



PLANETARY GEOLOGY DIVISION NEWSLETTER

The Planetary Geology Division of the Geological Society of America

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Message from the Chair



Jayne C. Aubele
New Mexico Museum of
History and Science

How many people experience wonder and awe as they go about their daily work? For planetary scientists, it is almost a perpetual state. We are frequently the first to see surface details or new information about our neighbors in the Solar System. We are still a young science; it has been only fifty years since the first planetary missions of the 1960s were sent by the U.S. and the U.S.S.R.; but the first decade of the 21st Century has brought an incredible abundance of missions, data, and observations; and an increase in the number of planetary scientists and the countries and space agencies sending the missions. Our science has also greatly changed the way our

colleagues in other subdisciplines of geosciences' view our own planet.

Writing this at the beginning of the second decade of the century, it is appropriate to wonder what the next ten years will bring. We have the increasing technological capabilities and tools to advance our future missions, and we have the experience and expertise built up over the past decades of planetary exploration. But of course, there is one more thing that is needed for successful planetary missions – funding. In a difficult economy, the question is always asked, “why should we spend all of that money in space”? The short answer (of course) is that it is actually spent here on Earth, funding all of those companies and people who make a mission work; but the complete answer is larger than that. With limited funds, priorities must be set. In times of economic hardship, basic scientific research is sometimes viewed as a luxury – unless people understand why it is important. How can we effectively explain

and justify the importance of our science to the general public?

Working in a museum, as I do, I have come to realize that most non-scientist adults really want to learn about science, but don't always know where to go or who to ask in order to get accurate information. We need to be advocates for our science, and it should actually be relatively easy to do. People of all ages are interested in "space" – in fact, it is one of the three most selected topics (along with volcanoes and dinosaurs) that interest all children. Planetary missions and discoveries are newsworthy events that can be used as targets of opportunity to introduce the general public to planetary science. Scientists or engineers within a given city or state, who are doing that kind of work, can provide the local person-to-person connection and "hometown celebrity aspect" that can effectively capture the public interest in planetary science. People ARE interested, we just have to share the excitement of our science with them.

I encourage every member of this division to think about a few simple ways that you can act as an advocate and help to increase your community's planetary science literacy. Encourage and support your local museum, science center, planetarium, library, senior center, or state or national park visitors' center by offering to speak about the results of a current or planned mission or by presenting the latest planetary images or data. Donate extra DVDs, books, or images from missions to your local schools or public libraries. Work with an individual teacher who is especially interested in planetary science and needs the tools and expertise with which to teach it. Offer your assistance to any local space-related clubs such as amateur astronomy groups. Look for opportunities to write an editorial or an information piece for one of the many local

free papers that serve community interests. I know how busy we all are, but we are all the best possible advocates for our science in our own local communities.

Next year, the Planetary Geology Division (PGD) will celebrate an amazing 30 years as a division of the Geological Society of America. With the leadership of past officers and the support of all of our members, the PGD has had many years of extremely successful and an increasing number of sessions at the annual meeting; and has built up a well-deserved reputation as one of the leaders among the GSA Divisions. As a new initiative this year, GSA has defined five overall themes designed to broadly encompass all of the divisions. The Planetary Geology Division can best be placed within two of the themes: Earth and Planetary Systems; and Education and Public Policy. These two fundamental themes are well-addressed in this year's range of proposed sessions. In fact, many of our proposed sessions have been co-sponsored by other GSA Divisions who know a good and relevant session when they see one. I encourage all PGD members to review the 2010 PGD sessions and plan now to submit an abstract or help our session conveners by soliciting abstracts from your colleagues. And, I want to thank you all for your continued support as members of the Planetary Geology Division.

Jayne C. Aubele
PGD Chair
New Mexico Museum of Natural History
and Science

Division News

Successful 2009 Annual Meeting



A PSD presentation at the 2009 Portland Oregon Annual Meeting

The 2009 Annual GSA meeting in Portland Oregon saw the Planetary Geology Division's continued success. The Division sponsored or co-sponsored nine different sessions during the 5-day convention with average attendance varying between 30-40 attendees in most sessions.

