

**Bibliographic Information: Peter J. Mouginis-Mark**

Hawaii Institute of Geophysics and Planetology  
 University of Hawaii, 1680 East-West Road, POST Room 504A  
 Honolulu, Hawaii 96822

(808) 956-6490 (voice); (808) 956-3188 (FAX); e.mail: [pmm@higp.hawaii.edu](mailto:pmm@higp.hawaii.edu)  
<http://www.higp.hawaii.edu/~pmm>

**EDUCATION** B.Sc. in Environmental Sciences, Lancaster University, England, 1973.  
 Certificate in Education, Keele University, England, 1974.  
 Ph.D. in Environmental Sciences, Lancaster University, England, 1977.  
 (Thesis title “Morphology and Mode of Formation of Martian Rampart Craters”. Thesis advisor: Lionel Wilson).

**BIOGRAPHY**

1977 - 1978 Systems Analyst at Bendix Research Laboratories, Southfield, MI. Worked on the development of computerized photogrammetric equipment for the production of topographic maps under contract from the Defense Mapping Agency.

1978 - 1982 Postdoctoral Research Associate at Brown University, Providence, RI. Worked on a number of planetary geology topics under Prof. James W. Head III. Focus of research was on impact craters, volcanic phenomena, Earth-based radar measurements of Mars, and terrestrial remote sensing.

1981 Visiting Scientist, Jet Propulsion Laboratory, CA. Collaborated on the interpretation of Seasat radar images of the Newberry Volcano area of Oregon.

1982 - 6/90 Associate Researcher, Planetary Geosciences Division, University of Hawaii.

1983 - 6/90 Associate Professor, Dept. Geology and Geophysics, University of Hawaii.

1985 - 1986 Acting Geology Program Manager, Land Processes Branch, NASA Headquarters, Washington DC.

9/88 - 4/90 Acting Chair, Planetary Geosciences Division, Hawaii Institute of Geophysics, University of Hawaii.

5/90 - 3/94 Associate Chair, Planetary Geosciences Division, Hawaii Institute of Geophysics, University of Hawaii

4/90 – 12/97 Director, University of Hawaii Space Grant College.

7/90 – 3/94 Professor, Geology and Geophysics Department.

10/93 – 7/99 Chair, Remote Sensing in Volcanology Commission, International Association for Volcanology and Chemistry of the Earth’s Interior (IAVCEI).

4/94 - 7/03 Acting Associate Director, Hawaii Institute of Geophysics and Planetology

10/99 – 12/01 Chief Scientist, Pacific Disaster Center, Maui.

8/03 – 6/06 Acting Director, Hawaii Institute of Geophysics and Planetology, UHM

7/06 - 6/08 Interim Director, Hawaii Institute of Geophysics and Planetology, UHM

1/07 – 6/07 Acting Associate Dean for Research, College of Engineering, UH Manoa

4/08 – 3/09 Interim Associate Dean for Research, College of Engineering, UH Manoa

7/08 – 10/13 Director, Hawaii Institute Geophysics and Planetology, UH Manoa

10/08 – 08/10 Deputy Director, DHS National Center for Island, Maritime, and Extreme Environment Security, University of Hawaii

10/10 – 12/15 Member, Hawaii State Aerospace Advisory Council

07/14 – present Affiliate Faculty Member, UH Sea Grant College

- 08/10 – 12/15 Director, UH Manoa Sustainability Initiative, Office Vice Chancellor for Research.
- 12/14 – 4/15 Executive Director, NASA Pacific Regional Planetary Data Center, UH Manoa
- 5/15 – present Director, NASA Pacific Regional Planetary Data Center, UH Manoa

