PETER H. BARRY, PhD
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Positions

2019-Present	Woods Hole Oceanographic Institution, Woods Hole, USA – Assistant Scientist
2014-2018	University of Oxford, UK – Postdoctoral Research Associate
2012-2014	University of Tennessee, Knoxville, USA (NSF EAR-Postdoctoral Fellow)

Academic Preparation

2011-2012	Scripps Institution of Oceanography, UCSD, USA – (President's Dissertation Fellow)
2006-2012	Scripps Institution of Oceanography, UCSD, USA – **Ph.D. Earth Sciences**
2006-2011	Scripps Institution of Oceanography, UCSD, USA – **M.S. Oceanography**
2008	The University of Tokyo, Japan – AORI – visiting researcher (NSF EAPSI Fellow)
2004	The State University of New York at Geneseo, USA – **B.A. Geological Sciences**

Research Interests

Volatile recycling, stable isotope and noble gas geochemistry; petrology – magmatic processes and the petrogenesis of volcanic/igneous rocks; geochemical co-evolution of Earth's mantle and lithosphere; crust-fluid interaction; fluid-gas partitioning in crustal systems.

Supervising and Mentorship

PostDocs:

- Dr. Mike Hudak (WHOI-based NSF PostDoctoral Fellow) – 2021 - present
- Dr. David Bekaert (WHOI PostDoctoral Scholar) – 2020-present
- Dr. Jack Krantz (WHOI PostDoctoral Investigator) – 2020-2021
- Dr. Alan Seltzer (WHOI PostDoctoral Scholar) – 2019-2020

Graduate Students:

- MS co-supervisor of Karim Mtili (University of Dar es Salaam) – 2018-present
- MS co-supervisor of Clarah Kimani (University of Dar es Salaam) – 2018-present
- PhD co-supervisor of Dr. Rebecca Tyne (University of Oxford) – 2016-2021
- PhD co-supervisor of Dr. David Byrne (University of Oxford) – 2014-2019

Formal Presentations

-AGU Fall meeting (New Orleans) – research presentation, December 2021
-Invited speaker – LDEO Geodynamics Seminar Series, October 2021
-Invited speaker – Khalifa University Seminar Series (Virtual), October 2021
-Invited speaker – Lyon Goldschmidt – Session 2h, July 2021
-**Keynote speaker** – Lyon Goldschmidt – Session 3b, July 2021
-**Keynote speaker** – The Geological Society, VMSG Annual Meeting (Virtual), January 2021
-Jp-AGU meeting (Japan/Virtual) – research presentation, July 2020
-Goldschmidt Conference (Hawaii/Virtual) – research presentation, June 2020
-Speaker – WHOI Geodynamics Seminar Series (Virtual), May 2020
-Invited speaker – University of Rhode Island, February 2020
-Invited speaker – Massachusetts Institute of Technology, January 2020
-AGU Fall meeting (San Francisco) – research presentation, December 2019

