

Dr. Alexander Sehlke

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👤 Alexander-Sehlke
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Summary

Position and Focus: Planetary Geologist at NASA Ames Research Center/BAER Institute, with focus on scientific exploration of the solar system through returned sample analyses, fieldwork, space flight hardware development, and NASA-led science exploration missions. Serving as Principal Investigator (PI) and Co-Investigator (Co-I) on multiple research awards funded by NASA's Science Mission Directorate (SMD).

Publications and Presentations: Author of 31 peer-reviewed papers in international scientific journals and over 100 scientific abstracts presented at prestigious international conferences such as the American Geophysical Union (AGU), Lunar and Planetary Science Conference (LPSC), Meteoritical Society (MetSoc), among others.

Teaching and Mentoring: Extensive experience in teaching and mentoring students at high school, undergraduate, and graduate levels.

Education

PhD	University of Missouri, Columbia MO , Geological Sciences	Jan 2011 – Dec 2015
• Minor in College Science Teaching		
Dipl	Leibniz Universitaet Hannover, Germany , Geosciences	Oct 2005 – Jan 2011
• Minor in Material Sciences		

Professional Appointments

NASA Ames Research Center/ BAER Institute , Research Scientist	Moffett Field, CA, USA
• <i>Apollo Lunar Sample Analysis</i> : Investigating the thermochronology of the lunar surface and subsurface using thermoluminescence, with a focus on cold trap prospecting in support of NASA's Artemis program.	Jan 2019 – present
• <i>Planetary Analog Research</i> : Leading field and laboratory studies of terrestrial analog sites to better understand planetary surface processes on the Moon and Mars.	
• <i>Spaceflight Instrumentation</i> : Designing, developing, and field-testing advanced scientific instruments for robotic and crewed planetary exploration.	
• <i>NASA VIPER Mission</i> : Instrument Scientist for the Volatiles Investigating Polar Exploration Rover (VIPER), contributing to hardware development and science operations.	
• <i>NASA Ames Vertical Gun Range (AVGR)</i> : Serving as Science PI for NASA's premier hypervelocity impact facility, enabling experimental studies of planetary surface processes and impact dynamics.	

NASA Ames Research Center/ USRA , Postdoctoral Researcher	Moffett Field, CA, USA
• Planetary Analog Research: Volcanic Terrains on Earth as Analogs for the Moon and Mars	Feb 2016 – Jan 2019
• Instrument Development for Human Space Exploration Missions	

Awards and Honors

NASA Ames Honor Award

- Contractor Employee in 2020
- Partnership RESOURCE Research Program in 2020
- Team/Group BASALT Research Program in 2020
- Team/Group FINESSE Research Program in 2018

Committees and Assignments

SSERVI NASA Exploration Science Forum, Science Organization Committee

Mar 2025 – May 2025

SSERVI NASA Exploration Science Forum, Session Co-Chair

July 2024

- Sample Science
- In-Situ Resource Utilization

Lunar and Planetary Science Conference

Mar 2023

- Moderator: Planetary Volcanism: Eruptions in Fire and Ice
- Moderator: Lunar Regolith Properties and Processes

SSERVI NASA Exploration Science Forum, Session Co-Chair

July 2022

- Apollo Next Generation Sample Analysis

SSERVI NASA Exploration Science Forum, Science Organization Committee

Mar 2022 – July 2022

Co-Chair

Lunar Surface Science Workshop #17 - Defining a Coordinated Lunar Resource Evaluation Campaign

July 2022

- Documentarian

Lunar Surface Science Workshop #13 - Inclusive Lunar Exploration

Jan 2022

- Session Co-Chair
- Documentarian

Peer Review Assignments: NASA Research Proposals

2016 – present

- Several NASA Research Opportunities in Space and Earth Science (ROSES) program proposals, once or twice per year. Served as External Reviewer, Executive Secretary, Panelist, and Panel Chair.