The Division sponsored a Pardee Keynote Symposium entitled "First Global View of the Geology of Mercury: Dynamic Landscapes on the Innermost Planet," which was organized and run by Louise Prockter and Sean Solomon. The session included a presentation by Bob Strom, who was a member of the original Mariner 10 science team. The session also included new results from the September 28th, 2009 MESSENGER flyby of Mercury.

The Planetary Geology Division booth also continued to serve as a focal point for Division fundraising and outreach activities. Special thanks to all the members who donated time and items for the booth. A special thanks goes out to [Eric Twelker](#) for his donation of meteorites for the daily raffles and continued support of the PGD.



The Division's booth at the 2009 Portland, Oregon Annual Meeting.

Finally, at the annual Business Meeting, the 2010 G.K. Gilbert Award was given to **Dr. Robert Strom of the University of Arizona**; the citationist was Dr. Jay Melosh of the University of Arizona. The G.K. Gilbert Award Session titled "Impact Cratering in the Solar System: Implications for Planetary Ages and Processes" was well attended.



PGD Chair Louise Prockter (left) presents to Dr. Bob Strom (center) the 2009 G.K. Gilbert Award with citationist J. Melosh (right).

Recent PGD Members News

PGD congratulates GSA member and fellow Dr. Jim Head (Brown University) for being awarded the [EGU's Runcorn-Florensky Medal](#) for 2010.



The Eugene M. Shoemaker Memorial Award for Crater Studies

We are pleased to announce the 2009-2010 recipient of the Shoemaker Award was ***Matthew Wielicki*** (*University of California, Los Angeles*), who



proposes a study of zircons from several impact craters to determine the characteristics of impact-generated and/or impact-modified zircons to assist with interpretations of Hadean zircons from Jack Hills, Australia.

Dr. Carolyn Shoemaker established the Eugene M. Shoemaker Memorial Fund for Crater Studies in memory of her husband in 1998. She established this endowment so that students will have an opportunity to pursue studies of impact craters, which were the focus of her husband's graduate student studies and a large part of his professional career. Friends, scientific colleagues, and companies have contributed to (and continue to contribute to) the fund to ensure its success.

The Eugene M. Shoemaker Memorial Award for Crater Studies is for undergraduate or graduate students, of any nationality, working in any country, in the disciplines of geology, geophysics, geochemistry, astronomy, or biology. The award, which includes \$2500, is to be applied for the study of impact craters, either on Earth or on other solid bodies in the solar system. Areas of study may include but shall not necessarily be limited to impact cratering processes, bodies (asteroidal or cometary) that make the impacts, or the geological, chemical or biological results of impact cratering. For full consideration,

applications and letters of recommendation should be received by September 11, 2010. The awardee is usually announced at the Planetary Geology Division business meeting during the annual GSA conference. Please check the following website (http://www.lpi.usra.edu/science/kring/Awards/Shoemaker_Award/index.html) for submission information and electronic application form. The Planetary Geology Division officers strongly encourage all of our Division members to actively recruit promising students to apply for this prestigious award.

2009 Dworkin Awards

The judging panel at the 40th LPSC saw another group of outstanding entries for the 2009 Dworkin Prize — The 2009 Dworkin winners were:

Best Graduate Oral Presentation:

Brendan Hermalyn, Brown University, for his talk "Early-Stage Ejecta Velocity Distribution."



Honorable Mention (Oral):

Mark Salvatore, Brown University, for his talk "Assessing the Mineralogy of Acidalia Planitia, Mars, Using Near-Infrared Orbital Spectroscopy."



Best Graduate Poster

Presentation: Michael Krawczynski, MIT, for his poster "Titanium Oxidation State and Coordination in the Lunar High Titanium Glass Source Mantle."



