

# Daniele A. Thallner

POSTDOCTORAL RESEARCH ASSOCIATE · DEPARTMENT OF GEOLOGICAL SCIENCES

University of Florida, Gainesville, FL 32611, USA

☎ +1 (352)-709-4587 | ✉ d.thallner@ufl.edu | 📷 dthallner

## Education

### University of Liverpool

Liverpool, UK

#### PHD IN ENVIRONMENTAL SCIENCES (GEOPHYSICS)

Class of 2022

- Thesis: A moment of weakness - the anomalous geomagnetic field in the Ediacaran period
- Advisor: Prof. Andrew J. Biggin

### University of Leoben

Leoben, Austria

#### MSc IN APPLIED GEOPHYSICS

Class of 2017

- Thesis: Palaeointensity of the geomagnetic field recorded in two multilevel archaeological sites in Austria
- Advisor: Dr. Elisabeth Schnepf

### University of Leoben

Leoben, Austria

#### BSc IN APPLIED GEOSCIENCES

Class of 2015

- Honors thesis advisor: Dr. Steiner-Luckabauer

## Professional Experience

2022 **Postdoctoral Research Associate**, University of Florida

Gainesville, USA

2016 **Graduate research Assistant**, GeoSphere

Vienna, Austria

2009-2015 **Undergraduate Research Assistant**, Dept. of Geophysics, University of Leoben

Leoben, Austria

## Publications

PUBLISHED - CITATIONS AS OF **12/23/2023**: GOOGLE SCHOLAR **202**, h-index: 8

### PEER-REVIEWED

- [9] **Thallner, D.**, Shcherbakova, V., Bakhmutov, V., Shcherbakov, V., Zhidkov, G., Poliachenko I., Biggin, A., 2022: New palaeodirections and palaeointensity data from extensive profiles through the Ediacaran section of the Volyn Basalt Province (NW Ukraine), *Geophysical Journal International*, 321, 474–492
- [8] van der Boon, A., Biggin, A., **Thallner, D.**, Hounslow, M., Bono, R., Nawrocki, J., Wójcik, K., Paszkowski, M., Königshof, P., de Backer, T., Kabanov, P., Gouwy, S., VandenBerg, R., (2022): A Persistent Non-uniformitarian Paleomagnetic Field in the Devonian? *Earth Science Reviews*, 231
- [7] Bono, R., Paterson, G., van der Boon, A., Engbers, Y., Grappone, M., Handford, B., Hawkins, L., Lloyd, S., Sprain, C., **Thallner, D.**, Biggin, A., (2022): The PINT database: A definitive compilation of absolute palaeomagnetic intensity determinations since 4 billion years ago, *Geophysical Journal International*, 229, 522–545
- [6] **Thallner, D.**, Biggin, A., McCausland, P., Fu, R., 2021: New palaeointensities from the Skinner Cove Formation, Newfoundland, suggest a changing state of the geomagnetic field at the Ediacaran-Cambrian transition. *Journal of Geophysical Research - Solid Earth*, 126
- [5] Lloyd, S., Paterson, G., **Thallner, D.**, Biggin, A., 2021: Improvements to the Shaw-type absolute palaeointensity method. *Frontiers in Earth Science*, 9, feart.2021.701863
- [4] **Thallner, D.**, Biggin, A., Halls, H., 2021: An extended period of extremely weak geomagnetic field suggested by palaeointensities from the Ediacaran Grenville Dykes (SE Canada), *Earth and Planetary Science Letters*, 568
- [3] Schnepf, E., **Thallner, D.**, Arneitz, P., Leonhardt, R., 2020: New archaeomagnetic secular variation data from Central Europe, II: intensities, *Physics of the Earth and Planetary Interiors*, 309
- [2] Shcherbakova, V., Bakhmutov, V., **Thallner, D.**, Shcherbakov, V., Zhidkov, G., Biggin, A., 2020: Ultra-low palaeointensities from East European Craton, Ukraine support a globally anomalous palaeomagnetic field in the Ediacaran, *Geophysical*

Journal International, 220, 1928-1946.

- [1] Schnepf, E., **Thallner, D.**, Arneitz, P., Mauritsch, H., Scholger, R., Rolf, C., Leonhardt, R., 2020: New archaeomagnetic secular variation data from Central Europe. I: directions, Geophysical Journal International, 220, 1023-1044.

