CURRICULUM VITAE *updated Jan. 2024*

Geoffrey Clark Collins

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EDUCATION

Ph.D. Brown University, Geological Sciences, 2000
Thesis title: *Driving mechanisms for grooved terrain tectonics on Ganymede and chaotic terrain formation on Europa: Constraints from Galileo data*

Sc.M. Brown University, Geological Sciences, 1996
Thesis title: *Evidence for rapid regional plains emplacement on Venus from the population of volcanically embayed impact craters*

B.A. Carleton College, Geology, 1994
Thesis title: *Global-scale stresses on Triton*

PROFESSIONAL EXPERIENCE

Professor of Geology, Wheaton College, 2012-present
Associate Professor of Geology, Wheaton College, 2006-2012
Assistant Professor of Geology, Wheaton College, 2000-2006
Research Assistant, Brown University, 1996-2000
Research and mission planning for Galileo spacecraft, James W. Head III, advisor
Teaching Assistant, Brown University, 1995 and 1997
Intern, Lunar and Planetary Institute, 1993
Tectonics of Triton, Paul M. Schenk, advisor
Laboratory Teaching Assistant, Carleton College, 1992-1994

HONORS AND AWARDS

- Bojan Hamlin Jennings Chair in the Natural Sciences, Wheaton College, 2017-2022.
- Bernstein Distinguished Geologist in Residence, Carleton College, 2018.
- Editor's Citation for Excellence in Refereeing, *Geophysical Research Letters* 2004.
- Brown Sigma Xi Research Prize, 2000.
- Joukowsky Family Foundation Outstanding Dissertation Award - Honorable Mention 2000.
- Geological Society of America Stephen E. Dwornik Planetary Geosciences Student Paper Award, 1999.
  Paper title: *Surface stresses resulting from internal differentiation: Application to Ganymede tectonics*
- American Geophysical Union Outstanding Student Paper Award, Fall 1998.
  Paper title: *Models for the formation of chaotic terrain on Europa*

GRANTS AWARDED

Co-I: "Tracking 3D Ice Shell Evolution and Material Exchange at Europa" NASA PSI-E, 2023.
Co-I: "Coupling Europa's Tides, Fault Motions, and Near-Surface Melt Dynamics" NASA SSW, 2020.
Co-I: "Investigating Tectonic Deformation of Mid-sized Saturnian Satellites" NASA CDAP, 2017.
Co-I: "Europa Imaging System" NASA Europa Clipper Mission, 2015.
Co-I: "Plate Tectonics on Europa" NASA SSW, 2014.
Co-I: "Icy Worlds: Astrobiology at the Rock-Water Interface and Beyond" NASA NAI, 2014.
Co-I: "A global geologic map of Enceladus" NASA CDAP, 2013.
Co-I: "Strike-slip faulting processes on Ganymede: Morphological inferences and failure mechanics" NASA OPR, 2012.
PI: "Evolution of Fluvial Landscapes on Titan: Channel Erosion, Sediment Generation, and Methane Infiltration" NASA OPR, 2006.
PI: "Strain on the Saturnian Satellites" NASA CDAP, 2006.
Co-I: "Investigations into CO_2 and other Materials on the Saturnian and Galilean Satellites" NASA CDAP, 2006.
Co-I: "Fusion and Analysis of Data from the Galileo Near Infrared Mapping Spectrometer (NIMS) and Solid

State Imager (SSI) through GIS" NASA OPR, 2005.
PI: "Global Analysis of Grooved Terrain Tectonics on Ganymede" NASA OPR, 2004.
Co-I: "Causes and Consequences of Faulting on Europa and Other Icy Satellites" NASA PG&G, 2003.
Co-I: "Digital Imaging: Infusing Active Learning Throughout a Science Curriculum" NSF DUE-A&I, 2002.
Co-I: "Furrow Systems on Ganymede: Use as Strain Markers" NASA PG&G, 2002.
Co-I: "Geological Mapping of Ganymede: A Post-Galileo View" NASA PG&G, 2001.