-Invited Speaker - Deep Carbon 2019 Meeting, Washington DC, October 2019
-Goldschmidt Conference (Barcelona) – research presentation, August 2019
-DINGUE Conference (ETH) – research presentation, August 2019
-Invited speaker – DCO Deep Energy Community Meeting, La Clusaz, France, January 2019
-Invited speaker - Geothermal Resources & Sustainable Development Workshop (Kenya), September 2018
-Goldschmidt Conference (Boston) – research presentation, August 2018
-AGU Fall meeting – research presentation, December 2017
- 3rd Deep Carbon Observatory Early Career Scientist Meeting, August 2017
-Goldschmidt Conference (Paris) – research presentation, August 2017
-DINGUE Conference (IPGP) – research presentation, August 2017
-Invited speaker – 68th GASG Colloquium, Natural Gas: Gas in Nature, July 2017
-Invited speaker – Woods Hole Oceanographic Institution, May 2017
-**Keynote speaker** – UK Doctoral Training Program, Solid Earth Stream Conference, April 2017
-Speaker – University of Oxford – Brown bag lunch seminar, April 2017
-Invited speaker –Third DCO International Science Meeting, March 2017
-Invited speaker – University of Edinburgh, School of GeoSciences, March 2017
-Invited speaker – Cornell University, Earth and Atmospheric Sciences Dept., March 2017
-Invited speaker – Carnegie Institution – Department of Terrestrial Magnetism, October 2016
-Invited speaker – Smithsonian – National Museum of Natural History, October 2016
-Goldschmidt Conference (Yokohama) – research presentation, June 2016
-DINGUE Conference (Nancy) – research presentation, April 2016
-Invited speaker – University of Edinburgh, School of GeoSciences, October 2015
-Invited speaker – University of St. Andrews, Dept. of Earth and Environmental Science, October 2015
-University of the Azores: 2nd Deep Carbon Observatory Early Career Scientist Meeting, September 2015
-Goldschmidt Conference (Prague) – research presentation, August 2015
-Invited speaker – University of North Carolina, Chapel Hill, February 2015
-Speaker – University of Oxford – Brown bag lunch seminar, February 2015
-Invited speaker – University of Bristol, School of Earth Sciences – 'Hot Stuff' Seminar, November 2014
-Goldschmidt Conference (Sacramento) - research presentation, June 2014
-AGU Fall meeting – research presentation, December 2013
-Goldschmidt Conference (Florence) - research presentation, August 2013
-DINGUE Conference (Florence) – research presentation, August 2013
-Lunar and Planetary Science Conference (Houston) – research presentation, March 2013
-Speaker – University of Tennessee, Klepser Seminar, September 2012
-Speaker – Scripps Inst. of Oceanography – Isotope Geochemistry Laboratory Seminar, April 2012
-International Conference on Gas Geochemistry (San Diego) – research presentation, December 2011
-Goldschmidt Conference (Prague) - research presentation, August 2011
-DINGUE Conference (Paris) – research presentation, August 2011
-Invited guest lecturer for SIO 251 - Whole Earth Geochemistry, June 2011
-Invited speaker at Caltech - Geology Club seminar series, May 2011
-CIDER workshop participant and presenter – July 2010
-AGU Fall meeting – research presentation, December 2009

Awards, Outreach and Service

- Unlearning Racism in Geoscience (URGE) pod participant, 2021
- Award Committee for "Pete Burnard DINGUE Award", July 2021
- Organizing Committee: NSF Funded East Africa Rifting Workshop (PI: Shillington), 2020-Present
- CONVERSE: Community Network for Volcanic Eruption Response, Research Coordination Network Working Group member, 2020-Present
- SZ4D, Research Coordination Network, 'Magmatic Drivers of Eruption' Working Group member, 2019-Present

- Deep Carbon Observatory 2019 Science Planning Committee, 2018-2019
- 2018 Recipient of the Deep Carbon Observatory Emerging Leader Award
- Facebook Live Event: 'Sampling the Earth's interior in Costa Rica' at Wood Green School, 2018, Witney, UK
- Co-supervised three African masters students, 2018-present
- Best Science Documentary – Goldschmidt Film Festival 2017 – hosted by Wild Orbit Films
- University of Oxford, Vice-Chancellor's Award for Public Engagement, 2017
- Deep Carbon Observatory Early Career Scientist workshop organizer, 2017
- Public dissemination of large helium discovery in Tanzania. The story was run (went viral) on over 200 news outlets including *the BBC, New York Times, NPR, Washington Post, CNN, Wired, Gizmodo, IFLScience 2016*
- NASA/STFC lunar sample outreach lecturer for pre-schoolers, Oxford, UK 2016
- Outreach lecturer at the Cardinal Newman School in Luton, UK 2016
- Deep Carbon Observatory Synthesis Planning Workshop representative for Deep Energy 2015
- Deep Carbon Observatory Early Career Scientist workshop participant, 2015
- Invited outreach lecturer at "San Diego Continuing Education" 2014
- GK12 outreach program participant 2012-2014
- Student representative for the Geoscience Research Division at SIO 2009-2012
- President of the Scripps Academic Club, 2008-2012
- Outreach lecturer at the Gillispie school, La Jolla, CA 2007

Professional Activities

External PhD Examiner:

- Dr. Joao Pedro Nogueira Lages; Università degli Studi di Palermo, January, 2020
- Dr. Jack Krantz; Brown University, December, 2019

Editorial Board Member:

- Chemical Geology

Proposal Reviewer:

- National Science Foundation

Journal Reviewer:

- Nature
- Science
- Nature Geoscience
- Science Advances
- Geochemical Perspectives Letters
- Geology
- Earth and Planetary Science Letters
- Geochimica Cosmochimica et Acta
- Water Resources Research
- Chemical Geology
- Geology, Geophysics, and Geosystems
- Journal of Volcanology Geothermal Research
- Mineralogy and Petrology
- The Geological Society of London
- Journal of Geophysical Research: Solid Earth
- International Journal of Mass Spectrometry
- Solid Earth

- International Journal of Greenhouse Gas Control

Professional Organizations:

- American Geophysical Union (AGU) – Member
- European Association of Geochemistry (EAG) – Member
- Deep Carbon Observatory (DCO) – Member & 'Deep Energy' Representative

Conference Session Convener:

- AGU 2021 – T026 - SZ4D: Interdisciplinary Studies of Subduction Zone Hazards
- Goldschmidt 2020 – 08e: Crustal Fluid Geochemistry in Energy-Related Systems: Empirical, Experimental, and Modelling Advances
- Goldschmidt 2020 – 03c: Earth's Volatile Cycles within the Crust-Mantle System: A Session in Honor of Dave Hilton
- Goldschmidt 2019 – 03g: Geochemical tracers of fluids in crustal systems
- Goldschmidt 2017 – 17f: Constraints on Past Carbon Cycle Dynamics and pCO_2
- Goldschmidt 2016 – 5g: The Deep Nitrogen Cycle and the Evolution of Planetary Atmospheres
- Goldschmidt 2016 – 7a: Cycling of Volatile Elements between Earth's Interior and Exterior Through Subduction Zones
- AGU 2016 – Volatiles within the Earth's mantle and core

Fellowships, Grants and Funding

-NSF MGG: *Collaborative Research: Volatile Sources and Sinks across the Mariana Forearc* **(Lead-PI; $925,929)**

-NSF EAR: *Deconvolving Magmatic, Crustal and Atmospheric Gases in Yellowstone using a Coupled Noble Gas and Nitrogen Isotope Approach* **(Lead-PI; $654,544)**

-NSF FRES: *Collaborative Research: Characterizing and quantifying carbon sequestration processes across the Andean Convergent Margin* **(Lead-PI; $1,322,779)**

-NSF MGG Supplement: *Towards Characterizing the Nitrogen Isotope Systematics of the Oceanic Mantle*, 2020-2023 **(Lead-PI; $95,363)**

-NSF CHEM OCE Supplement: *Collaborative Research: Novel Constraints on Air-sea Gas Exchange and Deep Ocean Ventilation from High-precision Noble Gas Isotope Measurements in Seawater*, 2019-2022 **(Lead-PI; $105,339)**

-WHOI Independent Research and Development (IR&D) Award: *The Origin of Helium and Carbon in Fluids from the Andean Forearc and Backarc,* 2021 **(Lead-PI; $49,222)**

-WHOI Independent Study Award: *Tracing Ancient Subduction using a Novel Xenon Isotope Technique*, 2020-2022 **(Lead-PI; $64,999)**

-WHOI Independent Research and Development (IR&D) Award: *Developing a High-Precision Dynamic Analytical Technique for 38Ar/36Ar in Mantle Gases,* 2020 **(Lead-PI; $74,162)**

-NSF MGG: *Towards Characterizing the Nitrogen Isotope Systematics of the Oceanic Mantle*, 2020-2023 **(Lead-PI; $478,713)**

-WHOI Research Opportunities Award: *"Ultra-high precision noble gas analyses using a Dynamic Isotope-Ratio Mass",* 2020-2021 **(Lead-PI; $53,768)**

-WHOI Interdisciplinary Award: *Detecting $^{3}He/^{4}He$ Variations Caused by Volcanic Activity in Costa Rica*, 2019-2021 **(Lead-PI; $99,989)**

-WHOI Independent Research and Development (IR&D) Award: *Understanding Deep Volatile Cycling Using a New High Precision Nitrogen Isotope Technique,* 2019 **(Lead-PI; $68,356)**

-NSF CHEM OCE: *Collaborative Research: Novel Constraints on Air-sea Gas Exchange and Deep Ocean Ventilation from High-precision Noble Gas Isotope Measurements in Seawater*, 2019-2022 **(Lead-PI; $583,944)**

-Travel stipend awarded for receiving the Deep Carbon Observatory Emerging Leader Award: 2019 (**$1,500**)

