

CURRICULUM VITAE: MELINDA A. KAHRE

Research Associate
Bay Area Environment Research Institute
NASA Ames Research Center
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Education

Ph.D. (Astronomy, Physics Minor): New Mexico State University, Las Cruces, NM, May 2006
Thesis Title: Investigations of the Martian Dust Cycle and the Evolution of Surface Dust Reservoirs
M.S. (Astronomy): New Mexico State University, Las Cruces, NM, August 2003
B.A. with Honors (Astronomy-Physics): Whitman College, Walla Walla, WA, May 2001
Undergraduate Thesis Title: The Interstellar Medium Towards Xi Persius

Academic Interests

Planetary Atmospheres and Planetary Surface/Atmospheric Interactions

- Mars:
 - * climate and paleoclimate
 - * dust cycle and the evolution of surface dust reservoirs
 - * water, dust, and CO₂ cycle interactions.
- Terrestrial Planetary Atmospheres:
 - * Venus
 - * Titan
- Exoplanetary Atmospheres

Evolution of Planetary Atmospheres

Society Memberships

American Astronomical Society
American Astronomical Society Division for the Planetary Sciences
National Science Teachers Association

Fellowships and Awards

NASA Postdoctoral Program Associate at NASA Ames Research Center (2006-2009)
NASA Graduate Student Researchers Program Fellow (2003-2006)
NMSU Astronomy Department's Rappaport Award for Outstanding Community Service and Research by a Graduate Student (2005)
NMSU Astronomy Department's Zia Award for Outstanding Research by a Graduate Student (2004)
NMSU Astronomy Department's Pegasus Award for Outstanding Teaching by a Graduate Student (2002)

Research Experience

Research Associate (March 2009-present), Bay Area Environmental Research Institute/ NASA Ames Research Center

NASA Postdoctoral Program Associate (March 2006- February 2009), NASA Ames Research Center
Research Assistant (2003- March 2006), New Mexico State University

Teaching Experience

Teaching Assistant (2001-2003), New Mexico State University

-Taught two semesters of introductory solar system course laboratory. Responsibilities included preparing and delivering short lectures at the beginning of each class meeting, helping students with planned activities, holding office hours, and grading.

-Assisted two semesters with an upper division general education astronomy course entitled: "Revolutionary Ideas In Science". Responsibilities included helping students with questions and a final project, lecturing when the professor was out of town or ill, and grading.

Astronomy Mentoring (Spring 2004 and Spring 2005), Las Cruces Museum of Natural History

-Taught two separate six week courses for middle school kids about telescopes and astronomy. Responsibilities included planning and teaching lessons for each meeting and helping students find objects with telescopes.

Peer-reviewed Journal Articles

Kahre, M.A., Haberle, R.M., 2010. *"Mars CO₂ cycle: effects of airborne dust and polar cap ice emissivity"*. Icarus, in press.

Kahre, M.A., Hollingsworth, J., Haberle, R.M., and Murphy, J.R., 2008. *"Investigations of the Variability of Dust Particle Sizes in the Martian Atmosphere using the NASA Ames General Circulation Model."* Icarus, 195 (2).

Haberle, R.M., Kahre, M.A., Murphy, J.R., Christensen, P.R., Greeley, R., 2006. *"The Role of Dust Devils and Orbital Precession in Closing the Martian Dust Cycle. Geophysical Research Letters."* Geophysical Research Letters, 33 (19).

Kahre, M.A., Murphy, J.R., Haberle, R.M., 2006. *"Modeling the Martian dust cycle and surface dust reservoirs with the NASA Ames General Circulation Model."* Journal of Geophysical Research—Planets, 111 (E6).

Kahre, M.A., Murphy, J.R., Haberle, R.M., Montmessin, F., Schaeffer, J.R., 2005. *"Simulating the Martian dust cycle with a finite surface dust reservoir."* Geophysical Research Letters, 32 (20).