Peer Review Assignments: Manuscripts

2015 – present

- International scientific journals, such as *Journal of Geothermal Research*, *Frontiers in Earth Science*, *Journal of Volcanology and Geophysical Research*, *Earth and Planetary Science Letters*, *Icarus*, *American Ceramic Society*

Peer-reviewed Publications

Thermal Gradient and Thermal Wave Propagation Depth Recovered Using Thermoluminescence of the Apollo 17 Deep Drill Core

2026

A Sehlke, D Sears, HH Schmitt, and the ANGSA Science Team

JGR Planets, in review

Thermal Equilibrium States and Timescales of Lunar Cold Traps via Low-Temperature Thermoluminescence

2025

A Sehlke, D Sears, and the ANGSA Science Team

Planetary and Space Science, in review

Geomorphological Evidence of Near-Surface Ice at Candidate Landing Sites in Northern Amazonis Planitia, Mars

2025

E Luzzi, JL Heldmann, KE Williams, G Nodjoumi, A Deutsch, A Sehlke

<https://doi.org/10.1029/2024JE008724> (JGR Planets, Vol 130(5))

A detailed μ -FTIR study of Hermean glasses: Spectral mainband shape and flank, what do they tell us?

2025

A. Stojic, **A. Sehlke**, AG Whittington, A. Morlok, H. Hiesinger

<https://doi.org/10.1016/j.jnoncrysol.2025.123523> (Journal of Non-Crystalline Solids, Volume 660)

Thermoluminescence and Apollo 17 ANGSA lunar samples: NASA's fifty-year

2024

experiment and prospecting for cold traps

DWG Sears, **A. Sehlke**, HH Schmitt, and the ANGSA Science Team

<https://doi.org/10.1029/2024JE008358> (Journal of Geophysical Research: Planets, Volume 129(4))

Apollo Next Generation Sample Analysis (ANGSA): An Apollo Participating Scientist Program to Prepare the Lunar Sample Community for Artemis

2024

CK Shearer, FM McCubbin, S Eckley, SB Simon, A Meshik, F McDonald, HH Schmitt, RA Zeigler, J Gross, J Mitchell, C Krysher, RV Morris, R Parai, BL Jolliff, JJ Gillis-Davis, K Joy, SK Bell, P Lucey, L Sun, Z Sharp, C Dukes, **A Sehlke**, A Mosie, J Alton, C Amick, JI Simon, TM Erickson, JJ Barnes, MD Dyar, K Burgess, N Petro, D Moriarty, NM Curran, JE Elsila, RA Colina-Ruiz, T Kroll, D Sokaras, HA Ishii, JP Bradley, D Sears, B Cohen, O Pravdivseva, MS Thompson, CR Neal, R Hanna, R Ketcham, K Welten, and the ANGSA Science Team

<https://doi.org/10.1007/s11214-024-01094-x> (Space Science Review, Volume 220:62)

Synthetic analogs for lava flows on the surface of Mercury: A mid-infrared study

2024

A Morlok, **A Sehlke**, AN Stojic, AG Whittington, I Weber, MP Reitze, Hiesinger H, Helbert J.

<https://doi.org/10.1016/J.ICARUS.2024.116078> (Icarus, Volume 415)

The Apollo 17 Regolith: Induced Thermoluminescence Evidence for Formation by a Single Event ~100 Million Years Ago and Possibly the Presence of Tycho Material

2024

A Sehlke, DWG Sears, and the ANGSA Science Team

<https://doi.org/10.1029/2023JE008083> (Journal of Geophysical Research: Planets, Volume 129(4))

Average VNIR reflectance: A rapid, sample-free method to estimate glass content and crystallinity of fresh basaltic lava

2022

E Rader, S Ackiss, **A Sehlke**, J Bishop, B Orrill, K Odegaard, M Meier, A Doloughan

<https://doi.org/10.1016/j.icarus.2022.115084> (Icarus, Volume 383)

Ejecta blocks around the Kings Bowl phreatomagmatic crater in Idaho: An indication of subsurface water amounts with implications for Mars

2022

DWG Sears, **A Sehlke**, SS Hughes, S Kobs-Nawotniak

<https://doi.org/10.1016/j.pss.2022.105564> (Planetary and Space Science, Volume 222)

Spontaneous reheating of crystallizing lava

2021

AG Whittington, **A Sehlke**

<https://doi.org/10.1130/g49148.1> (Geology, Volume 49 Issue 12)

The impact and recovery of asteroid 2018 LA

2021

P Jenniskens, M Gabadirwe, QZ Yin, A Proyer, O Moses, and with '**A Sehlke**' among 61 other international co-authors'

