Joana R. C. Voigt

Contact Information

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Research Summary

I am a planetary geologist and interested in eruption products on Earth, Mars, the Moon, as well as on Icy Satellites. Connecting interior processes with remote sensing observations of volcanic terrains is vital for understanding the thermal dynamic evolution of planetary bodies. In particular, my research focuses on the relationship of emplacement dynamics of lava flow-fields and the final lava morphologies of effusive erputions.

Selected Research Experiences

2018 – Present **Lunar and Planetary Laboratory**, Universitiy of Arizona, Tucson
— Graduate Research Assistant

2016 – 2017 **German Aerospace Center – DLR**, Institute of Planetary Research Department of Planetary Geology, Berlin Adlershof
— Student Research Assistant

2015 – 2016 **Lunar and Planetary Laboratory** Universitiy of Arizona, Tucson
— Student Research Assistant

2011 – 2015 **German Aerospace Center – DLR**, Institute of Planetary Research, Department of Planetary Geology, Berlin Adlershof
— Student Research Assistant

2011 **German Aerospace Center – DLR**, Institute of Planetary Research, Department of Planetary Geology, Berlin Adlershof
— Internship

Education

2018 – Present **Graduate Program** in Planetary Sciences
University of Arizona, United States.
Working Dissertation Title: Flood Lava Flows on Earth and Mars.
— Advisor: Christopher W. Hamilton

May 2020 **Master of Sciences** in Planetary Sciences
University of Arizona, United States.

December 2017 **Master of Sciences** in Geological Sciences
Freie Universität Berlin, Germany.
Thesis Title: Investigating the Volcanic versus Aqueous Origin of the Surficial Deposits in Eastern Elysium Planitia, Mars.
— Advisor: Ralf Jaumann and Anne Bernhardt

2015 – 2016 **Exchange Graduate Program** in Planetary Science
The University of Arizona, United States, Lunar and Planetary Laboratory.
— Advisor: Christopher W. Hamilton

March 2015 **Bachelor of Science** in Geological Sciences
Freie Universität Berlin, Germany.
Thesis Title: Geomorphological and Topographical Investigations of Patterned Ground on Svalbard.
— Advisor: Ralf Jaumann and Stephan van Gasselt

Scholarships and Certificates

September 2020 – present	Future Investigators in NASA Earth and Space Science and Technology (FINESST)
April 2020	Zonta International Amelia Earhart Fellowship for the 2020–2021 academic year
April 2020	Galileo Circle Scholarship UA College of Science Galileo Circle Scholarships 2020
April 2018	Galileo Circle Scholarship UA College of Science Galileo Circle Scholarships 2018
April 2016	Lipman Research Award GSA (Geological Society of America) Research Grant 2016
2015 – 2016	German Academic Exchange Service (DAAD) Scholorship for Graduate – and PhD students 2015/16
May 2010	Deutsche Physikalische Gesellschaft e.V. (DPG) (German Society of Physics) DPG Abitur Award 2010

Teaching Experiences and Public Outreach

Spring 2019	Graduate Teaching Assistant for PTYS170A1 - Planet Earth: Evolution of the Habitable World. — Lecturer: Dr. Steve Kortenkamp
Fall 2018	Graduate Teaching Assistant for PTYS170B - The Universe and Humanity: Origin and Destiny. — Lecturer: Dr. Tommy Koskinen
Spring 2018	Graduate Teaching Assistant for PTYS206 - Our Golden Age of Planetary Exploration. — Lecturer: Dr. Jeff Andrews-Hanna
2018 – 2019	The Art of Planetary Science, University of Arizona.
2011 – 2017	Public outreach at Night of Science, Berlin.
2014	Public outreach at ILA Berlin Air Show.