## TECHNICAL REPORTS

- [2] Kabanov, P., Abdi, W., Biggin, A., Bilot, I., van der Boon, A., Gouwy, S., Grasby, S., Minions, N., Percival, J., **Thallner, D.**, Twemlow, C., Vandenberg, R., 2023: Geological and geochemical data from Mackenzie corridor. Part XI: New geochemical, magnetic susceptibility, and X-ray diffraction data from the Horn River Group (Devonian) in cores and outcrops south of Norman Wells, Northwest Territories, Open File 8940, doi:10.4095/331201
- [1] Kabanov, P., Vandenberg, R., Gouwy, S., van der Boon, A., **Thallner, D.**, Biggin, A., 2019: Geological and geochemical data from Mackenzie corridor. Part X: reference sections of Middle-Upper Devonian strata at Prohibition Creek, Norman Range, Northwest Territories; Geological Survey of Canada, Open File 8648, doi:10.4095/321379

## IN PREP

Engbers, Y.A., Bono, R.K., **Thallner, D.**, Sprain, C.J., Murray, M., Bristol, K., Handford, B., Torsvik, T., and Biggin, A.J.: *In Review*: A global paleosecular variation database for the Paleogene: stationary secular variation behavior since the Triassic?, Geochemistry, Geophysics, Geosystems

Juliane Dannberg, Rene Gassmoeller, **Thallner, D.**, Frederick LaCombe, Courtney Sprain: *In Review*: Changes in core-mantle boundary heat flux patterns throughout the supercontinent cycle, <https://doi.org/10.48550/arXiv.2310.03229>.

**Thallner, D.**, Paterson, G., Bishop, P., Holloway, A., Lloyd, S., *In Preparation*: New age constrains for a Scottish lime kiln from archaeomagnetic directions and intensities.

## Awards, Fellowships, & Grants

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|------|---|--------|
| 2022 | <b>GPE Postdoc grant</b> , American Geophysical Union                                 | \$ 615 |
|      | <b>Magnetic interactions 2022 - Best poster Award</b> , University of St. Andrews, UK |        |
| 2017 | <b>Travel grant</b> , University of Minnesota Institute of Rock Magnetism             | \$ 250 |
| 2016 | <b>AAPG Imperial Barrel Award</b> , Finalist  |        |

## Presentations

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\* *presenting author*; + *mentored undergraduate*; \* *included travel grant*

## INVITED TALKS

- [5] *Coupling Mantle Convection and Geodynamo Simulations to Understand the Influence of Mantle Dynamics on the Generation of Earth's Magnetic Field Throughout the Plate Tectonic Cycle*.<sup>\*</sup> MagIC Workshop 2023 - Scripps Institute of Oceanography, UCSD, La Jolla, CA, USA. March 2023.
- [4] *The anomalous geomagnetic field at the Ediacaran-Cambrian transition – how much do we really know?*<sup>\*</sup> CEED Seminar Series - University of Oslo, Oslo, Norway. November 2022.
- [3] *Evaluating the anomalous palaeomagnetic field behavior at a critical time of Earth's evolution - the Ediacaran period (635-538 Ma)*. Geological Sciences Seminar Series, University of Florida, Gainesville, FL, USA. January 2022.
- [2] *Evaluating anomalous palaeomagnetic field behaviour in the Ediacaran with new palaeointensity data from Laurentia*. GAC-MAC Annual Meeting. (online) Western University, London, ON, Canada. November 2021.
- [1] *The anomalous palaeomagnetic field in the Ediacaran*. 25<sup>th</sup> International Conference on Geomagnetism, Paleomagnetism and Rock Magnetism. Russian Academy of Sciences, Moscow, Russia. October 2019.

## SELECTED CONFERENCE PROCEEDINGS

- [7] **Thallner D.**, Sprain S., Dannberg J., Gassmoeller R., Davies C., Meduri D., Biggin A., Ritchie C.<sup>+</sup>, LaCombe F.<sup>+</sup>, Bono R., Engbers Y.: Quantifying the Influence of Mantle Convection on Extreme Anomalies in long-term Geomagnetic Field Behavior, AGU Fall Meeting, 11-16 December 2022, Chicago, USA

- [6] LaCombe, F. <sup>+</sup>, Dannberg, J., Gassmoeller, R., Sprain, C., **Thallner, D.**: Changing Patterns in Core-Mantle Boundary Heat Flux Throughout the Past Billion Years of Earth's History, AGU Fall Meeting, 11-16 December 2022, Chicago, USA
- [5] Ritchie, C. <sup>+</sup>, **Thallner, D.**, Sprain, D., Dannberg, J., Gassmoeller, R., Davies, C., Meduri, D., Biggin, A., LaCombe, F., Bono, R., Engbers, Y.: Can Paleomagnetism Be Used to Distinguish Between Changes in Core Structure and Mantle Convection?, AGU Fall Meeting, 11-16 December 2022, Chicago, USA
- [4] **Thallner D.**, Biggin A., Halls H.: Extremely low geomagnetic field strength recorded in the Ediacaran Grenville Dykes., AGU Fall meeting 2020, Online, 1-17 December 2020, GP008-0007
- [3] **Thallner D.**, Biggin A., Hill M., Halls H., McCausland P.J.A., Shcherbakova V., Shcherbakov V., Bakhmutov V.: Evaluating the anomalous palaeomagnetic field behaviour in the Ediacaran with new palaeointensity data from Laurentia and Baltica, EGU20, Online, 4-8 May 2020, EMRP3.5-D1277, DOI: 10.5194/egusphere-egu2020-9121
- [2] Sprain <sup>+</sup>, C., Lamers, R., Feinberg, J., Hurst, E., Biggin, A., Bono, R., **Thallner, D.**, Paterson, A.: Paleomagnetic Characterization of North American Clinker Deposits: Reliable Full Vector Recorders for the Quaternary, AGU Fall meeting 2019, 9-13 December 2019, San Francisco, USA
- [1] **Thallner, D.**, Biggin, A., Hill, M.: What on Earth was the geomagnetic field doing just before the Cambrian explosion of life?, British Geophysical Association's PGRIP, 13-14 September 2018, Cardiff, UK

