Publications of the Hawaii Institute of Geophysics and Planetology
University of Hawaii
2013

1. Abedin, M. N., A. T. Bradley, S. Ismail, **S. K. Sharma**, and S. P. Sandford (2013). Compact remote multisensing instrument for planetary surfaces and atmospheres characterization, *Appl. Optics*, 52, 3124-3126.
2. **Acosta, T. E, E. R. D. Scott**, **S. K. Sharma**, and **A. K. Misra** (2013). The pressures and temperatures of meteorite impact: Evidence from micro-Raman mapping of mineral phases in the strongly shocked Taiban ordinary chondrite, *Amer. Mineral.* 98, 859–869.
3. Andrews-Hanna, J.C. and 18 others, including **G. J. Taylor** (2013). Ancient igneous intrusions and early expansion of the Moon revealed by GRAIL gravity gradiometry. *Science* 339, 675, doi: 10.1126/science.1231753.
4. **Ballmer, M.D**., G. Ito, **C. J. Wolfe**, and S. C. Solomon (2013). Double layering of a thermochemical plume in the upper mantle beneath Hawaii, *Earth Planet. Sci. Lett*., 376, 155-164, 2013.
5. **Ballmer, S**., **C. J. Wolfe**, P. G. Okubo, M. M. Haney, and C. H. Thurber (2013). Ambient seismic noise interferometry in Hawaii reveals long-range observability of volcanic tremor. *Geophys. J. Int*., 194, 512-523, doi:10.1093/gji/ggt112.
6. **Benediktsdóttir, Á., R. Hey, F. Martinez** & Á. Höskuldsson (2013). Evolution of the Reykjanes Ridge during the past 15 Ma, Published on line by MantlePlumes.Org. http://www.mantleplumes.org/RR_VSRs.html.
7. Bennett, C. J., S. J. Brotton, B. M. Jones, **A. K. Misra**, **S. Sharma**, R. I. Kaiser (2013). A Novel High Sensitivity Raman Spectrometer to Study Pristine and Irradiated Interstellar Ice Analogs. *Anal. Chem.* 85, 5659–5665.
8. Besse, S., Y. Yokota, J. Boardman, R. Green, J. Haruyama, **P. Isaacson**, U. Mall, T. Matsunaga, M. Ohtake, C. Pieters, M. Staid, J. Sunshine, and S. Yamamoto (2013). One Moon, many measurements 2: Photometric corrections, *Icarus*, *226(1)*, 127-139, doi:10.1016/j.icarus.2013.05.009.
9. Bonal, L., C.M. O'D Alexander, **G.R. Huss, K. Nagashima**, E. Quirico and P. Beck (2013). Hydrogen isotopic composition of the water in CR chondrites. Geochim. *Cosmochim. Acta* 106, 111 – 113.
10. Bradley J.P., Ishii H.A., **Gillis-Davis J.J**., Ciston J., Nielsen M.H., Bechtel H.A. and Martin M.C. (2013). Detection of solar wind-produced water in irradiated rims on silicate minerals. *Proc. National Academy of Science*, 111 (5), 1732-1735, doi:10.1073/pnas.1320115111.
11. Curtis, A.C., C.G. Wheat, **P. Fryer**, C.L. Moyer (2013). Mariana forearc serpentine mud volcanoes harbor novel communities of extremophilic Archaea, *Geomicrobiology Journal*, 30, 430 – 441.
12. Davies, A., Chien, S., Doubleday, J., Tran, D., Thordarson, Gudmundsson, M., Hoskuldsson, A., Jakobsdottir, S., **Wright, R.**, and Mandl, D. (2013). Observing Iceland's Eyjafjallajökull 2010 Eruptions with the Autonomous NASA Volcano Sensor Web. *J. Geophys. Res. (Solid Earth)*, 118, 1–21, doi:10.1002/jgrb.50141.
13. de Groot, L.V., A.G. Biggin, M.J. Dekkers, C.G Langereis and **E. Herrero-Bervera (**2013). Rapid regional perturbations to the recent global geomagnetic decay

revealed by a new Hawaiian record, *Nature communications*, pages 1-7, | 4:2727 | DOI: 10.1038/ncomms3727. SOEST# 9016 and HIGP# 2018.

