KAYLA IACOVINO, Ph.D.

Curriculum Vitae

SETI Institute
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PROFESSIONAL EXPERIENCE

2025 –	**Principal Investigator,** SETI Institute Carl Sagan Center for Research, Mountain View, CA
2019 – 2025	**Senior Research Scientist**, Amentum, NASA Johnson Space Center, Houston, TX
2016 – 2019	**Post-doctoral Research Scientist**, Sch. Earth & Space Expl., Arizona State Univ.
2014 – 2016	**NSF Post-doctoral Fellow**, U.S. Geological Survey, Menlo Park, CA
2015 – 2016	**Visiting Scholar**, Dept. of Geological & Environmental Sciences, Stanford University
2010 – 2014	**Ph.D. Student**, Dept. of Geography, University of Cambridge
2007 – 2010	**NASA Space Grant Intern**, Sch. Earth & Space Expl., Arizona State Univ.
2007	**Undergraduate Research Summer Intern**, Earth Sciences, Univ. of Minnesota

EDUCATION

2014	**Ph.D., University of Cambridge** *An unexpected journey: Experimental insights into magma and volatile transport beneath Erebus volcano, Antarctica*
2010	**B.S., Arizona State University, *Cum Laude*** Geological Sciences (minor in Geography)

RESEARCH GRANTS

2024 – 2027	**NASA ROSES Solar System Workings** "Quantifying Sampling Depth Bias in Planetary Interiors: An Experimental Investigation On The Survival Of Melt Inclusions" (PI, $454,942)
2023 – 2026	**NASA ROSES Solar System Workings** "Exploration of Igneous Rocks at the Surface of Mars Combining Experimental Petrology and Remote Sensing" to PI Valerie Payré (Co-PI, $492,599)
2023	**Jacobs SABRE Innovation Grant** "Re-inventing MAGPOX: Modeling lunar magmas in the Artemis Era" (Co-PI, $19,740)
2023	**Jacobs SABRE Innovation Grant** "Large volume high-pressure research: Jacobs-FORCE" (PI, $9,600)
2021	**Jacobs SABRE Innovation Grant** "Carbon and hydrogen solubility in extraterrestrial magmas" (PI, $9,375)
2017 – 2020	**NSFGEO-NERC** "Physical and Chemical Constraints on Large-volume Pyroclastic Blasts: The Campanian Ignimbrite Eruption, Italy", to Co-PI M. Ort. I worked on development of the project, co-wrote the proposal, and am a named collaborator on the project. (1761713, Co-PI, $290,655)
2014 – 2016	**NSF Post-doctoral Fellowship** "Quantifying total volatile budgets of explosive volcanic eruptions: An experimental investigation of C-O-H-S-F-Cl in Silicic Peralkaline Magma from Paektu volcano, North Korea and China" (EAR-1349486, PI, $174,000)

PEER REVIEWED PUBLICATIONS (*=mentored student, †=mentored post-doc)

h-index: 13 Citations: 926 (via Google Scholar)

22. Edmonds M, Bouvier A-S, Hughes E, **Iacovino K**, Shahar A (in press) Origins of magmatic volatiles and their role in magma ascent and degassing. In *Encyclopedia of Volcanoes*.

21. *Murray AN, Ort MH, **Iacovino K**, Smith VC, Giordano G, Isaia R (in press) Evidence of shallow storage and re-equilibration of magmas feeding the 39.8 ka Campanian Ignimbrite (Italy) eruption. Bulletin of Volcanology.

20. †Crossley SD, Setera JB, †Anzures BA, **Iacovino K**, Buckley WP, Eckley SA, O'Neal EW, Maisano JA, Simon JI, Righter K (2025) Percolative sulfide core formation in oxidized planetary bodies. Nature Communications, doi: 10.1038/s41467-025-58517-8

19. Anzures BA, Parman SW, Milliken RE, Namur O, Cartier C, McCubbin FM, Vander Kaaden KE, Prissel K, **Iacovino K** (2024) An oxygen fugacity-temperature-pressure-composition model for sulfide speciation in mercurian magmas. Geochimica et Cosmochimica Acta, doi: 10.1016/j.gca.2024.11.012

18. *Gallo RI, Ort MH, **Iacovino K**, Silleni A, Smith V, Giordano G, Isaia R, Boro J (2024) Reconciling complex stratigraphic frameworks reveals temporally and geographically variable depositional patterns of the Campanian Ignimbrite. Geosphere, doi: 10.1130/GES02651.1

17. Iacovino K, McCubbin FM, Vander Kaaden KE, Clark J, Wittmann A, Jakubek RS, Moore GM, Fries MD, Archer D, Boyce JW (2023) Carbon as a key driver of super-reduced explosive volcanism on Mercury: Evidence from graphite-melt smelting experiments. Earth and Planetary Science Letters, doi: 10.1016/j.epsl.2022.117908

16. Righter K, Butterworth A, Gainsforth Z, Jilly-Rehak J, Roychoudhury S, **Iacovino K**, Rowland R, Erickson T, Pando K, Ross DK, Prendergast D, Westphal A (2023) Oxygen fugacity buffering in high pressure solid media assemblies from IW-6.5 to IW+4.5 and application to the V K-edge oxybarometer. American Mineralogist, doi: 10.2138/am-2022-8301

15. Wadsworth FB, Llewellin EW, Castro JM, Tuffen H, Schipper CI, Gardner JE, Foster A, Vasseur J, Damby DE, McIntosh IM, Boettcher S, Unwin HE, Heap MJ, Farquharson JI, Dingwell DB, **Iacovino K**, Paisley R, Jones C, Whattam J (2022) A reappraisal of explosive-effusive silicic eruption dynamics: syn-eruptive assembly of lava from the products of cryptic fragmentation. Journal of Volcanology and Geothermal Research, doi: 10.1016/j.jvolgeores.2022.107672

14. Wieser PE, **Iacovino K**, Moore GM, Matthews S, Allison CM (2022) VESIcal Part II: A critical approach to volatile solubility modeling using an open-source Python3 engine. Earth and Space Science, doi: 10.1029/2021EA001932

13. Iacovino K, Matthews S, Wieser PE, Moore GM, Bégué F (2021) VESIcal Part I: An open-source thermodynamic model engine for mixed volatile (H_2O-CO_2) solubility in silicate melts. Earth and Space Science, doi: 10.1029/2020EA001584. Converted to a *NotebooksNow! Interactive Publication*.