Best Undergraduate Oral Presentation: *Paul Richardson, University of Washington*, for his talk titled "The Relationship Between Lava Fans and Tubes on Olympus Mons in the Tharsis Region, Mars."



Honorable Mention (Oral): *Kaylan Burleigh, University of Arizona*, for his talk "Small Impacts Trigger Dust Landslides on Mars."

Best Undergraduate Poster Presentation: *Mairi Litherland, Rice University*, for her poster "Effects of Planetary Radius on Lithospheric Stresses and Magma Ascent on the Terrestrial Planets."



The Dworknik Award was established in 1991 with a generous endowment by Dr. Stephen E. Dworknik, who wished to encourage students who are U.S. citizens to become involved with NASA and planetary science. The Award consists of a plaque and a \$500 check, and is given for the best student presentations (poster and oral) at the annual *Lunar and Planetary Science Conference* (LPSC) hosted by the Lunar and Planetary Institute and NASA Johnson Space Center in Houston, Texas. Students may submit abstracts for consideration of the award to the annual LPSC. The student must be first author on the abstract. Along with the abstract, the student must also complete an application form and have it signed by their dissertation or research advisor. The signed form must be mailed to the Lunar and Planetary Institute in time to arrive before the LPSC abstract deadline (typically early January of each year).

In 2009, separate awards for Best Undergraduate Presentations were given. This year, separate awards will again be given for Best Undergraduate Presentations.

Special Thanks to Dworknik Judges

PGD officers would like to thank all of our members who attended the 41st LPSC and assisted in judging for the 2010 Dworknik awards. With the number of applicants growing each year (91 this year), it would not be possible to judge the student awards without the help of our volunteers.

2009 Pellas-Ryder Award

The Pellas-Ryder award is given to the Planetary Science Best Student Paper published during the preceding year. The award is jointly given by the Meteoritical Society and the Planetary Geology Division of the Geological Society of America and consists of a check for \$500 from the Meteoritical Society and a plaque awarded by the PGD.



For 2009, the Pellas-Ryder award was presented to: *Bethany L. Ehlmann, Brown University* (Advisor: Jack Mustard) for an outstanding publication in a major peer-reviewed journal on a topic of significant importance, and for the perseverance to see it published.

The paper was: **Ehlmann, B. L., J. F. Mustard, S. L. Murchie, F. Poulet, J. L. Bishop, J. Brown, W. M. Calvin, R. N. Clark, D. J. Des Marais, R. E. Milliken, L. H. Roach, T. Roush, G. A Swayze and J. J. Wray**, Orbital identification of carbonate-bearing rocks on Mars, *Science*, 322, DOI: 10.1126/science.1164759, 1828-1832, 2008.

ANNOUNCING THE 2010 G.K. GILBERT AWARD WINNER

Dr. Carle Pieters – Brown University



Previous Gilbert Award Recipients: E. Shoemaker (1983); G. Wetherill (1984); W. Alvarez (1985); R. Baldwin (1986); D. Gault (1987); D. Wilhelms (1988); H. Schmitt (1989); H. Masursky (1990); J. Guest (1991); J. Wood (1992); M. Carr (1993); S. R. Taylor (1994); B. Lucchitta (1995); R. Sharp (1996); R. Greeley (1997); J. Adams (1998); S. Solomon (1999); L. Soderblom (2000); H. J. Melosh (2001); J. Head (2002); R. Phillips (2003); W. Hartmann (2004); L. Wilson (2005); M. Gaffey (2006); M. Zuber (2007); P. Christensen (2008); R. Strom (2009).

The 2010 G. K. Gilbert awardee is ***Dr. Carle M. Pieters***, Professor, Brown University. She is the Science Manager of the NASA/Keck Reflectance Experiment Laboratory at Brown, Principal Investigator for the Moon Mineralogy Mapper (M3) experiment on India's Chandrayaan-1, co-investigator on the Dawn Mission to Vesta and Ceres, and a participating scientist on Kaguya (Selene). Her research emphasizes remote sensing information applied to geological problems for the Earth and planets, specifically: remote compositional analysis of multi-spectral lunar data; the processes responsible for space weathering or alteration of materials in the space environment; identification of asteroidal source bodies for diverse meteorite types; and promoting and assisting in the planning of international exploration with Germany, England, Japan, Russia, and India.

