Channon Visscher

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Academic Background

- Ph.D., Earth & Planetary Sciences (2006), Washington University in St. Louis, Missouri.
- M.A., Earth & Planetary Sciences (2002), Washington University in St. Louis, Missouri.
- B.A., Chemistry (2000), Dordt University, Sioux Center, Iowa.

Academic Appointments

- Professor of Chemistry and Planetary Sciences, Dordt University (2013-present)
- Research Scientist, Space Science Institute (2016-present), Boulder, CO.
- Research Scientist, Southwest Research Institute (2011-2013), Boulder, CO.
- Postdoctoral Fellow, Lunar and Planetary Institute (2008-2011), Houston, TX.
- Instructor, Washington University in St. Louis, University College (2007), St. Louis, MO.
- Instructor, Southwestern Illinois College (2006) Belleville, IL

Current Research Interests

My planetary chemistry research involves modeling physical and chemical processes in planetary and astrophysical environments. The goal of this work is to better understand the underlying chemistry responsible for the observed properties of planetary atmospheres, and to provide clues about the formation and evolution of planetary systems.

Courses Taught at Dordt University (*and typical enrolled cohorts*)

- Astronomy 121 (CORE 224): Solar System Astronomy, with lab (F13, F15, F17, F19, F21)
  non-majors and science education majors
- Astronomy 122 (CORE 225): Stellar & Galactic Astronomy, with lab (F14, F16, F18, F20, F22, F24)
  non-majors
- Astronomy 341 Cosmologies (S18, S20, S22)
  upper-level majors and non-majors
- Earth Science 201 (CORE 223, GEOG 201, ENVR 201): Intro Geology w/lab (S15, S17, S19, S21, S23, S25)
  ENVR majors and science education majors
- Earth Science 202 (GEOG 202, ENVR 202): Meteorology and Climate Change (F17, F19, F21, F23)
  ENVR majors and science education majors
- Chemistry 111: Chemical Principles, with lab (F/S 2013-2020; S24)
  freshman science majors
- Chem/Bio 180: First Semester Seminar (F F2017-2024)
  freshman science majors
- Chemistry 331: Thermodynamics and Statistical Mechanics (S even 2014-2024)
  upper level chemistry and physics majors
- Chemistry 365: Solar System Chemistry (S17)
  upper level chemistry and physics majors

Peer-Reviewed Publications

Full NASA ADS Record: https://ui.adsabs.harvard.edu/search/q=Visscher%2C%20Channon
ORCID ID: 0000-0001-6627-6067
Current h-index: 34 (ADS) with 4550 citations