PROFESSIONAL MEMBERSHIPS

American Geophysical Union; Geological Society of America; Division for Planetary Science of the American Astronomical Society; Planetary Society

TEACHING SUMMARY

Teaching Experience

- **Wheaton College: Professor**. I have taught the following classes at Wheaton, and the numbers in parentheses indicate the number of times I have taught the course. All classes are 3 to 4 contact hours per week, except Geology, which is 6 contact hours per week:
  - Geology (19): An introductory course with field trips and labs covering basic physical and historical geology, plus the interplay between humans and the Earth's environment.
  - Geophysics (7): An upper-level physics course covering heat transport, gravity, elasticity, brittle deformation, ductile flow, and fluid dynamics.
  - Remote Sensing (5): A mid-level course open to all majors covering the theory, collection, processing, and interpretation of remotely sensed data, plus GIS data processing.
  - The Solar System (9): An introductory astronomy course oriented toward comparative planetology and robotic space exploration.
  - Astrobiology (3): A seminar-style class to introduce students to the latest thinking about life in the universe, based on reading and discussing scientific journal articles.
  - Rocket Science (2): An introductory course about the physics and engineering of space exploration.
  - Geology of Iceland (2): A two-week intensive study-abroad course to examine tectonics, volcanology, and glaciology in Iceland, centered around student-designed field projects.
  - Field Geology Seminar (1): Topics in tectonics, sedimentology, structural geology, and igneous petrology, leading to a week of independent field work in Death Valley and final research projects.
  - First-year Experience (2): A group of class sections, partially team-taught, where students examine an issue or topic from multiple disciplinary perspectives. Past overarching topics have included historical Eurasian trade routes, and sustainability of water resources.
  - First-year Seminar (3): I have run first-year seminars devoted to the exploration of Mars, and to the deep history of our universe. Overnight field trips have bonded the first-year students together.
  - Climate Change (2): An introductory course covering Earth system dynamics, the physics that controls the climate system, paleoclimatology, and measurements of modern climate change.
  - Introductory Physics I (1): The first semester of a hands-on, workshop-style course for majors and non-majors, covering Newtonian mechanics and introducing thermodynamics.
  - Frontiers of Astronomy (2): A mid-level writing-intensive seminar covering hot topics in astronomy and planetary science. Students produce a scientific journal at the end.
  - Computational Physics (1): A mid-level course to introduce physics majors to solving complex problems using computer algorithms.
  - Introductory Physics Lab (3): The laboratory component of Introductory Physics, covering

classical mechanics and basic E&M. I also added a new exploration geophysics lab.
- I have also advised many independent studies, including Titan Mechanochemistry, Geotechnical Engineering, Field Geology, Slot Canyon Erosion, Geology of Rock Climbing, Planetary Science, Environmental Physics, Environmental Remote Sensing, Thermography, and Observational Astronomy.

- **Posse Foundation:** Completed the program of mentor training to work with a group of diverse, talented students from public high schools in New York City as they make the transition to college and as they work to become successful campus leaders. Served as the mentor for a cohort of 10 Posse students from 2017 to 2021.
- **Participated in national workshops** organized by Project Kaleidoscope and the AAC&U on science pedagogy, the planning of new science facilities, and interdisciplinary teaching.
- **Brown University: Teaching assistant** for Global Environmental Remote Sensing and Mars, Moon, and Earth. **Teaching Consultant**, Sheridan Center for Teaching and Learning, Brown University, 1998-2000. **Teaching Certificate**, Sheridan Center for Teaching and Learning, Brown University, 1997.
- **Carleton College: Laboratory teaching assistant** for Geology and Global Change, Mineralogy, Paleontology, Tectonics, and Introduction to Geology.