14. **Dera, P.**, Finkelstein G., Duffy, T.S., Downs R.T., Meng Y., Prakapenka V., Tkachev S. (2013). Metastable high-pressure transformations of orthoferrosilite Fs_{82}. *Physics of Earth and Planetary Interiors* 181, 2914-2917.
15. **Dera P**., Zhuravlev K., Prakapenka V., Rivers M.L., Finkelstein G.J., Grubor-Urosevic O., Tschauner O. Clark S.M. and Downs R.T. (2013). High-pressure single-crystal micro- X-ray diffraction (SCXRD) analysis with GSE_ADA/RSV software. *High Pressure Research* 33, 466 – 484.
16. Dhingra, D., C.M. Pieters, J.W. Head and **P.J. Isaacson** (2013). Large mineralogically distinct impact melt feature in Copernicus crater – Evidence for retentionof compositional heterogeneity. *Geophys. Res. Lttr*. 10, 1-6, doi: 10.1002/grl.50255.
17. **Fagents, S.A.**, T.K.P. Gregg, and R.M.C. Lopes (eds.) (2013). *Modeling Volcanic Processes: The Physics and Mathematics of Volcanism*, Cambridge University Press, 421 pp.
18. **Fagents, S.A.,** T.K.P. Gregg, and R.M.C. Lopes (2013). *Chapter 1. Introduction*. In *Modeling Volcanic Processes: The Physics and Mathematics of Volcanism*, S.A. Fagents, R.M.C. Lopes, and T.K.P. Gregg (eds.), Cambridge University Press, p. 1 – 4.
19. **Fee, D.,** R. Waxler, J. Assink, Y. Gitterman, J. Given, J. Coyne, P. Maille, **M. Garces,** D. Drob, D. Kleinert, R. Hofstetter, P. Grenard (2013). Overview of the 2009 and 2011 Sayarim infrasound calibration experiments. *J. Geophys. Res*., 118, 6122 – 6143.
20. **Foster, J**., J. Kealy, T. Cherubini, S. Businger, Z. Lu, and M. Murphy (2013). The Utility of Atmospheric Analyses for the Mitigation of Artifacts in InSAR, *J. Geophys. Res*., *118*, 11pp, doi: 10.1002/jgrb.50093.
21. **Foster, J. H.,** A. R. Lowry, and **B. A. Brooks** (2013). Fault frictional parameters and material properties revealed by slow slip events at Kilauea volcano, Hawai‘i, *Geophys. Res. Lett.*, *40*, 6059–6063, doi: 10.1002/2013GL058234.
22. **Garcés, M. A.**, D. Fee, and R. Matoza (2013). Volcano Acoustics, Chapter in *Modeling Volcanic Processes: The Physics and Mathematics of Volcanism*. Edited by Fagents, S.A., R.M.C. Lopes, and T.K.P. Gregg (eds.), Cambridge University Press, p. 359 - 383.
23. Glennie, C., **B. Brooks, T. Ericksen**, D. Hauser, K. Hudnut, **J. Foster**, J. Avery (2013). Compact multipurpose mobile laser scanning system – initial tests and results. *Remote Sens*. 5, 512 – 538.
24. **Herrero-Bervera, E** and E. Canon-Tapia (2013). On the directional geomagnetic signature of the Pringle Falls excursion recorded at Pringle Falls, Oregon, USA, pages 261-278, In: Jovane, L., Herrero-Bervera, E., Hinnov, L. A. & Housen, B. A. (eds) 2012. *Magnetic Methods and the Timing of Geological Processes*. Geological Society, London, Special Publications, 373, http://dx.doi.org/10.1144/SP373.12. The Geological Society of London 2012. SOEST# 8701 and HIGP # 1980.
25. **Herrero-Bervera, E**., and L. Jovane (2013). On the palaeomagnetic and rock magnetic constraints regarding the age of IODP 325 Hole M0058A, pages 279-

291, In: Jovane, L., Herrero-Bervera, E., Hinnov, L. A. & Housen, B. A. (eds) *Magnetic Methods and the Timing of Geological Processes*. Geological Society, London, Special Publications, 373, http://dx.doi.org/10.1144/SP373.19 # The Geological Society of London 2013. SOEST #8827 and HIGP # 1999.