- McCarthy, A.M., Vos, J.M., Muirhead, P.S., Biller, B.A., Morley, C.V., Faherty, J., Burningham, B., Calamari, E., Cowan, N.B., Cruz, K.L., Gonzales, E., Limbach, M.A., Liu, P., Nasedkin, E., Suarez, G., Tan, X., O'Toole, C., **Visscher, C.**, Whiteford, N., Zhou, Y. (2024) The JWST Weather Report from the Isolated Exoplanet Analog SIMP 0136+0933: Pressure-Dependent Variability Driven by Multiple Mechanisms. *Astrophysical Journal Letters*, 981 L22.
- Rowland, M.J., Morley, C.V., Miles, B.E., Suárez, G., Faherty, J.K., Skemer, A.J., Beiler, S.A., Line, M.R., Bjoraker, G.L., Fortney, J.J., Vos, J.M., Merchan, S.A., Marley, M., Burningham, B., Freedman, R., Gharib-Nezhad, E., Batalha, N., Lupu, R., **Visscher, C.**, Schneider, A.C., Geballe, T.R., Carter, A., Allers, K., Mang, J., Apai, D., Limbach, M.A., Wilson, M.J. (2024) Protosolar D-to-H abundance and one part-per-billion PH_3 in the coldest brown dwarf. *Astrophysical Journal Letters*, 977 L49.
- Lee, E.K.H., Tsai, S.-M. Moses, J.I., Plane, J.M.C., **Visscher, C.**, Klippenstein, S.J. (2024) A photochemical PHO network for hydrogen-dominated exoplanet atmospheres. *Astrophysical Journal*, 976 231.
- Morley, C.V., Mukherjee, S., Marley, M.S., Fortney, J.J., **Visscher, C.**, Lupu, R., Gharib-Nezhad, E., Thorngren, D., Freedman, R., Batalha, N. (2024) The Sonora Substellar Atmosphere Models. III. Diamondback: Atmospheric Properties, Spectra, and Evolution for Warm Cloudy Substellar Objects. *Astrophysical Journal*, 975(1), 59. .
- Beiler, S.A., Mukherjee, S., Cushing, M.C., Kirkpatrick, J.D., Schneider, A.C., Kothari, H. Marley, M.S., **Visscher, C.** (2024) A Tale of Two Molecules: The Underprediction of CO_2 and Overprediction of PH_3 in Late T and Y Dwarf Atmospheric Models. *Astrophysical Journal*, 973(1), 60.
- Phillips, C.L., Faherty, J.K., Burningham, B., Vos, J.M., Gonzales, E., Griffith, E.J., Merchan, S.A., Calamari, E., **Visscher, C.**, Morley, C.V., Whiteford, N., Gaarn, J., Ilyin, I., Strassmeier, K. (2024) Retrieving Young Cloudy L-Dwarfs: A Nearby Planetary-Mass Companion BD+60 1417B and Its Isolated Red Twin W0047. *Astrophysical Journal*, 972(2), 172.
- Mukherjee, S., Fortney, J.J., Morley, C.V., Batalha, N.E., Marley, M.S., Karalidi, T., **Visscher, C.**, Lupu, R., Freedman, R., Gharib-Nezhad, E. (2024) The Sonora Substellar Atmosphere Models. IV. Elf Owl: Atmospheric Mixing and Chemical Disequilibrium with Varying Metallicity and C/O Ratios, *Astrophysical Journal*, 963(1), 73.
- Calamari, E., B., Faherty, J.K., **Visscher, C.**, Gemma, M.E., Burningham, B., and Rothermich, A. (2024) Predicting Cloud Conditions in Substellar Mass Objects Using Ultracool Dwarf Companions, *Astrophysical Journal*, 963(1), 67.
- Grant, D. et al. (41 co-authors including **Visscher, C.**) (2023) JWST-TST DREAMS: Quartz Clouds in the Atmosphere of WASP-17, *Astrophysical Journal Letters*, 956(2), L29.
- Gaarn, J., Burningham, B., Faherty, J.K., **Visscher, C.**, Marley, M.S., Gonzales, E.C., Calamari, E., Bardalez Gagliuffi, D., Lupu, R., Freedman, R. (2023) The puzzle of the formation of T8 dwarf Ross 458c, *Monthly Notices of the Royal Astronomical Society*, 521(4), 5761.
- Tsai, S.M. et al. (84 co-authors including **C. Visscher**) (2023) Direct Evidence of Photochemistry in an Exoplanet Atmosphere *Nature*, 617(7961), 483.