12. Wieser PE, Lamadrid H, Maclennan J, Edmonds M, Matthews S, **Iacovino K**, Jenner F, Gansecki C, Trusdell F, Lee L, Ilyinskaya E (2021) Reconstructing magma storage depths for the 2018 Kilauean eruption form melt inclusion CO_2 contents: The importance of vapor bubbles, G3. doi: 10.1029/2020GC009364

11. Iacovino K, Guild MR, Till CB (2020) Aqueous fluids are effective oxidizing agents of the mantle in subduction zones, Contributions to Mineralogy and Petrology. doi: 10.1007/s00410-020-1673-4

10. Edmonds M, Tutolo B, **Iacovino K**, Moussallam Y (2020) Magmatic carbon outgassing and uptake of CO_2 by alkaline waters, American Mineralogist. doi: 10.2138/am-2020-6986CCBY.

9. Ojha L, Karunatillake S, **Iacovino K** (2019) Atmospheric injection of sulfur from the Medusae Fossae forming events, Planetary and Space Science. doi: 10.1016/j.pss.2019.104734.

8. Iacovino K, Till CB (2019) DensityX: A program for calculating the densities of magmatic liquids up to 1,627 °C and 30 kbar, Volcanica 2(1), pp. 1-10. doi: 10.30909/vol.02.01.0110.

7. Bary PH, de Moor J, Giovannelli D, Schrenk M, Hummer D, Lopez T, Pratt C, Alpízar Segura Y, Battaglia A, Beaudry P, Bini G, Cascante M, d'Errico G, di Carlo M, Fattorini D, Fullerton K, Gazel E, González G, Halldórsson S, **Iacovino K**, Kulongoski J, Manini E, Martínez M, Miller H, Nakagawa M, Ono S, Patwardhan S, Ramírez C, Regoli R, Smedile G, Turner S, Vetriani C, Yücel M, Ballentine C, Fischer T, Hilton D, Lloyd K (2019) Forearc carbon sinks reduce long-term volatile recycling into the mantle, Nature v. 586, p. 487-492. doi: 10.1038/s41586-019-1131-5

6. Lowenstern JB, van Hinsberg V, Berlo K, Liesegang M, **Iacovino K**, Bindeman I, Wright H (2018) Opal-A in Glassy Pumice, Acid Alteration, and the 1817 Phreatomagmatic Eruption at Kawah Ijen (Java), Indonesia, Frontiers in Volcanology 6:11. doi: 10.3389/feart.2018.00011

5. Iacovino K, Kim JS, Sisson T, Lowenstern J, Ri KH, Jang JN, Song KH, Ham HH, Oppenheimer C, Hammond JOS, Donovan A, Weber-Liu K, Ryu KR (2016) Quantifying gas emissions from the 'Millennium Eruption' of Paektu volcano, Democratic People's Republic of Korea/China. Science Advances. doi: 10.1126/sciadv.1600913

4. Ri KS, Hammond JOS, Ko CN, Kim H, Yun YG, Pak GJ, Ri CS, Oppenheimer C, Weber-Liu K, **Iacovino K**, Ryu KR (2016) Evidence for partial melt in the crust beneath Mt. Paektu (Changbaishan), Democratic People's Republic of Korea/China. Science Advances doi: 10.1126/sciadv.1501513
3. **Iacovino K**, Oppenheimer C, Scaillet B & Kyle PR (2016) Storage and evolution of mafic and intermediate alkaline magmas beneath Ross Island, Antarctica. Journal of Petrology doi:10.1093/petrology/egv083
2. **Iacovino K** (2015) Linking subsurface to surface degassing at active volcanoes: A thermodynamic model with applications to Erebus volcano. Earth and Planetary Science Letters doi:10.1016/j.epsl.2015.09.016
1. **Iacovino K**, Moore GM, Roggensack K, Oppenheimer C & Kyle PR (2013) H_2O-CO_2 solubility in mafic alkalic magmas: Applications to volatile sources and degassing behavior at Erebus volcano, Antarctica. Contributions to Mineralogy and Petrology, doi:10.1007/s00410-013-0877-2

NON-PEER REVIEWED SCIENTIFIC PUBLICATIONS

White papers, workshop reports, and other non-peer-reviewed scientific outputs.

7. **Iacovino K** (Continuously updated) Tools for Petrologists: Open-access modeling tools and resources for experimental and volcanic petrology. https://www.kaylaiacovino.com/tools-for-petrologists/
6. Hughes E, Ding S, **Iacovino K**, Wieser P, Kilgour G (2023) "Workshop report: Modelling volatile behaviour in magmas" Sunday 29th January 2023 IAVCEI pre-conference workshop, Rotorua, Aotearoa, doi:10.31223/X5FD3Q
5. **Iacovino K**, Lunning NG, Moore GM, Vander Kaaden K, Righter K, McCubbin FM, Prissel KB, Asimow PD (2021) "Making planets on Earth: How experimental petrology is essential to planetary exploration" Bulletin of the AAS, 53(4), doi:10.3847/25c2cfeb.41ba83b1
4. Wada I, Karlstrom L, Arcay D, Caricchi L, Fulton P, Gerya T, **Iacovino K**, Keller T, Lauer R, Lotto G, Montesi L, Sun T, Vrijmoed H, Warren J (2019) "Modeling Collaboratory for Subduction RCN Fluid Migration Workshop Report" https://www.sz4dmcs.org/fluids-workshop
3. Barnes R, Shahar A, Unterborn C, Hartnett H, Anbar A, Foley B, Driscoll P, Shim S-HD, Quinn T, **Iacovino K**, Kane S, Desch S, Sleep N, Catling D (2018) "Geoscience and the Search for Life Beyond the Solar System", doi:10.48550/arXiv.1801.08970
2. Hicks K, **Iacovino K**, Ilanko T, Moussallam Y, Peters N (2012) "Field Measurements of Active Volcanoes in the Southern Chilean Andes" Royal Geographical Society.
1. **Iacovino K** (2014) "An unexpected journey: Experimental insights into magma and volatile transport beneath Erebus volcano, Antarctica" PhD dissertation, University of Cambridge.

