Andrew X. Wilcoski

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Education

University of Colorado, Boulder
2022 *Ph.D.*, Astrophysical & Planetary Sciences (Advisor: Paul O. Hayne)
2019 *M.S.*, Astrophysical & Planetary Sciences

University of California, Santa Cruz
2016 *B.S.*, Physics, Minor in Earth & Planetary Science

Research Interests

Planetary Science, Lunar Science, Mars Science, Polar Processes, Ices, Atmospheres, Surfaces, Volcanism, Thermal Modeling, Radiative Transfer, Remote Sensing

Research Experience

2023-Present | **NASA Postdoctoral Program Fellow**
Geophysics & Planetary Geosciences Group
NASA Jet Propulsion Laboratory

2018-2022 | **Graduate Research Assistant**
Astrophysical & Planetary Sciences Department
Laboratory for Atmospheric and Space Physics
University of Colorado, Boulder

2014-2016 | **Undergraduate Research Assistant**
Physics Department
University of California, Santa Cruz

2014, 2015 (Summers) | **Integration Engineering Intern**
Intel Corporation, Santa Clara, California

2013 | **Undergraduate Research Assistant**
Physics Department
California State Polytechnic University, Pomona

Mission Involvement

NASA Lunar Reconnaissance Orbiter
Diviner Lunar Radiometer Experiment
Graduate Student Affiliate (2020-2022)

NASA Mars Reconnaissance Orbiter
Mars Climate Sounder
Graduate Student Affiliate (2018-2022)

Teaching Experience

Fall 2017
Spring 2018 | **Graduate Teaching Assistant**
University of Colorado, Boulder
ASTR 1010: Introductory Astronomy Laboratory

Professional & Departmental Service

NASA Review Panel Executive Secretary
Solar System Workings

Graduate Admissions Committee Member
University of Colorado, Boulder (2020-2021)

Honors & Awards

2021	Ray Mace Smith Graduate Fellowship
2014-2016	Dean's Honors, University of California, Santa Cruz
2011-2013	Dean's List, California State Polytechnic University, Pomona

Invited Talks

2022	NASA Jet Propulsion Laboratory Colloquium
2022	Southwest Research Institute Colloquium

Professional Affiliations

American Astronomical Society, Division of Planetary Sciences
American Geophysical Union

Outreach & Media

2022	"Ancient volcanoes may have created a rare resource for lunar explorers" *CNN*, https://tinyurl.com/2na7hs53
2022	"Astronauts may one day drink water from ancient moon volcanoes" *CU Boulder Today*, https://tinyurl.com/5yr67xrc
2021	"Spelunking on the moon: New study explores lunar pits and caves" *CU Boulder Today*, https://tinyurl.com/yc5m35p8
2021	"Decoding the Age of the Ice at Mars's North Pole" *Eos Research Spotlight*, https://tinyurl.com/pt4em7ts
2020	"Episode 2 - It's A Mars, Mars, Mars, Mars World" *A View From Earth, Fiske Planetarium Podcast*, https://tinyurl.com/3ew498uu

Conference Activity

2023	**EGU General Assembly** *Oral Presentation*, Vienna, Austria
2023	**4th Workshop on Thermal Models for Planetary Science** *Oral Presentation*, Noordwijk, The Netherlands
2022	**Lunar Polar Volatiles Conference** *Oral Presentation*, Boulder, CO
2022	**NASA Exploration Science Forum** *Oral Presentation*, Boulder, CO
2022	**Lunar and Planetary Science Conference** *Oral Presentation*, The Woodlands, TX
2021	**AGU Fall Meeting** *Oral Presentation*, New Orleans, LA *Session Chair*
2021	**NASA Exploration Science Forum & European Lunar Symposium** *Poster Presentation*, Virtual
2021	**Lunar and Planetary Science Conference** *Oral Presentation*, Virtual
2020	**AGU Fall Meeting** *Poster Presentation*, Virtual

2020	**Seventh International Conference on Mars Polar Science and Exploration** *Oral Presentation*, Ushuaia, Argentina
2019	**Ninth International Conference on Mars** *Poster Presentation*, Pasadena, CA
2019	**Lunar and Planetary Science Conference** *Oral Presentation*, The Woodlands, TX

Conference Abstracts

Wilcoski, A. X., Hayne, P. O., & Elder, C. M. (2022, March). Lunar Pits and Caves: Thermal Environment and Volatile-Trapping Potential. *Lunar and Planetary Science Conference* (No. 2678, p. 2598).

Hayne, P. O., & **Wilcoski, A. X.** (2022, March). Topographic Roughness and Physical Models of Texture Formation on the North Polar Residual Cap of Mars. *Lunar and Planetary Science Conference* (No. 2678, p. 2497).

Wilcoski, A. X., Hayne, P. O., & Landis, M. E. (2021, March). Polar Ice Accumulation on the Moon Due to Volcanically Induced Transient Atmospheres. *Lunar and Planetary Science Conference* (No. 2548, p. 2344).

Landis, M. E., Byrne, S., Hayne, P. O., Piqueux, S., & **Wilcoski, A. X.** (2021, March). Interannual variability of ice within north polar layered deposits craters on Mars. *Lunar and Planetary Science Conference* (No. 2548, p. 1653).

Wilcoski, A. X., & Hayne, P. O. (2020). Modeling North Polar Residual Cap Surface Texture and Recent Resurfacing. *LPI Contributions*, 2099, 6058.

Wilcoski, A. X., & Hayne, P. O. (2019, July). Modeling surface texture formation of the Martian north polar residual cap. *Ninth international conference on Mars* (Vol. 2089, p. 6129).

Wilcoski, A. X., & Hayne, P. O. (2019, March). Mass Balance and Surface Texture of the Martian North Polar Residual Cap. *Lunar and Planetary Science Conference* (No. 2132, p. 2210).

Peer-Reviewed Publications

Wilcoski, A. X., Hayne, P. O., & Elder, C. M. (2023). Thermal Environments and Volatile Stability within Lunar Pits and Caves. *Journal of Geophysical Research: Planets*, 128(7), e2023JE007758.

Wilcoski, A. X., Hayne, P. O., & Landis, M. E. (2022). Polar Ice Accumulation from Volcanically Induced Transient Atmospheres on the Moon. *The Planetary Science Journal*, 3(5), 99.

Wilcoski, A. X. & Hayne, P. O. (2020). Surface roughness evolution and implications for the age of the north polar residual cap of Mars. *Journal of Geophysical Research: Planets*, 125(12), e2020JE006570.

Research Skills & Experience

Numerical modeling & simulation
Thermal & radiative transfer modeling
Synthesis of remote sensing observations and modeling
Parallel computing

Programming Languages:
Fluent: Python
Familiar: C++, MATLAB

Field Skills & Experience

Graduate Planetary Field Geology (HI, 2018; WY, 2018; NM & AZ, 2019)
Wilderness Travel, Backcountry Safety, Multi-day Backcountry Logistics & Planning,
Wilderness First Aid Certification (March 2022), Winter Camping & Travel
Glacier Travel & Crevasse Rescue, Climbing Rope & Anchor Systems, Rock & Ice Climbing
Backcountry Ski Mountaineering, AIARE 1 Avalanche Training Certification