-Deep Carbon Observatory (DCO): *Detecting accretionary volatile signatures in the mantle beneath Yellowstone,* 2019 (**Lead-PI; $23,583**)
-USGS/University of Oxford Sub-Award: *Mass Spectrometric analyses and Modeling of Noble Gas Isotopes to Identify the Sources and Pathways for Groundwater Contamination from Oil and Gas Field Development in California,* 2019-2021 (**Lead-PI; $132,000**)
-Deep Carbon Observatory (DCO) Field Focus Site Award: *Biology Meets Subduction: A Collaborative and Multi-disciplinary Deep Carbon Field Initiative,* 2016-2019 (**Lead-PI; $464,129**)
-EPSRC Global Challenges Research Fund: *Developing soil gas surveying techniques to guide helium resource recovery in Tanzania,* 2016-2017 (**Lead-PI; $105,609**)
-USGS Award: *Understanding sources, pathways and the overall impact of oil and gas on California groundwaters: A unique noble gas isotope modeling approach,* 2016-2020 (**Lead-PI; $624,793**)
-NSF EAR Postdoctoral Fellowship: *A Petrological and Nitrogen Isotope Study of Crustal Recycling Through Time*, 2012-2014 (**Lead-PI; $170,000**)
-UCSD President's Dissertation Fellowship, 2011-2012 **(Lead-PI; $22,000)**
-NSF EAPSI Fellowship, 2008 **(Lead-PI; $5,000)**
-Research and Teaching Assistant Fellowship and Tuition Fee Stipend, UCSD, 2007-2011

Field Research Experience

- Montana/Idaho/Wyoming 2021: Sampling geothermal springs
- Iceland 2021: Sampling volcanic gases and lavas
- Chile 2020: Sampling volcanic gases
- Yellowstone 2019: Sampling volcanic gases
- Ethiopia 2019: Sampling hot springs
- Argentina 2019: Sampling fumaroles and seeps in the volcanic backarc
- Ethiopia 2018: Sampling hot springs
- Tanzania 2018: Sampling volcanic gases and high He seeps
- Yellowstone 2018: Sampling volcanic gases
- Panama 2018: Groundwater sampling in the volcanic forearc
- Costa Rica 2018: Lead PI on DCO funded 'Biology Meets Subduction' field expedition – part 2
- Orcutt, California 2018: Produced water, oil and gas sampling
- Iceland 2017: Sampling fluids, gases and lavas from Northern Rift Zone
- Sicily 2017: Sampling fluids, gases and lavas from Etna Volcano
- Nicaragua 2017: Sampling fluids, gases and lavas from Telica Volcano
- Costa Rica 2017: Lead PI on DCO funded 'Biology Meets Subduction' field expedition – part 1
- Tanzania 2016: Testing portable mass spectrometer on high He seeps
- Lost Hills, California 2016: Produced water, oil and gas sampling
- Papua New Guinea 2016: Volcanic gas sampling
- Bakersfield, California 2016: Groundwater and oil and gas sampling
- Tanzania 2016: High helium natural seep sampling
- West Texas & Louisiana 2016: Methane sample collection
- Tanzania 2015: High helium natural seep sampling
- South Texas 2015: Methane sample collection
- Northern Germany 2014: Methane sample collection
- Southern California 2014: Groundwater sampling in the Santa Barbara Basin
- Costa Rica 2014: Deployment of SPARTAH; collection of geothermal fluids and groundwaters
- Panama 2013: Groundwater sampling in the volcanic forearc
- Central California 2014: Groundwater sampling along the San Andreas Fault
- China 2011: Sampling of volcanic fluids and gases
- Costa Rica 2010: Sampling fluids and gases
- Tanzania 2009: Sampling lavas, xenoliths, geothermal fluids and gases

- Japan 2008: Sampling geothermal gases
- California: Deployment of SPARTAH; collection of geothermal fluids and groundwaters
- Mascarene islands 2007: Sampling of lavas and xenoliths
- Central Indian Ridge 2007: SIO Knox11 research cruise (R/V Revelle) - Dredging for glasses
- Iceland 2007: Test deployment of SPARTAH; Sampling of lavas, xenoliths and geothermal fluids
- Costa Rica & El Salvador 2007: Sampling geothermal fluids and gases; Mini-DOAS: SO_2 fluxes

Peer-Reviewed Publications

In Review

76. Bekaert, D.V., **Barry, P.H.,** Krantz, J.A., Curtice, J., Blusztajn, J., Hudak, M. Seltzer, A., Broadley, M.W., Wanless, V.D., Jones, M.R., Soule, S.A., Mittelstaedt, E., Kurz, M.D. (2022) Carbon, Nitrogen, and multi-isotope study of upper mantle 2 geochemical heterogeneities near 14°N on the Mid-Atlantic Ridge. GCA. In Review.

