

# Susana M. Hoyos

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Los Angeles, CA 90095

**EDUCATION** **Massachusetts Institute of Technology**, MA, USA May 2024  
**Ph.D.** in Earth Sciences  
Dissertation: Accretion and differentiation in the Solar System  
Advisor: Timothy L. Grove

**EAFIT University**, Colombia 2018  
**B.Sc.** in Geology  
Honors Thesis: Petrogenesis of Garnet-Bearing Andesites  
Advisor: Marion Weber

**RESEARCH EXPERIENCE** **UC Chancellor's Postdoctoral Fellow** 2024-2026  
*University of California, Los Angeles*  
Department of Earth, Planetary and Space Sciences

**Graduate Student Researcher** 2019 - 2014  
*Massachusetts Institute of Technology*  
Department of Earth, Atmospheric and Planetary Sciences

**Research Intern** Feb-Jun 2018  
*National Museum of Natural History*  
Department of Mineral Sciences, Smithsonian Institution

**Research Intern** Summer 2017  
*Institute for planetary materials, Okayama University (Japan)*  
MISIP International Student Internship Program

**Undergraduate Researcher** 2015 - 2018  
*EAFIT University*  
Department of Earth Sciences, Volcanology and Tectonics Group

**FELLOWSHIPS & AWARDS** *Fellowships*

Carnegie Postdoctoral Fellowship declined  
MathWorks Science Fellowship 2023 - 2024  
Whiteman Graduate Fellowship, MIT 2021 - 2022  
Thomas C. Desmond Fellowship, MIT 2020  
Outstanding Undergraduate Scholarship, EAFIT University 2016 - 2018

*Awards & Grants*

Gordon Research Conference travel grant	2023
Graduate Student Council travel grant, MIT	2021
AGU Fall Meeting Student Travel Grant	2018
Meritorious undergraduate thesis, EAFIT University	2018
Student Research Grant, EAFIT University	2015 - 2017
Best National Undergraduate Research Group Project, Redcolsi	2016

**PUBLICATIONS**

- [5] Florez, D., Huber, C., **Hoyos, S.**, Pec, M., Parmentier, M., and Connolly, J. (2024). Melt redistribution in compacting mushes at intermediate crystallinities: constraints from numerical modeling and phase separation experiments on granular media. *Journal of Geophysical Research - Solid Earth*
- [4] Gu, J., Peng, B., Ji, X., Zhang, J., Yang, H., **Hoyos, S.**, Hirschmann, M., Kite, E., and Fischer, R., 2024. Composition of Earth's initial atmosphere and fate of accreted volatiles set by core formation and magma ocean redox evolution. *Earth and Planetary Science Letters*, 629, 118618.
- [3] **Hoyos, S.**, Florez, D., Pec, M. and Huber, C., 2022. Crystal Shape Control on the Repacking and Jamming of Crystal-Rich Mushes. *Geophysical Research Letters*, 49(19), p.e2022GL100040.
- [2] Weber, M., Duque, J.F., **Hoyos, S.**, Cárdenas-Rozo, A.L., Gómez, J. and Wilson, R., 2020. The Combia Volcanic Province: Miocene post-collisional magmatism in the northern Andes. *The Geology of Colombia*, 3, pp.355-394.
- [1] Duque-Trujillo, J., Bustamante, C., Solari, L., Gómez-Mafla, Á., Toro-Villegas, G. and **Hoyos, S.**, 2019. Reviewing the Antioquia batholith and satellite bodies: a record of Late Cretaceous to Eocene syn-to post-collisional arc magmatism in the Central Cordillera of Colombia. *Andean Geology*, 46(1), pp.82-101.

*in prep & submitted*

- [4] **Hoyos, S.**, Krein, S., and Grove, T. L. (*submitted*). Petrologic constraints on the occurrence of garnet-lherzolite melts in the mantle source under Loihi, Hawaii. \*available upon request\*
- [3] **Hoyos, S.**, and Grove, T. l. (*in prep*). Petrogenesis of the Chang'e-5 mare basalts: Implications for the origin of the youngest sampled lunar magmas.
- [2] **Hoyos, S.**, and Grove, T. L. (*in prep*). Differentiation of the Angrite Parent Body: implications of a moon-sized planetesimal

in the early Solar System.

- [1] **Hoyos, S.**, Weber, M., Cárdenas-Rozo, A., Cottrell, E., Duque Trujillo, J., Beltrán-Triviño, A., von Quadt, A., Gómez Tapias, J. (*in prep*) Late Miocene garnet-bearing andesites in the Northern Andes and their tectonic implications

## TALKS & POSTERS

### *Talks*

Hoyos, S., Pec, M., OGhaffari, H. (2023) Experimental Constraints on Melt Migration and Compaction in Crystal-Rich Magmas. AGU Fall Meeting. San Francisco, United States.

Hoyos, S., and Grove, T. (2023). Petrogenesis of the Chang'e-5 mare basalts: Implications for the origin of the youngest sampled lunar magmas. 54th Lunar and Planetary Science Conference 2023 (LPI Contrib. No. 2806)

Hoyos, S., Kim, JD., Ghaffari, HO., Pec, M., Florez, D., Hubber, C.(2022) Using Ultrasound Probes to study magma mush compaction: Effects of particle shape and particle interactions in an analog system. AGU Fall Meeting. Chicago, United States.

