:10.1029/2018JB016081.
36. Wurtzel, J. B., N. J. Abram, S. C. Lewis, P. Bajo, J. C. Hellstrom, U. Troitzsch & **D. Heslop** (2018). Tropical Indo-Pacific hydroclimate response to North Atlantic forcing during the last deglaciation as recorded by a speleothem from Sumatra, Indonesia. *Earth and Planetary Science Letters*, 492, 264-278, doi:10.1016/j.epsl.2018.04.001.
37. Lisé-Pronovost, A., F. Salomon, J.-P. Goiran, G. St-Onge, A. I. R. Herries, J.-C. Montero-Serrano, **D. Heslop**, A. P. Roberts, V. Levchenko, A. Zawadzki & H. Heijnis (2018). Dredging and canal gate technologies in Portus, the ancient harbour of Rome, reconstructed from event stratigraphy and multi-proxy sediment analysis. *Quaternary International*, 511, 78-93, doi:10.1016/j.quaint.2018.05.018.
38. Roberts, A. P., L. Tauxe, **D. Heslop**, X. Zhao & Z. Jiang (2018). A Critical appraisal of the "Day" diagram. *Journal of Geophysical Research,* 123, 2618-2644, doi:10.1002/2017JB015247.
39. **Heslop, D.** & A. P. Roberts (2018). A Bayesian approach to the paleomagnetic conglomerate test. *Journal of Geophysical Research*, 123, 1132-1142, doi:10.1002/2017JB014526.
40. Hu, P. X., X. Zhao, A. P. Roberts, **D. Heslop** & R. A. Viscarra Rossel (2018). Magnetic domain state diagnosis in soils, loess, and marine sediments from multiple first-order reversal curve-type diagrams. *Journal of Geophysical Research*, 123, 998-1017, doi:10.1002/2017JB015195.
41. Paterson, G. A., X. Zhao, M. Jackson & **D. Heslop** (2018). Measuring, processing, and analyzing hysteresis data. *Geochemistry, Geophysics, Geosystems*, 19, 1925-1945, doi:10.1029/2018GC007620.
42. Roberts, A. P., X. Zhao, R. J. Harrison, **D. Heslop**, A. R. Muxworthy, C. J. Rowan, J.-C. Larrasoaña & F. Florindo (2018). Signatures of reductive magnetic mineral diagenesis from unmixing of first-order reversal curves. *Journal of Geophysical Research*, 123, 4500-4522, doi:10.1029/2018JB015706.
43. Li, M., T. Ouyang, A. P. Roberts, **D. Heslop**, Z. Zhu, X. Zhao, C. Tian, S. Peng, H. Zhong, X. Peng & Y. Qiu (2018). Influence of sea level change and centennial East Asian monsoon variations on northern South China Sea sediments over the past 36 kyr. *Geochemistry, Geophysics, Geosystems*, 19, 1674-1689, doi:10.1029/2017GC007321.
44. Harrison, R. J., J. Muraszko, **D. Heslop**, I. Lascu, A. R. Muxworthy & A. P. Roberts (2018). An improved algorithm for unmixing first-order reversal curve diagrams using principal component analysis. *Geochemistry, Geophysics, Geosystems*, 13, 1595-1610, doi:10.1029/2018GC007511.
45. Rodríguez-Sanz, L., S. M. Bernasconi, G. Marino, **D. Heslop**, I. A. Mueller, A. Fernandez, K. M. Grant & E. J. Rohling (2017). Penultimate deglacial warming across the Mediterranean Sea revealed by clumped isotopes in foraminifera. *Scientific Reports*, 7, 16572, doi:10.1038/s41598-017-16528-6.