## Teaching Experience

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University of Florida, Gainesville, FL, USA

- 2023 **GLY4450/5455 Introduction to Geophysics**, Primary Instructor
- 2022,2023 **GLY2030C Environmental/Engineering Geology**, Primary Instructor
- 2022 **GLY4930/6932 Introduction to simulation for Earth Scientists**, Instructor

University of Liverpool, Liverpool, Merseyside, UK

- 2019,2020 **ENVS300/400 Geophysical Project**, Course Assistant
- 2018 **ENVS598 Global Geophysics and Geodynamics**, Teaching Assistant
- 2018 **ENVS562 Geophysics Field School**, Teaching Assistant
- 2017 **ENVS343 Signal Processing and Seismic Analysis**, Teaching Assistant

University of Leoben, Leoben, Styria, Austria

- 2011-2016 **170.021 Numerical Methods 1**, Teaching Assistant
- 2011-2016 **150.002 Algorithms and Programming**, Teaching Assistant

## Mentoring

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University of Florida, Gainesville, FL, USA

- 2021-2023 **Chloe Ritchie**, Undergraduate Research Assistant co-supervisor
- 2021-2023 **Frederick LaCombe**, Undergraduate Research Assistant co-supervisor
- 2021-2023 **Katie Bristol**, Graduate student mentor
- 2021-2023 **Mckenna Holliday**, Graduate student mentor
- 2021-2023 **Hee Jun Cheong**, Graduate student mentor

University of Liverpool, Liverpool, Merseyside, UK

- 2019 **Anna Holloway**, Senior thesis co-supervisor
- 2019 **Essa Jamal Alhussaini**, Senior thesis co-supervisor
- 2019 **Salim Al Rashidi**, Senior thesis co-supervisor

## Service and Outreach

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- 2019-2023 **MagNetZ online seminar series**, Organisation team member  
2021-2023 **Tectonic TailGators**, UF Geology department tailgate organizer  
2021-2022 **Can you dig it? - Florida Museum of Natural History**, Volunteer Exhibitor  
2021-2022 **TESI Scientist in Every Florida School (SEFS)**, Guest Lecturer  
2019-2020 **Royal Society Summer Science Exhibition**, Volunteer Exhibitor  
2015 **Austrian Refugee Coordination**, Volunteer language teacher (German/English)

## Field Experience

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|------|---|----------------|
| 2019 | <b>Mackenzie Valley, Canada</b> , Magnetostratigraphic sampling       | <i>2 weeks</i> |
| 2018 | <b>Custer National Forest - Ashland, USA</b> , Paleomagnetic sampling | <i>2 weeks</i> |
| 2018 | <b>Volyn Oblast, Ukraine</b> , Paleomagnetic sampling                 | <i>2 weeks</i> |
| 2017 | <b>Quebec, Canada</b> , Paleomagnetic sampling                        | <i>2 weeks</i> |
| 2017 | <b>Styria, Austria</b> , GPR exploration (fieldwork leader)           | <i>3 days</i>  |
| 2016 | <b>Basel, Switzerland</b> , Seismic exploration                       | <i>3 weeks</i> |
| 2015 | <b>Thunau, Austria</b> , Archaeomagnetic sampling (fieldwork leader)  | <i>3 days</i>  |
| 2013 | <b>Bavaria, Germany</b> , Archaeomagnetic sampling                    | <i>3 days</i>  |
| 2013 | <b>Eskişehir, Turkey</b> , Geomagnetic exploration                    | <i>4 weeks</i> |

## Personal Development

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- 2023 **Demystifying the NSF Proposal Writing Process**, University of Florida  
2019 **Internal Earth doctoral training course**, École de Physique des Houches  
2019 **Writing Research Grant Applications**, Parker Derrington Ltd  
2018 **Summer School in Rock Magnetism**, University of Minnesota Institute of Rock Magnetism  
2012 **Basic blasting operations field course**, University of Leoben

## Peer Review

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| Nature Communications | 2022 |
| Problems of Geocosmos | 2022 |

## Professional Memberships

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| American Geophysical Union | 2019-present |
| European Geosciences Union | 2019-2021    |
| Royal Astronomical Society | 2017-2021    |