SERVICE

Service to Wheaton College

- Member of Committee on Faculty Scholarship and Promotions (2023-present)
- Chair and Member of Curriculum Committee (2020-2022)
- Member of Curriculum Design Team (2018-2019)
- Faculty mentor to Wheaton Posse 18 (2017-2021)
- Member and Chair of Provost's Advisory Committee (2009-2011 and 2017-2019)
- Member of Global Advisory Committee (2017)
- Member and Chair of Tenure Committee (2012-2014)
- Chair of Physics and Astronomy Department (2008-2011)
- Member of Provost Search Committee (2008-2009)
- Represented Wheaton at four AAC&U curriculum conferences (2006-2018)
- Member of Budget Advisory Committee (2006-2007)
- Co-chair of Teaching and Learning Workshop series (2003-2004)
- Led the creation of the GIS Lab at Wheaton (2002-2004)
- With Bob Morris in Biology, won an NSF DUE grant and set up the ICUC lab (2001-2004)
- Member and secretary of the Advisory Committee (2001-2004)
- Member of the Infusion subcommittee of the Educational Policy Committee (2001-2004)
- Active role in starting the Brown-Wheaton Internship in the Liberal Arts program (2004)
- Member of First-Year Seminar Steering Committee (2002)
- Editorial board, *Midnight Oil* (2001-2002)
- Member of Organization of a Liberal Arts Education study group (2000-2001)

Service to the planetary science community

- Co-chair of Geology Working Group for NASA Europa Clipper Project Science Group (2015-2019)
- Chair of review panels for NASA grant and mission proposals (2008, 2009, 2015, 2017, 2019)
- Review panel member for NASA grant proposals (2005, 2021)
- National Academies representative to the European Science Foundation project on Planetary Protection of the Outer Solar System (2017-2018)
- Member of NASA's Europa Lander Town Hall Executive Committee (2017)

- U.S. correspondent to ESA Europa M5 mission geology group (2016)
- Member of the Geological Society of America Planetary Science Division awards panel (2016-2018)
- Science Organizing Committee for Workshop on the Habitability of Icy Worlds (2013-2014)
- Member of the Committee on Astrobiology and Planetary Science of the National Academy of Science (2012-2017)
- Vice-Chair of the Committee on Planetary Protection Standards for Icy Bodies in the Outer Solar System for the National Research Council (2010-2012)
- Led community white paper on Ganymede exploration for Decadal Survey, with 37 coauthors (2009)
- Member of the Science Definition Team for the Jupiter System Observer (2007)
- Member of the Outer Planets Assessment Group (2005-2016)
- Collaborator on Cassini Imaging Science Subsystem, working on Titan image processing (2005)
- Judge for Dwornik Planetary Geosciences Student Paper Award and American Geophysical Union Outstanding Student Paper Award (2004-2022)
- External reviewer for grant proposals for NASA and the French National Research Agency (2000-2021)
- Reviewer for dozens of papers in *Science, Nature Geoscience, Journal of Geophysical Research*, *Icarus*, *Geophysical Research Letters*, *Planetary and Space Science*, *Journal of Maps*, and *Journal of Structural Geology* (1999-2024)
- Session chair at several conferences (1998-2019)
- Planned and targeted imaging sequences for the Galileo Solid State Imaging experiment at Ganymede and Europa (1996-2002)

STUDENT-FACULTY RESEARCH

I have been the primary advisor on seven undergraduate honors theses:

Claire Hammond ’20: “Analog modeling of contractional strain on Europa”
Keaton Schrank ’19: “Monitoring vegetation health in the Great Marsh: 25 years of satellite observations and freshwater input data”
Grace Genszler ’18: “Numerical Analysis of Periodic Motion of Tethered Satellite Systems”
Noemie Goff-Pochat ’10: “Thermal Weathering on Airless Planetary Bodies in our Solar System”
Megan O’Sadnick ’09: “Surface Abrasion in the Blue Ice Areas of Antarctica”
Jon Kay '08: “Examining the Relationship between Rainfall, Discharge, and Infiltration on Saturn's Moon Titan”
Louie Michaud '08: “A Dilational Faulting Model for the Origin of Pit Chains on Enceladus”

I have also advised many undergraduate students on other independent scientific research projects. Students who spent more than one semester or summer doing research with me include:

Timothy Curran ’24: Microwave emissions from geologic units on Ganymede
Ishaan Madan ’22: Breakdown of organics at Titan’s surface, organic phases during Dragonfly sampling
Samantha Oldrid ’20: Europa plate definition and reconstruction trees
Craig Rezza ’18: Multi-stage tectonic reconstruction of western Argadnel Regio, Europa
Madison Borrelli ’18: Volcanism on Charon; Crater population statistics on Enceladus
Benjamin Cutler ’17: Implementing software to test hypotheses about plate tectonics on Europa
Jose Pablo Brenes Coto ’16: Map unit definition at Enceladus south pole; Cassini and Galileo image processing
Lily Munsill ’15: Boulder statistics on Enceladus south polar terrain
Brent Landry ’14: Cassini image processing and mapping of Enceladus’ south pole
Scott Tarlow ’12: Fault population analysis on Dione
Noemie Goff-Pochat ’10: Mapping and strain analysis of faults on Enceladus and Dione
Hannah di Cicco ’09: Searching for strained craters on Enceladus
Louie Michaud ’08: Strain measurements from fault geometry on Ganymede

Jonathan Kay '08: Finalization of crater database for the global geological map of Ganymede
Emily Martin '06: Classification of grooved terrain on Ganymede and testing methods for time-sequence sorting
Jennifer Savage '06: Geological mapping of Ganymede
Rachel Fontaine '04: Reconstructing the geometry of ancient impact basins on Ganymede and Callisto
Dan Hartmann '04: New techniques for measuring strain across ridges on Europa
Matt Blake '04: Morphology and mapping of chaotic terrain on Europa
Jon McBee '04: Time sequence analysis of groove formation in Sippar Sulcus and leading hemisphere of Ganymede
Karrie-Sue Farrar '03: Mapping and classification of craters on Ganymede

PUBLICATIONS

Asterisks (*) denote Wheaton research students

Peer-Reviewed Publications

Pappalardo, R. T., B. J. Buratti, H. Korth, D. A. Senske, D. L. Blaney, D. D. Blankenship, J. L. Burch, P. R. Christensen, S. Kempf, M. G. Kivelson, E. M. Mazarico, K. D. Retherford, E. P. Turtle, J. H. Westlake, B. G. Paczkowski, T. L. Ray, J. Kampmeier, K. L. Craft, S. M. Howell, R. L. Klima, E. J. Leonard, A. M. Novak, C. B. Phillips, I. J. Daubar, J. Blacksberg, S. M. Brooks, M. N. Choukroun, C. J. Cochrane, S. Diniega, C. M. Elder, C. M. Ernst, M. S. Gudipati, A. Luspay-Kuti, S. Piqueux, A. M. Rymer, J. H. Roberts, G. Steinbrügge, M. L. Cable, J. E. C. Scully, J. C. Castillo-Rogez, H. C. F. C. Hay, D. M. Persaud, C. R. Glein, W. B. McKinnon, J. M. Moore, C. A. Raymond, D. M. Schroeder, S. D. Vance, D. Y. Wyrick, M. Y. Zolotov, K. P. Hand, F. Nimmo, M. A. McGrath, J. R. Spencer, J. I. Lunine, C. S. Paty, J. M. Soderblom, **G. C. Collins**, B. E. Schmidt, J. A. Rathbun, E. L. Shock, T. C. Becker, A. G. Hayes, L. M. Prockter, B. P. Weiss, C. A. Hibbitts, A. Moussessian, T. Brockwell, H. Hsu, X. Jia, G. R. Gladstone, A. S. McEwen, G. W. Patterson, R. L. McNutt, J. P. Evans, T. W. Larson, L. A. Cangahuala, G. G. Havens, B. B. Buffington, B. Bradley, S. Campagnola, S. H. Hardman, J. M. Srinivasan, K. L. Short, T. C. Jedrey, J. A. St. Vaughn, K. P. Clark, J. Vertesi, and C. Niebur, Science overview of the Europa Clipper mission, *Space Science Reviews*, *submitted*, 2023.