#### NATIONAL/INTERNATIONAL COMMITTEE EXPERIENCE AND SERVICE

- 1978 - 1979 Member NASA's Mars Sample Return Study Group.
- 1980 Member NASA's Mars Consortium.
- 1980 Member NASA's study group on Caribbean Plate Geology
- 1980 Associate Editor, Proceedings 11th Lunar and Planetary Science Conference.
- 1981 Member, Surface Processes Group, NASA's Early Crustal Genesis Project.
- 1981 - 1985 Member NASA's Galilean Satellite Mappers Team (South Pole of Io).
- 1981 Member NASA's Basaltic Volcanism Study Project, Planetary Tectonics Team.
- 1982 Member NASA's Mars Crater Morphology Working Group.
- 1983 - 1985 Member NASA's Planetary Geology Review Panel.
- 1984 Science Coordinator and Guest Speaker, University of Hawaii lecture series on "The Earth Among the Planets".
- 1984 Member, NASA's Geology Science Working Group for the Space Shuttle Radar (SIR-C) Mission.
- 1985 Team Leader, NASA's Geology Science Working Group for SIR-C Mission.
- 1985 - 1986 Acting Program Scientist, Shuttle Imaging Radar (SIR-C) Experiment.
- 1985 Member, Earth Systems Science Committee, Geology Section.
- 1986 Member, NASA's Science Working Group on Digital Land Topography.
- 1986 Chairman, NASA's Geology Program Advance Planning Committee.
- 1986 Chairman, NASA's Proposal Review Panel, Shuttle Imaging Radar-B Continuation Program.
- 1986 Member, NASA's Proposal Review Panel, Mars Evolution Volcanism, Tectonism and Volatiles program.
- 1986 Session Chairman, American Geophysical Union's Fall Special Session on "Remote Sensing of Volcanic Landforms on the Earth, Moon, Mars and Venus".
- 1986 - 1991 Member, NASA's Aircraft Management & Operation Working Group.
- 1986 - 1989 Member, NASA's Terrestrial Geology Advance Planning Group.
- 1987 Member, NASA's Planetary Geology Advance Planning Group.
- 1987 - 1991 Member, NASA's Planetary Cartography Working Group.
- 1986 - 1987 Member, NASA's Earth Observing System, Global Altimeter Team.
- 1987 United States Delegate, Pacific International Space Year Conference, Kona, Hawaii, August 1987.
- 1988 - 1990 Board Member, Lunar and Planetary Science Council of the Universities Space Research Association.
- 1988 - 1990 Associate Editor, *Geology*.
- 1988 - 1990 Editor, Planetology Section, *Eos*.
- 1988 Associate Editor, Proceedings 19th Lunar & Planetary Science Conference.
- 1988 Member, NASA's HIRIS Review Panel (Earth Observing System).

- 1988 Member, NASA's Mars Data Analysis Advisory Group.
- 1988 Chairman, NASA's Advisory Panel on Remote Sensing in Volcanology (Coolfont Planning Committee).
- 1991 Chairman, International Space Year Conference working group on "Dynamic Processes", Kona, HI, October 1991.
- 1992 Chairman, International Space Year Conference working group on "The ISY Volcano Watch", Hilo, HI, March, 1992.
- 1992 - 1993 Member, Planetary Geology and Geophysics Working Group.
- 1993 Member, University of Alaska's Volcanology External Review Panel.
- 1994 - 1995 Chair, Solid Earth Panel on Future U.S. Imaging Radars, NASA/JPL.
- 1993 - 1996 Member, NASA EOS Science Executive Committee (Education).
- 1994 - 1998 Member, NASA Earth System Science Applications Advisory Panel (ESSAAC).
- 1995 - 1997 Chair, Alaska SAR Facility User Working Group.
- 1996 Member, NASA New Millennium Mission Advisory Team.
- 1998 - 2000 Member, NASA Applications and Outreach Committee, Code YO.
- 2001 Member, NASA Solid Earth & Natural Hazards Program Review Panel.
- 1998 – 2000 Editor-in-Chief, AGU Monograph on "*Remote Sensing of Active Volcanoes*".
- 2000 – 2004 Associate Editor, *Bulletin Volcanology* (remote sensing)
- 2001 Member, NASA Mars Data Analysis Review Panel.
- 2001 External Reviewer, NASA Solid Earth & Natural Hazards Program.
- 2001 External Reviewer, NASA Planetary Geology & Geophysics Program.
- 2002 Member, NASA Mars Fundamental Research Review Panel.
- 2002 Member, NASA Solid Earth & Natural Hazards Review Panel.
- 2002 External Reviewer, NASA Mars Data Analysis Program
- 2002 External Reviewer, NASA Planetary Geology & Geophysics Program.
- 2003 Member, NASA Mars Exploration Rover Landing Site Review Committee
- 2003 External Reviewer, NASA REASoN Program.
- 2003 Convenor, Special Session on "Satellite Remote Sensing of Volcanic Hazards". Spring 2003 EGS-AGU-EGU meeting in Nice, France
- 2004 Member, AmericaView Review Panel.
- 2011 Member, NASA Planetary Geology and Geophysics Review Panel
- 2016 Member, NASA Planetary Science and Technology Through Analog Research (PSTAR) Review Panel
- 2018 Member, NASA Lunar Data Analysis Program (LDAP) Review Panel
- 2018 Member, NASA SIMPLEX Review Panel

## PATENTS

- US 7,148,488 B2 "Apparatus for measuring Radiation and Method of Use", Keith Horton, John Porter, Peter Mouginis-Mark, Clive Oppenheimer and Harold Garbeil. Date of filing June 13<sup>th</sup>, 2003, date of award December 12<sup>th</sup>, 2006.

