Daniele A. Thallner

Postdoctoral Research Associate · Department of Geological Sciences

University of Florida, Gainesville, FL 32611, USA

d.thallner@ufl.edu | https://dthallner.github.io/ | 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 Schnepp

University of Leoben *Leoben, Austria*

BSc in Applied Geosciences *Class of 2015*

- Honors thesis advisor: Dr. Claudia Steiner-Luckabauer

Professional Experience

2022-now	**Postdoctoral Research Associate**, University of Florida	Gainesville, FL, USA
2016	**Graduate research Assistant**, GeoSphere Austria	Vienna, Austria
2009-2015	**Undergraduate Research Assistant**, Dept. of Geophysics, University of Leoben	Leoben, Austria

Publications

Published - Citations as of **05/06/2025**: Google Scholar **358** , h-index: 10

Peer-reviewed

[11] Engbers, Y.A., **Thallner, D.**, Bono, R.K., Sprain, C.J., Murray, M., Bristol, K., Handford, B., Torsvik, T., and Biggin, A.J. (2024): A global paleosecular variation database for the Paleogene: stationary secular variation behavior since the Triassic?, Geochemistry, Geophysics, Geosystems, 25, https://doi.org/10.1029/2023GC011203

[10] Dannberg, J., Gassmoeller, R., **Thallner, D.**, LaCombe, F., Sprain, C., (2024): Changes in core-mantle boundary heat flux patterns throughout the supercontinent cycle, Geophysical Journal International, https://doi.org/10.1093/gji/ggae075

[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] Schnepp, 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] Schnepp, 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 review and in prep

Biggin, A., Davies, C., Mound, J., Lloyd, S., Engbers, Y., **Thallner, D.**, Clarke, A., Bono, R., *In review*. Heterogeneity in core mantle heat flow influenced the ancient geodynamo. Nature Geoscience, https://doi.org/10.21203/rs.3.rs-6314721/v1

Sprain, C., Bono, R., Davies, C., Meduri, D., Paterson, G., Doubrovine, E., Kulakov, E., Hawkins, L., Pesonen, L., Veikkolainen, T., Smirnov, A., Piispa, E., Ots, S., Fairchild, L., **Thallner, D.**, Biggin, A., *In prep for resubmission*. Assessing the robustness of paleomagnetic analysis on sparse datasets using geodynamo simulations. Journal of Geophysical Research: Solid Earth.

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.

Holliday, M., Sprain, C., Bristol, K., **Thallner, D.**, Cheong, H., *In Preparation*: Full vector paleomagnetism of clinkers in Powder Basin, Montana, USA.

Thallner D., Dannberg J., Gassmoeller R., Bono R., Davies, C., Biggin, A., Meduri, D., Sprain S., *In Preparation*: The influence of small-scale heat flux patterns at the core-mantle boundary on the geodynamo.

Awards, Fellowships, & Grants

2025	**"Exploring the Evolution of Earth's Magnetic Field Strength in Florida over the last 4000 years"**, NSF EAR Structure and Physics of the Solid Earth (pending)	*$357,934*
2024	**"Exploring geomagnetic spikes in archaeomagnetic records of the last 4000 years in Florida"**, NSF EAR Geophysics (declined)	*$474,028*
2022	**Geomagnetism, Paleomagnetism, and Electromagnetism Section Postdoc grant**, American Geophysical Union	*$ 615*
2022	**Magnetic interactions 2022 - Best poster Award**, University of St. Andrews, UK	
2017	**Travel grant**, University of Minnesota, Institute of Rock Magnetism	*$ 250*
2016	**AAPG Imperial Barrel Award**, Finalist	

Presentations

** presenting author; [+] mentored undergraduate; [x] included travel grant*

Invited Talks

[7] *The Influence of Mantle Convection on Earth's Geomagnetic Field Observables.* Computational Infrastructure for Geodynamics 2024 webinar series. (online) UC Davis, CA, USA. April 2024.

[6] *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.*[x] DEEP directions workshop, Pooley Bridge, UK. January 2024.

[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.*[x] 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?*[x] 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.* 25th International Conference on Geomagnetism, Paleomagnetism and Rock Magnetism. Russian Academy of Sciences, Moscow, Russia. October 2019.

Conference Presentations

[16] **Thallner D.**, Sprain S., Dannberg J., Gassmoeller R., Bono, R., Davies C., Meduri D., Biggin A.: The effect of spatially heterogeneous core-mantle boundary heat flux pattern variations on paleomagnetic observables, AGU Fall Meeting, 9-13 December 2024, Washington DC, USA

[15] **Thallner D.**, Sprain S., Dannberg J., Gassmoeller R., Bono, R., Davies C., Meduri D., Biggin A.: The Influence of Spatially Heterogeneous Core-Mantle Boundary Heat Flux on Earth's Geodynamo, Magnetic Interactions, 4-5 January 2023, Leeds, UK

[14] **Thallner D.**, Sprain S., Dannberg J., Gassmoeller R., Bono, R., Davies C., Meduri D., Biggin A.: The Influence of Spatially Heterogeneous Core-Mantle Boundary Heat Flux on Earth's Geodynamo, AGU Fall Meeting, 11-16 December 2023, San Francisco, USA