<https://doi.org/10.1111/maps.13653> (Meteoritics & Planetary Science, Volume 56, Issue 4)

Induced thermoluminescence as a method for dating recent volcanism: The Blue Dragon flow, Idaho, USA and the factors affecting induced thermoluminescence

2021

DWG Sears, **A Sehlke**, SS Hughes

- <https://doi.org/10.1016/j.pss.2020.105129> (Planetary and Space Science, Volume 195)
- Basaltic fissure types on Earth: Suitable analogs to evaluate the origins of volcanic terrains on the Moon and Mars?** 2020
 SS Hughes, WB Garry, **A Sehlke**, EH Christiansen, SE Kobs Nawotniak, DWG Sears, RC Elphic, DS Lim, JL Heldmann
[10.1016/J.PSS.2020.105091](https://doi.org/10.1016/J.PSS.2020.105091) (Planetary and Space Science, Volume 193)
- Thermal properties of glassy and molten planetary candidate lavas** 2020
A Sehlke, AM Hofmeister, AG Whittington
<https://doi.org/10.1016/J.PSS.2020.105089> (Planetary and Space Science, Volume 193)
- Rheology of a KREEP Analog Magma: Experimental Results Applied to Dike Ascent through the Lunar Crust** 2020
A Sehlke, AG Whittington
<https://doi.org/10.1016/j.pss.2020.104941> (Planetary and Space Science, Volume 187)
- Microbial community distribution in variously altered basalts: Insights into astrobiology sample site selection** 2020
 A Brady, E Gibbons, **A Sehlke**, C Renner, S Kobs Nawotniak, D Lim, G Slater
[10.1016/j.pss.2020.105107](https://doi.org/10.1016/j.pss.2020.105107) (Planetary and Space Science, Volume 194)
- The rheology of crystallizing basaltic lavas from Nyiragongo and Nyamuragira volcanoes, D.R.C.** 2020
 A Morrison, AG Whittington, B Smets, M Kervyn, **A Sehlke**
<https://doi.org/10.30909/vol.03.01.0128> (Volcanica, Volume 3 Issue 1)
- A Low-Diversity Microbiota Inhabits Extreme Terrestrial Basaltic Terrains and Their Fumaroles: Implications for the Exploration of Mars** 2019
 C Cockell, J Harrison, A Stevens, S Payler, S Hughes, S Kobs Nawotniak, A Brady, R Elphic, C Haberle, **A Sehlke**, K Beaton, A Abercromby, P Schwendner, J Wadsworth, H Landenmark, R Cane, A Dickinson, N Nicholson, L Perera, D Lim
[10.1089/ast.2018.1870](https://doi.org/10.1089/ast.2018.1870) (Astrobiology, Volume 19 Issue 3)
- Opportunities and Challenges of Promoting Scientific Dialog throughout Execution of Future Science-Driven Extravehicular Activity** 2019
 SE Kobs Nawotniak, MJ Miller, AH Stevens, JJ Marquez, SJ Payler, AL Brady, SS Hughes, CW Haberle, **A Sehlke**, KH Beaton, SP Chappell, RC Elphic, DSS Lim
[10.1089/ast.2018.1901](https://doi.org/10.1089/ast.2018.1901) (Astrobiology, Volume 19 Issue 3)
- The BASALT Research Program: Designing and Developing Mission Elements in Support of Human Scientific Exploration of Mars** 2019
 D Lim, A Abercromby, S Kobs Nawotniak, D Lees, M Miller, A Brady, Z Mirmalek, **A Sehlke**, S Payler, A Stevens, C Haberle, K Beaton, S Chappell, S Hughes, C Cockell, R Elphic, M Downs, JL Heldmann
[10.1089/ast.2018.1869](https://doi.org/10.1089/ast.2018.1869) (Astrobiology, Volume 19 Issue 3)
- Basaltic Terrains in Idaho and Hawai'i as Planetary Analogs for Mars Geology and Astrobiology** 2019
 S Hughes, C Haberle, S Kobs Nawotniak, **A Sehlke**, W Garry, R Elphic, S Payler, A Stevens, C Cockell, A Brady, JL Heldmann, D Lim
[10.1089/ast.2018.1847](https://doi.org/10.1089/ast.2018.1847) (Astrobiology, Volume 19 Issue 3)
- Strategic Planning Insights for Future Science-Driven Extravehicular Activity on Mars** 2019
 A Brady, S Kobs Nawotniak, S Hughes, S Payler, A Stevens, C Cockell, R Elphic, **A Sehlke**, C Haberle, G Slater, D Lim