CONFERENCE ABSTRACTS (*=mentored student, †=mentored post-doc)

2025

55. **Iacovino K**, Wolf A, Till CB, Sahu CK, Marshall LX, Foley BJ, Brugman K (2026) ***Invited Talk.*** "From *Star* to Surface: Tracing rocky exoplanet compositions" Goldschmidt Conference, Montreal, Canada.
54. Wolf AS, Matthews SW, Birner SK, Ghiorso MS, **Iacovino K** (2026) "Building novel thermodynamic models for MELTS, vapors, and fluids using ENKI" Goldschmidt Conference, Montreal, Canada.
53. *Betts MX, Ustunisik KG, Pommier A, Liang Y, **Iacovino K**, McCubbin F, Nielsen RL (2026) "Trace Element Partitioning Experiments in Orthopyroxene: Insights into Ultradepleted Mantle Signatures" Goldschmidt Conference, Montreal, Canada.
52. Brugman K, **Iacovino K**, Marshall LX, Till CB (2026) "Geochemical habitability: Petrological experiments are needed to further exoplanet research" Goldschmidt Conference, Montreal, Canada.
51. **Iacovino K** (2025) ***Invited Talk.*** "How the *Elements* approach to scientific communication makes us better researchers" Goldschmidt Conference, Prague, Czech Republic. doi: 10.7185/gold2025.29892 (abstract)
50. *Wasser VK, Lopez TM, Larsen JF, Izbekov PE, Loewen M, Waythomas C, Newcombe ME, **Iacovino K** (2025) "Insights into the Magmatic Plumbing System of Pavlof Volcano, Alaska through Volatiles in Olivine-Hosted Melt Inclusions" IAVCEI Scientific Assembly, Prague.
49. †Stadermann A, McCubbin FM, Eckley SA, O'Neal EW, Jakubek RS, Erickson TM, Gorce JS, **Iacovino K**, Prissel TC, Madera A (2025) "Disentangling Mg-Suite Petrogenesis Via Petrologically Heterogeneous Olivine-hosted Melt

Inclusions in Apollo Troctolite 76535" 56th Lunar and Planetary Science Conference, The Woodlands, TX. (abstract)

48. *Collin N, **Iacovino K**, McCubbin FM, Mouser M, Anzures BA, Prissel K, Resendez R (2025) "Filling the Redox Gap: Enabling Experiments on Reduced Planetary Bodies with Low-cost Steel Alloy Buffers" 56th Lunar and Planetary Science Conference, The Woodlands, TX. (abstract)
47. *Hottendorf KA, Payré V, **Iacovino K**, Dancer JA, Prissel K, Salvatore MR, Edwards CS, Filiberto J, Moore GM (2025) "Spinifex Textures in Martian Lavas: Crystallization Experiments on Yamato 980459" 56th Lunar and Planetary Science Conference, The Woodlands, TX. (abstract)
46. Edmond JA, Filiberto J, Tu V, Anzures BA, McCubbin FM, **Iacovino K**, Kohler E (2025) "Synthesis of Venera 13 Analog Basalt Samples for Oxidation and Degassing Experiments" 56th Lunar and Planetary Science Conference, The Woodlands, TX. (abstract)

2024

45. Prissel K, Olive JA, Krawczynski MJ, **Iacovino K** (2024) "LIME: A Log-Ratio-Based Algorithm for Petrologic Mass-Balance Problems and Uncertainty Assessment" AGU Fall Meeting 2024, Washington, D.C.
44. *Hottendorf K, Payré V, Salvatore MR, Edwards CS, **Iacovino K**, Filiberto J, Prissel K, Moore GM, Fink C (2024) "Crystallization Experiments on Yamato 980459 Mimicking Lava Flows and Near Surface Magmas on Mars" AGU Fall Meeting 2024, Washington, D.C.
43. **Iacovino K**, Burgisser A, Ding S, Hughes E, Kilgour G, Liggins P, Sun C, Wieser P (2024) ***Keynote Talk.*** "A new era of H-O-C-S magma solubility modeling: Better, faster, stronger", Goldschmidt Conference, Chicago, IL, https://doi.org/10.46427/gold2024.23034
42. †Stadermann AC, McCubbin FM, Eckley SA, O'Neal EW, **Iacovino K**, Jakubek RS (2024) "Olivine-hosted melt inclusions within Apollo Mg-suite troctolite 76535" 86th Annual Meeting of the Meteoritical Society, #6043.
41. Anzures BA, McCubbin FM, Vander Kaaden KE, **Iacovino K**, Prissel K, Boujibar A, Righter M, Righter K, Lanzirotti A, Newville M (2024) "Understanding Mercury's magmatic history: Geochemical affinity, compatibility, & volatility changes due to reduction" MExAG Annual Meeting 2024, Virtual.