- Vos, J.M., Burningham, B., Faherty, J.K., Alejandro, S., Gonzales, E., Calamari, E., Gagliuffi, D.B., **Visscher, C.**, Tan, X., Morley, C.V., Marley, M., Gemma, M.E., Whiteford, N., Gaarn, J., Park, G. (2022) Patchy Forsterite Clouds in the Atmospheres of Two Highly Variable Exoplanet Analogs. *Astrophysical Journal*, 944(2), 138.
- Gonzales, E.C, Burningham, B., Faherty, J.K., Lewis, N.K., **Visscher, C.**, Marley, M.S. (2022) A Comparative L-dwarf Sample Exploring the Interplay Between Atmospheric Assumptions and Data Properties. *Astrophysical Journal*, 938(1), 56.
- Mukherjee, S., Fortney, J.J., Batalha, N.E., Karalidi, T., Marley, M.S, **Visscher, C.**, Miles, B.E., Skemer, A.J.I. (2022) Probing the Extent of Vertical Mixing in Brown Dwarf Atmospheres with Disequilibrium Chemistry. *Astrophysical Journal*, 938(2), 107.
- **Visscher, C.** (2022) Planetary atmospheres: chemistry and composition. In *Oxford Research Encyclopedia of Planetary Science* https://doi.org/10.1093/acrefore/9780190647926.013.17
- Dauphas, N., Nie, N.X., Blanchard, M., Zhang, Z.J., Zeng, H., Hu, J.Y., Meheut, M., **Visscher, C.**, Canup, R., Hopp, T. (2022) The Extent, Nature, and Origin of K and Rb Depletions and Isotopic Fractionations in Earth, the Moon, and Other Planetary Bodies. Planetary Science Journal, 3(2).
- Karalidi, T., Marley, M., Fortney, J.J., Morley, C., Saumon, D., Lupu, R., **Visscher, C.**, Freedman, R. (2021) The Sonora Substellar Atmosphere Models. II. Cholla: A Grid of Cloud-free, Solar Metallicity Models in Chemical Disequilibrium for the JWST Era. Astrophysical Journal, 923(2), 269.
- Gonzales, E.C., Burningham, B., Faherty, J.K., **Visscher, C.**, Marley, M., Lupu, R., Freedman, R., Lewis, N.K. (2021) The first retrieval of a substellar subdwarf: A cloud-free SDSS J125637.13-022452.4. Astrophysical Journal, 923(1), 19.
- Marley, M.S., Saumon, D., **Visscher, C.**, Lupu, R., Freedman, R., Morley, C., Fortney, J.J., Seay, C., Smith, A.J.R.W., Teal, D.J., Wang, R. (2021) The Sonora Brown Dwarf Atmosphere and Evolution Models I. Model Description and Application to Cloudless Atmospheres in Rainout Chemical Equilibrium. Astrophysical Journal, 920(2), 85.
- Gharib-Nezhad, E., Marley, M.S., Batalha, N.E., **Visscher, C.**, Freedman, R.S., Lupu, R.E. (2021) Following the Lithium: Tracing Li-bearing Molecules Across Age, Mass, and Gravity in Brown Dwarfs. Astrophysical Journal, 919, 1.
- Burningham, B., Faherty, J.K., Gonzales, E.C., Marley, M.S., **Visscher, C.**, Lupu, R., Gaarn, J., Fabienne Bieger, M., Freedman, R., Saumon, D. (2021) Cloud busting: enstatite and quartz clouds in the atmosphere of 2M2224-0158. Monthly Notices of the Royal Astronomical Society, 506(2), 1944
- Gonzales, E., Burningham, B., Faherty, J., Cleary, C., **Visscher, C.**, Marley, M., Lupu, R., Freedman, R. (2020) Retrieval of SDSS J1416+1348AB. *Astrophysical Journal*, 905(1), 46
- Fortney, J.J., **Visscher, C**., Marley, M.S., Hood, C.E., Line, M.R., Thorngren, D.P., Freedman, R.S., Lupu, R. (2020). Beyond Equilibrium Temperature: How the Atmosphere/Interior Connection Affects the Onset of Methane, Ammonia, and Clouds in Warm Transiting Giant Planets, *Astronomical Journal* 160(6) 288
- **Visscher, C.** (2020) Mapping Jupiter's Mischief, *JGR Planets*, 125(8), e06526.
- Miles, B., Skemer, A.J.I., Morley, C.V., Marley, M.S., Fortney, J.J., Allers, K.N., Faherty, J.K., Geballe, T.R., **Visscher, C.**, Schneider, A.C., Lupu, R., Freedman, R.S., Bjoraker, G.L. (2020).

Observations of Disequilibrium CO Chemistry in the Coldest Brown Dwarfs, *Astrophysical Journal*, 160(2), 63.

