Stanford



Heath Stanfield

Ph.D. Student in Earth System Science, admitted Autumn 2026

Bio

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

- Member, American Geophysical Union (2025 - present)
- Member, International Society for Porous Media (2025 - present)
- Member, ACS Geochemistry Division (2024 - present)

EDUCATION AND CERTIFICATIONS

- BS, University of Chicago , Geophysical Sciences (2024)

LINKS

- LinkedIn: https://www.linkedin.com/in/heath-stanfield-6112ba20a/
- ResearchGate: https://www.researchgate.net/profile/C-Heath-Stanfield?ev=prf_overview

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Subsurface fluid-rock interactions for energy, resources, and carbon storage

Publications

PUBLICATIONS

- **Reactivation of Serpentine Fracture Networks in Ultramafic Reservoirs** *ACS EARTH AND SPACE CHEMISTRY*
  Stanfield, C., Denny, A. C., Polites, E. G., Ilton, E. S., Silverstein, J. A., Marcial, J., Lahiri, N., Schaef, H., Miller, Q. R. S.
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- **Hydrogen relative permeability and petrophysical assessment of sandstone reservoirs for underground hydrogen storage in the Anadarko Basin, Oklahoma** *GEOENERGY SCIENCE AND ENGINEERING*
  Aldana, I. C., Baek, S., Huerta, N., Zhong, L., Qafoku, O., Denny, A. C., Stanfield, C., Miller, Q. R. S., Smith, C., Milad, B., Hayman, N., Kwan, M., McDonald, et al
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- **The Oil Well as the Mine of the Future: Toward In-Situ Coproduction of Critical Minerals and Hydrocarbons.** *Environmental science & technology*
  Teng, Y., Horst, C. G., Polites, E. G., Yan, K., Stanfield, C. H., Chopra, H., Steup, K. J., Lahiri, N., Motkuri, R. K., Bagwell, C. E., Curtis, M. E., Dang, S. T., Miller, et al
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- **Decadal-Scale Hydrothermal Alteration of Basalt: Implications for Long-Term Reactivity in Subsurface Technologies** *ACS EARTH AND SPACE CHEMISTRY*

Gibson, M. N. M., Lamberti, V. R., Nienhuis, E. T., Stanfield, C., Teng, Y., Chopra, H., Marcial, J., Vo, T., Dang, S. T., Miller, Q. R. S., Schaef, H.
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- **Chelation-Driven Chemistry Controls Dissolution Pathways for Facile Critical Mineral Recovery from Ultramafic Resources.** *JACS Au*
  Krishnan, K., Motkuri, R. K., Yan, K., Stanfield, C. H., Polites, E. G., Teng, Y., Shin, S. H., Miller, Q. R., Schaef, H. T., Lahiri, N.
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- **Earth as a Reactor: Carbon Mineralization Geochemistry in the Context of Emerging Subsurface Energy and Resource Technologies** *CHEMICAL REVIEWS*
  Miller, Q. R. S., Bartels, M. F., Chopra, H., Depp, C. T., DiRaddo, S. G., Gibson, M. N. M., Lahiri, N., Lamberti, V. R., Rivera, N., Maier, K. L., Murchland, M. A., Nienhuis, E. T., Parisi, et al
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- **Critical mineral recovery and carbon storage potential at the Tamarack intrusive complex** *INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL*
  Chopra, H., Stanfield, C., Bartels, M. F., Lahiri, N., Marcial, J., Nienhuis, E. T., Mudrovska, I., Fillion, M., Rush, R., Hunt, T., Morton, N., Van Wyk, S., Devasagayam, et al
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- **Cation Site Occupancy in Natural Ferroan Double Carbonates via Mössbauer and Fe K-Edge X-ray Absorption Spectroscopy.** *Inorganic chemistry*
  Boglaienko, D. V., Prange, M. P., Stanfield, C. H., Mergelsberg, S. T., Latta, D. E., Li, X., Kerisit, S. N., Schaef, H. T., Rosso, K. M., Miller, Q. R.
  2026; 65 (11): 5986-5994

- **Nanoscale Interfacial Reactivity in Tamarack Peridotite: Insights for In Situ Critical Mineral Recovery** *ENVIRONMENTAL SCIENCE & TECHNOLOGY LETTERS*
  Bartels, M. F., Miller, Q. R. S., Li, X., Stanfield, C., Cao, R., Marcial, J., Nienhuis, E. T., Fillion, M., Rush, R., Sauve, M., Schaef, H.
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- **Greenhills Dunite Subsurface Reaction Kinetics in a Global Mafic-Ultramafic Context.** *Environmental science & technology*
  Stanfield, C. H., Miller, Q. R., Cao, R., Nienhuis, E. T., Marcial, J., Palmer, M. C., Lahiri, N., Bartels, M. F., Pyott, L., Ritchie, T. W., Schaef, H. T.
  2025; 59 (44): 23773-23785

- **CO₂-Based Leaching of Sulfidic Peridotite Drives Critical Mineral Mobilization and Carbonate Precipitation** *ENVIRONMENTAL SCIENCE & TECHNOLOGY LETTERS*
  Murchland, M. A., Miller, Q. R. S., Nagurney, A. B., Stanfield, C., Lahiri, N., Silverstein, J. A., Teng, Y., Nienhuis, E. T., Engelhard, M. H., Mulcahy, C., Schaef, H.
  2025; 12 (9): 1252-1263

- **Interfacial Hydrophilicity Controls Mineral Transformation Outcomes for Enstatite and Amorphous MgSiO₃** *ENVIRONMENTAL SCIENCE & TECHNOLOGY LETTERS*
  Hardee, L., Schaef, H., Barpaga, D., Stanfield, C., Crum, J. V., Anovitz, L. M., Rosso, K. M., Miller, Q. R. S., Aguila-Ames, B.
  2025; 12 (8): 951-962

- **Structure-Composition Relationships in the Dolomite-Ankerite-Kutnohorite Series Reveal Distinctions Based on Growth Conditions and Cation Ordering** *CRYSTAL GROWTH & DESIGN*
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  2025; 25 (12): 4253-4262

- **Structure-Composition Relationships for Mg-Ni and Mg-Fe Olivine** *ACS EARTH AND SPACE CHEMISTRY*
  Morfin, A. M., Stanfield, C., Murchland, M. A., Bartels, M. F., Nagurney, A. B., Miller, Q. R. S., Schaef, H.
  2024; 8 (9): 1713-1724

- **Carbon Mineralization and Critical Mineral Resource Evaluation Pathways for Mafic-Ultramafic Assets** *ACS EARTH AND SPACE CHEMISTRY*
  Stanfield, C., Miller, Q. R. S., Battu, A. K., Lahiri, N., Nagurney, A. B., Cao, R., Nienhuis, E. T., Depaolo, D. J., Latta, D. E., Schaef, H.
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- **Parts-Per-Million Carbonate Mineral Quantification with Thermogravimetric Analysis-Mass Spectrometry.** *Analytical chemistry*
  Bartels, M. F., Miller, Q. R., Cao, R., Lahiri, N., Holliman, J. E., Stanfield, C. H., Schaef, H. T.
  2024; 96 (11): 4385-4393