2023

40. *Wasser VK, Lopez TM, Larsen JF, Izbekov PE, Loewen M, Waythomas C, Newcombe M, **Iacovino K** (2023) "Exploring the magmatic plumbing system of Pavlov volcano, Alaska over time with olivine-hosted melt inclusions" AGU Fall Meeting, San Francisco, CA.
39. **Iacovino K**, McCubbin FM, Moore GM, †Anzures BA, Jakubek R, Fries M (2023) "Silicon vapor species at very reducing conditions: Applications to Mercury's mysterious hollows" Experimental Mineralogy Petrology and Geochemistry International Symposium, Milan, Italy.
38. Moore GM, McCubbin FM, **Iacovino K**, Prissel K, Marrs I, Macris C, Vander Kaaden KE, Boyce JW, Righter K (2023) "Silicon partitioning between iron-rich metal and silicate melt: New constraints from aerodynamic laser levitation furnace experiments. Experimental Mineralogy Petrology and Geochemistry International Symposium, Milan, Italy.
37. **Iacovino K**, Prissel K (2023) ***Keynote Talk.*** "Modeling lunar magmas in the Artemis Era" EGU General Assembly 2023, Vienna, Austria. (doi: 10.5194/egusphere-egu23-2383)
36. **Iacovino K**, McCubbin FM, Vander Kaaden KE, Moore GM (2023) "Carbon as a key driver of explosive volcanism on Mercury" 54th Lunar and Planetary Science Conference, The Woodlands, TX. (abstract)
35. Moore GM, McCubbin FM, **Iacovino K**, Prissel K, Marrs I, Macris C, Vander Kaaden KE, Boyce JW, Righter K (2023) "New experiments and modelling of the partitioning of silicon between iron-rich metal and silicate melt: Implications for planetary core formation and composition" 54th Lunar and Planetary Science Conference, The Woodlands, TX. (abstract)
34. †Anzures BA, Vander Kaaden KE, McCubbin FM, **Iacovino K**, Prissel K, Righter M, Righter K, Lanzirotti A, Newville M (2023) "Temperature effect on trace element partitioning in the presence of sulfur under reduced conditions" 54th Lunar and Planetary Science Conference, The Woodlands, TX. (abstract)

2022

33. Suckale J, Popp AM, **Iacovino K** (2022) "Towards a process-based understanding of Deflation-Inflation events

and associated lava fountaining at Kilauea Volcano" AGU Fall Meeting, Chigaco, IL.

32. **Iacovino K**, Matthews S, Wieser P, Moore GM, Allison CM, Bégué F (2022) "VESIcal: An open-source thermodynamic model engine for mixed volatile (H2O-CO2) solubility in silicate melts" Goldschmidt Conference, Honolulu, HI. (abstract; presentation)
31. †Anzures BA, Vander Kaaden KE, McCubbin FM, **Iacovino K**, Moore GM, Prissel K, Righter M, Righter K (2022) "Trace element partitioning in the presence of sulfur under reduced conditions" Goldschmidt Conference, Honolulu, HI. (presentation)

2021

30. **Iacovino K**, Vander Kaaden KE, McCubbin FM, Clark JV, Archer D, Boyce J (2021) ***Invited Talk.*** "Carbon as the primary driver of super-reduced explosive volcanism on Mercury: Evidence from graphite-melt smelting experiments" AGU Fall Meeting, New Orleans, LA. (presentation)
29. *Murray AN, Ort MH, **Iacovino K**, Smith V, Giordano G, Isaia R (2021) "Evidence of shallow storage and re-equilibration of magmas feeding the 39 ka Campanian Ignimbrite (Italy) eruption" AGU Fall Meeting, New Orleans, LA.
28. *Wasser VK, Lopez TM, **Iacovino K** (2021) "First steps towards modeling eruption size at arc-volcanoes in near-real time using multidisciplinary data" AGU Fall Meeting, New Orleans, LA.
27. **Iacovino K**, Boyce JW, Vander Kaaden K, Lunning NG, McCubbin FM, Moore GM (2021) "Carbon solubility in mercurian magmas: What we don't know" 52nd Lunar and Planetary Science Conference, Virtual.
26. Righter K, **Iacovino K**, Erickson TM (2021) "Vanadium valence in $MgAl_2O_4$ spinels at reducing conditions (IW to IW-5)" 52nd Lunar and Planetary Science Conference, Virtual.

2020

25. **Iacovino K** (2020) ***Invited Talk.*** "Volcanic gas chemistry and thermodynamic modeling to determine eruption triggers" Geological Society of America Conference, Virtual. (presentation)
24. **Iacovino K** (2020) ***Invited Talk.*** "Toward a general thermodynamic model to interpret volcanic gases" Goldschmidt Conference, Honolulu, HI.

2019

23. **Iacovino K** and de Moor, Maarten (2019) "Determining eruption triggers and magmatic sources using volcanic gas chemistry and thermodynamic modeling" AGU Fall Meeting, San Francisco, CA.
22. *Gallo RI, **Iacovino K**, Ort MH, Silleni A, Barbero A, Isaia R (2019) "Correlating the Campanian Ignimbrite using matrix glass geochemistry and morphology" AGU Fall Meeting, San Francisco, CA.
21. Farquharson J, Wadsworth FB, Kushnir AR, Williams R, Chevrel O, Kennedy B, Heap MJ, Delmelle P, **Iacovino K**, Krippner J, Vasseur J, Varley NR, Hornby A, James MR, von Aulock FW, Donovan A (2019) "Volcanica: a diamond open-access success story for volcano-based research" AGU Fall Meeting, San Francisco, CA.
20. **Iacovino K,** Till CB, Guild M (2019) "Oxidation of the mantle wedge by aqueous fluids: A new interdisciplinary approach" Goldschmidt Conference, Barcelona, Spain. (abstract)

2018

19. **Iacovino K**, Till C (2018) ***Keynote Talk.*** **"**Can Slab Fluids Oxidize the Sub-Arc Mantle?" Goldschmidt Conference, Boston, MA. (abstract)
18. Hartnett H, Till C, Anbar A, Glaser D, Guild M, **Iacovino K**, Johnson A, Leong J & Ostrander C (2018) "Solid-Earth Processes are Key Drivers in the Evolution of Earth's Redox State and Set the Stage for the Great Oxidation Event" Goldschmidt Conference, Boston, MA.
17. Lloyd KG, Barry P, Battaglia A, Beaudry P, Bini G, Fullerton K, de Moor M, Giovannelli D, González G, Hummer D, **Iacovino K**, Lopez T, Martinez M, Matamoros M, Miller H, Pratt K, Ramírez C, Schrenk M, Segura Y, Turner S (2018) "Microbial effects on volatile fluxes across the Costa Rica convergent margin" 4D Workshop: Deep-Time Data-Driven Discovery and the Evolution of Earth, Carnegie Institute, Washington DC.