75. Rogers, T.J., Buongiorno, J., Jessen, G.L., Schrenk, M.O., Fordyce, J.A., de Moor, J.M., Ramirez, C.J., **Barry, P.H.**, Yücel, M., Selci, M., Cordone, A., Giovannelli, D., Lloyd, K.G. (2022) Patterns in chemolithoautotroph distribution across a subsurface convergent margin landscape. ISME Journal. In Review.

74. **Barry, P.H.**, de Moor, J.M., Chiodi, A., Barraza F.A., Hudak, M.R., Bekaert, D.V., Turner, S.J., Curtice, J., Seltzer, A.M., Jessen, G.L., Osses, E., Blamey, J.M., Amenábar M.J., Selci M., Cascone M., Bastianoni A., Nakagawa M., Filipovich R., Bustos E., Schrenk M.O., Buongiorno J., Ramírez C.J., Rogers T.J., Lloyd K.G., Giovannelli D. (2022) The helium and carbon isotope characteristics of the Andean Convergent Margin. Frontiers in Earth Science. Special Issue: Volcanism in the Central Volcanic Zone of the Andes. In Review.

73. Tyne, R.L., **Barry, P.H.**, Cheng, A., Kim, J.H., McIntosh, J.C., Hillegonds, D.J., Ballentine, C.J., (2022) Noble gases reveal the role of basin architecture in controlling the evolution of fluids in the Paradox Basin. EPSL, In Review.

72. Bekaert, D.V., Curtice, J., Meie, M.M, Byrne, D.J., Broadley, M.W., Seltzer, A., **Barry, P.H.**, Kurz, M.D., Nielsen, S.D. (2022) Noble gas cosmic-ray exposure ages of 23 meteorites: ordinary and CV chondrites, ureilites, eucrites and a diogenite. *MAPS*. In Review.

Published

71. Halford, D., Karolytė, R., **Barry, P.H.**, Darrah, T., Cuzella, J., Ballentine, C.J., Sonnenberg, S. (2022) High Helium Reservoirs in the Four Corners Area of the Colorado Plateau, USA. Chemical Geology, 596, 120790. doi: https://doi.org/10.1016/j.chemgeo.2022.120790.

70. Halldórsson, S.A., Hilton, D.R., Marshall, E.W., Ranta, E., Ingvason, A., Chakraborty, S., Robin, J.G., Rasmussen, M.B., Gibson, S.A., Ono, S., Scarsi, P., Abebe, T., Hopp, J., **Barry, P.H.**, Castillo, P.R. (2022). Evidence from gas-rich ultramafic xenoliths for Superplume-derived recycled volatiles in the East African sub-continental mantle. *Chemical Geology*, *589*, p.120682. doi: https://doi.org/10.1016/j.chemgeo.2021.120682.

69. Giovannelli, D. **Barry, P.H.,** Bekaert, D.V., Chiodi A., Cordone, A., Covone, G., Jessen, G.L., Lloyd, K.G., de Moor, J.M., Morrison, S.M., Schrenk, M.O., Vitale Brovarone, A. (2022). Subsurface life can modify volatile cycling on a planetary scale. *Astrobiology*. Vol. 92, 60.

68. Danabalan, D., Gluyas, J.G., Macpherson, C.M., Abraham-James, T.H., Bluett, J.J., **Barry, P.H.**, Ballentine, C.J. (2022) The Principles of Helium Exploration. *Petroleum Geoscience*. doi: https://doi.org/10.1144/petgeo2021-029.

67. Tyne, R.L., **Barry, P.H.**, Lawson, M., Byrne, D.J., Warr, O., Xie, H., Hillegonds, D.J., Formolo, M., Summers, Z., Eiler, J.M., Ballentine, C.J. (2021) Rapid methanogenesis of CO2 in geological carbon storage analogues. *Nature*, 600 (7890), 670-674. doi: https://doi.org/10.1038/s41586-021-04153-3.