26. **Hey, R.N.** (2013). Propagating Rifts and Microplates at Mid-Ocean Ridges, http://www.sciencedirect.com/science/article/pii/B978012409548903027X, in Elsevier's Science Direct online Reference Module in Earth Systems and Environmental Sciences, ed. S. Elias, ISBN: 978-0-12-409548-9.
27. Houghton, B.F., D.A. Swanson, J. Rausch, R.J. Carey, **S.A. Fagents**, and T.R. Orr (2013). Pushing the Volcanic Explosivity Index to its limit and beyond: Constraints from exceptionally weak explosive eruptions at Kilauea in 2008. *Geology*, doi:10.1330/G34146.1.
28. Hushur, A., **M.H. Manghnani**, Q. Williams and D.B. Dingwell (2013). High-temperature Brillouin scattering study of haplogranitic melts: The effects of added $F2O_{-1}$, K_2O, Na_2O and Li_2O on relaxation and elasticity. *Am. Mineral*. 98, 367 – 375.
29. **Isaacson, P.J**., N.E. Petro, C.M. Pieters, S. Besse, J.W. Boardman, R.N. Clark, R.O. Green, S. Lundeen, E.Malaret, S. McLaughlin, J.M. Sunshine and L.A. Taylor (2013). Development, importance, and effect of a ground truth correction for the Moon Mineralogy Mapper reflectance dataset. *J. Geophys. Res*. 118, doi: 10.1002/jgre.20048.
30. Jadhav M., M Pignatari, F. Herwig, E. Zinner, R. Gallino and **G. R. Huss** (2013). Relics of ancient Post-AGB stars in a primitive meteorite. *Astrophys. J. Lett.*, 777, L27 (HIGP #2019; SOEST #9028).
31. Jia, R., G. Amulele, **P. V. Zinin**, S. Odake, P. Eng, V. Khabashesku, W. L. Mao, **L. C. Ming** (2013). Elastic and inelastic behavior of graphitic C_3N_4 under high pressure". *Chem. Phys. Lett*., 575, 67-70.
32. Jovane, L., **E. Herrero-Bervera**, L.A Hinnov and B.A. Housen (2013). *Magnetic Methods and the Timing of Geological Processes,* Published by the Geological Society of London, Special Publication 373, 402 pp., ISBN 9789-1-86239-354-7, ISSN 0305-8719.
33. Jovane, L., Hinnov, L., Housen, B.A., and **E. Herrero-Bervera (**2013). Magnetostratigraphy: Only a dating tool? In: Magnetic methods and timing of geological processes, pages 1-12 In: Jovane, L., Herrero-Bervera, E., Hinnov, L. A. and Housen, B. A. (eds.) *Magnetic Methods and the Timing of Geological Processes*. Geological Society, London, Special Publications, 373.
34. **Koeppen, W.C**., Patrick, M., Orr, T., Sutton, J., Dow, D., and **Wright, R.** (2013). Constraints on the partitioning of Kilauea's lavas between surface and tubed flows, estimated from infrared satellite data, sulfur dioxide flux measurements, and field observations. *Bull. Volcanol.*, 75, doi:10.1007/s00445-013-0716-3
35. **Krot A. N., Keil K., Scott E. R. D.,** Goodrich C. A., and Weisberg M. K. Classification of meteorites and their genetic relationships. In *Meteorites, Comets and Planets* (ed. A.M. Davis) Vol. 1, *Treatise on Geochemistry Second edition (*eds. K.K. Turekian and H.D. Holland), 1 - 63, Elsevier, Oxford.
36. **Lautze, N**., Taddeucci, J., Andronico, D., Houghton, B., Niemeijer, A., and Scarlato, P. (2013). Insights into explosion dynamics and the production of ash at

Stromboli from samples collected in real-time, October 2009, in Rose, W.I., Palma, J.L., Delgado Granados, H., and Varley, N., eds., Understanding Open-Vent Volcanism and Related Hazards. *Geol. Soc. Amer. Special Paper* 498, p. 125–139, doi:10.1130/2013.2498(08).