2017

16. **Iacovino K**, Till C (2017) "Fluid-mediated redox transfer in subduction zones: Measuring the intrinsic fO_2 of slab fluids in the lab" AGU Fall Meeting, New Orleans, LA. (abstract)
15. Lowenstern JB, Van Hinsberg V, Berlo K, Wright H, **Iacovino K**, Liesegang M, Bindeman I (2017) "Multiple origins of opal in pumice: A case study from the 1817 phreatomagmatic event at Kawah Ijen, Java (Indonesia)" IAVCEI Scientific Assembly, Portland, OR.
14. Hamilton J, **Iacovino K**, Fischer T, Saballos JA (2017) "Application of a Thermodynamic Model for Resolving Volatile Concentration Differences Between Melt Inclusions and Surface Degassing" IAVCEI Scientific Assembly, Portland, OR.
13. Ort M, **Iacovino K**, Zanella E, Isaia R (2017) "Emplacement Temperatures as Evidence for Atmospheric Incorporation in Dilute Pyroclastic Density Currents" IAVCEI Scientific Assembly, Portland, OR.
12. Fullerton K, Barry P, Battaglia A, Beaudry P, Bini G, Cascante M, de Moor M, Giovannelli D, Gonzalez G, Hummer D, **Iacovino K**, Martinez M, Miller H, Turner S, Pratt K, Ramirez C, Sequra YA, Lloyd K (2017) "Biology Meets Subduction: Exploration of microbial diversity of Costa Rican convergent margin" Southeastern Biogeochemical Society meeting.

2016

11. **Iacovino K**, Kim JS, Sisson T, Lowenstern J, Jan JN, Song KH, Ham HH, Ri KH, Donovan A, Oppenheimer C, Hammond J, Liu KS, Ryu KR (2016) "Quantifying gas composition and yield from the 946 CE Millennium Eruption of Paektu volcano, DPRK/China" Goldschmidt Conference, Yokohama, Japan. (abstract)

2015

10. **Iacovino K,** Kim JS, Sisson T, Lowenstern J, Jan JN, Song KH, Ham HH, Ri KH, Donovan A, Oppenheimer C, Hammond J, Liu KS, Ryu KR (2015) "New Constraints on the Geochemistry of the Millennium Eruption of Mount Paektu (Changbaishan), Democratic People's Republic of Korea/China" AGU Fall Meeting, San Francisco, CA. (abstract)

2014

9. **Iacovino K,** Sisson T, Lowenstern J (2014) "Evidence of a pre-eruptive fluid phase for the Millennium Eruption, Paektu volcano, North Korea" AGU Fall Meeting, San Francisco, CA. (abstract)

2013

8. **Iacovino K,** Peters N, Oppenheimer C (2013) "Toward a unified method for the quantification of volatiles in magmas via FTIR" Goldschmidt Conference, Florence, Italy. (abstract)
7. **Iacovino K,** Oppenheimer C, Scaillet B, Kyle P.R (2013) "Experimental constraints on the storage conditions and evolution of alkaline lavas at Erebus volcano, Antarctica: A case for CO2-dominated volcanism" IAVCEI Scientific Assembly, Kagoshima, Japan. (abstract)
6. Un Y.G, Ju U.O, Kim M.S, Ri G.S, Ri K.N, Hammond J.O.S, Oppenheimer C, Whaler K, Park S, Dawes G, **Iacovino K** (2013) "The Mt. Paektu Geoscientific Experiment" IAVCEI Scientific Assembly. Kagoshima, Japan. (abstract)

2012

5. **Iacovino K,** Oppenheimer C, Scaillet B, Kyle PR (2012) "Experimental constraints on the evolution of alkaline magmas from Ross Island, Antarctica: A case for CO2-dominated volcanism" Goldschmidt Conference, Montreal, Canada. (abstract)
4. **Iacovino K**, Oppenheimer C, Scaillet B, Kyle PR (2012) "Constraints on primitive magma evolution beneath Erebus" Le Studium Erebus Conference, Orléans, France.

2011

3. **Iacovino K**, Oppenheimer C, Scaillet B, Kyle PR (2011) "Experimental constraints on the crystallization and evolution of primitive magmas from Erebus volcano, Antarctica" AGU Fall Meeting, San Francisco, CA. (abstract)

2010

2. **Iacovino K** (2010) "H_2O-CO_2 solubility in basanite: Applications to volatile sources and degassing behavior at Erebus volcano, Antarctica" Arizona Space Grant Consortium, Tucson, AZ.

2009

1. **Iacovino K**, Moore GM, Roggensack K, Oppenheimer C, Kyle PR (2009) "H2O-CO2 solubility in basanite: Applications to volatile sources and degassing behavior at Erebus volcano, Antarctica" AGU Fall Meeting, San Francisco, CA. (abstract)

SCIENTIFIC INVITED TALKS (*=keynote)

Research-focused invited talks delivered at universities, research institutions, and scientific workshops.