Phillips, C. B., J. E. C. Scully, M. E. Cameron, K. L. Craft, D. M. Persaud, C. Grima, K. P. Hand, A. McEwen, T. M. Becker, M. Bramble, K. Chan, M. Choukroun, C. J. Cochrane, **G. C. Collins**, D. Diniega, C. M. Elder, C. Gerekos, C. Glein, M. S. Gudipati, S. M. Howell, X. Jia, E. Klonicki, E. Leonard, S. M. Mackenzie, M. B. Meacham, H. Meyer, T. A. Nordheim, A. V. Oza, C. Paranicas, S. Piqueux, J. Pitesky, A. M. San Martin, K. M. Scanlan, Z. Wong, and D. Y. Wyrick, A reconnaissance strategy for landing on Europa, based on Europa Clipper data, *Space Science Reviews*, *submitted*, 2023.

Hansen, C. J., M. A. Ravine, P. M. Schenk, **G. C. Collins**, E. J. Leonard, C. B. Phillips, M. A. Caplinger, F. Tosi, S. J. Bolton, and B. Jónsson, Juno's JunoCam images of Europa, *Planetary Science Journal*, *in press*, 2024.

Pappalardo, R. T., M. E. Cameron, **G. C. Collins**, J. W. Head, P. Helfenstein, S. M. Howell, A. Lucchetti, T. B. McCord, J. M. Moore, E. M. Nathan, L. M. Prockter, C. Rossi, P. M. Schenk, and J. R. Spencer, Ganymede's Geology, in *Ganymede*, M. Volwerk, M. McGrath, X. Jia, and T. Spohn, eds., Cambridge University Press, *in press*, 2023.

Roatsch, T., E. Kersten, **G. C. Collins**, and G. W. Patterson, Maps of Ganymede, in *Ganymede*, M. Volwerk, M. McGrath, X. Jia, and T. Spohn, eds., Cambridge University Press, *in press*, 2023.

Daubar, I. J., A. G. Hayes, **G. C. Collins**, K. Craft, J. A. Rathbun, J. R. Spencer, D. Y. Wyrick, M. T. Bland, A. G. Davies, C. M. Ernst, S. M. Howell, E. J. Leonard, A. S. McEwen, J. M. Moore, C. B. Phillips, L. M. Prockter, L. C. Quick, J. E. C. Scully, J. M. Soderblom, S. M. Brooks, M. Cable, M. E. Cameron, K. Chan, C. J. Chivers, M. Choukroun, C. J. Cochrane, S. Diniega, A. J. Dombard, C. M. Elder, C. Gerekos, C. Glein, T. K. Greathouse, C. Grima, M. S. Gudipati, K. Hand, C. J. Hansen, P. Hayne, M. Hedman, K. Hughson, X. Jia, J. Lawrence, H. M. Meyer, K. Miller, R. Parekh, G. W. Patterson, D. M. Persaud, S. Piqueux, K. D. Retherford, K. M. Scanlan, P. Schenk, B. Schmidt, D. Schroeder, G. Steinbrügge, A. Stern, G. Tobie, P. Withers, D. A. Young, B. Buratti, H. Korth, D. Senske, and R. Pappalardo, Planned geological

investigations of the Europa Clipper mission, *Space Science Reviews*, doi:10.1007/s11214-023-01036-z, 2024.

Burkhard, L. M. L., E. S. Costello, B. R. Smith-Konter, M. E. Cameron, **G. C. Collins**, and R. T. Pappalardo, Uncovering Ganymede's past: Tectonics at Nippur/Philus Sulci, *Icarus* 408, 115823, 2024.

Madan, I.*, M. G. Trainer, **G. C. Collins**, and K. K. Farnsworth, Characterizing phase transitions for Titan's surface molecules: Implications for Dragonfly, *Planetary and Space Science*, doi:10.1016/j.pss.2023.105804, 2023.

Martin, E. S., J. L. Whitten, S. A. Kattenhorn, **G. C. Collins**, B. S. Southworth, L. S. Wiser, and S. Prindle, Measurements of regolith thickness on Enceladus: Uncovering the record of plume activity, *Icarus* 392, 115369, 2023.

Ravine, M. A., C. J. Hansen, **G. C. Collins**, P. M. Schenk, M. A. Caplinger, L. Lipkaman Vittling, D. J. Krysak, R. P. Zimdar, J. B. Garvin, and S. J. Bolton, Ganymede observations by JunoCam on Juno perijove 34, *Geophysical Research Letters* 49, e2022GL0099211, 2022.