- Parmentier, V., Line, M.R., Bean, J.L., Mansfield, M., Kreidberg, L., Lupu, R., **Visscher, C.**, Desert, J-M., Fortney, J.J.; Deleuil, M., Arcangeli, J., Showman, A.P., Marley, M.S. (2018) From thermal dissociation to condensation in the atmospheres of ultra hot Jupiters: WASP-121b in context, *Astronomy & Astrophysics*, 617, A110.
- Morley, C.V., Skemer, A.J., Allers, K.N., Marley, M.S., Faherty, J.K., **Visscher, C.**, Beiler, S.A., Miles, B.E., Lupu, R., Freedman, R.S., Fortney, J.J., Geballe, T.R., Bjoraker, G.L. (2018) An L Band Spectrum of the Coldest Brown Dwarf. *Astrophysical Journal*, 858(2), 97.
- Burningham, B., Marley, M. S., Line, M. R., Lupu, R., **Visscher, C.**, Morley, C. V., Saumon, D., Freedman, R. (2017) Retrieval of atmospheric properties of cloudy L dwarfs. *Monthly Notices of the Royal Astronomical Society*, 470(1), 1177.
- Wakeford, H. R., **Visscher, C.**, Lewis, N. K., Kataria, T., Marley, M.S., Fortney, J.J., Mandell, A.M. (2017) High temperature condensate clouds in super-hot Jupiter atmospheres. *Monthly Notices of the Royal Astronomical Society*, 464(4), 4247.
- Moses, J.I., Marley, M.S., Zahnle, K., Line, M.R., Fortney, J.J., Barman, T.S., **Visscher, C.**, Lewis, N.K., Wolff, M.J. (2016) On the Composition of Young, Directly Imaged Giant Planets. *Astrophysical Journal*, 829, 66.
- Rodovská, Z., Magna, T., Skála, R, Brachaniec, T. and **Visscher, C.** (2016) The fate of moderately volatile elements in impact events – Lithium connection between the Ries sediments and central European tektites. *Meteoritics & Planetary Science* DOI: 10.1111/maps.12733.
- Fortney, J.J., Marley, M.S., Laughlin, G., Nettelmann, N., Morley, C.V., Lupu, R.E., **Visscher, C.**, Jeremic, P., Khadder, W.G., and Hargrave, M. (2016) The Hunt for Planet Nine: Atmosphere, Spectra, Evolution, and Detectability. *Astrophysical Journal Letters*, 824, 2.
- Kataria, T., Sing, D.K., Lewis, N.K., **Visscher, C.**, Showman, A.P., Fortney, J.J., and Marley, M.S. (2016) The atmospheric circulation of a nine-hot Jupiter sample: Probing circulation and chemistry over a wide phase space. *Astrophysical Journal*, 821, 9.
- Skemer, A.J. et al. (42 co-authors including **Visscher, C.**) (2015) The LEECH Exoplanet Imaging Survey: Characterization of the Coldest Directly Imaged Exoplanet, GJ 504 b, and Evidence for Super-Stellar Metallicity. *Astrophysical Journal* 817(2), 166.
- Canup, R.M., **Visscher, C.**, Salmon, J. and Fegley, B., Jr. (2015) Lunar volatile depletion due to incomplete accretion within an impact-generated disk. *Nature Geoscience* 8, 918-921. DOI: 10.1038/ ngeo2574.
- Joy, K.H., **Visscher, C.**, Zolensky, M.E., Mikouchi, T., Hagiya, K., Ohsumi, K., and Kring, D. (2015) Identification of magnetite in lunar regolith breccia 60016: Evidence for oxidized conditions at the lunar surface. *Meteoritics & Planetary Science* 50(7), 1157-1172. doi: 10.1111/maps.12462.
- Moses, J.I., Line, M.R., **Visscher, C.**, Richardson, M.R., Nettelmann, N., Fortney, J.J., Stevenson, K.B., and Madhusudhan, N. (2013) Compositional diversity in the atmospheres of hot Neptunes, with application to GJ 436b. *Astrophysical Journal*, 777, 34.
- Morley, C. V., Fortney, J. J., Kempton, E. M.-R., Marley, M. S., **Visscher, C.**, and Zahnle, K. (2013) Quantitatively Assessing the Role of Clouds in the Transmission Spectrum of GJ 1214b. *Astrophysical Journal*, 775, 33.