## UNIVERSITY COMMITTEES

- 1984 - 1985 Graduate Work Committee.
- 1986 - 1987 Hawaii Institute Geophysics Personnel Committee.
- 1989 HIG Postdoctoral Fellowship Committee
- 1988 - 1996 University of Hawaii Space Council
- 1989 - 1991 Graduate Work Committee

1992	UH Tenure and Promotion Review Committee #9.
1991 - 1993	Dept. Geology and Geophysics and SOEST Curriculum Committees.
1994 - 1996	“Focus on Manoa” Advisory Committee.
1995	Chair, Hawaii Institute Geophysics & Planetology Faculty Review Committee.
1998	Chair, Hawaii Institute Geophysics & Planetology Faculty Review Committee.
2000	Member, Hawaii Institute Geophysics & Planetology Faculty Review Committee.
2001	Member, Hawaii Institute Geophysics & Planetology Faculty Review Committee.
2001	Member, Hawaii Institute Geophysics & Planetology Faculty Search Committees for Planetary and Space Grant College faculty members.
2002	Member, Geology & Geophysics Dept. Curriculum Committee.
2002	Member, Hawaii Institute Geophysics & Planetology Faculty Review Committee.
2002	HIGP Awards Committee Representative
2003	Chair, Hawaii Institute Geophysics & Planetology Tenure Committee.
2004 – 2005	Member, SOEST Computer Committee
2/07 – 6/14	Member, Manoa Chancellor’s Climate Change Commission
2010	Chair, Vice Chancellor’s Sustainability Competition Selection Committee
2011 – 2012	Chair, UH Manoa Coastal Sustainability Search Committee
2014	Member, HIGP Faculty Search Committee
2015	Member, Water Resources Research Center Personnel Committee
2015	Chair, UH Manoa EPSCoR Faculty Search Committee, Hydrogeophysics
2016	Chair, UH Manoa EPSCoR Faculty Search Committee, Economics
2016	Chair, UH Manoa EPSCoR Faculty Search Committee, Civil Engineering
2016	Chair, UH Manoa EPSCoR Faculty Search Committee, Water Resources
08/16-07/18	Member, Manoa Faculty Senate and Committee on Research (Secretary, CoR 8/17 – 5/18)
11/16-03/17	Member, UH Manoa Faculty Senate Executive Committee
04/17 – 05/18	Project Scientist, <i>Ike Wai</i> NSF EPSCoR Project
2017	Member, Dept. Civil Engineering/Sea Grant Faculty Promotion and Tenure Committee
2018	Member, HIGP/HSFL Faculty Search Committee, Small Satellites

### STUDENT DEGREE COMMITTEES

1983 - 1987	Chairman, Ph.D. Committee for Lisa R. Gaddis. Thesis title “Radar and Spectral Analyses of Volcanic Terrains on the Earth and Moon”.
1984 - 1985	MSc. Committee Member for Aaron Zent. Thesis title “Distribution and State of H <sub>2</sub> O in the High Latitude Subsurface of Mars”.
1985 - 1988	Ph.D. Committee Member for Aaron Zent. Thesis title “Water and Other Volatiles in the Near-Surface Soil of Mars and Io”.
1988 - 1989	MSc. Committee Member for James F. Bell. Thesis title “Observations of Mars during the 1986 and 1988 Perihelic Oppositions: 0.4 - 2.5 μm Reflectance Spectroscopy of Small Surface Regions with Emphasis on Iron Oxide Minerals”.

