

## **Paul Michael Schenk**

Lunar and Planetary Institute, 3600 Bay Area Blvd., Houston, TX 77058  
(281) 486-2157 schenk@lpi.usra.edu  
October 31, 1958 Buffalo, NY

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### **Education and Professional Activity**

1988 Ph.D., Geology, Department of Earth & Planetary Sciences,  
Washington University, Saint Louis, MO (W.B. McKinnon, advisor)  
Thesis: *Impact Craters on Icy Satellites as Probes of Stratigraphy,  
Tectonic History, Impactor Sources and Crustal Properties*

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2021- Europa Clipper – Affiliate Team Member REASON instrument  
2020-22 Decadal Survey Planetary Sci. & Astrobiology, Giant Planets panel, member  
2013- Co-Investigator, New Horizons Project  
2012-2017 Participating Scientist – Cassini Project  
2010-2018 Participating Scientist – Dawn Project at Vesta & Ceres  
2005-2012 Team Member - New Horizons Jupiter & Pluto Encounter Sequencing Teams  
2007-2008 Outer Planets Flagship Review Panel  
2003- Scientific Editor, Lunar and Planetary Institute Bulletin  
2003-2007 Chair - Planetary Cartography & Geologic Mapping Working Group  
1999-2003 Affiliate Team Member - Galileo Solid State Imaging Team  
1999/2000 Pluto-Kuiper Belt Mission Selection Panels  
1994, etc. Lunar & Planetary Science Conf. Program Committee  
1992-99+ Intern Advisor, LPI Summer Intern Program  
1991- Staff Scientist, Lunar and Planetary Institute, Houston  
1988-1990 Planetary post-doctoral researcher, Jet Propulsion Laboratory  
1979 NASA Planetary summer intern, Jet Propulsion Laboratory

### **Awards**

2016 USRA President's Distinguished Service Award  
2021 American Geophysical Union, Planetary Section Fred Whipple Prize

### **Books, CD-ROMs, Maps, and non-Reviewed Articles**

Schenk, P., From Pluto to Arrokoth: How We Got the Most Distant Stereo Images Ever Acquired, *Stereo World*, 45 (May/June 2020), 6-12, 2020.  
Schenk, P., Taking a Dive into the 3D Deep Sea, *Stereo World*, 45 (July/Aug. 2020), 16-20, 2020.  
Schenk, P., R. Clark, C. Howett, A. Verbiscer and H. Waite, (eds.) *Enceladus and the Icy Moons of Saturn*, Univ. Arizona Press, 2018.  
Schenk, P., Blue Pearls for Rhea, Turning up the colors on Saturn's Icy Moons, *Planetary Report*, September 2014, 8-13.  
Schenk, P., Global 3-color maps of Triton and the 6 icy moons of Saturn, *Lunar and Planetary Institute*, 2014 ([https://www.lpi.usra.edu/icy\\_moons/](https://www.lpi.usra.edu/icy_moons/))  
Schenk P., *The Silent Front: Tales of our Navy Salvage Divers*, Blurb Press, <https://www.blurb.com/b/4314369-the-silent-front>, 2013.  
Schenk, P., Why We Explore: Celebrating 50 years out in the solar system, *Planetary Report*, September 2012, 13-19.

- Schenk, P., *Atlas of the Galilean Satellites*, Cambridge Univ. Press, 2010.
- Schenk, P., Oceans, Ice Shells, and Life on Europa, *Planetary Report*, December 2002, 10-15.
- Schenk, P.M., D. Gwynn, and J. Tutor, *3-D Tour of the Solar System* (CD-ROM), Lunar and Planetary Institute, 1997.

