

# Dr. Alexander Sehlke

📍 NASA Ames Research Center, Building N245, MS N245-3, Moffett Field, CA 94035    ✉ alexander.sehlke@nasa.gov

☎ (650) 604-3651    🌐 planetsehlke.rocks    🎓 Google Scholar    📞 0000-0001-7929-1776

🔖 Alexander-Sehlke

🌐 alexsehlke

## Summary

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).

## Education

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

## Professional Appointments

- |  |   |
|--|---|
| <b>NASA Ames Research Center/ BAER Institute</b> , Research Scientist  | Moffett Field, CA, USA<br>Jan 2019 – present  |
| <ul style="list-style-type: none"> <li>• <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.</li> <li>• <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.</li> <li>• <i>Spaceflight Instrumentation</i>: Designing, developing, and field-testing advanced scientific instruments for robotic and crewed planetary exploration.</li> <li>• <i>NASA VIPER Mission</i>: Instrument Scientist for the Volatiles Investigating Polar Exploration Rover (VIPER), contributing to hardware development and science operations.</li> <li>• <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.</li> </ul> |   |
| <b>NASA Ames Research Center/ USRA</b> , Postdoctoral Researcher   | Moffett Field, CA, USA<br>Feb 2016 – Jan 2019 |
| <ul style="list-style-type: none"> <li>• Planetary Analog Research: Volcanic Terrains on Earth as Analogs for the Moon and Mars</li> <li>• Instrument Development for Human Space Exploration Missions</li> </ul>  |   |

## 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

---

<b>SSSERVI NASA Exploration Science Forum, Science Organization Committee</b>	Mar 2025 – May 2025
<b>SSSERVI NASA Exploration Science Forum, Session Co-Chair</b> <ul style="list-style-type: none"><li>• Sample Science</li><li>• In-Situ Resource Utilization</li></ul>	July 2024
<b>Lunar and Planetary Science Conference</b> <ul style="list-style-type: none"><li>• Moderator: Planetary Volcanism: Eruptions in Fire and Ice</li><li>• Moderator: Lunar Regolith Properties and Processes</li></ul>	Mar 2023
<b>SSSERVI NASA Exploration Science Forum, Session Co-Chair</b> <ul style="list-style-type: none"><li>• Apollo Next Generation Sample Analysis</li></ul>	July 2022
<b>SSSERVI NASA Exploration Science Forum, Science Organization Committee Co-Chair</b>	Mar 2022 – July 2022
<b>Lunar Surface Science Workshop #17 - Defining a Coordinated Lunar Resource Evaluation Campaign</b> <ul style="list-style-type: none"><li>• Documentarian</li></ul>	July 2022
<b>Lunar Surface Science Workshop #13 - Inclusive Lunar Exploration</b> <ul style="list-style-type: none"><li>• Session Co-Chair</li><li>• Documentarian</li></ul>	Jan 2022
<b>Peer Review Assignments: NASA Research Proposals</b> <ul style="list-style-type: none"><li>• 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.</li></ul>	2016 – present
<b>Peer Review Assignments: Manuscripts</b> <ul style="list-style-type: none"><li>• International scientific journals, such as <i>Journal of Geothermal Research</i>, <i>Frontiers in Earth Science</i>, <i>Journal of Volcanology and Geophysical Research</i>, <i>Earth and Planetary Science Letters</i>, <i>Icarus</i>, <i>American Ceramic Society</i></li></ul>	2015 – present

## Peer-reviewed Publications

---

<b>Thermal Gradient and Thermal Wave Propagation Depth Recovered Using Thermoluminescence of the Apollo 17 Deep Drill Core</b> <b>A Sehlke</b> , D Sears, HH Schmitt, and the ANGSA Science Team JGR Planets, in review	2026
<b>Thermal Equilibrium States and Timescales of Lunar Cold Traps via Low-Temperature Thermoluminescence</b> <b>A Sehlke</b> , D Sears, and the ANGSA Science Team Planetary and Space Science, in review	2025
<b>Geomorphological Evidence of Near-Surface Ice at Candidate Landing Sites in Northern Amazonis Planitia, Mars</b> E Luzzi, JL Heldmann, KE Williams, G Nodjoumi, A Deutsch, <b>A Sehlke</b> <a href="https://doi.org/10.1029/2024JE008724">https://doi.org/10.1029/2024JE008724</a> (JGR Planets, Vol 130(5))	2025
<b>A detailed <math>\mu</math>-FTIR study of Hermean glasses: Spectral mainband shape and flank, what do they tell us?</b> A. Stojic, <b>A. Sehlke</b> , AG Whittington, A. Morlok, H. Hiesinger <a href="https://doi.org/10.1016/j.jnoncrsol.2025.123523">https://doi.org/10.1016/j.jnoncrsol.2025.123523</a> (Journal of Non-Crystalline Solids, Volume 660)	2025