- 1988 External Examiner, Ph.D. thesis for Ashley Davies (Lancaster University, England). Thesis title “Sulphur-Silicate Interactions on the Jovian Moon Io”.
- 1986 - 1991 Ph. D. Thesis Advisor, Mr. Bruce Campbell. Thesis title “Radar Polarization Studies of Volcanic and Impact Cratered Terrains on the Earth, Venus and Moon”.
- 1987 - 1991 Ph.D. Committee Member for Ms. Joan Hayashi. Thesis title “Aspects of Pyroclastic Flow Movement and Emplacement”.
- 1988 - 1992 Ph.D. Thesis Advisor, Mr. Duncan Munro. Thesis title “The Application of Remotely Sensed Data to Studies of Volcanism within the Galapagos Islands”.
- 1988 - 1991 M.Sc. Thesis Advisor, Mr. Mark Robinson. Thesis title “Topographic Analysis of Four Martian Volcanoes”.
- 1989 - 1992 Ph.D. Thesis Advisor, Mr. Luke Flynn. Thesis title Radiative temperature measurements of the Pu‘u O‘o - Kupaianaha Eruption with Implications for Satellite Remote Sensing”.
- 1985 - 1990 Ph.D. Committee Member for Ms. Pamela L. Blake.
- 1991 - 1993 Ph.D. Thesis Advisor, Mr. Mark Robinson. Thesis title “Some Aspects of Planetary Volcanism as Examined with Information Derived from Spacecraft Image Data: Spectral, Topographic and Morphologic”.
- 1991 - 1995 Ph.D. Thesis Advisor, Mr. Keith Horton. Thesis title “Airborne and Satellite Infrared Imaging Spectroscopy of Active Volcanism at Kilauea Volcano, Hawaii”.
- 1992 - 1995 M.Sc. Thesis Advisor, Ms. Michelle Tatsumura. “Volcano and Lava Flow Morphology of Elysium Mons, Mars and Implications for Eruption Character”.
- 1992 - 1995 Ph.D. Committee Member for Mr. Rick Holasek. Thesis title: “Volcanic eruption plumes: Satellite remote sensing observations and laboratory experiments”
- 1993 - 1998 M.Sc. Thesis Advisor, Ms. Selima Siddiqui. Thesis title: “Geomorphic and Structural Analysis of Taal volcano from Remote Sensing Data”.
- 1994 - 1998 Ph.D. Committee Member, Ms. Rachel Friedman. Thesis title: “Petrologic clues to lava flow emplacement and post-emplacement processes”.
- 1994 - 1996 M.Sc. Committee Member, Mr. Karl Bornhoeft. Thesis title: “Atmospheric Corrections for Remotely Sensed Surface Temperature Determination in the 3 - 5  $\mu$ m wavelength region”.
- 1995 - 1996 M.Sc. Committee Member, Mr. Charles Kerton. Thesis title “Thermal modeling of sulfur dioxide frost on Io’s surface: Implications for Io’s Tenuous Atmosphere”.
- 1998 External Examiner, Ph.D. thesis for Nicola Frances Stevens (Reading University, England). Thesis title “Lava Flow Volume and Morphology from Synthetic Aperture Radar Interferometry”.
- 1999 – 10/00 MSc Committee Member, Mr. John Bailey, Thesis title undeclared.
- 10/00 – 11/01 MSc Committee Advisor, Mr. John Bailey, Thesis title: “Geomorphological Evolution of the 1991 Mount Pinatubo Ignimbrite Sheet”.
- 10/00 – 12/00 Ph.D. Committee Member, Mr. Ronnie Torres, Thesis title: “Vent-Derived and Deposit-Derived Pyroclastic Flows and Ignimbrites: Examples at Mount Pinatubo, Philippines”.

- 01/01 - 07/01 Ph.D. Thesis Advisor, Mr. Ronnie Torres, Thesis title: “Vent-Derived and Deposit-Derived Pyroclastic Flows and Ignimbrites: Examples at Mount Pinatubo, Philippines”.
- 12/01 – 12/05 Ph.D. Thesis Advisor, Mr. John Bailey, “The Evolution of Dynamic Volcanic Landscapes”.
- 04/03 – 07/06 Ph.D. Committee Member Elizabeth Barrett, thesis title “The Assembly of Massive Galaxy Clusters: A Joint X-ray—Optical Study”.
- 09/03 – 11/08 Ph.D. Thesis Advisor, Ms. Aisha Morris. These title “Topographic and geomorphologic analyses of volcanic and impact-related landforms on Earth and Mars”.
- 2015 - 2016 Chair, Comprehensive Committee for Ms. Estelle Bonny.
- 2017 – 7/18 Ph.D. Committee Member, Ms. Estelle Bonny. “Multi-Decadal Space-based Observations of Basaltic Effusive Eruptions from MODIS Infrared Data”
- 2017 – 3/18 Ph.D. Committee Member, Ms. Marissa Cameron. “Morphological Mapping and Tidal Stress Modeling of Strike-Slip Faults on Ganymede”.
- 2017 – 4/18 Master Committee Member, Mr. Nick Turner “Lava Flow Hazard Prediction and Monitoring with Unmanned Aerial Systems: Case Studies from the 2014 – 2015 Pahoehoe Lava Flow Crisis, Hawaii”.