37. Lawrence, S.J. and 13 others, including **B. R. Hawke** and **T. A. Giguere** (2013). LRO observaitons of morphology and surface roughness of volcanic cones and labate lava flows in the Marius Hills. *J. Geophys. Res.*, 118, 1 – 20, doi:10.1002/jgre.20060.
38. Lopes, R.M.C., **S.A. Fagents**, K.L. Mitchell, and T.K.P. Gregg (2013). *Chapter 17. Planetary volcanism.* In *Modeling Volcanic Processes: The Physics and Mathematics of Volcanism*, S.A. Fagents, R.M.C. Lopes, and T.K.P. Gregg (eds.), Cambridge University Press, p. 384 -413.
39. Manville, V., J.J Major, and **S.A. Fagents**. (2013). *Chapter 14. Modeling lahar behavior and hazards*. In *Modeling Volcanic Processes: The Physics and Mathematics of Volcanism*, S.A. Fagents, R.M.C. Lopes, and T.K.P. Gregg (eds.), Cambridge University Press, 300 – 330.
40. Matoza, R. S., P. M. Shearer, G. Lin, **C. J. Wolfe**, and P. G. Okubo (2013). Systematic relocation of seismicity on Hawaii Island from 1992 to 2009 using waveform cross-correlation and cluster analysis. *J. Geophys. Res.*, 118, 2275-2288, doi:10.1002/jgrb.50189.
41. Melchiorre E., **G. R. Huss**, and A. Lopez (2013). Carbon and hydrogen stable isotope microanalysis and data correction for rare carbonate minerals: case studies for stichtite ($Mg_6Cr_2[(OH)_{16}|CO_3]\cdot H_2O$) and malachite ($Cu_2CO_3(OH)_2$), *Chemical Geology*, 367, 63-69.
42. Montgomery-Brown, E., C. Thurber, **C. J. Wolfe**, and P. Okubo (2013). Slow slip and tremor search at Kilauea Volcano, Hawaii, *Geochem., Geophys., Geosyst.*, doi:10.1002/ggge.20044.
43. Moriarty, D. P., C. M. Pieters, and **P. J. Isaacson** (2013). Compositional Heterogeneity of Central Peaks within the South Pole – Aitken Basin. *J. Geophys. Res.*, 118, 2310 – 2322, doi:10.1029/2013JE004376.
44. Murphy, S, **Wright, R.**, Oppenheimer, C., and Souza Filho, C. (2013). MODIS and ASTER synergy for characterizing volcanic activity. *Remote Sensing of Environment*, 131, 195-205.
45. Odake, S., **P. V. Zinin**, **L. C. Ming** (2013). Raman Spectroscopy of Melamine at High Pressures up to 60 GPa". *High Pressure Research*, 33**(**2) 392-398.
46. Odake, S., **P. V. Zinin**, E. Hellebrand, V. Prakapenka, Y. Liu, S. Hong, K. Burgess, **L. C. Ming** (2013). Rehybridization and Formation of the Amorphous BC_8 Allotrope under High Pressure by Raman Scattering. *Journal of Raman Spectroscopy*, DOI: 10.1002/jrs.4372.
47. Ohtake, M., C. M. Pieters, **P. Isaacson**, S. Besse, Y. Yokota, T. Matsunaga, J. Boardman, S. Yamomoto, J. Haruyama, M. Staid, U. Mall, and R. O. Green (2013). One Moon, Many Measurements 3: Spectral reflectance, *Icarus, 226(1)*, 364-374, doi:10.1016/j.icarus.2013.05.010.
48. Pieters, C. M., J. Boardman, M. Ohtake, T. Matsunaga, J. Haruyama, R. O. Green, U. Mall, M. Staid, **P. Isaacson**, Y. Yokota, S. Yamamoto, S. Besse, and J. Sunshine (2013), One Moon, Many Measurements 1: Radiance Values, *Icarus*, *226(1)*, 951-

963, doi:10.1016/j.icarus.2013.07.008.