[10.1089/ast.2018.1850](#) (Astrobiology, Volume 19 Issue 3)

Requirements for Portable Instrument Suites during Human Scientific Exploration of Mars

2019

A Sehlke, Z Mirmalek, D Burtt, CW Haberle, D Santiago-Materese, SE Kobs Nawotniak, SS Hughes, WB Garry, N Bramall, AJ Brown, JL Heldmann, DSS Lim

[10.1089/ast.2018.1841](#) (Astrobiology, Volume 19 Issue 3)

Induced thermoluminescence as a method for dating recent volcanism: Hawaii County, Hawaii, USA

2018

DWG Sears, H Sears, A Sehlke, SS Hughes

[10.1016/j.jvolgeores.2017.09.022](#) (Journal of Volcanology and Geothermal Research, Volume 349)

X-ray computed tomography of extraterrestrial rocks eradicates their natural radiation record and the information it contains

2018

DWG Sears, A Sehlke, JM Friedrich, ML Rivers, DS Ebel

[10.1111/maps.13183](#) (N/A, Volume 53 Issue 12)

Induced thermoluminescence as a method for dating recent volcanism: Eastern Snake River Plain, Idaho, USA

2017

DWG Sears, H Sears, A Sehlke, S Hughes

[10.1002/2016JB013596](#) (Journal of Geophysical Research: Solid Earth, Volume 122 Issue 2)

Transport properties of glassy and molten lavas as a function of temperature and composition

2016

A Hofmeister, A Sehlke, G Avard, A Bollasina, G Robert, AG Whittington

[10.1016/j.jvolgeores.2016.08.015](#) (Journal of Volcanology and Geothermal Research, Volume 327)

The viscosity of planetary tholeiitic melts: A configurational entropy model

2016

A Sehlke, AG Whittington

[10.1016/j.gca.2016.07.027](#) (Geochimica et Cosmochimica Acta, Volume 191)

Field and experimental constraints on the rheology of arc basaltic lavas: the January 2014 Eruption of Pacaya (Guatemala)

2016

A Soldati, A Sehlke, G Chigna, AG Whittington

[10.1007/s00445-016-1031-6](#) (Bulletin of Volcanology, Volume 78 Issue 6)

Rheology of lava flows on Mercury: An analog experimental study

2015

A Sehlke, AG Whittington

[10.1002/2015JE004792](#) (Journal of Geophysical Research E: Planets, Volume 120 Issue 11)

Pahoehoe to a' transition of Hawaiian lavas: An experimental study

2014

A Sehlke, AG Whittington, B Robert, AJ Harris, L Gurioli, E Médard

[10.1007/s00445-014-0876-9](#) (Bulletin of Volcanology, Volume 76 Issue 11)

Thermal diffusivity of Fe-rich pyroxene glasses and their melts

2014

A Hofmeister, A Sehlke, AG Whittington

[10.1016/j.chemgeo.2014.06.018](#) (Chemical Geology, Volume)

Textural and rheological evolution of basalt flowing down a lava channel

2014

B Robert, AJ Harris, L Gurioli, E Médard, A Sehlke, AG Whittington

[10.1007/s00445-014-0824-8](#) (Bulletin of Volcanology, Volume 76 Issue 6)

Selected Abstracts and Presentations

Thermochronometry of Lunar Cold Traps via Thermoluminescence: Probing Their Thermal Equilibrium Over Billions of Years