#### **UNDERGRADUATE STUDENT MENTORING**

- 1990 - 1991 B.Sc. Honors Advisor, Ms. Paraluman Stice.
- Fall 1999 Mentor for Hawaii Space Grant Undergraduate Trainee, Ms. Georgiana Young. “Computer Software for Planetary Geologic Studies”
- Sp./Fall 2000 Mentor for Hawaii Space Grant Undergraduate Fellow, Ms. Georgiana Young. “Analysis of the Olympus Mons Aureole Materials Using Mars Global Surveyor Data”
- Spring 2003 Mentor for Hawaii Space Grant Undergraduate Fellow, Ms. Jennifer Kawata. “Planetary Science - Arsia Mons volcano, Mars”.
- Fall’06 – Sp’07 Mentor for Hawaii Space Grant Undergraduate Fellow, Mr. Alexander Ambard. “Study of Fluvial Channels Around Olympus Mons, Mars”
- Sp.’12 – Sp.’13 Mentor for Hawaii Space Grant Undergraduate Trainee, Mr. Brayden Van Ackeren “Topographic Analysis of Tooting Crater, Mars”
- Sp.’14 – F.’14 Mentor for Hawaii Space Grant Undergraduate Trainee, Mr. Kiha Sai, “Geology of the Moons of Jupiter and Saturn”
- Fall 2014 Mentor, Ms. Bonnie Pang, McKinley High School student. “Beach erosion in Kailua, Hawaii”.
- Sp. ’15 Mentor for Hawaii Space Grant Undergraduate Trainee, Ms. Rachel Chang, “Investigating Sea-Level Rise and Shoreline Change with Satellites”.
- Sp. ’15 – Sp.’16 Mentor for Global Environmental Studies undergraduate, Mr. Eduardo Vaz Guimarães “Satellite Observations of Forest Fires in Brazil”.
- Fall ’15 – S. ’17 Mentor for Global Environmental Studies undergraduate, Ms. Rachel Chang, “Investigating Sea-Level Rise and Shoreline Change with Satellites”.

#### **COURSES TAUGHT AT UNIVERSITY OF HAWAII**

GG 101 Introductory Geology (Spring 1983)

GG 105 Voyage Through the Solar System (Spring 2004)

GG 105 Voyage Through the Solar System (Spring 2005)  
 GG 105 Voyage Through the Solar System (Spring 2006)  
 GG 108 Earth from Space (team taught, Spring 1992)  
 GG 200 Geology of the Hawaii Islands (with P. Fryer) (Fall 1988)  
 GG 366 Planetary Geology (Spring 1987)  
 GG 366 Planetary Geology (Spring 1988)  
 GG 366 Planetary Geology (Spring 1989)  
 GG 399 Planetary Geology Lab (Spring 1989)  
 GG 399 Directed Reading in Geologic Mapping of Mars (Spring/Fall 1988)  
 GG 399 Directed Reading in the Curiosity Mars Rover (with E. Gaidos) (Fall 2012)  
 GG466 Planetary Geology: Volcanism on Mars (Spring 2018)  
 GG 665 Readings in Planetary Science (Fall 1988)  
 GG 665 Reading in Planetary Science (Spring 1994)  
 GG 665 Planetary Seminar (Spring 1998)  
 GG 665 Proposal Writing (Fall 1996)  
 GG 665 Proposal Writing (Fall 2002)  
 GG 666 Planetary Surface Processes (Fall 1987)  
 GG 666 Planetary Surface Processes (Fall 1989)  
 GG 666 Planetary Surface Processes (Remote Sensing of Active Volcanism) (Fall 1997)  
 GG 666 Planetary Surface Processes (Planetary Geomorphic Mapping) (Fall 1998)  
 GG 666 Planetary Surface Processes (Planetary Volcanology) (Fall 2001)  
 GG 666 Planetary Surface Processes (Geology of Planetary Landings Sites) (Fall 2016)  
 GG 667 Planetary Seminar - Proposal Writing (Spring 1987)  
 GG 670b Geology of Mars (Fall 1990)  
 GG 670b Geology of Mars (Fall 1995)  
 GG 670b Geology of Mars (Fall 1999)  
 GG 699 Directed Reading in Image Processing Techniques (Fall 1983)  
 GG 699 Directed Reading in Archean Geology (Spring 1984)  
 GG 699 Directed Reading in Biophysical Remote Sensing (Spring 1987)  
 GG 711(3) Tech. & Applic. of Planetary Remote Sensing (Fall 1984)  
 GG 711(3) Geology of Mars (Spring 1985)  
 GG 711(3) Planetary Surface Processes (with B.R. Hawke) (Spring 1983)  
 GG 711(3) Remote Sensing Methods (with T. B. McCord) (Fall 1986)  
 GG 711 (1) Proposal writing (Spring 1991)  
 GG 771 (2) Geology of Outer Planet Satellites (Spring 1993).  
 OCN 499 Intensive writing (Fall 2015).