She is a Fellow of the AAAS and AGU, past Chair of the Division of Planetary Sciences, American Astronomical Society, past-Chair of the AAAS, Astronomy Section, and past-President of the AGU, Planetary Sciences Section. She was awarded the Gerard P. Kuiper Prize from the DPS, AAS. Asteroid 3713 Pieters is named in her honor.

2009 Finances and Membership

The Division's finances remain healthy, and we hope they will continue to improve, as we stay focused on reducing costs and raising funds. In 2009 we continued the student travel grant program for students to attend the annual GSA Meeting, in which two students receive \$500 grants (with matching funds from the student's advisor). The 2009 travel grant awardees were *Steven Jaret, Ph.D. Student, Harvard University*, and *Sarah Beth Cadieux, M.S. Student, University of Tennessee*. To continue these travel grants, we need your support through purchases at our booth at the Annual Meeting! We currently have 295 PGD t-shirts in various sizes and colors, so come to the booth at the 2010 Denver meeting and complete your wardrobe!

As is shown below, our largest single yearly cost continues to be the Division's annual business meeting at the GSA Annual Meeting, especially with the catering associated with the meeting. Last year catering costs for the Portland meeting rose to over \$1,300, up from \$300 the year before. We will continue to search for ways to reduce this expense. The financial activity of our Division over the past year is summarized as follows:

REVENUE	2009 \$
Division Dues Income	1,691.49
Contributions	1,150.50
Total Revenue	2,841.99
EXPENSES	2009 \$
Furniture & Equipment Rental	149.85
Postage & Shipping	89.73
Grants & Awards, cash	1,000.00
Catering Annual Meeting	1,336.80
Miscellaneous	380.56
Total Expenses	3,082.80
NET INCOME (Loss)	(240.80)
LIABILITIES	

Deferred Dues Income	2,076.20
Net Assets, Beginning of Year	14,990.61
Net Income Current Year	(240.80)

2009 UNRESTRICTED NET ASSETS
\$16,826.01

Membership: As of the end of 2009, the Division has 576 members. *We can still do better!* Please encourage your colleagues to keep their Division memberships active, and remember that GSA accepts new membership applications online at the GSA website: <http://www.geosociety.org>. This is also the time to renew your membership for 2010 if you have not yet done so.

Call for Applications & Nominations for 2010

For the past several years the Division has enjoyed a great deal of growth and vibrancy, something we hope will continue well into the future! This is something that reflects positively upon us as a community, and we would like to remind everyone of the opportunities to participate and contribute.

G.K. Gilbert Award: All members are strongly encouraged to submit nominations for the G. K. Gilbert Award. This is the Division's highest award, presented annually for outstanding contributions to the solution of fundamental problems in planetary geology in the broadest sense. Nominations for the 2011 award (which should include a letter detailing the accomplishments of the nominee) should be submitted directly to Jayne Aubele (jayne.aubele@state.nm.us) by December 1, 2010.

Dwornik Award: The Dwornik fund needs to grow in order to provide new opportunities for our newly initiated undergraduate awards, and thus we

encourage your donations to this fund. In addition, anyone interested in serving as a judge for the 2011 Dornik competition at next year's LPSC should contact the Division's Second Vice-Chair to volunteer!

Eugene M. Shoemaker Award: The Shoemaker fund is currently self-sustaining, but we welcome your donations. As a reminder, the deadline for 2010 will be on September 17, 2010! For more details and online application forms, please see: http://www.lpi.usra.edu/science/kring/Awards/Shoemaker_Award/index.html

Pellas-Ryder Award: This award, offered jointly with the Meteoritical Society, is an opportunity for student first authors publishing their work in English to receive recognition for outstanding scientific achievement. The deadline for nominations for papers published the preceding year is January 31 of each year. For more information, contact the Past Chair.