Field Experience

2019	NASA GSFC (Goddard Space Flight Center)-led field campaign to Holuhraun 2014–2015 eruption site and Askja volcano, Iceland. Planetary analogs field trip to Zuni-Bandera Volcanic Field, U.S.
2018	NASA GSFC (Goddard Space Flight Center)-led field campaign to Holuhraun 2014–2015 eruption site and Kverkfjoll volcano, Iceland. Planetary analogs field trip to Death Valley, U.S.
2017	Geomorphology and sedimentology field trip: From source to sink, Pyrenees Spain.
2016	Volcanology field campaign to Holuhraun 2014–2015 eruption site, Iceland. Planetary analogs field trip to Chiricahuas and San Bernardino Valley, U.S.
2015	Field trip to evolution of planetary surfaces in the Flagstaff area, U.S. Planetary analogs field trip practicums to Salton Sea region, U.S.
2014	Field trip to Barberton Belt, Greenstone Belt and the Vredefort Impact Structure, South Africa.
2013	Sedimentology and Stratigraphy flied trip to Harz, Germany. Tectonic field trip to Erz Mountains, Germany. Mapping field trip in the Rheinisches Schiefergebirge, Germany.
2011	Impact geology field trip to Ries Crater, Germany. System of the Earth fielt trip to Harz, Germany.

Publications in Preparation

J. R. C. Voigt, C. W. Hamilton, G. Steinbrügge, Á. Höskuldsson, I. Jónsdottir, and T. Thordarson (in prep.): Linking Eruption Products to Effusion Rates: A Case Study at the 2014–2015 Holuhraun Lava Flow-Field in Iceland.

J. R. C. Voigt, C. W. Hamilton, G. Steinbrügge, and S. P. Scheidt, (in prep.): Roughness Characterization of the 2014–2015 Holuhraun Lava Flow-Field in Iceland: Implications for Facies Mapping and Remote Sensing.

Peer-Reviewed Publications

J. R. C. Voigt, C. W. Hamilton, S. P. Scheidt, U. Münzer, Á. Höskuldsson, I. Jónsdottir, and T. Thordarson (in Review): Geomorphological Characterization of the 2014–2015 Holuhraun Lava Flow-Field in Iceland.

E. Lev, C. W. Hamilton, **J. R. C. Voigt**, A. C. Stadermann, Y. Zhan, and C. D. Neish (in Review): Emplacement conditions of lunar impact melt flows.

2020 G. Steinbrügge*, **J.R.C. Voigt***, N. S. Wolfenbarger, C. W. Hamilton, K. M. Soderlund, D. A. Young, D. D. Blankenship, S. D. Vance, D. M. Schroeder, (2020): Brine Migration and Impact-Induced Cryovolcanism on Europa. Geophysical Research Letters, 47, e2020GL090797. 10.1029/2020GL090797. *Correspondance.

G. Steinbrügge, **J. R. C. Voigt** , D.M. Schroeder, A. Stark, M.S. Haynes, K. Scanlan, D.A. Young, C. Grima, H. Hussmann, D.D. Blankenship (2020): The Surface Roughness of Europa from Galileo Stereo Images. Icarus. Vol. 343, 113669. doi:10.1016/j.icarus.2020.113669.

2018 **J. R. C. Voigt**, and C. W. Hamilton (2018): Investigating the Volcanic versus Aqueous Origin of the Surficial Deposits in Eastern Elysium Planitia, Mars. Icarus. Vol. 309, 389–410, doi:10.1016/j.icarus.2018.03.009.

D. Tirsch, G. Erkeling, J. Bishop, **J. R. C. Voigt**, L. Tornabene, and R. Jaumann (2018): Geology of central Libya Montes, Mars: Aqueous alteration history from mineralogical and morphological mapping. Icarus. Vol. 314, 12–34, doi:10.1016/j.icarus.2018.05.006.