### RESEARCH PROJECTS AT UNIVERSITY OF HAWAII

1982 - 1983	<u>Principal Investigator</u> “Analysis of Constructional Coastal Environments Using Space Imaging Radars”, NASA Non-Renewable Resources Program. \$15,000.
1983 - 1984	<u>Principal Investigator</u> “Characterization of Seamount Geology by Image Processing of SeaMARC II data”, Office of Naval Research, Marine Geology Program. \$20,000.
1983 - 1984	<u>Principal Investigator</u> “Analysis of Martian Surface Materials Using Radar, Thermal and Color Data”, NASA Planetary Geology Program. \$50,000.
1983 - 1986	<u>Principal Investigator</u> “Terrain Analysis of Pioneer Venus Altimetry Data”, NASA Pioneer Venus Program. \$49,000.

- 1984 - 1986 Principal Investigator "Space Shuttle Radar (SIR-B) studies of volcanic and deltaic environments". NASA Office of Space Science and Applications. \$165,000.
- 1984 - 1985 Principal Investigator "A Quantitative Analysis of Ocean-Bottom Features". Office of Naval Research, Marine Geology Program. \$35,000.
- 1984 - 1986 Principal Investigator "An analysis of Volcanic Terrains on Mars, the Earth and Io". NASA Planetary Geology Program. \$96,000.
- 1984 - 1986 Co-Investigator "A Study of Long Lava Flows on Mauna Loa" (PI: G. P. L. Walker). NASA Planetary Geology Program. \$35,000.
- 1986 - 1987 Principal Investigator "A Theoretical and Morphological Analysis of Explosive Volcanism on Mars, with Implications for Climatic Change". NASA Planetary Geology Program. \$32,000.
- 1987 - 1989 Principal Investigator "Structural and Volcanic Evolution of Martian and Terrestrial Shield Volcanoes". NASA Planetary Geology Program; Mars Evolution of Volcanism, Tectonism and Volatiles Project. \$135,000.
- 1987 - 1990 Principal Investigator "Structure and Style of Emplacement of volcanic Materials: Testing a Model for the Morphologic Evolution of Volcanoes in the Galapagos". NASA Land Processes Geology Program. \$277,000.
- 1988 Principal Investigator "Radar, Sonar and Numerical Analysis of Volcanic and other Landforms on the Moon and Earth (with analogs for Venus)". NASA Planetary Geology Program. \$42,000.
- 1988 - 1990 Principal Investigator "Geologic Mapping in N.W. Elysium Planitia, Mars". NASA Planetary Geology & Geophysics MGM Program. \$43,000.
- 1989 - 1991 Principal Investigator "Geomorphic Analysis of High Resolution Images of Mars and the Moon". NASA Planetary Geology Program. \$120,000.
- 1989 - 1991 Principal Investigator "Planetary Geosciences Facility Support", NASA Planetary geology and Geophysics Program. \$170,000.
- 1989 - 1997 Principal Investigator "Eruptive Styles of basaltic Shield Volcanoes from the SIR-C/X-SAR Radar". NASA Office of Earth Sciences and Applications. \$770,000.
- 1989 - 2000 Principal Investigator "A Global Assessment of Active Volcanism, Volcanic Hazards, and Volcanic Inputs to the Atmosphere from the Earth Observing System". NASA Office of Earth Sciences and Applications. \$5,775,000.
- 1990 - 1994 Principal Investigator "Monitoring of Volcanoes in Hawaii and Alaska using AVHRR and ERS-1 Satellite Data". NASA Geology and Geophysics Branch. \$195,000.
- 1990 - 1997 Principal Investigator "Hawaii Space Grant College". NASA Education Division. \$2,640,000.
- 1991 - 1994 Principal Investigator "Volcanism in Alaska and Aleutians from ERS-1". NASA Office of Earth Science Division. \$90,000.
- 1991 - 1994 Principal Investigator "Temporal change on volcanoes, and the interaction between volcanoes and the Earth System". NASA Global Change Fellowship Program. \$66,000.
- 1991 - 1994 Principal Investigator "Quantitative Analysis of Small Volcanoes on Mars and Venus". NASA Planetary Geology and Geophysics Program. \$126,000.
- 1991 - 1994 Principal Investigator "Planetary Geosciences Facility Support", NASA Planetary Geology and Geophysics Program. \$270,000.
- 1992 - 1994 Principal Investigator "JERS-1 Radar Verification Program", NASDA.