Pardee Keynote Symposium: The Pardee Keynote Symposia, as special sessions selected on a competitive basis because of their broad interest to the geoscience community, are an important avenue for conveying important new planetary science results to a broader audience. This forum for communicating with and connecting to the rest of the geoscience community represents an opportunity for us all, and we encourage anyone with ideas for future Pardee Keynote proposals to coordinate with Jayne Aubele (jayne.aubele@state.nm.us) or Dave Williams (david.williams@asu.edu). As you consider possible topics, remember that the Pardee Keynote Symposia represent interdisciplinary, leading-edge topics in a scientific discipline or area of public policy or address broad fundamental issues.

Upcoming 2010 Annual Meeting

The 2010 [GSA annual meeting](#) will be held October 31-November 3, 2010, in Denver, CO. The theme of the meeting is: *Reaching New Peaks in Geoscience*. We hope to have a very visible presence at the meeting, with lots of sessions (see below).

Technical Sessions for 2010 GSA Annual Meeting from Planetary Geology Division

Technical Sessions

(T106) Explosive volcanism across the solar system: Insights from qualitative, quantitative, and geochemical approaches [GSA Planetary Geology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division]

(T107) Field Geology on Other Planets: An Emerging Science [GSA Planetary Geology Division and GSA Quaternary Geology & Geomorphology Division]

(T105) Impact Cratering: From the Lab to the Field, from the Earth to the Planets [GSA Planetary Geology Division; GSA Geophysics Division; GSA Mineralogy, Petrology, Volcanology, and Geochemistry Division; GSA Sedimentary Geology Division; GSA Structural

Geology & Tectonics Division; International Continental Scientific Drilling Program (ICDP); Geological Society of America Bulletin]

(T110) Mountain formation and landscape evolution in the solar system: implications for the origin of life [*GSA Planetary Geology Division; Quaternary Geology and Geomorphology Division*]

(T109) Online citizen science: Engaging the public to solve real science challenges in planetary geology and terrestrial geoscience [*GSA Planetary Geology Division; GSA Geoscience Education Division; and GSA Geology and Society Division*]

(T108) Planetary exploration through remote compositional analysis. The G.K. Gilbert Award Session [*GSA Planetary Geology Division*]

(T92) Technology-Enabled Field Geologic Research: Challenges, Successes, and Requirements for Future Systems [*Geoinformatics Division; Planetary Geology Division; Geoscience Education Division*]

Pardee Symposium

Evolving Moon: Recent advances in understanding our planetary neighbor from NASA's Lunar Reconnaissance Orbiter and other missions [*GSA Planetary Geology Division -- Pardee Keynote Symposium*]

Pardee Symposium

Exploring for Life in the Cosmos: Celebrating Five Decades of Astrobiology

[*Sponsored by GSA Geobiology and Geomicrobiology Division, and co-sponsored by the Planetary Geology Division*]

The Division strongly encourages all members to submit an abstract to one of these Planetary Division-sponsored or co-sponsored sessions. Division-sponsored Topical Sessions provide a format for the exchange of ideas at GSA meetings.

We need your help! This would be a great time to make a contribution to either the Dwornik fund or the Shoemaker fund! Unlike many other charitable donations, your donation to these funds will produce positive results you can see for yourself as you encourage and support your future colleagues. Please include a check or money order, made payable to *Planetary Geology Division, GSA*.

YES I have enclosed a check as a donation to:

The Dwornik Fund

amount \$(_____)

The Shoemaker Fund

amount \$(_____)

WHEN MAKING A DONATION, PLEASE PUT THE BALLOT AND CHECK IN AN ENVELOPE AND MAIL IT TO:

The Geological Society of America, P.O. Box 9140, Boulder, CO 80301-9140.