2025 ***Montana State U.** Earth Science Student Colloquium
2025 **Goldschmidt** Conference, Prague, Czech Republic
2025 **Arizona State Univ.** SESE Colloquium, Tempe, AZ
2024 **AGU SZ4D** Petrology in Subduction Zones Workshop
2024 **NASA ARES** Symposium, Houston, TX
2024 **U Nevada Las Vegas** Geoscience Seminar, Las Vegas
2024 **University of Iowa** Earth Science Seminar, Iowa City, IA
2024 ***Goldschmidt** Conference, Chicago, IL
2023 ***EGU** General Assembly, Vienna, Austria
2023 **Rice University** EEPS Seminar, Houston, TX
2022 **Oxford University** Earth Science Seminar, virtual
2021 **AGU** Fall Meeting, New Orleans, LA
2021 **Carnegie** Earth and Planets Laboratory Seminar, virtual
2021 **University Geneva** Earth Science Seminar, virtual
2021 **University Oregon** Earth Science Seminar, virtual
2020 **Univ. of Utah** Distinguished Lecture, virtual (archived)
2020 **GSA** Conference, virtual
2020 **Univ. Bristol** Geoscience Seminar
2020 **Goldschmidt** Conference, Honolulu, HI
2019 **Lunar and Planetary Institute** Symposium, Houston, TX
2019 **Modeling Collaboratory for Subduction**, Univ. of MN
2019 **Baylor University** 5050 Geosciences Seminar
2018 ***Goldschmidt** Conference, Boston, MA (abstract)
2018 **UCLA** Colloquium
2018 **UT Texas Austin** Colloquium
2018 **Johns Hopkins Univ.** Colloquium
2016 **Cascades Volcano Observatory**, Vancouver, WA
2016 **Univ. New Mexico** Colloquium
2015 **Peninsula Geological Society** seminar (abstract)
2014 **Stanford University** Chain Gang Lecture Series
2014 **San Jose State University**
2014 **USGS Volcano Science Center** (archived)
2014 **PyData** Conference, London, England (archived)
2013 **Mt. Paektu Group** Meeting, Pyongyang, DPRK
2013 **Cambridge** Volcanology Group, Cambridge, UK
2012 **Univ. Camerino**, Camerino, Italy

POPULAR SCIENCE INVITED TALKS (*=keynote)

Invited talks and public lectures aimed at general audiences at science festivals, symposia, and outreach events.

2025 **The Earth Speaks First,* Montana State University Earth Sciences Colloquium
2022 *A Song of Earth and Fire: Crushing Rocks and Making Magma*, Arapahoe Libraries Colorado
2021 **A Song of Earth and Fire: Crushing Rocks and Making Magma*, Arizona Space Grant Alumni Symposium
2018 **How "Star Trek" Inspired a Generation of Scientists*, Academia Film Olomouc, Czech Republic
2018 **Popularizing Volcano Science Through Film*, Academia Film Olomouc, Czech Republic
2014 *The Mt. Paektu Geoscientific Experiment: Tales From Fieldwork in North Korea*, Gangplank, Chandler, AZ
2013 *Communicating from the Field: The Volcanofiles*, Royag Geographical Society, London, UK

DOCUMENTARIES

Featured appearances in television and film documentaries as a scientific expert and contributor.

2019 "Breakthroughs: Portraits of Women in Science" Episode 1: "The Volcano Trekker". Featured profile for NPR and the Howard Hughes Medical Institute documentary series
2019 "Pompeii: Secrets of the Dead" National Geographic Documentary
2018 "Polar Extremes" PBS NOVA Documentary
2017 "Expedition: Volcano" BBC Documentary
2017 DCO Biology Meets Subduction outreach videos and documentary

MEDIA COVERAGE

News broadcasts and articles and features covering scientific findings from my research projects.

2017 Valentine, Karen. "ASU researcher navigates North Korea-China border to study active volcano." *ASU News*, January 3, 2017 (original | archive)

2016 St. Fleur, Nicholas. "Only a Rumbling Volcano Could Make North Korea and the West Play Nice." *New York Times*, December 9, 2016, (original | archive)

2016 Bichell, Rae Ellen. "North Korean Volcano Provides Rare Chance For Scientific Collaboration." *Morning Edition*, NPR, December 1, 2016, (original | archive)

2016 "British scientists confirm that Changbai Mountain is an active volcano." *China News*, CCTV, May 9, 2016 (original).

2016 Akpan, Nsikan. "Western scientists dissect a North Korea volcano cut off by diplomatic sanctions." *PBS NewsHour,* PBS, April 15, 2016 (original | archive).

2016 Zhang, Sarah. "How British Scientists Got Inside North Korea to Study a Volcano." *Wired*, April 15, 2016 (original | archive).

2016 Feder, Tony. "Volcano research flows from North Korea." *Physics* Today, February 1, 2016; 69 (2): 20–21. doi: 10.1063/PT.3.3076

2016 *Into the Inferno*. Directed by Werner Herzog. Written by Clive Oppenheimer and Werner Herzog. Netflix, 2016. Documentary film.

2014 Thadeusz, Frank. "Berg der Finsternis [Mountain of Darkness]." *Der Spiegel*, June 29, 2014 (original).

2013 van der Veen, Casper. "We mochten overal foto's maken [We were allowed to take pictures everywhere]." *de Volkskrant*, September 18, 2013 (original | archive).

Media Coverage (About Me)

Profiles and interviews highlighting my career, research, and contributions to science.

2020 "Hunting For The Crystalline Clues Of A Volcano's Eruption." *Science Friday*, hosted by Ira Flatow, NPR, September 18, 2020 (original | archive).

2017 Philipps, Kinga. "Meet a Real-Life Lara Croft: Kayla Iacovino, Volcanologist." *InsideHook*, September 6, 2017 (original | archive).

2016 Augliere, Bethany. "Down to Earth With: Volcanologist Kayla Iacovino." *Earth Magazine*, October 20, 2016. (original | archive).

2016 Pagliery, Jose. "Meet the Trekkie who became a real-life volcanologist." *CNN Business*, August 22, 2016 (original | archive).

2014 *The Only Woman in The Room* profile, "Meet Kayla Iacovino, Volcanologist" (original | archive).

Media Appearances

Guest appearances on podcasts, radio programs, and television news segments discussing science and research.

2025 "Climbing into Volcanoes in the African Rift Valley with Kayla Iacovino." *Wild World with Scott Solomon* podcast (original).

2024 "Exploring Strange New Worlds." *Hailing Frequencies Open,* hosted by Dr. Michael Wong (video).