2025

A Sehlke , and DWG Sears	
Goldschmidt Conference 2025, to be held in Prague from July 7-11 2025, Czech Republic - Oral Presentation	
Transit Times of Lunar Meteorites Via Thermoluminescence	2025
J Baden, A Sehlke , and DWG Sears	
56th Lunar and Planetary Science Conference, Abstract Nr. 1672 - Poster Presentation	
Glimmerings in the Cold and Dark: Thermoluminescence of Lunar Regolith at Cryogenic Temperatures for Cold Trap Prospecting	2024
A Sehlke , and DWG Sears	
NASA Exploration Science Forum held at Washington University in St. Louis, MO, USA - Oral Presentation	
Science, Operations, and Technology Development from NASA's RESOURCE Project	2024
JL Heldmann, A Sehlke , MC Deans, and the RESOURCE Team	
NASA Exploration Science Forum held at Washington University in St. Louis, MO, USA - Oral Presentatation	
Update on the Near Infrared Volatiles Spectrometer System (NIRVSS) Instrument on the Volatiles Investigating Polar Exploration Rover (VIPER) Mission: Calibration and Surface Operations	2024
A Sehlke , A Colaprete, K Ennico-Smith, S Gyalay, E Noe Dobrea, TL Roush, JE Benton, R Bielawski, M Chin, J Connally, A Cook, L Ellingson, JB Forgione, DT Hoang, V Jha, A Rademacher, F Renema, EJ Talle, B White, C Youngquist, and the VIPER Science Team	
NASA Exploration Science Forum held at Washington University in St. Louis, MO, USA - Oral Presentation	
The Apollo 17 Regolith: Induced Thermoluminescence Evidence for Formation by a Single Event 100 Million Years Ago and Possibly the Presence of Tycho Material	2024
A Sehlke , DWG Sears, ANGSA Science Team	
55th Lunar and Planetary Science Conference, Abstract Nr. 2536 - Poster Presentation	
The Effect of Composition on the Spectral Appearance of Hermean Analog Glasses	2024
AN Stojic, A Sehlke , A Morlok, AG Whittington, MP Reitze, I Weber, H Hiesinger, J Helbert	
55th Lunar and Planetary Science Conference, Abstract Nr. 1857 - Poster Presentation	
New Model to Calculate Lava Viscosity During Disequilibrium Crystallization for a Wide Range in Cooling and Strain Rates	2023
A Sehlke , AG Whittington	
54th Lunar and Planetary Science Conference, Abstract Nr. 2677 - Poster Presentation	
Lunar Regolith Thermoluminescence Glow Curve Fitting to Extract Its Most Important Kinetic Parameters.	2023
A Sehlke , DWG Sears, ANGSA Science Team	
54th Lunar and Planetary Science Conference, Abstract Nr. 1870 - Oral Presentation	
Geomorphological Evidence of Near-Surface Ice at Candidate Landing Sites in Arcadia Planitia, Mars	2023
E Luzzi, JL Heldmann, K Williams, A Deutsch, A Sehlke , G Nodjoumi	
54th Lunar and Planetary Science Conference, Abstract Nr. 2677 - Oral Presentation	
Thermal Histories of Lunar Cold Traps: Prospecting for Volatiles by Thermoluminescence	2022
A Sehlke , DWG Sears	

Lunar Polar Volatiles Conference, LPI Contrib. Nr. 5024 - Poster Presentation

A Fifty-Year Experiment, the Natural TL Kinetics of Apollo 17 Regolith, and Prospecting for Water and Other Volatiles on the Moon 2022

A Sehlke, DWG Sears, ANGSA Science Team

53rd Lunar and Planetary Science Conference, LPI Contrib. Nr. 2030 - Oral Presentation

THEIA - A Thermal History Exploration Instrument for Artemis 2022

A Sehlke, DWG Sears, JL Heldmann

Annual Meeting of the Lunar Exploration Analysis Group, Abstract Nr. 5005 - Poster Presentation

In-Situ Thermoluminescence Measurements on the Moon Using THEIA - Thermal History Exploration Instrument for Artemis 2022

A Sehlke, DWG Sears, JL Heldmann

NASA Exploration Science Forum held at the University of Colorado, Boulder CO, USA - Poster Presentation

Crystallization, latent heat release, and thermal history of magmas 2022

AG Whittington, **A Sehlke**, B Halvernon

Goldschmidt Conference - Oral Presentation

Recalcescence during crystallization of stardust: Resolution of the amorphous interstellar medium paradox 2022

A Speck, AG Whittington, **A Sehlke**

American Astronomical Society Meeting '#240', American Astronomical Society Meeting Abstracts '#147.04' - Poster Presentation

Five Decades of Thermoluminescence Studies on Lunar Samples: First Results of NASA's Unique 46-Year Experiment and Implications for Resource Prospecting on the Moon 2022