PGD Elections 2010

Would you like to help the PGD? This year we must elect a new Secretary-Treasurer for two-year term. Please suggest candidates to any of our officers over the next few months. Need more information about your division, check out our website at: <http://www.unb.ca/passc/GSA/index.html>.

GSA 2009-2010 Planetary Geology Division Officers

Chair: ***Jayne C. Aubele***, New Mexico Museum of Natural History and Science, Albuquerque, New Mexico 87104; jayne.aubele@state.nm.us

First Vice-Chair: ***David A. Williams***, School of Earth & Space Exploration, Arizona State University, Tempe, AZ 85287; david.williams@asu.edu

Second Vice-Chair: ***Simon Kattenhorn***, Department of Geological Sciences, University of Idaho, Moscow, ID 83844; simkat@uidaho.edu

Secretary-Treasurer: ***Robert C. Anderson***, Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, CA 91109; robert.c.anderson@jpl.nasa.gov

Past Chair: ***Louise Prockter***, Applied Physics Laboratory, Johns Hopkins University, Laurel, MD; louise.prockter@jhuapl.edu

Current Planetary Geology Division Officers' Biographies

(Chair) Aubele, Jayne C., Planetary Geology.



Volcanology, Geoscience
Education: Fenn College, B.S. (Geology) 1973; Univ New Mexico, M.S. (Geology) 1978, UofA, M.S. (Planetary Science) 1988. Professional Experience: Senior Educator for Geoscience, New Mexico Museum of Natural History & Science

2003-present; Chief of Education, New Mexico Museum of Natural History & Science 1997-2002; NASA Space Grant Program, Rhode Island Program Manager 1991-1996; P.I. Venus Data Analysis Program 1993-95; Brown University Dept. Geol. Sci. Staff Research Scientist, 1985-1996; USGS Central Regional Geology Field Geologist (WAE 1979-1982); JPL Viking Orbiter Imaging Team, Student Intern, 1976. Member: GSA, AGU, Sigma Xi, Nat. Assoc. of Geoscience Teachers, NM Assoc. of Museums, NM Academy of Science. Professional Service: MGS panel 1996; Rover test team member, NASA Ames 1999; GSA Dwornik Award Judge, 2000; NASA Planetary Mappers Meeting Co-organizer 2001; Core Member, NASA Museum and Planetarium Education National Advisory Committee 2002; MFRP panel 2005; PG&G panel 2005; Selection Committees Presidential Math/Science Teaching Awards and National Youth Science Camp; Board Member, NM Partnership for Math and Science Education; Member, National Steering Committee for EarthScope E&O; Co-I POLAR-PALOOZA NSF-funded Project (International Polar Year); Past-president and board member New Mexico Academy of Science. Honors & Awards: NASA Certificate of Recognition for Technically Significant Contribution Approved for Dissemination 1999; EPA Regional Administrators Environmental Excellence in Teaching Award 1999; NASA Class 1 New Technology Award, 1998; Invited Speaker in Plenary Session EarthScope National Meeting 2005; Invited Speaker Assoc. Science and Technology Centers national meetings 2005-2006. Research: Travertine; Quaternary basaltic volcanic fields of the southwest; volcanism on Mars; small volcanoes on Venus; geologic mapping of Earth, Mars, and Venus. Address: New Mexico Museum of Natural History and Science, 1801 Mountain Rd. NW, Albuquerque, New Mexico 87104 ph 505-841-2840, fax 505-841-2866, jayne.aubele@state.nm.us

(First Vice Chair) Williams, David A.,



Mathematical computer modeling, geologic mapping, image processing, geochemical studies, Volcanology, Planetary Geology. Education: Indiana University BS (Astronomy & Astrophysics) 1989; Arizona State University, M.Sc. (Geology) 1992; University of