2023 "The Demon-Haunted Panel: A Tribute to Carl Sagan." *Star Trek Las Vegas* convention panel (original | archive).

2021 "A Beginner's Guide To Astonishing Volcanoes." *Periodic Talks* podcast, hosted by Gillian Jacobs and Diona Reasonover (original).

2020 "TTE 02 Kayla Iacovino." *The Thought Exchange* podcast, hosted by Piers Leigh (original).

2020 "These are really big questions that right now no one could really answer." American Geophysical Union *StoryCorps,* AGU Narratives, February 25, 2020 (original | archive).

2017 "Women in Star Trek." *Star Trek Las Vegas* convention panel (video).

2017 "The One at San Diego Comic Con." *Mission Log*, hosted by John Champion (original | archive).

2016 "North Korean Volcano Provides Rare Chance For Scientific Collaboration." *Morning Edition*, hosted by Rae Ellen Bichell, NPR, December 1, 2016 (original | archive).

2016 "Celebrating 50 Years of Women in Star Trek." *Star Trek Las Vegas* convention panel (report).
2015 "Seismology and Mt. Baekdu: Science Diplomacy in North Korea." *Korea Economic Institute* podcast (original).
2015 "*Voyager*'s Impact on Women's Roles." *Women at Warp: A Star Trek Podcast* (original | archive).
2014 "N. Korea Enlists American Vulcanologist For Help With Active Volcano." *Weekend Edition Saturday*, hosted by Scott Simon, NPR, February 22, 2014 (original | archive).
2014 "Kayla Iacovino: volcanoes and North Korea." *Saturday Morning*, hosted by Kim Hill, Radio New Zealand, February 1, 2014 (original | archive).
2013 "World's Largest Volcano Discovered on Pacific Seafloor." *Science Friday*, hosted by Ira Flatow, NPR, September 13, 2013 (original | archive).
2011 "Exploring Science at the End of the Earth." *Talk of the Nation: Science Friday*, hosted by Ira Flatow, NPR, December 30, 2011 (original | archive).
2010 "A Visit To Antarctica." *Talk of the Nation: Science Friday*, hosted by Ira Flatow, NPR, December 30, 2010 (original | archive).

POPULAR SCIENCE WRITING

Articles authored for public audiences, published in magazines, newspapers, and science communication platforms.

2014 *SinoNK*, "Of Eruptions and Men: Science Diplomacy at North Korea's Active Volcano" (original | archive)
2014 Iacovino, Kayla. "Chasing the Northern Lights: Hacked DSLR cameras help capture one of nature's mose spectacular sights." *Geek Magazine*, vol. 3, no. 1, May 2014.
2014 Iacovino, Kayla. "3D Printing Our Way to the Stars? Made In Space is putting this novel manufacturing process into orbit." *Geek Magazine*, vol. 3, no. 1, May 2014.
2013 Iacovino, Kayla. "An Alien World on Earth? Carved by hot gasses from Antarctica's most active volcano, the ice caves of Erebus may hold the secret to finding off-world life." *Geek Magazine*, vol. 1, no. 5, February 2013.
2012 Iacovino, Kayla. "Science and Art in Antarctica." *NPR Science*, January 2012.

STUDENTS AND POST-DOCS MENTORED (*=graduate committee member)

11. *Madison Betts (PhD, South Dakota School of Mines, 2025–Present), supervised by G. Ustunisik
10. *Kiersten Hottendorf (PhD, University of Iowa, 2024–Present), co-supervised with V. Payré
9. Noah Collin (MS, University ENS de Lyon, summer 2024)
8. Amanda Stadderman (Post-doc, NASA JSC, 2023–2025)
7. Sam Crossley (Post-doc, NASA JSC, 2021–2023)
6. Brendan Anzures (Post-doc, NASA JSC, 2021–2023)
5. *Valerie Wasser (PhD, University of Alaska Fairbanks, 2020–Present), supervised by T. Lopez
4. *Paige Laplant (MS, Northern Arizona University, 2019–2021), co-supervised with M. Ort
3. *Allyson Murray (MS, Northern Arizona University, 2019–2021), co-supervised with M. Ort
2. Arlaine Sanchez (MS, University of Nevada Las Vegas, summer 2019)
1. *Rose Gallo (MS, Northern Arizona University, 2018–2020), co-supervised with M. Ort

TEACHING EXPERIENCE

2017 Petrology (Guest Lecturer), Arizona State University
2016 Petrology (Guest Lecturer), Arizona State University
2013 Volcanic Hazards, Part IB (Supervisor), University of Cambridge
2013 Magma Chambers, Part II (Supervisor), University of Cambridge
2012 Contributing scientist to the Royal Geographical Society From the Field Programme
2012 Developed A-levels (Grades 9-12 US equiv.) science curricula focused on volcanology
2010 Field Geology II (Teaching Assistant), Arizona State University
2009 Petrology Laboratory (Lecturer), Arizona State University
2009 Petrology (Teaching Assistant), Arizona State University
2009 Earth, Solar System, and Universe (Teaching Assistant), Arizona State University

2009 Introduction to Geology (Teaching Assistant), Arizona State University

LABORATORY EXPERIENCE

2019- Lead of ARES Experimental Petrology Lab at NASA Johnson Space Center
2016-18 Post-doc researcher in EPIC Lab at Arizona State Univ.
2014-16 Post-doc researcher in experimental petrology lab at USGS Menlo Park, CA
2014 Restored hydrothermal cold-seal pressure vessel laboratory at Stanford University
2013 Set up non-end-loaded piston cylinder laboratory at Universitá di Camerino, Italy
2010-14 Graduate researcher at University of Cambridge, UK
2010-14 Visiting graduate researcher at Institut des Science de la Terre d'Orleans, France
2007-10 Undergraduate researcher in Depths of the Earth Laboratory, Arizona State Univ.