[13] **Thallner D.**, Sprain S., Dannberg J., Gassmoeller R., Davies C., Meduri D., Biggin A., Ritchie C.[+], LaCombe F.[+], Bono R., Engbers Y.: Quantifying the Influence of Mantle Convection on Extreme Anomalies in long-term Geomagnetic Field Behavior, Magnetic Interactions, 5-6 January 2023, Cambridge, UK

[12] **Thallner D.**, Sprain S., Dannberg J., Gassmoeller R., Davies C., Meduri D., Biggin A., Ritchie C.[+], LaCombe F.[+], 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

[11] LaCombe, F.[*+], 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

[10] Ritchie, C.[*+], **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

[9] **Thallner D.**, Biggin A., Hill M., Halls H., McCausland P.J.A., Shcherbakova V., Shcherbakov V., Bakhmutov V.: When did the inner core form? Insights from the characterisation of the geomagnetic field in the Ediacaran period (538-635 Ma), Magnetic Interactions, (online) 6-7 January 2022, St. Andrews, UK

[8] **Thallner D.**, Biggin A., Hill M., Halls H., McCausland P.J.A., Shcherbakova V., Shcherbakov V., Bakhmutov V.: Evaluating the anomalous palaeomagnetic field behaviour at a critical time of Earth's evolution - the Ediacaran period (538-635 Ma)., UK SEDI, 12 November 2021, London, UK

[7] **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, Magnetic Interactions, (online) 7–8 January 2021, St. Andrews, UK

[6] **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

[5] **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

[4] **Thallner D.**, Biggin A., Hill M., Halls H., McCausland P.J.A., Shcherbakova V., Shcherbakov V., Bakhmutov V.: The anomalous palaeomagnetic field in the Ediacaran. Ultra-low palaeointensities from Laurentia and Baltica, Magnetic Interactions, 3-4 January 2020, Southampton, UK

[3] Sprain*, 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

[2] **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

[1] **Thallner, D.**, Biggin, A., Hill, M.: What on Earth was the geomagnetic field doing just before the Cambrian explosion of life?, Magnetic Interactions, January 2017, Oxford, UK

Teaching Experience

University of Florida, Gainesville, FL, USA

2023, 2024 **GLY4450/5455 Introduction to Geophysics**, Instructor of record
2022, 2023 **GLY2030C Environmental/Engineering Geology**, Instructor of record
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

University of Florida, Gainesville, FL, USA

2021-2024 **Katie Bristol**, Graduate student mentor
2021-2024 **Mckenna Holliday**, Graduate student mentor
2021-2024 **Hee Jun Cheong**, Graduate student mentor
2021-2023 **Chloe Ritchie**, Undergraduate Research Assistant co-supervisor
2021-2023 **Frederick LaCombe**, Undergraduate Research Assistant co-supervisor

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

2025 **AGU Fall meeting 2025**, Geomagnetic and planetary magnetic fields and their temporal and spatial variations, Session convener
2024 **NSF EAR Geophysics**, Panel member
2023 **AGU Fall meeting 2024**, GP011: Interfacing Paleomagnetism and Geodynamo Modeling: Insights, Observations and Applications, Session convener
2022-2024 **AGU Outstanding Student Presentation Award**, GPE section, Volunteer Judge
2019-2025 **MagNetZ online seminar series**, Organization team member
2021-2023 **Tectonic TailGators**, UF Geology department gameday tailgate organizer
2021-2024 **Can you dig it? - Florida Museum of Natural History**, Volunteer Exhibitor
2021-2024 **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)

Career Development:

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 **Drilling and blasting operations field course**, University of Leoben

Peer Review:

2025 **Earth and Planetary Science Letters**, reviewer
2025 **Nature Scientific Reports**, reviewer
2023,2025 **Frontiers in Earth Science**, reviewer
2022,2024 **Nature Communications**, reviewer
2024 **Gondwana Research**, reviewer
2024 **Physics of the Earth and Planetary Interiors**, reviewer
2022 **Problems of Geocosmos**, reviewer

Professional Memberships

2019-2025 **American Geophysical Union**, GPE section member
2019-2021 **European Geosciences Union**, member
2017-2021 **Royal Astronomical Society**, fellow

Field Experience

2024 **Shenandoah National Park, Virginia, USA**, Paleomagnetic sampling *2 weeks*
2023 **Badlands, Montana, USA**, Magnetostratigraphic sampling *2 weeks*
2019 **Mackenzie Valley, Canada**, Magnetostratigraphic sampling *2 weeks*
2018 **Custer National Forest - Ashland, USA**, Paleomagnetic sampling *2 weeks*
2018 **Volyn Oblast, Ukraine**, Paleomagnetic sampling *2 weeks*
2017 **Quebec, Canada**, Paleomagnetic sampling *2 weeks*
2017 **Styria, Austria**, GPR exploration (fieldwork leader) *3 days*
2016 **Basel, Switzerland**, Seismic exploration *3 weeks*
2015 **Thunau, Austria**, Archaeomagnetic sampling (fieldwork leader) *3 days*
2013 **Bavaria, Germany**, Archaeomagnetic sampling *3 days*
2013 **Eskişehir, Turkey**, Geomagnetic exploration *4 weeks*