A Sehlke, DWG Sears, ANGSA Science Team

53rd Lunar and Planetary Science Conference, Abstract Nr. 1267 - Oral Presentation

High-Temperature Rheology Measurements on Planetary Analog Magmas and Lavas 2022

A Sehlke

53rd Lunar and Planetary Science Conference, Abstract Nr. 1171 - Poster Presentation

Lunar Cold Traps: Prospecting by Thermoluminescence 2022

A Sehlke, DWG Sears, ANGSA Science Team

NASA Exploration Science Forum & European Lunar Symposium, held virtually - Oral Presentation

Lava Surface Roughness and Morphologies: A New Remote-Sensing Method To Estimate Physical Properties of Lava Flows on Earth, the Moon and Mars 2021

A Sehlke, J Leija, SE Kobs Nawotniak, SS Hughes, DWG Sears, WB Garry, AG Whittington, DSS Lim, JL Heldmann

Workshop on Terrestrial Analogs for Planetary Exploration, Abstract Nr. 2595 - Oral Presentation

Natural Thermoluminescence of Lunar Samples: Review and Update 2021

A Sehlke, DWG Sears, ANGSA Science Team

52nd Lunar and Planetary Science Conference, Abstract Nr. 2548 - Oral Presentation

A luminescence-based Instrument to Explore the History and Nature of the Lunar Surface 2020

A Sehlke, DWG Sears

American Geophysical Union 2020 Fall Meeting. Abstract Nr. V013-0006 - Poster Presentation

Looking Backwards to Look Forward: A Fifty-Year Experiment in the Kinetics of Thermoluminescence of Lunar Samples and the Apollo Next Generation Sample Analysis Program (ANGSA)	2020
A Sehlke , DWG Sears, ANGSA Science Team	
51st Lunar and Planetary Science Conference, Abstract Nr. 1148 - Oral Presentation	
Thermal Properties of Glassy and Molten Planetary Candidate Lavas.	2019
A Sehlke , AM Hofmeister, AG Whittington	
American Geophysical Union, Annual Fall Meeting 2019, Abstract ID V43D-0107 - Poster Presentation	
Requirements for portable instrument suites during human scientific exploration of Mars	2018
A Sehlke , Z Mirmalek, D Burtt, CW Haberle, D Santiago-Materese, SE Kobs Nawotniak, SS Hughes, WB Garry, N Bramall, AJ Brown, JL Heldmann, DSS Lim	
NASA Exploration Science Forum held at NASA Ames Research Center, Moffett Field CA, USA - Oral Presentation	
Synchrotron X-Ray Computed Microtomography and the Radiation History of Meteorites	2017
A Sehlke , DWG Sears, JM Friedrich, ML Rivers, DS Ebel	
80th Annual Meeting of the Meteoritical Society, Abstract Nr. 1987 - Oral Presentation	
The Ultimate Geologic Tricorder? Handheld Science Instruments and Requirements for Future Human Exploration Missions on Other Worlds	2017
A Sehlke , Z Mirmalek, B Cohen, CW Haberle, SE Kobs Nawotniak, SS Hughes, A Brown, JL Heldmann, DSS Lim	
48th Lunar and Planetary Science Conference, Abstract Nr. 2451 - Poster Presentation	
The Viscosity of Tholeiitic Planetary Melts: A Configurational Entropy Model	2016
A Sehlke , AG Whittington	
47th Lunar and Planetary Science Conference, Abstract Nr. 1957 - Poster Presentation	
Rheology of lava flows on Mercury: an experimental study	2015
A Sehlke , AG Whittington	
45th Lunar and Planetary Science Conference, Abstract Nr. 2275 - Poster Presentation	
Concentric cylinder viscometry at subliquidus conditions on Mauna Ulu lavas, Kilauea Volcano, Hawaii	2013
A Sehlke , B Robert, AJ Harris, L Gurioli, AG Whittington	
American Geophysical Union, Annual Fall Meeting 2013, Abstract ID V51D-2697 - Poster Presentation	