66. Bekaert, D.V., Krantz, J.A., Seltzer, A.M., Patel, B.S., de Moor, J.M., Nakagawa, M., Giovannelli, D., Ramírez, C.J., Schrenk, M., Gazel, E. Halldórsson, S.A., Kulongoski, J.T., Turner, S., Ballentine, C.J., Beaudry, P., Fischer, T.P., Lloyd, K.G., **Barry, P.H.** (2021) Volatile fluxes in the volcanically-dormant portion of the Central American Subduction Zone: Southern Costa Rica and western Panama. *PNAS*. 118 (47). doi: https://doi.org/10.1073/pnas.2110997118.

65. Kimani, C., Kasanzu, C., Tyne, R.L., Mtili, K.M., Byrne, D.J., Kazimoto, E.O., Hillegonds, D.J., Ballentine, C.J., **Barry, P.H.** (2021) He, Ne, Ar and CO_2 systematics of the Rungwe Volcanic Province, Tanzania: Implications for fluid source and dynamics. *Chemical Geology*. 120584. doi: https://doi.org/10.1016/j.chemgeo.2021.120584.

64. Mtili, K.M., Byrne, D.J., Tyne, R.L., Kazimoto, E.O., Kimani, C., Kasanzu, C., Hillegonds, D.J., Ballentine, C.J. and **Barry, P.H.**, 2021. The origin of high helium concentrations in the gas fields of southwestern Tanzania. *Chemical Geology*, 120542. doi: https://doi.org/10.1016/j.chemgeo.2021.120542.

63. Tyne, R.L., **Barry, P.H.**, Karolytė, R., Byrne, D.J., Kulongoski, J.T., Hillegonds, D.J., Ballentine, C.J., (2021) Investigating the effect of enhanced oil recovery on the noble gas signature of casing gases and produced waters from selected California oil fields. *Chemical Geology*, 120540. doi: https://doi.org/10.1016/j.chemgeo.2021.120540.

62. **Barry, P.H.**, Bekaert, D.V., Seltzer, A.M., Halldórsson, S.A., de Moor, J.M., Fischer, T.P., Werner, C.A., Kelly, P.J., Franz, B.P., Krantz, J.A., Kulongoski, J.T., (2021) Helium-Carbon Systematics of Groundwaters in the Lassen Peak Region. *Chemical Geology*, 120535. doi: https://doi.org/10.1016/j.chemgeo.2021.120535.

61. Cheng, A., Sherwood Lollar, B., Warr, O., Ferguson, G., Idiz, E., Mundle, S.O.C., **Barry, P.H.**, Byrne, D.J., Mabry, J., Ballentine, C.J., (2021) Determining the role of diffusion and sedimentary basin architecture in ^{4}He groundwater distribution and fluid age determination: the Willison Basin, Canada. *EPSL*, 117175. doi: https://doi.org/10.1016/j.epsl.2021.117175.

60. Karolytė, R., **Barry, P.H.,** Hunt, A.G., Kulongoski, J.T., Tyne, R.L., Davis, T.A., Wright, M.T., McMahon, P.G., Ballentine, C.J. (2021) Noble gas signatures constrain oil-field water as the carrier phase of hydrocarbons occurring in shallow aquifers in the San Joaquin Basin, USA, *Chemical Geology*. p.120491. doi: https://doi.org/10.1016/j.chemgeo.2021.120491.

59. Seltzer, A.M., Krantz, J.A., Ng, J., Danskin, W.R., Bekaert, D.V., **Barry, P.H.**, Kimbrough, D.L., Kulongoski, J.T., Severinghaus, J.P., (2021) The Triple Argon Isotope Composition of Groundwater on Ten-Thousand-Year Timescales. *Chemical Geology*, p.120458. doi: https://doi.org/10.1016/j.chemgeo.2021.120458.

58. Labidi, J., Young, E.D., Fischer, T.P., **Barry, P.H.**, Ballentine, C.J., de Moor, J.M. (2021) Constraining the nitrogen and light noble gas cycles in a subduction zone with 15N15N, *EPSL*, 571(2021)117112. doi: https://doi.org/10.1016/j.epsl.2021.117112.