Alabama, Ph.D (Geology) 1998. Professional Experience: Fac. Research Assoc., Arizona State University (ASU), 2002-present; Visit. Assist. Prof., ASU, 2001-2002; Postdoct. Research Assoc., ASU, 1998-2002; Student Participant, NASA *Magellan* SAR Team, 1990-1992; Student Affiliate, NASA *Galileo* SSI Team, 1992-1994; Associate, NASA *Galileo* SSI Team, 1998-2003; Associate, NASA *Mars Polar Lander* SSI team, 1999; Associate, ESA *Mars Express* HRSC Team, 2003-present; Member, NASA *New Horizons* Jupiter Encounter Sequencing Team, 2004-present. Member: GSA, AGU, DPS, AAAS, IAVCEI, NSS. Recent Service: JSO Science Definition Team 2007; GSA Dwornik Award Judge, 2005-2007; DSMCE panel 2008; MDAP panel 2007; CDAP panel 2006; MFRP panel 2003; MDAP panel 2004; PG&G panel 2004; IAVCEI Large-Volume Basaltic Provinces Steer. Group Member, 1993-1998. Honors & Awards: 5-yr Service Award, Dept. of Geolog. Sci., ASU, 2003; Award for Outstanding Research by a Doctoral Student, Grad. College, Univ Alabama, 1998, College of Arts & Sciences, 1998, Dept. of Geology, 1998; Univ. Alabama Grad. Council Research Fellow, 1996, 1997, 1998; NASA Space Grant Grad. Fellowship, Sum. 1992 (ASU). Research: Analytical-numerical modeling of low-viscosity lava emplacement on Earth, the Moon, Mars, and Io; Regional and global geologic mapping of Io using *Galileo* and *Voyager* images; Studies of geochemical evidence for erosion by basaltic lavas at Mount St. Helens; Geologic mapping of the Tharsis shields using HRSC data. Address: School of Earth and Space Exploration, Arizona State University, Tempe, AZ 85287, or call (480) 965-7029, fax (480) 965-8102, or e-mail: david.williams@asu.edu

(Second Vice-Chair) Kattenhorn, Simon A.,



Planetary Geology, Structural Geology, Geomechanics. Education: Univ. of Natal, Durban, South Africa, B.Sc. (Geology, Physics) 1990, B.Sc. Hons. (Geology) 1991, M.Sc. (Geology) 1994; Univ. of Akron, Ohio, M.S. (Geology)

1994; Stanford University, California, Ph.D. (Geological & Environmental Sciences) 1998.

Professional Experience: Associate Professor of Geology, Univ. of Idaho 2004-present; Assistant Professor of Geology, Univ. of Idaho 1998-2004; Research Assistant, Stanford Univ. 1994-1998; Teaching Assistant, Univ. of Akron 1992-1994. Professional Service: Second vice-chair, Planetary Geology Division, GSA, 2009-2010; NASA-Idaho Space Grant Consortium Advisory Committee, 2009-present; Session chair, "Fault and fracture studies in the solar system," GSA Annual Meeting 2009; Scientific Organizing Committee, Lunar and Planetary Institute Workshop on Europa's Icy Shell, 2004; Session Chair, "Fluids and Faulting: Cause and Effect," AGU Fall Meeting 2002; Reviewer for 49 journal/book articles and grant proposals 1997-present; Served on NASA Planetary Geology and Geophysics and NASA Outer Planets Research review panels. Professional Memberships: GSA (1993-present), AGU (1996-present), AAS-Division for Planetary Sciences (2003-present); Planetary Society (1995-present). Honors & Awards: Participant in NSF-funded Tropical Rift Lake Systems Workshop, Lake Kivu, Rwanda, 2010; Participant in NSF-funded Workshop on Volcanic and Seismic Hazards in East Africa, Trieste, Italy, 2009; Participant in NSF-funded Magmatic Intrusion Workshop, Dry Valleys, Antarctica 2005; Participant in NSF-funded Tectonic-Magmatic Interaction Workshop, Iceland 2003; Alumni Award for Excellence, Univ. of Idaho 2001. Research: Tidal stresses and tectonic deformation on outer solar system icy satellites; active tectonics on Europa and Enceladus; fault evolution and dike intrusion on Mars; tectonics of oblique spreading, Iceland; active tectonics and earthquake hazards in northern California; thermo-mechanical modeling of lava cooling and fracturing; Research advisor to 17 graduate students; Published 18 research articles and 88 conference presentations; External research funding from NASA (10 times), NSF, DOE. Address: Dept. of Geological Sciences, Univ. of Idaho, PO Box 443022, Moscow, ID 83844-3022; Ph (208) 885-5063; Email: simkat@uidaho.edu.