M. Golombek, M. Grott, G. Kargl, J. Andrade, J. Marshall, N. Warner, N. A. Teanby, H. E. Abarca, R. G. Deen, V. Ansan, E. Hauber, **J. Voigt**, R. Lichtenheldt, B. Knapmeyer-Endrun, A. Trebi-Ollennu, J. Singer, J. Maki, C. Schmelzbach, S. Kedar, D. Banfield, I. J. Daubar, D. Kipp, N. Muller, P. Lognonné, W. Folkner, S. Le Maistre, D. Mimoun, N. Murdoch, S. Piqueux, P. Delage, W. T. Pike, C. Charalambous, R. Lorenz, L. Fayon, S. Smrekar, A. Lucas, S. Rodriguez, P. Morgan, A. Spiga, T. Gudkova, Ö. Karatekin, M. Panning, R. Garcia, D. Giardini, U. Christensen, T. Nicollier, D. Sollberger, J. Robertsson, K. Ali, W. Kim, O. Khan, C. Sorice, P. Bailey, B. Kenda, M. Siegler, C. Vrettos, and W. B. Banerdt (2018): Geology and Physical Properties Investigations by the InSight Lander. Space Science Reviews. Vol. 214: 84, doi:10.1007/s11214-018-0512-7.

2015 R. Jaumann, D. Tirsch, E. Hauber, V. Ansan, G. Di Achille, G. Erkeling, F. Fueten, J. Head, M. G. Kleinhans, N. Mangold, G. G. Michael, G. Neukum, A. Pacificii, T. Platz, M. Pondrelli, J. Raack, D. Reiss, D. A. Williams, S. Adeli, D. Baratouxl, G. de Villiers, B. Foing, S. Gupta, K. Gwinner, H. Hiesinger, H. Hoffmann, L. Le Deit,L. Marinangeli, K.-D. Matz, V. Mertens, J. P. Muller, J. H. Pasckert, T. Roatsch, A. P. Rossi, F. Scholten, M. Sowe, **J. Voigt**, N. Warner (2015): Quantifying Geological Processes on Mars - Results of the High Resolution Stereo Camera (HRSC) on Mars Express. Planetary and Space Science. Vol. 112, 53–97, doi:10.1016/j.pss.2014.11.029.

2014 K. Krohn, R. Jaumann, D. Elbeshausen, T. Kneissl, N. Schmedemann, R. Wagner, **J. Voigt**, K. Otto, K. D. Matz, F. Preusker, T. Roatsch, K. Stephan, C. A. Raymond, C. T. Russell (2014): Asymmetric craters on Vesta: Impact on sloping surfaces. Planetary and Space Science. Vol. 103, 36–56, doi:10.1016/j.pss.2014.04.011.

2013 J. L. Bishop, D. Tirsch, L. L. Tornabene, R. Jaumann, A. S. McEwen, P. C. McGuire, A. Ody, F. Poulet, R. N. Clark, M. Parente, N. K. McKeown, J. F. Mustard, S. L. Murchie, **J. Voigt**, Z. Aydin, M. Bamberg, A. Petau, G. Michael, F. P. Seelos, C. D. Hash, G. A. Swayze, and G. Neukum (2013): Mineralogy and morphology of geologic units at Libya Montes, Mars: Ancient aqueously derived outcrops, mafic flows, fluvial features, and impacts. Journal of Geophysical Research: Planets. Vol. 118, 487–513, doi:10.1029/2012JE004151.

Conference Presentations

2021 D. Tirsch, et al. (2021). Spatial Trends in Mineral Abundances Across Tyrrhena Terra on Mars. Lunar and Planetary Science Conference LXXXIII-1193.

2021 M. D. Lane, et al. (2021). Identifying Two Distinct Olivine Compositions in Tyrrhena Terra and Libya Montes, Mars. Lunar and Planetary Science Conference LXXXIII-2550.

2020 J. Bishop, et al. (2020). Characterizing the Aqueous Geochemical History at Tyrrhena Terra, Mars. AGU2020-P079-0008.

2020 G. D. Tolometti, et al. (2020). Roughness Analysis of the Holuhraun Lava Flow-Field for Lunar and Martian Volcanic Analogs. AGU2020-P063-14.

2020 **J.R.C. Voigt**, et al. (2020). Platy Lavas at the Holuhraun 2014-2015 Lava Flow-Field as an Analog for Platy-Ridged Terrains on Mars. Lunar and Planetary Science Conference LXXXII-2358.