Hoyos, S., and Grove, T. (2022) Differentiation of the Angrite Parent Body: implications of a moon-sized planetesimal in the early Solar System. AGU Fall Meeting. Chicago, United States.

Hoyos, S., and Grove, T. (2022) Early magmatic evolution in the Angrite Parent Body: constrains from high-pressure phase equilibrium experiments. Goldschmidt. Hawaii, United States.

Hoyos, S., Pec, M., Huber, C., and Florez, D. (2021) An experimental study of magma-mush compaction. AGU Fall Meeting. New Orleans, United States.

Hoyos, S., Grove, T., and Krein, S. (2021) Petrologic constraints on the occurrence of garnet-lherzolite melts in the mantle source under Loihi, Hawaii. AGU Fall Meeting. New Orleans, United States.

Hoyos, S.,and Duque-Trujillo, J. (2017) Determination of Combia Formation ignimbrites eruption sources based on magnetic fabric analysis. XVI Congreso Colombiano de Geología. Santa Marta, Colombia.

Hoyos, S. and Duque-Trujillo, J.(2016) Petrographic and geochemical characterization of ignimbrites from the Combia Formation. XII Semana Técnica de Geología e Ingeniería Geológica, Medellín, Colombia.

Hoyos, S. and Duque-Trujillo, J. (2016) Petrographic and geochemical characterization of ignimbrites from the Combia Formation. XIX Encuentro Nacional y XIII Internacional de Semilleros de Investigación, Cúcuta, Colombia.

### *Posters*

Hoyos, S., Krein, S., and Grove, T. (2023)Garnet Lherzolite as the

Source of Tholeiitic Melts in Kamaehuakanaloa. AGU Fall Meeting. San Francisco, United States.

Hoyos, S., and Grove, T. (2023) Differentiation of the Angrite Parent Body: Implications of a Moon-sized Planetesimal in the Early Solar System. Gordon Research Conference 2023.

Hoyos, S., and Grove, T. (2022) Early magmatic evolution in the Angrite Parent Body: constrains from high-pressure phase equilibrium experiments. CIDER Summer program.

Hoyos, S., Weber, M. B., Cárdenas-Rozo, A. L., and J. Duque. (2019) Neogene ridge subduction and slab window in the Northern Andes. AGU Fall Meeting. San Francisco, United States.

Hoyos, S., Weber, M. B., Cottrell, E., Duque, J. F., Cárdenas-Rozo, and A. L., Beltran-Triviño, A. (2018) Late Miocene garnet-bearing andesites in the Northern Andean Block and their tectonic implications. AGU Fall Meeting. Washington, D.C., United States.

**PROFESSIONAL** *Leadership*

**SERVICE**

Student Representative, VGP executive committee, AGU	2022 - 2024
COG3 seminar organizing committee, MIT	2021 - 2024
Chair Graduate Student Advisory Group - faculty search, MIT	2021
EAPS Student Advisory Committee, MIT	2020 - 2021
Board Member Graduate Housing, MIT	2020 - 2021
Undergraduate student representative, EAFIT University	2018
Undergraduate research lead, EAFIT University	2015 - 2018
Session Convener, AGU Fall Meeting	2023
Session Chair, LPSC	2023
Session Chair, AGU Fall Meeting	2021

**TEACHING**

Teaching assistant, Structure of Earth Materials (12.108), MIT	2021
Teaching assistant, Introduction to Geosciences, EAFIT University	2017
Teaching assistant, Igneous Rocks, EAFIT University	2016
Teaching assistant, Descriptive Mineralogy, EAFIT University	2015
Teaching assistant, Optical Mineralogy, EAFIT University	2015

Kaufman Teaching Certificate Program (KTCP) 2023

**MENTORING &** *Mentoring (career/research)*

**OUTREACH**

Rudiba Laiba (MIT undergraduate)	2023
Xaveria Haule (CRLS High school)	2022 - 2023
Khalid Jibril (CRLS High school)	2022 - 2023
Leyla Namazie (UC Berkeley undergrad now at USGS)	2022
Sabrina Khan (MIT undergrad now PhD student at Johns Hopkins)	2020

*Mentoring (other)*

Mentor, Harvard-MIT Science Research Mentoring Program (SRMP) 2022  
Mentor, ESL TA Peer Mentoring Program, MIT 2022  
Mentor, EAPS Mentoring Program, MIT 2020 - 2023  
Mentor, EAPS Application Mentoring Program, MIT 2020 - 2023

*Outreach*

How to Melt the Moon? Talk series 2023  
Talks on geology and science to high school students in rural and underserved communities in Colombia.  
How to do a Ph.D. in the US? webinar 2021, 2023  
Webinar series at Colombian universities to help students navigate the US graduate application system Letter to a pre-scientist 2022 - 2023  
Grad catalyst, MIT 2019 - 2023  
Skype a scientist 2019 - 2021

**SKILLS**

**Programming languages:** MATLAB, Python, LaTeX

**Lab:** High Pressure-Temperate Presses, microwelding, Microscopy, Electron microprobe (EPMA), sample preparation

**Languages:** Spanish (native) English (fluent)