- 1993 – 1994 Principal Investigator “The application of remote sensing data to GIS studies of land use, land cover, and vegetation mapping in the State of Hawaii”, NASA Applications Program via UH Office of Technology Transfer and Economic Development. \$25,000.
- 1993 - 1995 Principal Investigator “Evolution of Volcanoes and their Summit Calderas on Venus”, NASA Venus Data Analysis Program. \$25,000.
- 1993 - 1996 Principal Investigator “Remote Monitoring of Volcanoes in Hawaii Using Satellite, Airborne, and Field Data”. NASA Geology and Geophysics Branch. \$195,000.
- 1994 Principal Investigator “A Position Plan for the Hawaii International Center for Imaging and Information Management”, Dept. Business and Economic Development, Office of Space Industry, State of Hawaii. \$15,000.
- 1994 - 1997 Principal Investigator “Radar Studies of Decade Volcanoes from ERS-1 and ERS-2”, ESA. Data only grant.
- 1994 - 1997 Principal Investigator “NASA Digital Image Data Distribution for Education, Public Access and Tourism in Hawaii: A Model System”, NASA Cooperative Agreement Notice, NASA Code R. \$900,000.
- 1994 - 1997 Principal Investigator “Geomorphology of Volcanoes on Mars and Io”. NASA Planetary Geology Program. \$150,000.
- 1994 - 1999 Co-Investigator “Radiative Physical and Chemical Properties of Stratospheric Aerosols from the ADEOS Mission”, F. Prata (CSIRO, Australia) Principal Investigator. NASDA, Japan. Data only grant.
- 1995 - 1998 Principal Investigator “Analysis of Digital Topography of Volcanoes”. NASA Office of Mission to Planet Earth. \$330,000.
- 1995 - 1999 Principal Investigator “Mapping Hazardous Volcanoes with RADARSAT and Other Orbital Radars”. NASA Office of Mission to Planet Earth. \$78,000.
- 1998 – 2000 Principal Investigator “Deformation and Surface Change at Mauna Loa and Kilauea Volcanoes, Hawaii”. European Space Agency. Data only grant.
- 1998 - 2003 Principal Investigator “Post-Eruption Hazards at Mt. Pinatubo, the Philippines”. NASA Office of Earth Science. \$717,500.
- 1999 - 2000 Principal Investigator “Acting Program Scientist at the Pacific Disaster Center”. U.S. Army Corps. Engineers. \$63,750.
- 1999 – 2002 Principal Investigator “Monitoring of Active Volcanoes with ENVISAT”. European Space Agency. Data only grant.
- 2000 – 2003 Principal Investigator “Validation and Analysis of SRTM and VCL Data Over Tropical Volcanoes”. NASA Solid Earth & Natural Hazards Program. \$179,000.
- 2001 – 2004 Principal Investigator “Effects of Volcanoes on the Natural Environment”, NASA EOS Interdisciplinary Science Program. \$1,095,000.
- 2000 – 2003 Principal Investigator “The Diversity of Martian Volcanic Features as Seen in MOC Images and MOLA Topographic Data”. NASA Mars Data Analysis Program. \$182,700.
- 2000 - 2003 Principal Investigator. “The Changing Face of a Volcanic Landscape System”, Advisor for Mr. John Bailey’s NASA Global Change Fellowship. \$66,000 .
- 2001 Principal Investigator “Pacific Disaster Center Chief Scientist”, ACS Corporation (DoD funded). \$51,221.