- Thermoluminescence and Apollo 17 ANGSA lunar samples: NASA's fifty-year experiment and prospecting for cold traps** 2024  
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 Allton, 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  
[10.1016/j.pss.2022.105564](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**  
[10.1130/g49148.1](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](https://doi.org/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 Burt, 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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1002/2015JE004792) [↗](#) (Journal of Geophysical Research E: Planets, Volume 120 Issue 11)

**Pahoehoe to a'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](https://doi.org/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](https://doi.org/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](https://doi.org/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 Presentation

**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

**Geomorphical 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

<b>THEIA - A Thermal History Exploration Instrument for Artemis</b>	2022
<b>A Sehlke</b> , DWG Sears, JL Heldmann Annual Meeting of the Lunar Exploration Analysis Group, Abstract Nr. 5005 - Poster Presentation	
<b>In-Situ Thermoluminescence Measurements on the Moon Using THEIA - Thermal History Exploration Instrument for Artemis</b>	2022
<b>A Sehlke</b> , DWG Sears, JL Heldmann NASA Exploration Science Forum held at the University of Colorado, Boulder CO, USA - Poster Presentation	
<b>Crystallization, latent heat release, and thermal history of magmas</b>	2022
AG Whittington, <b>A Sehlke</b> , B Halvernon Goldschmidt Conference - Oral Presentation	
<b>Recalescence during crystallization of stardust: Resolution of the amorphous interstellar medium paradox</b>	2022
A Speck, AG Whittington, <b>A Sehlke</b> American Astronomical Society Meeting '#240', American Astronomical Society Meeting Abstracts '#147.04' - Poster Presentation	
<b>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</b>	2022
<b>A Sehlke</b> , DWG Sears, ANGSA Science Team 53rd Lunar and Planetary Science Conference, Abstract Nr. 1267 - Oral Presentation	
<b>High-Temperature Rheology Measurements on Planetary Analog Magmas and Lavas</b>	2022
<b>A Sehlke</b> 53rd Lunar and Planetary Science Conference, Abstract Nr. 1171 - Poster Presentation	
<b>Lunar Cold Traps: Prospecting by Thermoluminescence</b>	2022
<b>A Sehlke</b> , DWG Sears, ANGSA Science Team NASA Exploration Science Forum & European Lunar Symposium, held virtually - Oral Presentation	
<b>Lava Surface Roughness and Morphologies: A New Remote-Sensing Method To Estimate Physical Properties of Lava Flows on Earth, the Moon and Mars</b>	2021
<b>A Sehlke</b> , 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	
<b>Natural Thermoluminescence of Lunar Samples: Review and Update</b>	2021
<b>A Sehlke</b> , DWG Sears, ANGSA Science Team 52nd Lunar and Planetary Science Conference, Abstract Nr. 2548 - Oral Presentation	
<b>A luminescence-based Instrument to Explore the History and Nature of the Lunar Surface</b>	2020
<b>A Sehlke</b> , DWG Sears American Geophysical Union 2020 Fall Meeting. Abstract Nr. V013-0006 - Poster Presentation	
<b>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)</b>	2020
<b>A Sehlke</b> , DWG Sears, ANGSA Science Team 51st Lunar and Planetary Science Conference, Abstract Nr. 1148 - Oral Presentation	
<b>Thermal Properties of Glassy and Molten Planetary Candidate Lavas.</b>	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 Burt, 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  
Department 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

<b>Anatomy of the Blue Dragon: Changes in Lava Flow Morphology and Physical Properties Observed in an Open Channel Lava Flow as a Planetary Analogue.</b> Geological Society of America Annual Meeting Seattle WA, USA	2017
<b>Designing Future Human Spaceflight</b> Keynote at Sensors Expo 2017 San Jose CA, USA	2017
<b>Straight outta morphologies: Understanding the magmatic history of lava terrains on Earth and other rocky worlds in our Solar System</b> Speaker Seminar Series Department of Geological Sciences, San Jose State University, San Jose CA, USA	2017
<b>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.</b> Speaker Series Seminar United States Geological Survey (USGS), Menlo Park CA, USA	2017