Invited Talks, Lectures and Presentations

Requirements for Handheld VNIR and XRF Instruments during Human Exploration Missions.	2022
Lunar Petrology and Landed Instrument Interchange Workshop	
NASA Jet Propulsion Laboratory, Pasadena CA, USA	
Exploration of our Solar System: Earth-based Science Investigations in Preparation for NASAs Moon to Mars Campaign. Graduate Student Seminar.	2021
Graduate Student Seminar (virtual)	
Department of Geological Science, University of Texas at San Antonio, USA	
Rheological and Thermal Evolution of Magmatic Systems: Insights into the Volcanic Past of our Solar System.	2020
Speaker Seminar Series	

Departement of Earth and Planetary Sciences, University of California - Santa Cruz CA, USA

Rheological and Thermal Evolution of Magmatic Systems: Insights into the Volcanic Past in our Solar System

2019

Keynote at GeoMünster Conference

Münster, Germany

Anatomy of the Blue Dragon: Changes in Lava Flow Morphology and Physical Properties Observed in an Open Channel Lava Flow as a Planetary Analogue.

2017

Geological Society of America Annual Meeting

Seattle WA, USA

Designing Future Human Spaceflight

2017

Keynote at Sensors Expo 2017

San Jose CA, USA

Straight outta morphologies: Understanding the magmatic history of lava terrains on Earth and other rocky worlds in our Solar System

2017

Speaker Seminar Series

Department of Geological Sciences, San Jose State University, San Jose CA, USA

The morphological transition from pāhoehoe to aā of basaltic lavas: Combining field studies and experimental work to interpret the volcanic past on Earth and other planets and moons.

2017

Speaker Series Seminar

United States Geological Survey (USGS), Menlo Park CA, USA

Technical Reports and Other Publications (not Peer-reviewed)

Inclusive Lunar Exploration

2022

K Bennett and P Prem (Co-Chairs), C Ahrens, N Kumari, L Pigue, **A Sehlke**, and C Tai Udovicic
Lunar Surface Science Workshop Virtual Session 13 (LSSW-13) Report

White Paper: Investigations Regarding Subsurface Temperature Profiles at Polar Regions on the Moon

2020

A Sehlke, and DWG Sears

Artemis III Science Definition Team Report, White Paper #2107

Interviews and Mentions in Media

The Secrets of Moondust

July 2019

written by Marina Koren (The Atlantic Staff Writer)

[The Atlantic](#) ↗

NASA's lassoing of moon's potential for future use starts with a trove of rocks

Mar 2019

written by Peter Fimrite (Science and Environment Reporter)

[San Francisco Chronicle](#) (Front Page, continued on pg. A8) ↗

11 Secrets of Volcanologists

Mar 2018

written by Lela Nargi

[Mental Floss](#) ↗

Research Awards and Funding

The Vertical Gun Range at NASA Ames

Oct 2024 – Sept 2028

- NASA ROSES Planetary Science Enabling Facilities Program - \$1,567,144
- PI: Chuck Cornelison, Science PI: Alexander Sehlke