2020 **J.R.C. Voigt***, G. Steinbrügge* et. al. (2020). Melt Mobilization on Europa and Its Application to Manannan Crater. Lunar and Planetary Science Conference LXXXII-1392.*Correspondance.

2020 G. D. Tolometti, et al. (2020): Quantifying the Surface Roughness of the 2014–2015 Holuhraun Lava Flow Using Radar and LiDAR Remote Sensing. Lunar and Planetary Science Conference LXXXII-1417.

2019 G. Steinbrügge, et al. (2019): Reassessing Europa's Surface Roughness. European Planetary Science Congress 2019-865-2.

2019 S. S. Sutton, et al. (2019): The Onset of Degradation of the Holuhraun Spatter Rampart. GSA meeting-239-3.

2019 **J. R. C. Voigt** and C. W. Hamilton, (2019): Constraining Effusive Eruption Styles Throughout Elysium Planitia, Mars. Lunar and Planetary Science Conference L-2620.

2019 C. N. Achilles et al., (2019): Acidic Alteration in a Young Basaltic Lava Field: Sulfur-Bearing Products and Implications for Mars. Lunar and Planetary Science Conference L-3043.

2018 **J. R. C. Voigt**, et al. (2018): Facies Characterization of the 2014–2015 Holuhraun Lava Flow Field from Remote Sensing Data and Field Observations. AGU2018-P31H-3796.

2018 G. Steinbrügge, et al. (2018): Reassessing the surface roughness of Europa using Galileo stereo images. AGU2018-P42B-05.

2018 P. Whelley, et al. (2018): Analogs of Ice and Fire: Conducting Fieldwork in the Icelandic Highlands to Inform Volcanic Interpretations on Mars and Instrument Development for Europa. AGU2018-P31H-3795.

2018 C. A. Nixon, et al. (2018): Characterization of a Europa analog environment at Kverkfjöll, Iceland. AGU2018-P33G-3911.

2018 D. Tirsch, et al. (2018): Aqueous Alteration at Libya Montes Reveals Changing Geochemical Environments on Early Mars. European Planetary Science Congress 2018-365.

2018 **J. R. C. Voigt**, et al. (2018): A revised Geologic History for the Major Flow Units in Eastern Elysium Planitia, Mars. Lunar and Planetary Science Conference XLIX-1493.

2017 **J. Voigt**, et al. (2017): Holuhraun 2014–2015 Eruption Site on Iceland: A Flood Lava Analogue for Mars. European Planetary Science Congress 2017-848.

2017 **J. Voigt**, et al. (2017): Facies Relationships and Emplacement History of the 2014–2015 Eruption at Holuhraun, Iceland. EGU2017-8255.

2017 L. E. Bonnefoy, et al. (2017): Landscape Evolution after the 2014–2015 Lava Flow at Holuhraun, Iceland. Lunar and Planetary Science XLVIII-1652.

2017 R. J. Wagner, et al. (2017): Samarkand Sulci, Enceladus: Topography and Geology from the data of Cassini 228En Non-Targeted Flyby in Global Context. Lunar and Planetary Science XLVIII-2262.

2016 R. J. Wagner, et al. (2016): Stratigraphy in the Samarkand Sulci Region of Enceladus. AGU2016-P33A-2125.

2016 **J. Voigt**, et al. (2016): Investigating the Volcanic or/and Fluvioglacial Origin of Surficial Deposits in Eastern Elysium Planitia, Mars. Lunar and Planetary Science 2016-2849.

2015 D. Tirsch, et al. (2015): Diverse Morphology and Mineralogy of Aqueous Outcrops at Libya Montes, Mars. Lunar and Planetary Science Conference XLVI-1738.

2015 J. Voigt, et al. (2015): Topographic control of sorted circle morphology on Svalbard. EGU2015-10263.

2015 D. Tirsch, et al. (2015): Aqueous outcrops at Libya Montes, Mars: A close eye on morphology and mineralogy. EGU2015-3870.

2014 D. Tirsch, et al. (2014): Photogeological Mapping of Ancient Aqueous Outcrops at Libya Montes, Mars. European Planetary Science Congress 2014-687.