57. Zhang, M., Guo, Z., Xu, S., Hilton, D.R., **Barry, P.H.**, Sano, Y., Halldórsson, S.A., Zhang, L., Cheng, Z., Liu, C., Li, S, Lnag, Y., Li, Z. and Li, L. (2021) Mantle degassing responses to late Cenozoic southeastward

growth of the Tibetan Plateau. *Nature Communications*, *12*(1), pp.1-10. doi: https://doi.org/10.1038/s41467-021-24415-y

56. Fullerton, K.M., Schrenk, M.O, Yucel, M., Manini, E., Fattorini, D., di Carlo, M., Regoli, F., Nakagawa, M., Smedile, F., Vetriani, C., Miller, H., Morrison, S.M., Martínez, M., de Moor, J.M., **Barry, P.H.,** Giovannelli, D., Lloyd, K.G. (2021) Plate tectonics drive deep biosphere microbial community compositions, *Nature Geoscience*. pp1-6. doi: https://doi.org/10.1038/ s41561-021-00725-0

55. Seltzer, A.M, Bekaert, D.V., **Barry, P.H.**, Durkin, K.E., Mace, E.K., Aeselth, C., Zappala, J.C., Mueller, P., Jurgens, B., Kulongoski, J.T. (2021) Groundwater residence times obscured by anthropogenic carbonate dissolution. *Science Advances*. *7*(17), p.eabf3503. doi: 10.1126/sciadv.abf3503

54. Byrne, D.J., Broadley, M.W., Halldórsson, S.A. Ranta, E., Ricci, A., Tyne R.L., Stefánsson A., Ballentine C.J., **Barry, P.H. (**2021) The use of noble gas isotopes to trace subsurface boiling temperatures in Icelandic geothermal systems. *EPSL*, 560, p. 116805. doi: https://doi.org/10.1016/j.epsl.2021.116805

53. **Barry, P.H.** and Broadley M.W. (2021) Nitrogen and noble gases reveal a complex history of metasomatism in the Siberian lithospheric mantle. *EPSL*. 556, 116707. doi: https://doi.org/10.1016/j.epsl.2020.116707.

52. Bekaert, D.V., Turner, S.J., Broadley M.W., Barnes, J.D., Halldórsson, S.A. Labidi, J., Wade, J., Walowski, K.J., **Barry, P.H.** (2021) Terrestrial volatile recycling: a global mass-balance. Volume 49 of the *Annual Review of Earth and Planetary Sciences, 49, p. 2021*. doi: https://doi.org/10.1146/annurev-earth-071620-055024.

51. Marty, B., Almayrac, M. **Barry, P.H.**, Bekaert, D.V., Broadley, M.W., Byrne, D.J., Ballentine, C.J., Caracausi, A (2020) An evaluation of the C/N ratio of the mantle from natural CO2-rich gas analysis: Geochemical and cosmochemical implications. *EPSL*. *551*, 116574. doi: https://doi.org/10.1016/j.epsl.2020.116574.

50. **Barry, P.H.,** Negrete-Aranda, R., Spelz, R., Seltzer, A.M., D.V. Bekaert, Virrueta, C., Kulongoski, J.T. (2020) Volatile sources, sinks and pathways: a helium-carbon isotope study of Baja California fluids and gases. *Chemical Geology*, p. 119722. doi: https://doi.org/10.1016/j.chemgeo.2020.119722.

49. Broadley M.W., **Barry, P.H.**, Bekaert, D.V., Caracausi, A., Ballentine, C.J., Marty, B., (2020) Chondritic Krypton and Xenon in the Yellowstone Mantle Plume. *Proceedings of the National Academy of Sciences* Jun 2020, 202003907. doi: https://doi.org/10.1073/pnas.2003907117.

48. Labidi, J., **Barry, P.H.**, Bekaert, D.V., Broadley M.W., Marty, B., Giunta, T. Warr, O., Sherwood Lollar, B., Fischer T.P., Avice, G., Caracausi, A., Ballentine, C.J., Halldórsson, S.A., Stefánsson, A., Kurz, M., Kohl, I., Young E.D., (2020) Hydrothermal $^{15}N^{15}N$ abundances constrain the origins of mantle nitrogen. *Nature*. 580(7803), 367-371. doi: https://doi.org/10.1038/s41586-020-2173-4.

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