1-Year Funded Extension, Thermoluminescence Studies on Frozen Apollo 17 Samples: Temperature Estimates of Shaded and Illuminated Lunar Surfaces.	Apr 2023 – Mar 2024
<ul style="list-style-type: none"> • NASA ROSES Science Mission Directorate Single-Source - By invitation only (2022) - \$113,000 • PI: Alexander Sehlke, Co-I: Derek WG Sears 	
1-Year Funded Extension, Thermoluminescence Studies on Frozen Apollo 17 Samples: Temperature Estimates of Shaded and Illuminated Lunar Surfaces.	Apr 2022 – Mar 2023
<ul style="list-style-type: none"> • NASA ROSES Apollo Next Generation Sample Analysis (ANGSA) Program - \$103,359 • PI: Alexander Sehlke, Co-I: Derek WG Sears 	
THEIA: Thermal History Exploration Instrument for Artemis	Oct 2020 – Sept 2021
<ul style="list-style-type: none"> • NASA Ames Research Center Innovation Funds - \$41,000 • PI: Jennifer Heldmann, Co-Is: Alexander Sehlke, Derek WG Sears 	
Resources for Exploration & Science of OUR Cosmic Environment (RESOURCE)	Feb 2020 – Jan 2025
<ul style="list-style-type: none"> • NASA Solar System Exploration Virtual Research Institute (SSERVI) - \$7,452,467 • PI: Jennifer Heldmann, Deputy Pls: Alexander Sehlke, Matthew Deans, Co-Is: 16 across academia, federal agencies and private sector 	
Thermoluminescence Studies on Frozen Apollo 17 Samples: Temperature Estimates of Shaded and Illuminated Lunar Surfaces.	Apr 2019 – Mar 2022
<ul style="list-style-type: none"> • NASA ROSES Apollo Next Generation Sample Analysis (ANGSA) Program - \$348,050 • PI: Alexander Sehlke, Co-I: Derek WG Sears 	
Fast and/or Furious? Nature and Emplacement History of Lavas Erupted on Mars	May 2019 – Apr 2022
<ul style="list-style-type: none"> • NASA ROSES Solar System Workings (SSW) Program - \$490,705 • PI: Alexander Sehlke, Co-I: Alan G Whittington 	
IceCrystal: Portable instrument protocol to delineate ancient ice and water on Mars using microcrystallinity of volcanic products	Oct 2018 – Sept 2021
<ul style="list-style-type: none"> • NASA ROSES Planetary Science and Technology from Analog Research (PSTAR) Program - \$874,012 • PI: Erika Rader, Co-Is: Alexander Sehlke, Janice Bishop 	
NASA Postdoctoral Fellowship 3rd-Year Extension	Feb 2018 – Jan 2019
<ul style="list-style-type: none"> • NASA ROSES Postdoctoral Program (NPP) - \$86,866 • PI: Alexander Sehlke, Co-Is: Jennifer Heldmann, Darlene SS Lim 	
NASA Postdoctoral Fellowship	Feb 2016 – Jan 2018
<ul style="list-style-type: none"> • NASA ROSES Postdoctoral Program (NPP) - \$149,248 • PI: Alexander Sehlke, Co-Is: Jennifer Heldmann, Darlene SS Lim 	
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Teaching Experience	
University of Missouri - Columbia MO, USA	2011 – 2015
<ul style="list-style-type: none"> • 2015 Course Instructor - The Moon. Undergraduate • 2015 Teaching Assistant - Regional Geology Field Course. Undergraduate • 2014 Teaching Assistant/Lab Experiments - Igneous Petrology. Graduate • 2013 Teaching Assistant - Mineralogy. Undergraduate • 2012 Teaching Assistant - Mineralogy. Undergraduate • 2011 Teaching Assistant - Mineralogy. Undergraduate 	
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Mentoring Experience	
NASA Internship mentoring at NASA Ames Research Center	

- Summer 2024 (virtual), Arjun Prem, Summit Tahoma Highschool, San Jose CA, USA
- Summer 2024, Jordan Baden, Undergraduate at University of California, Santa Cruz CA, USA
- Summer 2023, Adriana Ariza Pardo, Graduate at UT San Antonio TX, USA
- Spring 2021, Iyare Osegheae. Undergraduate at UT San Antonio TX, USA
- Fall 2020 (virtual), Brianna Orrill, Undergraduate at Arizona State University AZ, USA
- Fall 2020 (virtual), Javier Leija, Undergraduate at Sam Houston University TX, USA
- Summer 2018, Caleb Renner, Undergraduate at Idaho State University ID, USA
- Spring 2017, David Burtt, Undergraduate at Whitman College WA, USA

Technology and Inventions

THEIA - Thermal History Exploration Instrument for Artemis: Instrument prototype to enable thermoluminescence measurements on the lunar surface via robotic or human exploration missions. Technology Readiness Level (TRL) is 4. Invention is submitted to NASA's *New Technology Reporting (NTR) System*, with e-NTR Number 1684365045

Public Outreach and Engagement

ExMASS (Exploration of the Moon and Asteroids by Secondary Students)	Oct 2023 – July 2024
Science Advisor	
• Logos Charter School, Medford OR, USA - virtual	
ExMASS (Exploration of the Moon and Asteroids by Secondary Students)	Oct 2022 – July 2023
Science Advisor	
• Logos Charter School, Medford OR, USA - virtual	
Silicon Valley Comic Con, San Jose CA, USA	July 2019
• Panel Discussion on <i>The Artemis Generation: NASA's Journey Forward to the Moon.</i>	
Fremont Peak Observatory, San Juan Bautista CA, USA	Aug 2017
• Volcanism on terrestrial planets and moons across our solar system	