Collins, G. C., G. W. Patterson, C. E. Detelich, L. M. Prockter, S. A. Kattenhorn, C. M. Cooper, A. R. Rhoden, B. B. Cutler*, S. R. Oldrid*, R. Perkins, and C. A. Rezza*, Episodic plate tectonics on Europa: Evidence for widespread patches of mobile-lid behavior in the antijovian hemisphere, *Journal of Geophysical Research* 127, e2022JE007492, doi:10.1029/2022JE007492, 2022.

Burkhard, L. M., B. R. Smith-Konter, S. A. Fagents, M. E. Cameron, **G. C. Collins**, and R. T. Pappalardo, Strike-slip faulting on Titan: Modeling tidal stresses and shear failure conditions due to pore fluid interactions, *Icarus* 371, 114700, 2022.

Borrelli, M. E.*, and **G. C. Collins**, Testing the cryovolcanism and plate bending hypotheses for Charon's smooth plains, *Icarus* 356, 113717, 2021.

Blanc, M., N. André, O. Prieto-Ballesteros, J. Gomez-Elvira, G. Jones, V. Sterken, W. Desprats, L. Gurvits, K. Khurana, A. Blöcker, R. Broquet, E. Bunce, C. Cavel, G. Choblet, **G. Collins**, M. Coradini, J. Cooper, D. Dirkx, P. Garnier, D. Gaudin, P. Hartogh, L. Iess, A. Jäggi, S. Kempf, N. Krupp, L. Lara, J. Lasue, V. Lainey, F. Leblanc, J.-P. Lebreton, A. Longobardo, R. Lorenz, P. Martins, Z. Martins, A. Masters, D. Mimoun, E. Palumba, P. Regnier, J. Saur, A. Schutte, E. C. Sittler, T. Spohn, K. Stephan, K Szegő, F. Tosi, S. Vance, R. Wagner, T. Van Hoolst, M. Volwerck, and F. Westall, Joint Europa Mission (JEM): A multi-scale study of Europa to characterize its habitability and search for extant life, *Planetary and Space Science* 193, 104960, 2020.

Cameron, M., B. Smith-Konter, **G. Collins**, D. Patthoff, and R. Pappalardo, Ganymede, then and now: How past eccentricity may have altered tidally driven Coulomb failure, *Journal of Geophysical Research*, doi:10.1029/2019JE005995, 2020.

Watters, T. R., R. C. Weber, **G. C. Collins**, I. J. Howley, N. C. Schmerr, and C. L. Johnson, Shallow seismic activity and young thrust faults on the Moon, *Nature Geoscience* 12, 411-417, 2019.

Rettberg, P., A. Antunes, J. Brucato, P. Cabezas, A. Haddaji, **G. Collins**, G. Kminek, S. Leuko, S. McKenna-Lawlor, C. Moissl-Eichinger, J.-L. Fellous, K. Olsson-Francis, D. Pearce, E. Rabbow, S. Royle, M. Saunders, M. Sephton, A. Spry, N. Walter, R. W. Schweingruber, J.-C. Treuet, Biological contamination prevention for outer solar system moons of biological interest – What do we need to know? *Astrobiology*, doi:10.1089/ast.2018.1996, 2019.

Hendrix, A. R., T. A. Hurford, L. M. Barge, M. T. Bland, J. S. Bowman, W. Brinckerhoff, B. J. Buratti, M. L. Cable, J. Castillo-Rogez, **G. C. Collins**, S. Diniega, C. R. German, A. G. Hayes, T. Hoehler, S. Hosseini, C. J. A. Howett, A. S. McEwen, C. D. Neish, M. Neveu, T. A. Nordheim, G. W. Patterson, D. A. Patthoff, C. Phillips, A. Rhoden, B. E. Schmidt, K. N. Singer, J. M. Soderblom, and S. D. Vance, The NASA roadmap to ocean worlds, *Astrobiology* 19, doi:10.1089/ast.2018.1955, 2019.