## Technical Reports and Other Publications (not Peer-reviewed)

---

<b>Inclusive Lunar Exploration</b> K Bennett and P Prem (Co-Chairs), C Ahrens, N Kumari, L Pigue, <b>A Sehlke</b> , and C Tai Udovicic Lunar Surface Science Workshop Virtual Session 13 (LSSW-13) Report	2022
<b>White Paper: Investigations Regarding Subsurface Temperature Profiles at Polar Regions on the Moon</b> <b>A Sehlke</b> , and DWG Sears Artemis III Science Definition Team Report, White Paper #2107	2020

## Interviews and Mentions in Media

---

<b>The Secrets of Moondust</b> written by Marina Koren (The Atlantic Staff Writer) <a href="#">The Atlantic</a>	July 2019
<b>NASA's lassoing of moon's potential for future use starts with a trove of rocks</b> written by Peter Fimrite (Science and Environment Reporter) <a href="#">San Francisco Chronicle (Front Page, continued on pg. A8)</a>	Mar 2019
<b>11 Secrets of Volcanologists</b> written by Lela Nargi <a href="#">Mental Floss</a>	Mar 2018

## Research Awards and Funding

---

<b>The Vertical Gun Range at NASA Ames</b> <ul style="list-style-type: none"> <li>NASA ROSES Planetary Science Enabling Facilities Program - \$1,567,144</li> <li>PI: Chuck Cornelison, Science PI: Alexander Sehlke</li> </ul>	Oct 2024 – Sept 2028
<b>1-Year Funded Extension, Thermoluminescence Studies on Frozen Apollo 17 Samples: Temperature Estimates of Shaded and Illuminated Lunar Surfaces.</b> <ul style="list-style-type: none"> <li>NASA ROSES Science Mission Directorate Single-Source - By invitation only (2022) - \$113,000</li> <li>PI: Alexander Sehlke, Co-I: Derek WG Sears</li> </ul>	Apr 2023 – Mar 2024

- 1-Year Funded Extension, Thermoluminescence Studies on Frozen Apollo 17 Samples: Temperature Estimates of Shaded and Illuminated Lunar Surfaces.** Apr 2022 – Mar 2023
- 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
- 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
- NASA Solar System Exploration Virtual Research Institute (SSERVI) - \$7,452,467
  - PI: Jennifer Heldmann, Deputy PIs: 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
- 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
- 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
- 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
- NASA ROSES Postdoctoral Program (NPP) - \$86,866
  - PI: Alexander Sehlke, Co-Is: Jennifer Heldmann, Darlene SS Lim
- NASA Postdoctoral Fellowship** Feb 2016 – Jan 2018
- NASA ROSES Postdoctoral Program (NPP) - \$149,248
  - PI: Alexander Sehlke, Co-Is: Jennifer Heldmann, Darlene SS Lim

## Teaching Experience

---

- University of Missouri - Columbia MO, USA** 2011 – 2015
- 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

## 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 Oseghae. 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 Burt, 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

---

- |  |                      |
|--|----------------------|
| <b>ExMASS (Exploration of the Moon and Asteroids by Secondary Students)</b><br><b>Science Advisor</b>                                      | Oct 2023 – July 2024 |
| <ul style="list-style-type: none"> <li>• Logos Charter School, Medford OR, USA - virtual</li> </ul>  |                      |
| <b>ExMASS (Exploration of the Moon and Asteroids by Secondary Students)</b><br><b>Science Advisor</b>                                      | Oct 2022 – July 2023 |
| <ul style="list-style-type: none"> <li>• Logos Charter School, Medford OR, USA - virtual</li> </ul>  |                      |
| <b>Silicon Valley Comic Con, San Jose CA, USA</b>  | July 2019            |
| <ul style="list-style-type: none"> <li>• Panel Discussion on <i>The Artemis Generation: NASA's Journey Forward to the Moon</i>.</li> </ul> |                      |
| <b>Fremont Peak Observatory, San Juan Bautista CA, USA</b>   | Aug 2017             |
| <ul style="list-style-type: none"> <li>• Volcanism on terrestrial planets and moons across our solar system</li> </ul>                     |                      |