### **Refereed Articles**

- Schenk, P., A. Neesemann, S. Marchi, K. Otto, T. Hoogenboom, D. O'Brien, J. Castillo-Rogez, C. Raymond, C. Russell, 2021. A young age of formation of the Rheasilvia impact basin on Vesta from floor deformation patterns and crater counts, *Met. Planet. Sci.*, 57, 22-47.
- Schenk, P., and 24 others, 2021. Compositional control on impact crater formation on mid-sized planetary bodies: Dawn at Ceres and Vesta, Cassini at Saturn, *Icarus*, 359, 114343.
- Schenk, P., and 17 others, 2021. Origins of Pits and Troughs and Degradation on a Small Primitive Planetesimal in the Kuiper Belt: High-Resolution Topography of (486958) Arrokoth (aka 2014 MU69) from New Horizons, *Icarus*, 356, doi.org/10.1016/j.icarus.2020.113834.
- Schenk, P., M. Kirchoff, T. Hoogenboom, and E. Rivera-Valentin, 2020. Anatomy of fresh complex craters on the mid-sized icy moons of Saturn and self-secondary cratering at the rayed crater Inktomi (Rhea), *Met. Planet. Sci.*, 55, 2440-2460, doi:10.1111/maps.13592.
- Schenk, P., and 16 others, 2020. Impact Heat Driven Volatile Redistribution at Occator Crater Ceres as a Comparative Planetary Process, *Nature Comm.*, 11, 3679.
- Schenk, P., and J. Moore, 2020. Topography and Geology of Uranian Mid-sized Icy Satellites in Comparison with Saturnian & Plutonian Satellites, *Phil. Trans. Royal Soc. A*, 378, 20200102.
- Schenk, P., I. Matsuyama, and F. Nimmo, 2020. A Very Young Age for True Polar Wander on Europa from Related Fracturing, *Geophys. Res. Lett.*, 47, e2020GL088364.
- Schenk, P., 2020. The Search for Europa's Plumes: No Plume Patterns or Surface Changes 1979-2007? *Astrophys. J. Lett.*, 892, L12, doi.org/10.3847/2041-8213/ab6f78.
- Scully, J., P. Schenk and 15 others, 2020. The Varied Sources of Faculae-forming Brines in Ceres' Occator Crater Emplaced via Hydrothermal Brine Effusion, *Nature Comm.*, 11, in 3680.
- Schenk, P., and others, 2019. The central pit and dome at Cerealia Facula bright deposit & floor deposits in Occator crater, Ceres: Morphology, comparisons & formation, *Icarus*, 320, 159-187.
- Schenk, P., and 10 others, 2018a. Breaking Up is Hard to Do: Global Cartography and Topography of Charon from New Horizons, *Icarus*, 315, 124-145, 2018a.
- Schenk, P., and 10 others, 2018b. Basin, Fractures and Volcanoes: Global Cartography and Topography of Pluto from New Horizons, *Icarus*, 314, 400-433, 2018b.
- Bland, M., W.B. McKinnon, and P. Schenk, 2015. Constraining the heat flux between Enceladus' tiger stripes: Numerical modeling of funicular plains formation, *Icarus*, 260, 232-242.
- Kirchoff, M., and P. Schenk, 2015. Dione's resurfacing history as determined from a global impact crater database, *Icarus*, 256, 78-88.
- Schenk, P., and 12 others, 2012. The geologically recent giant impact basins at Vesta's south pole, *Science*, 336, 694-697.
- Schenk, P., D. Hamilton, R. Johnson, W. McKinnon, J. Schmidt, M. Showalter, 2011. Plasma, plumes, & rings: Saturn system dynamics as revealed by global color patterns on its midsize icy satellites, *Icarus*, 211, 740-757.
- Schenk, P., 2009. Slope characteristics of Europa: Constraints for landers and radar sounding, *Geophys. Res. Lett.*, 36, CiteID L15204.
- Schenk, P., and W. McKinnon, 2009. One-hundred-km-scale basins on Enceladus: Evidence for an active ice shell, *Geophys. Res. Lett.*, 36, CiteID L16202.