46. Grant, K. M., E. J. Rohling, T. Westerhold, M. Zabel, **D. Heslop**, T. Konijnendijk & L. Lourens (2017). A 3 million year index for North African humidity/aridity and the implication of potential pan-African Humid periods. *Quaternary Science Reviews*, 171, 100-118, doi:10.1016/j.quascirev.2017.07.005.
47. Chen, L., **D. Heslop**, A. P. Roberts, L. Chang, X. Zhao, H. V. McGregor, G. Marino, L. Rodriguez-Sanz, E. J. Rohling & H. Pälike (2017). Remanence acquisition efficiency in biogenic and detrital magnetite and recording of geomagnetic paleointensity. *Geochemistry, Geophysics, Geosystems*, 18, 1435-1450, doi:10.1002/2016GC006753.
48. Ingham, E., G. M. Turner, C. E. Conway, **D. Heslop**, A. P. Roberts, G. Leonard, D. Townsend & A. Calvert (2017). Volcanic records of the Laschamp geomagnetic excursion from Mt Ruapehu, New Zealand. *Earth and Planetary Science Letters*, 472, 131-141, doi:10.1016/j.epsl.2017.05.023.
49. Nie, J., G. Garzione, Q. Su, Q. Liu, R. Zhang, **D. Heslop**, C. Necula, S. Zhang, Y. Song & Z. Luo (2017). Dominant 100,000-year precipitation cyclicity in a late Miocene lake from northeast Tibet. *Science Advances*, 3, e1600762, doi:10.1126/sciadv.1600762.
50. Zhao, X., A. P. Roberts, **D. Heslop**, G. A. Paterson, Y. Li & J. Li (2017). Magnetic domain state diagnosis using hysteresis reversal curves. *Journal of Geophysical Research*, 122, 4767-4789, doi:10.1002/2016JB013683.
51. Walczak, M. H., J. S. Stoner, A. C. Mix, J. Jaeger, G. P. Rosen, J. E. T. Channell, **D. Heslop** & C. Xuan (2017). A 17,000 yr paleomagnetic secular variation record from the southeast Alaskan margin: Regional and global correlations. *Earth and Planetary Science Letters*, 473, 177-189, doi:10.1016/j.epsl.2017.05.022.
52. Roberts, A. P., T. P. Almeida, N. S. Church, R. J. Harrison, **D. Heslop**, Y. Li, J. Li, A. R. Muxworthy, W. Williams & X. Zhao (2017). Resolving the origin of pseudo-single domain magnetic behavior. *Journal of Geophysical Research*, 122, 9534-9558, doi:10.1002/2017JB014860.
53. Plaza-Morlote, M., D. Rey, J. F. Santos, S. Ribeiro, **D. Heslop**, A. Bernabeu, K. J. Mohamed, B. Rubio & V. Martins (2017). Southernmost evidence of large European Ice Sheet-derived freshwater discharges during the Heinrich Stadials of the Last Glacial Period (Galician Interior Basin, Northwest Iberian Continental Margin). *Earth and Planetary Science Letters*, 457, 213-226, doi:10.1016/j.epsl.2016.10.020.
54. **Heslop, D.** & A. P. Roberts (2016). Analyzing paleomagnetic data: To anchor or not to anchor? *Journal of Geophysical Research*, 121, 7742-7753, doi:10.1002/2016JB013387.
55. **Heslop, D.** & A. P. Roberts (2016). Estimation and propagation of uncertainties associated with paleomagnetic directions. *Journal of Geophysical Research*, 121, 2274-2289, doi:10.1002/2015JB012544.
56. Zhang, R., C. Necula, **D. Heslop** & J. Nie (2016). Unmixing hysteresis loops of the late Miocene–early Pleistocene loess-red clay sequence. *Scientific Reports*, 6, doi:10.1038/srep29515.
57. Hu, P. X., Z. Jiang, Q. S. Liu, **D. Heslop**, A. P. Roberts, J. Torrent & V. Barron (2016*).* Estimating the concentration of aluminum-substituted hematite and goethite using diffuse reflectance spectrometry and rock magnetism: Feasibility and limitations. *Journal of Geophysical Research*, 121, 4180-4194, doi:10.1002/2015JB012635.
58. Jiang, Z. X., Q. S. Liu, X. Zhao, A. P. Roberts, **D. Heslop**, V. Barron & J. Torrent (2016). Magnetism of Al-substituted magnetite reduced from Al-hematite. *Journal of Geophysical Research*, 121, 4195-4210, doi:10.1002/2016JB012863.
59. Chang, L., C. T. Bolton, M. J. Dekkers, A. Hayashida, **D. Heslop**, W. Krijgsman, K. Kodama, G. A. Paterson, A. P. Roberts, E. J. Rohling, Y. Yamamoto & X. Zhao (2016). Asian monsoon modulation of nonsteady state diagenesis in hemipelagic marine sediments offshore of Japan. *Geochemistry, Geophysics, Geosystems*, 17, 4383-4398, doi:10.1002/2016GC006344.
60. Chang, L., A. P. Roberts, **D. Heslop**, A. Hayashida, J. Li, X. Zhao, W. Tian & Q. Huang (2016). Widespread occurrence of silicate-hosted magnetic mineral inclusions in marine sediments and their contribution to paleomagnetic recording. *Journal of Geophysical Research*, 121, 8415-8431, doi:10.1002/2016JB013109.
61. Paterson, G., **D. Heslop** & Y. Pan (2016). The pseudo-Thellier palaeointensity method: new calibration and uncertainty estimates. *Geophysical Journal International*, 207, 1596-1608, doi:10.1093/gji/ggw349.
62. Chang, L., **D. Heslop**, A. P., Roberts, D. Rey & K. J. Mohamed (2016). Discrimination of biogenic and detrital magnetite through a double Verwey transition temperature. *Journal of Geophysical Research*, 121, 3-14, doi:10.1002/2015JB012485.