FIELD EXPERIENCE

2023 Tephra sampling in Lanzarote, Canary Islands, Spain
2022 Gas sample collection in Nicaragua
2019 Sample collection in the Campanian Ignimbrite, Naples, Italy
2017 Sample collection, in-situ gas monitoring, documentary production in DR Congo
2017 Sample collection and in-situ gas monitoring in Costa Rica arc and forearc
2015 Sample collection for K-Ar and Ar-Ar age dating at SP Crater, AZ
2014 Tephra stratigraphy and sample collection at Newberry volcano, OR
2014 Sample collection at Paektu volcano, DPRK Korea (North Korea)
2013 In-situ gas monitoring campaign in Costa Rica
2013 In-situ gas monitoring campaign in central Chilean Andes
2012 In-situ gas monitoring campaign in central and northern Chilean Andes
2010 Sample collection and in-situ volcanic plume measurements at Erebus volcano, Antarctica
2010 Mapping in northern Arizona, Geology Field Camp (Teaching Assistant)
2009 Mapping in northern Arizona, Geology Field Camp (student)

SELECTED HONORS AND AWARDS

2024 JSC-JETS II Team Quarterly Award for support of NASA's CHAPEA 1 Mission Crew EVA
2024 JSC-JETSII Science Expl. Dept. Recognition for Outstanding Contributions to Science Award
2024 NASA On the Spot Award for outstanding support of the ARES Research Symposium
2023 Goddard Instrument Field Team Expedition project, "Volatile delivery from mantle to surface on Mars"
2019 Rotary National Award for Space Achievement nom.
2016 Outstanding Post-doc, Arizona State Univ.
2016 AAAS Research Grant ($5,000)
2013 Software Sustainability Institute Fellowship (£3,000)
2013 Expedition for field measurements of volcanic degassing in central and northern Chile, Antofagasta (£10,000)
2012 Expedition for field measurements of volcanic degassing in central and northern Chile, Antofagasta (£10,000)
2011 US Antarctica Service Medal
2010 Philip Lake Fund Research Grant, Univ. Cambridge
2010 William V. Lewis Research Grant, Univ. Cambridge
2010 Cum Laude graduation honors, Arizona State Univ.
2010 Outstanding Teaching Assistant, Arizona State Univ.

PUBLIC SERVICE and CONTRIBUTIONS TO DIVERSITY

2024 Goldschmidt Conference Mentor
2023 Advisory Board member for the Nichelle Nichols Foundation, a 501(c)(3) organization dedicated to the advancement of women and girls in STEM
2023 Panelist on "Careers in Government" panel hosted by the Arizona State University Graduate College
2021 Panelist on "COVID-19 Impacts on Geochemistry: What's Next" panel with the Geochemical Society
2020 Research Careers profile in textbook "Earth History," FOSS Science Resources, UC Berkeley.
2019 Mentor for the STEM Enhancement in Earth Science (SEES) NASA internship program. Developed curricula and work alongside 5 high-school students in a two-week intensive program to develop a proposal for a lunar habitat for future astronauts.
2019 Participant in We Are Girls Houston event at Hogg Middle School. Helped design and run the Female

	Superheroes of Science workshop meant to inspire and motivate young girls to pursue their interests and gain confidence.
2017	AGU Fall Meeting OSPA Mentor
2017	Featured as part of the BBC's #100WomenWiki project to add important and inspirational women of the world to the pages of Wikipedia
2016	STEM outreach member, Advisory Committee to the Aircraft Carrier Industrial Base Coalition for National U.S. Navy Aircraft Carrier Month
2015	Creator of web series "Science at the Survey", a series of videos featuring women in geoscience.
2015	Curiosity Science Program materials for young girls from low-income immigrant families
2015	Featured in the "Mighty Women of Science Alphabet Book"
2015	Developed outreach activities such as the "What controls a volcano's eruptive style
2010-14	Professional science writing for GEEK Magazine
2010-12	Professional science writing for NPR Science Friday

Professional Society Boards

2022-24	Member of the SZ4D Magmatic Drivers of Eruption Working Group
2020-21	Member of the Diversity Equity and Inclusion board, Geochemical Society
2020	Social media manager, Geochemical Society

Convener/Session Chair

2023	Lunar and Planetary Science Conference
2022	Goldschmidt Conference
2020	Goldschmidt Conference
2019	AGU Fall Meeting
2019	SZ4D Fluid Transport Modeling Workshop, Early Career Scientist Session
2018	Goldschmidt Meeting
2017	AGU Fall Meeting
2016	AGU Fall Meeting
2013	Software and Research Town Hall, AGU Fall Meeting

Participant in Scientific Community Workshops

2024	Panelist and Speaker: AGU Workshop - Experimental Petrology in Subduction Zones: Advancing Research and Community Initiatives with SZ4D
2023	Organizer: Modeling Volatile Behavior in Magmatic Systems IAVCEI Workshop
2022	Volatiles From Source To Surface GeoPRISMS Workshop
2019	ENKI User Workshop
2017	ENKI Datathon
2017	ENKI User Workshop
2016	Subduction Zone Observatory workshop
2013	Software Sustainability Institute Fellows Meeting
2012	Royal Geographic Society Explore event
2011	Sulfur in Magmas and Melts GSA workshop
2011	Afar Rift Consortium workshop

Journal Editor

Volcanica (Diamond open access, free to publish) Associate Editor and Editorial Board Member

Peer Reviewer

American Mineralogist	Gondwana Research
Bulletin of Volcanology	Icarus
Chemical Geology	Journal of Geophysical Research
Contributions to Mineralogy and Petrology	Journal of Mineralogy and Geochemistry

Earth and Planetary Science Letters
Earth, Planets, and Space
Frontiers
G Cubed
Geochimica et Cosmochimica Acta
Geochemical Perspectives Letters
Geophysical Research Letters
Geology
Journal of Petrology
Journal of Volcanology & Geothermal Research
NASA ROSES
NSF Division of Earth Sciences
Science Advances
Science
SLAC National Accelerator Laboratory
Volcanica