49. **Rumpf, ME., S.A. Fagents**, I.A. Crawford, and K.H. Joy (2013). Numerical modeling of lava-regolith heat transfer on the Moon and implications for the preservation of implanted volatiles. *J. Geophys. Res.* 118, no. 3, p. 382 – 397. DOI: 10.1029/2012JE004131.
50. Schrader D. L., H. C. Connolly, Jr., D. S. Lauretta, **K. Nagashima, G. R. Huss**, J. Davidson, and K. J. Domanik (2013). The formation and alteration of the Renazzo-like carbonaceous chondrites II: linking O-isotope composition and oxidation state of chondrule olivine. *Geochim. Cosmochim. Acta* **101**, 302-327.
51. **Scott E. R. D**. and **Krot A. N**. (2013). Chondrites and their components. In *Meteorites, Comets and Planets* (ed. A.M. Davis) Vol. 1, *Treatise on Geochemistry Second edition* (eds. K.K. Turekian and H.D. Holland), 65 – 137, Elsevier, Oxford.
52. Seton, M., Muller, R.D., Zahirovic, S., Gaina, C., Torsvik, T., Shephard, G., Talsma, A., Gurnis, M., Turner, M. and **M.T. Chandler** (2013). Global Continental and Ocean Basin Reconstructions since 200 Ma, Earth Sci. Rev., 113, issues 3-4, p. 212 – 270.
53. Shirzaei, M., R. Bürgmann, **J. Foster**, T. Walter, and **B. Brooks** (2013). Aseismic deformation along the Hilina fault system, Hawaii, revealed by wavelet analysis of InSAR and GPS time series, *Earth Planet. Sci. Lett., 376*, 12-19, doi: 10.1016/j.epsl.2013.06.011.
54. Song, E., J.L. Bandfield, **P.G. Lucey**, B.T. Greenhagen, and D.A. Paige. (2013). Bulk mineralogy of lunar crater central peaks via thermal infrared spectra from the Diviner Lunar Radiometer: A study of the Moon;s crustal composition at depth. *J. Geophys. Res*., v. 118, No. 4, p. 689 - 707, doi: 10.1002/jgre.20065.
55. Stern, R.J., Y. Tamura, H. Masuda, **P. Fryer,** F. Martinez, O. Ishizuka, S. Bloomer (2013). How the Mariana Volcanic Arc Ends in the South. *Island Arc*, 22, 133-148.
56. Stopar, J. D., **Taylor, G. J.**, Velbel, M. A., Norman, M. D., Vicenzi, E. P., and Hallis, L. J. (2013) Element abundances, patterns, and mobility in Nakhlite Miller Range 03346 and implications for aqueous alteration. *Geochim. Cosmochim. Acta* **112**, 208-225. Doi: 10.1016/j.gca2013.02.024.
57. Strycker,P. D., Chanover, N.J., Miller, C., Hamilton, R.T., **Hermalyn, B**., Suggs, R. M., Sussman, M. (2013). Characterization of the LCROSS impact plume from a ground-based imaging detection. *Nature Communications* 4 (2620).
58. Takigawa A., S. Tachibana**, G. R. Huss, K. Nagashima**, K. Makide, **A. N. Krot** and H. Nagahara (2013). Morphology and crystal structures of solar and presolar Al_2O_3 in unequilibrated ordinary chondrites. *Geochim. Cosmochim. Acta*, 124, 309 – 327 (HIGP #2020; SOEST #9034).
59. **Taylor, G. J.** (2013). Bulk composition of Mars. *Chemie der Erde*, 73, 401 – 420.
60. **Trang, D, P.G. Lucey, J. J. Gillis-Davis,** J.T.S. Cahill, R.L. Klima, **P.J. Isaacson** (2013). Near-infrared optical constants of naturally occurring olivine and synthetic pyroxene as a function of mineral chemistry. *J. Geophys. Res*., 118, 708 – 732.
61. **Wallin, E.L**., T.C. Johnson, W.J. Greenwood and J.M. Zachara (2013). Imaging high stage river-water intrusion into a contaminated aquifer along a major river

corridor using 2-D time-lapse surface electrical resistivity tomography. Water Resources Research, 49, 1693 – 1708, doi: 10.1002/wrcr.20119.

62. Warren, P. H., and **Taylor, G. J**. (2013). The Moon. Chapter 2.8 in *Treatise on Geochemistry* (Vol. 1, Andrew Davis, Editor), 213-250. Elsevier-Pergamon, Oxford.
63. Wieczorek, M.A. and 15 others, including **G. J. Taylor** (2013). The crust of the Moon as seen by GRAIL. Science 339, 671, doi: 10.1126/science.1231530.
64. **Wright, R.,** Lucey, P., Crites, S., Horton, K., Wood, M., and Garbeil, H. (2013). BBM/EM design of the thermal hyperspectral imager: An instrument for remote sensing of Earth's surface, atmosphere and ocean, from a microsatellite platform. *Acta Astronautica*, 87, 182-192.
65. Yang, B., **P. Lucey**, T. Glotch (2013). Are large Trojan asteroids salty? An observational, theoretical, and experimental study. *Icarus*, 223, 359-366, doi:10.1016/j.icarus.2012.11.025.
66. Zhang L., Meng Y., **Dera P.,** Yang W., Mao W.L., Mao H.-K. (2013). Single-crystal structure determination of (Mg,Fe)SiO_3 postperovskite. *Proceedings of the National Academy of United States* 110, 6292 – 6295.