63. Weltje, G. J., M. R. Bloemsma, R. Tjallingii, **D. Heslop**, U. Röhl & I. W. Croudace (2015). Prediction of geochemical composition from XRF core scanner data: A new multivariate approach including automatic selection of calibration samples and quantification of uncertainties, In: *Micro-XRF Studies of Sediment Cores: A Non-Destructive Tool for the Environmental Sciences*, Developments in Paleoenvironmental Research, pp. 507-534.
64. Morley, A., **D. Heslop**, C. Rühlemann, S. Mulitza, A. Paul & M. Schulz (2015). Detecting Holocene Changes in the Atlantic Meridional Overturning Circulation: Integration of Proxy Data and Climate Simulations, In: *Integrated Analysis of Interglacial Climate Dynamics (INTERDYNAMIC)*, SpringerBriefs in Earth System Sciences, pp. 43-48, doi:10.1007/978-3-319-00693-2_*.
65. Hu, P.X., Q. S. Liu, **D. Heslop**, A. P. Roberts & C. Jin (2015). Soil moisture balance and magnetic enhancement in loess-paleosol sequences from the Tibetan Plateau and Chinese Loess Plateau. *Earth and Planetary Science Letters*, 409, 120-132, doi:10.1016/j.epsl.2014.10.035.
66. Muxworthy, A. R., J. Williams & **D. Heslop** (2015). Testing the use of viscous remanent magnetisation to date flood events. *Frontiers in Earth Science*, 3, 1, doi:10.3389/feart.2015.00001.
67. Paterson, G. & **D. Heslop** (2015). New methods for unmixing sediment grain size data. *Geochemistry, Geophysics, Geosystems*, 16, 4494-4506, doi:10.1002/2015GC006070.
68. Marino, G., E. J. Rohling, L. Rodríguez-Sanz, K. M. Grant, **D. Heslop**, A. P. Roberts, J. D. Stanford & J. Yu (2015). Bipolar seesaw control on last interglacial sea level. *Nature*, 522, 197-201, doi:10.1038/nature14499.
69. Larrasoaña, J. C., A. P. Roberts, Q. S. Liu, R. Lyons, F. Oldfield, E. J. Rohling & **D. Heslop** (2015). Source-to-sink magnetic properties of NE Saharan dust in Eastern Mediterranean marine sediments: review and paleoenvironmental implications. *Frontiers in Earth Science*, 3,doi:10.3389/feart.2015.00019.
70. Zhao, X., **D. Heslop** & A. P. Roberts (2015). A protocol for variable-resolution first-order reversal curve measurements, *Geochemistry, Geophysics, Geosystems*, 16, 1364-1377, doi:10.1002/2014GC005680.
71. **Heslop, D.** (2015). Numerical strategies for magnetic mineral unmixing. *Earth-Science Reviews*, 150, 256-284, doi:10.1016/j.earscirev.2015.07.007.
72. Pan, X., Z. Shen, A. P. Roberts, **D. Heslop** & L. Shi (2014). Syntectonic emplacement of Late Cretaceous mafic dyke swarms in coastal southeastern China: Insights from magnetic fabrics, rock magnetism and field evidence. *Tectonophysics*, 637, 328-340, doi:10.1016/j.tecto.2014.10.018.
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CONTRIBUTIONS TO EDUCATION AT ANU

- **Course Convener & Lecturer**
  - **EMSC3033**, Applied Geophysics (S1). 2021-Present
  - **EMSC8030**, Earth Science Research Project (S1 & S2) 2021-Present
  - **EMSC8032**, Earth Science Research Proposal & Presentation (S1 & S2) 2021-Present
  - **EMSC8034**, Research Orientation: Big Questions in the Earth Sciences (S1 & S2). 2021-Present
  - **New Colombo Plan**, Understanding Geological Hazards (S2). 2017-Present
  - **EMSC8023/4123**, Data Analysis (S1 & S2). 2015-2019
  - **EMSC8024/4020**, Analytical Techniques & Data Analysis (S1 & S2). 2015-2019
  - **EMSC8712**, Electronics & Data Analysis (S2). 2019
  - **EMSC3050**, Special Topics (S1 & S2). 2016-2017
  - **EMSC3025**, Groundwater (S2). 2017
  - **EMSC4005**, Introduction to Statistics for Geoscientists (S1 & S2). 2012-2014
- **Lecturer / Guest Lecturer**
  - **EMSC2022**, Introduction to Global Geophysics (S1 – 4 weeks). 2018-Present
  - **EMSC3033**, Applied Geophysics (S1 – 6 weeks). 2019
  - **EMSC8017/4017**, Research Methods for Earth Sciences (S2 – 3 weeks). 2018
  - **EMSC8034**, Big Questions in the Earth Sciences (S1 & S2 – 1 week). 2018-Present
  - **BIAN3010**, Scientific Dating for Archaeology (S2 – 1 week). 2013-Present