(Secretary-Treasurer) Anderson, Robert C.,



Planetary Geology, Structural Geology, Planetary regoliths, Old Dominion University, B. S. (Geology) 1979, Old Dominion University, M.S. (Geology/Planetary Tectonics) 1985, University of Pittsburgh, PhD. (Geology/Remote Sensing) 1995. Professional

Experience: Research Scientist at the Jet Propulsion Laboratory and is currently the Mars Science

Laboratory (MSL) Investigation scientist for the Sample Acquisition/Sample Processing and Handling (SA/SPaH), Science Lead on the Solid Sample Library, Science lead on the characterization of dry powder flow, and physical properties experiments for MSL, 2006-present; Mars Exploration Rovers Mission Planner and Investigation Scientist for the Rock Abrasion Tool and member of the physical properties theme group, 2000-2007. Science Collaborator Mars Exploration Rover, 2002-present, Science Lead for the OASIS/AEGIS project (onboard science analysis software), 1999 - present. Adjunct Research Faculty at the Department Geology and Planetary Science, University of Pittsburgh (1998-2003). Lecturer/Instructor at the California Institute of Technology, 2008 (Igneous and Metamorphic Petrography), Adjunct Faculty, Pasadena City College (Planetary Geology), 1999-2002, Mission Planner and Investigation Scientist for the 2001 Mars Mission, 1999-2001, Deputy Education and Outreach Coordinator: Mars Exploration Office, 1998-1999, California Institute of Technology Postdoctoral Scholar 1996-1998 (Mars Pathfinder project under M. Golombek). Professional Organizations: Member of GSA and AGU. Honors and Awards: JPL Mariner Award (Mars Science Laboratory, 2007), JPL Spot Award (Mars Science Laboratory, 2006), JPL Team Award (OASIS Team, 2005), JPL Spot Award (Mars Exploration Rover, 2004). NASA Group Achievement Award (MER Operations, 2004), NASA Group Achievement Award (MER Operations Planning, 2003), NASA Group Achievement Award (MER Science Operations, 2003), NASA Group Achievement Award (Mars Pathfinder Science Operations, 1997), NASA Group Achievement Award (Mars Pathfinder Science Team, 1997). Invited Talks: India Space Agency, Bangalore India, 2005, Keynote address speaker, Oklahoma Geological Survey Annual Meeting, 2003, 2004, Keynote address speaker, AAPG Midwest Regional Meeting, 2003, Invited Talk, International Fuel Cell Conference, 2005, Invited Talk, United Nations Office of Space Science, Beijing China, 2004, Keynote address speaker, Pittsburgh Spectroscopy Society, Pittsburgh PA, 2004, Invited Talk, IBM Annual Meeting, New Orleans, LA, 2003, JPL Lab-wide Section Seminar, Topic: Rover Traverse Science, 2002, Invited Talk, U.S. and Russian Manned Space Program, Costa Rica, 2001, Keynote address speaker, IEEE Aerospace Meeting, 1999, 2000, Keynote address speaker, University of Virginia Teacher Association Annual Meeting, 1999, Meeting, St. Louis MO, 1998. Address: Jet Propulsion Laboratory, Pasadena, CA, 91381, ph. 818-393-1253, email:

Robert.C.Anderson@jpl.nasa.gov.