Kahre, M.A., Murphy, J.R., Chanover, N.J., 2005. *"Observing the Martian surface albedo pattern: Comparing the AEOS and TES data sets."* Icarus, 179 (1), 55-62.

Professional Service

Reviewer for professional journals (Icarus and JGR-Planets; ongoing).
Proposal review panelist (NASA's MDAP and others; ongoing).

Major Public Outreach

Astronomy Slide Shows (2001-2006), Las Cruces, NM

-Gave multiple public slide shows about the solar system and astronomical objects

Astronomy Open Houses (2001-2006), New Mexico State University

-Assisted multiple times with the use of telescopes to teach the public about astronomy

Invited Public Lecture (Feb. 2005), Las Cruces Museum of Natural History

"Dust and Water on Mars"

Selected Conference Proceedings/Abstracts

Kahre, M. A., Haberle, R. M., Hollingsworth, J. L. 2009. "*Mars' water cycle: Interpreting Phoenix Lander observations with a general circulation model*" (AGU)

Kahre, M. A., Haberle, R. M., Hollingsworth, J. L. 2009. "*A new and slightly backward approach to dust cycle modeling in a Mars GCM*" (Mars Dust Cycle Workshop)

Kahre, M. A., Haberle, R. M. 2009. "*Mars' CO₂ cycle: effects of airborne dust and CO₂ ice emissivity on the growth of seasonal CO₂ caps*" (Mars Polar Energy Balance and CO₂ Cycle Workshop)

Kahre, M. A., Haberle, R. M., Hollingsworth, J. L. 2008. "*Understanding the repeatable nature of the Viking pressure curves: Coupling Mars' CO₂ and dust cycles through polar cap albedo feedbacks*" (DPS)

Haberle, R. M., Kahre, M. A., Leovy, C. 2008. "*Early Mars: The role of airborne dust in the stabilization of a thick CO₂ atmosphere*" (DPS)

Kahre, M. A., Hollingsworth, J. L., Haberle, R. M., Murphy, J. R. 2007, "*A numerical study of the evolution of airborne dust particle sizes during a simulated Martian global dust storm*" (7th International Conference on Mars)

Hollingsworth, J. L., Kahre, M. A., Haberle, R. M. 2007, "*Mars dust: atmospheric effects of large-scale extratropical cyclogenesis and frontal waves*" (7th International Conference on Mars)

Haberle, R. M., Montmessin, F., Kahre, M.A., Schaeffer, J. 2007, "*The role of the north residual cap in the present Mars water cycle*" (7th International Conference on Mars)

Kahre, M. A., Murphy, J. R., Haberle, R. M. 2005, "*Using the NASA Ames General Circulation Model to evaluate the importance of dust devils on the evolution of surface dust reservoirs on Mars*" (DPS)

Kahre, M.A. and Murphy, J.R. 2005, "*Simulating the Martian dust cycle at high obliquity*" (Vernansky-Brown Climate Change Workshop)

Kahre, M. A., Murphy, J.R., Haberle, R. M., Montmessin, F., Schaeffer, J. 2004, "*A Numerical Investigation of the Effects of a Finite Dust Source on the Martian Annual Dust Cycle*" (DPS)

Kahre, M.A., Murphy, J.R., Chanover, N.J., Beebe, R., Africano, J., Roberts, L., Kervin, P. 2004, "*Global Dust Storms on Mars: Can Variations in the Surface Albedo Pattern Engender Interannual Variability?*" (AMOS Technical Conference)

Kahre, M.A., Murphy, J.R., Chanover, N.J., Beebe, R., Africano, J., Roberts, L., Kervin, P. 2003, "*Mars in a Pre- and Post- Dust Storm Era*" (AMOS Technical Conference)

Kahre, M.A., Blackmon, M., Murphy, J.R., Chanover, N.J., Beebe, R., Africano, J., Roberts, L., Kervin, P. 2002, "*Synergistic AEOS and MGS Observations of Mars*" (DPS)