- 2002 Co-Investigator (Scott Rowland, PI) “7<sup>th</sup> NASA Planetary Volcanology Field Workshop”. NASA Planetary Geology and Geophysics Program. \$48,000.
- 2003 - 2004 Principal Investigator “Remote Sensing Data Products for Disaster Managers in the Western Pacific”. The Raytheon Corporation. \$409,000.
- 2003 - 2004 Principal Investigator. “The Diversity of Martian Volcanic Features as Seen in the MOC, THEMIS and MOLA data sets”. NASA Mars Data Analysis Program. \$79,420.
- 2003 - 2005 Principal Investigator. “Studies of Martian Impact Craters Using MGS and Odyssey Data”. NASA Mars Data Analysis Program. \$137,784.
- 2003 - 2006 Principal Investigator. “Analysis and Validation of SRTM Data Over Volcanoes”. NASA Solid Earth & Natural Hazards Program. \$231,000.
- 2003 Principal Investigator “Remote Sensing Data Products for Disaster Managers in the Western Pacific”. The Raytheon Corporation. \$175,000.
- 2005 – 2008 Principal Investigator “Geologic Mapping of the Caldera of Olympus Mons Caldera, Mars”. NASA Planetary Geology and Geophysics Program. \$102,146.
- 2005 – 2008 Principal Investigator “Vents, Flows, and Fluvial features on Martian Volcanoes”. NASA Mars Data Analysis Program. \$180,000.
- 2006 – 2009 Principal Investigator “Geologic Mapping of Tooting Crater, Mars”. NASA Planetary Geology and Geophysics Program. \$343,575.
- 2013 – 2016 Principal Investigator “Geologic Mapping of Hrad Vallis, Mars: Investigating the hypothesized occurrence of recent mud flows on Mars during the Amazonian Era”. NASA Planetary Geology and Geophysics Program. \$345,000.
- 2015 – 2017 Principal Investigator “Pacific Regional Planetary Data Center”. NASA, \$137,642.
- 2015 – 2018 Co-Investigator “Evaluating crater shape variations on the Moon and Mars”. NASA Solar Systems Workings. PI: Buck Sharpton (LPI) \$376,979.
- 2015 – 2019 Principal Investigator “Developing a capability at the University of Hawaii for multiple UAV observations of active volcanism”. NASA EPSCoR. \$749,696.
- 2016 – 2018 Co-Investigator “The ‘Ike Wai Project”, NSF EPSCoR. PI: Gwen Jacobs (UH). \$8,000,000.
- 2017 – 2019 Principal Investigator “Inventory Assessment at the Hawaii Regional Planetary Data Facility”. NASA. \$259,090.

## FIELD EXPERIENCE

- 1975 Piton de la Fournaise, Reunion Island, Indian Ocean. Mapping lava flow units (part of thesis research).
- 1975 Mount Etna and Stromboli volcanoes, Italy. Royal Society of London Field Trip.
- 1977 Piton del Teide, Canary Islands. Helped lead a field trip for undergraduate students.
- 1982 - present (a) Kilauea Volcano, Hawaii. Geology of a basaltic shield volcano. In support of SIR-B, SIR-C/X-SAR, SRTM Space Shuttle Radar experiments.  
 (b) Thermal studies of active lava flows. Spectroradiometer measurements of thermal properties of lava flows in support of EOS research.  
 (c) Analysis of digital topographic data from interferometric radars.

- (d) Planetary analogs  
 (e) Measuring volcanic plumes with drones
- 1987 Mariana Fore-Arc — *Alvin* submersible. Diving to ~3,400 meters to explore the morphology of submarine volcanoes in support of research on terrestrial analogs to volcanoes and lava flows on Venus.
- 1988 Atacama Desert, NE Chile. Exploration of massive ignimbrite deposits in support of remote sensing of volcanoes basic research.
- 1988 Iceland. Morphology of sub-glacial volcanics. Use of airborne laser for topographic mapping. In support of planetary geology research.
- 1989 Galapagos Islands. Morphology of basaltic shield volcanoes. Precursor work for SIR-C Shuttle Radar Experiment.
- 1990 Craters of the Moon National Monument, Idaho. Collection of topographic data for lava flows in support of research devoted to understanding radar scattering from rough surfaces.
- 1992 Antarctica. Member of 1992/1993 season's Meteorite Collection Team. 10 weeks on the ice searching for meteorites close to Griffen Nunatak and Recklin Moraine.
- 1996 Queensland, Australia. Participated in the post-Chapman Conference field trip to the long lava flows of NE Queensland. Part of a planetary geology study of long lava flows on Mars.
- 1997 Pinatubo, Philippines. Initiated collaborative research with PHIVOLCS on the uses of remote sensing data for the analysis of lahars produced following the 1991 eruption. Part of the NASA PacRim investigations.
- 1998 Galapagos Islands. Initiated collaboration with the Darwin Research Station on the uses of satellite remote sensing for the study of the Islands.
- 1999 Pinatubo, Philippines. Analysis of the 1991 ignimbrite deposit on the western flank of volcano as part of field validation of satellite data sets in the visible, thermal and microwave portions of the spectrum for the analysis of geologic hazards.
- 2002 Masaya volcano, Nicaragua. Preliminary survey of sulfur dioxide emissions, and the impact that they have on the environment.

#### **NATIONAL AWARDS**

Antarctic Service Medal, National Science Foundation. For cumulative service in excess of 30 days during the 1992 – 1993 ANSMET Field Season.