Cameron, M., B. Smith-Konter, **G. C. Collins**, D. A. Patthoff, and R. Pappalardo, Tidal stress modeling of Ganymede: Strike-slip tectonism and Coulomb failure, *Icarus* 319, 99-120, 2019.

Bland, M. T., T. L. Becker, K. L. Edmondson, T. Roatsch, B. A. Archinal, D. Takir, G. W. Patterson, **G. C. Collins**, P. M. Schenk, R. T. Pappalardo, and D. A. Cook, A new Enceladus global control network, image mosaic, and updated pointing kernels from Cassini's 13-year mission, *Earth and Space Science* 5, doi:10.1029/2018EA000399, 2018.

Cameron, M., F. Seifert, B. Smith-Konter, **G. Collins**, L. Burkhard, R. Pappalardo, Morphological mapping of Ganymede: Investigating the role of strike-slip tectonics in the evolution of terrain types, *Icarus* 300, 92-114, 2018.

Patterson, G. W., S. A. Kattenhorn, P. Helfenstein, **G. C. Collins**, and R. T. Pappalardo, The geological history of Enceladus, in *Enceladus and the Icy Moons of Saturn* (P. M. Schenk, R. N. Clark, C. J. A. Howett, A. Verbiscer, and J. H. Waite, eds.), 95-128, University of Arizona Press, 2018.

Moore, J. M., A. D. Howard, O. M. Umurhan, O. L. White, P. M. Schenk, R. A. Beyer, W. B. McKinnon, J. R. Spencer, K. N. Singer, W. M. Grundy, A. M. Earle, B. Schmitt, S. Protopapa, F. Nimmo, D. P. Cruikshank, D. P. Hinson, L. A. Young, S. A. Stern, H. A. Weaver, C. B. Olkin, K. Ennico, **G. Collins**, T. Bertrand, F. Forget, and F. Scipioni, Bladed terrain on Pluto: Possible origins and evolution, *Icarus* 300, 129-144, 2018.

Martin, E. S., S. A. Kattenhorn, **G. C. Collins**, R. L. Michaud*, R. T. Pappalardo, and D. Y. Wyrick, Pit chains on Enceladus signal the recent tectonic dissection of the ancient cratered terrain, *Icarus* 294, 209-217, 2017.

Watters, T. R., M. S. Robinson, **G. C. Collins**, M. E. Banks, K. Daud, N. R. Williams, and M. M. Selvans, Global thrust faulting on the Moon and the influence of tidal stresses, *Geology* 43, 851-854, 2015.

Barr, A. C., and **G. C. Collins**, Tectonic activity on Pluto after the Charon-forming impact, *Icarus* 246, 146-155, 2015.

Collins, G. C., and T. V. Johnson, Ganymede and Callisto, in *Encyclopedia of the Solar System, 3rd edition* (T. Spohn, D. Breuer, and T. V. Johnson, eds.), 813-829, Elsevier, 2014.

Sims, D. W., D. Y. Wyrick, D. A. Ferrill, A. P. Morris, **G. C. Collins**, R. T. Pappalardo, and S. L. Colton, Physical models of grooved terrain tectonics on Ganymede, *Geophysical Research Letters*, 10.1002/2014GL060359, 2014.

Collins, G. C., G. W. Patterson, J. W. Head, R. T. Pappalardo, L. M. Prockter, B. K. Lucchitta, and J. P. Kay*, Global geological map of Ganymede, *United States Geological Survey Science Investigations Map Series #3237*, 2013.

Burr, D. M., M. Ádámkovics, V. R. Baker, **G. C. Collins**, A. D. Howard, R. P. Irwin, M. P. Lamb, J. M. Moore, J. T. Perron, L. S. Sklar, S. A. Drummond, and B. A. Black, Fluvial features on Titan, *Geological Society of America Bulletin* 125, 299-321, doi:10.1130/B30612.1, 2013.

Litwin, K. L., B. R. Zygielbaum, P. J. Polito, L. S. Sklar, and **G. C. Collins**, Influence of temperature, composition, and grain size on the tensile failure of water ice: Implications for erosion on Titan, *Journal of Geophysical Research* 117, E08013, doi:10.1029/2012JE004101, 2012.

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