- Schenk, P., Matsuyama, I., and Nimmo, F., 2008. Evidence for true polar wander on Europa from global scale small circle depressions, *Nature*, 453, 368-371.
- Schenk, P., and K. Zahnle, 2007. On the negligible surface age of Triton, *Icarus*, 192, 135-149.
- Nimmo, F., and P. Schenk, 2006. Normal faulting on Europa, *J. Struct. Geol.*, 28, 2194-2203.
- Prockter, L., and P. Schenk, 2005. Origin and evolution of Castalia Macula, an anomalous young depression on Europa, *Icarus*, 177, 305.
- Schenk, P., and Bussey, B., 2004. Galileo Stereo Topography of the Lunar North Polar Region, *Geophys. Res. Lett.*, L23701.
- Schenk, P., and D. Williams, 2004. A Potential Thermal Erosion Lava Channel on Io, *Geophys. Res. Lett.*, 31, L23702.
- Schenk, P. M., Pappalardo, R. T., 2004. Topographic variations in chaos on Europa: Implications for diapiric formation, *Geophys. Res. Lett.*, 31, L16703.
- Zahnle, K., Schenk, P., Levison, H., and Dones, L., 2003. Cratering rates in the outer solar system, *Icarus*, 163, 263-289.
- Schenk, P., 2002. Thickness constraints on the icy shells of the Galilean satellites from a comparison of crater shapes, *Nature*, 417, 419-421.
- Schenk, P., and F. Ridolfi, 2002. Morphology and scaling of ejecta deposits on icy satellites, *Geophys. Res. Lett.*, 29, 10.1029/2001GRL013512.
- Schenk, P., R. Wilson, H. Hargitai, A. McEwen, and P. Thomas, 2001. The mountains of Io: Global and geologic perspectives from Voyager and Galileo, *J. Geophys. Res.*, 106, 33201-33222.
- Schenk, P.M., W. McKinnon, D. Gwynn, and J. Moore, 2001. Flooding of Ganymede's resurfaced terrains by low-viscosity aqueous lavas, *Nature*, 410, 57-60.
- Schenk, P.M., and J.M. Moore, 2000. Stereo topography of the South Polar region of Mars: Volatile inventory and Mars Polar Lander landing site, *J. Geophys. Res.* 105, 24529-24546.
- Schenk, P.M., and M. H. Bulmer, 1998. Origin of mountains on Io by thrust faulting and large-scale mass movements, *Science* 279, 1514-1518.
- Schenk, P.M., E. Asphaug, W.B. McKinnon, H.J. Melosh, and P. Weissman, 1996. Cometary nuclei and tidal disruption: The geologic record of crater chains on Callisto and Ganymede, *Icarus* 121, 249-274.
- Melosh, H.J., and P. Schenk, 1993. Split comets and the origin of crater chains on Ganymede and Callisto, *Nature*, 365, 731-734.
- Schenk, M. P. A. Jackson, 1993. Diapirism on Triton: A record of crustal layering and instability. *Geology*, 21, 299-302.
- Schenk, P.M., 1993. Central pit and dome craters: Exposing the interiors of Ganymede and Callisto, *J. Geophys. Res.* 98, 7475-7498, 1993.
- Schenk, P.M., 1991b. Ganymede and Callisto: Complex crater formation and planetary crusts, *J. Geophys. Res.* 96, 15635-15664.
- Schenk, P.M., and McKinnon, W.B., 1991. Dark ray and dark floor craters on Ganymede and the provenances of large impactors in the Jovian system, *Icarus* 89, 318-346, 1991.
- Schenk, P.M., and W.B. McKinnon, 1989. Fault offsets and lateral crustal movement on Europa: Evidence for a mobile ice shell, *Icarus* 79, 75-100.

### **Selected Book Chapters**

- Schenk, P., O. White, D. Bryne, and J. Moore, 2018. Saturn's Other Icy Moons: Geologically Complex Worlds in Their Own Right, in *Enceladus and the Icy Moons of Saturn*, P. Schenk et al, eds., Univ. Arizona Press, pp. 237-265.
- Schenk, P., and E. Turtle, 2010. Europa's impact craters: Probes of the interior, in *Europa*, Univ. Arizona Press, pp. 181-198.

Schenk, P., Chapman, C., Zahnle, K., Moore, J., 2004. Ages and Interiors, The cratering record of the Galilean Satellites, in *Jupiter*, (F. Bagenal, T. Dowling and W. McKinnon, eds.), Cambridge Press, pp. 427-456.