INVITED PH.D. LECTURE COURSES

- **Introduction to MATLAB for Geoscientists**, International College in Global Change. 2009-2010
- **Introduction to Multivariate Statistics**, European College in Marine Sciences. 2008
- **Statistical Methods**, International School for Marine Science. 2007
- **Signal and Time Series Analysis**, European College in Marine Sciences. 2006
- **Data Analysis in the Earth Sciences**, European College in Marine Sciences. 2003-2004

SUPERVISION

- **Professional Staff**
  Dr Xiang Zhao (Technical Officer, ANU), Dr Pengxiang Hu (Technical Officer, ANU)
- **Academic Staff**
  Dr Jia Liu (Postdoctoral Fellow, ANU), Dr Xiang Zhao (Postdoctoral Fellow, ANU), Dr Liao Chang (Postdoctoral Fellow, ANU), Dr Pengxiang Hu (Postdoctoral Fellow, ANU), Dr Liang Chen (State Oceanic Administration, Guangzhou, China), Dr Yi Wu (Chinese Academy of Sciences).
- **Ph.D. Supervisor**
  - Cornelia Köhler (University of Bremen): *Proxy based reconstructions of late Miocene climatic and tectonic driven changes in the Eastern Mediterranean.*
  - Mathias Höcker (University of Bremen): *Combining rock magnetism and voltammetry to investigate the provenance and preservation of aeolian hematite and goethite in Eastern Mediterranean sediments.*
  - Anne Witt (University of Bremen): *Numerical modelling of remanence carriers and remanence acquisition in marine sediments.*
- **Ph.D. Advisor**
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- **M.Sc. / Honours / Undergraduate supervisor**
  - Andriana Stoddart (ANU): *Characterising the magnetic mineralogy of Australian dust source areas.*
  - Kejie Liu (ANU): *Bayesian changepoint analysis of a modified paleointensity database for 65-200 Ma.*
  - Lucy Wenger (ANU): *Hunting for magnetotactic bacteria in Lake George and other Australian localities.*
  - Yanzhe Fu (University of Bremen): *Rock magnetic identification and geochemical process model of greigite formation in Quaternary marine sediments from the Gulf of Mexico.*
  - David Krüger (University of Bremen): *Numerical models of metamagnetism.*
  - Thorben Freidank (University of Bremen): *Characterization of reservoir rocks using rock-magnetic, mineralogical and optical methods.*

ANU SERVICE CONTRIBUTIONS

- **RSES Mentoring Program**, Research School of Earth Sciences. 2022
- **Masters Program Convenor**, Research School of Earth Sciences. 2021-Present
- **meriSTEM Contributor**, Research School of Earth Sciences. 2021
- **Digital Master Plan | Data Working Group**, ANU. 2020-Present
- **Deputy Associate Director Honours and Masters***,* Research School of Earth Sciences. 2018-2021
- **Data Science Research Theme Facilitator**, Research School of Earth Sciences. 2017-2019
- **Mentor - Early Career Academic Development Scheme***,* College of Science. 2017
- **Science Excellence in Education Awards Selection Committee**, College of Science. 2017

- **Research Committee**, Research School of Earth Sciences. 2017
- **University Medal Selection Committee**, College of Science 2016-Present
- **Education Committee**, Research School of Earth Sciences (Chair: 2015-2018). 2015-Present
- **Scholarships Committee**, Research School of Earth Sciences (Chair: 2016-2018). 2015-Present
- **Education Committee**, College of Science. 2015-2018
- **Associate Directors of Science Education Committee***,* College of Science. 2015-2018
- **Associate Director Science Education***,* Research School of Earth Sciences. 2015-2018
- **School Executive***,* Research School of Earth Sciences. 2015-2018
- **Board of Studies**, School of Archaeology and Anthropology. 2016-2017
- **ACTION Trust Scholarship Committee**, Research School of Earth Sciences. 2015-2018

EXTERNAL SERVICE CONTRIBUTIONS

- **Teacher Earth Science Education Programme**, Board member. 2016-2018
- **Australian Research Council, US National Science Foundation and IODP**, Reviewer. 2013-Present
- **AGU Geochemistry, Geophysics, Geosystems,** Associate Editor. 2013-2016

PROFESSIONAL DEVELOPMENT COURSES

- **Leading in times of crisis.** 2020
- **First Aid & Mental Health First-Aid**. 2017-2022
- **Efficiency and Effectiveness**. 2017
- **Managing Very Difficult Workplace Behaviour**. 2017
- **Unconscious Bias Training**. 2016
- **Effective Performance Conversations**. 2016
- **Cultural Awareness**. 2016