- **Visscher, C.** and Fegley, B., Jr. (2013) Chemistry of Impact-Generated Silicate Melt-Vapor Debris Disks. *Astrophysical Journal Letters*, 767, L12.
- Leggett, S. K, Morley, C. V., Marley, M. S., Saumon, D., Fortney, J. J., and **Visscher, C.** (2012) A Comparison of Near-Infrared Photometry and Spectra for Y Dwarfs with a New Generation of Cool Cloudy Models. *Astrophysical Journal*, 763, 130.
- Moses, J.I., Madhusudhan, N., **Visscher, C.**, and Freedman, R.S. (2012) Chemical Consequences of the C/O Ratio on Hot Jupiters: Examples from WASP-12b, CoRoT-2b, XO-1b, and HD 189733b. *Astrophysical Journal*, 763, 25.
- **Visscher, C.** (2012) Chemical Timescales in the Atmospheres of Highly Eccentric Exoplanets. *Astrophysical Journal*, 757, 5.
- Morley, C. V., Fortney, J. J., Marley, M. S., **Visscher, C.**, Saumon, D., and Leggett, S.K. (2012) Neglected Clouds in T and Y Dwarf Atmospheres. *Astrophysical Journal*, 765, 172.
- Stevenson, K.B., Harrington, J., Lust, N.B., Lewis, N. K., Montagnier, G., Moses, J. I., **Visscher, C.**, Blecic, J., Hardy, R.A., Cubillos, C., Campo, C. J. (2012) Two nearby sub-Earth-sized exoplanet candidates in the GJ 436 system. *Astrophysical Journal*, 755, 9.
- **Visscher, C.**, and Moses, J.I. (2011) Quenching of Carbon Monoxide and Methane in the Atmospheres of Cool Brown Dwarfs and Hot Jupiters. *Astrophysical Journal*, 738, 72.
- Moses, J.I., **Visscher, C.**, Fortney, J.J., Showman, A.P., Lewis, N.K., Griffith, C.A., Klippenstein, M., Shabram, M., Friedson A.J., Marley, M.S., Freedman, R.S. (2011) Disequilibrium Carbon, Oxygen, and Nitrogen Chemistry in the Atmospheres of HD 189733b and HD 209458b. *Astrophysical Journal*, 737, 15.
- Moses, J.I., **Visscher, C.**, Keane, T.C., and Sperier, A. (2010) On the abundance of non-cometary HCN on Jupiter. *Faraday Discussions*, 147, 103-136.
- **Visscher, C.**, Moses, J.I., and Saslow, S.A. (2010) The Deep Water Abundance on Jupiter: New Constraints from Thermochemical Kinetics and Diffusion Modeling. *Icarus*, 209, 602-615.
- **Visscher, C.**, Lodders, K., and Fegley, B., Jr. (2010) Atmospheric Chemistry in Giant Planets, Brown Dwarfs, and Low-Mass Dwarf Stars III. Iron, Magnesium, and Silicon. *Astrophysical Journal*, 716, 1060-1075.
- **Visscher, C.**, Lodders, K., and Fegley, B., Jr. (2006) Atmospheric Chemistry in Giant Planets, Brown Dwarfs, and Low-Mass Dwarf Stars II. Sulfur and Phosphorus. *Astrophysical Journal*, 648, 1181-1195.
- **Visscher, C.**, and Fegley, B., Jr. (2005) Chemical Constraints on the Water and Total Oxygen Abundances in the Deep Atmosphere of Saturn. *Astrophysical Journal*, 623, 1221-1227.

Books

- *Science and Religion: Perspectives Across Disciplines*, Claudia May and Channon Visscher, eds. Lanham, MD: Lexington Books, 2023.

Other Writings

- "Unsung Holidays: Earth Day" *In All Things*, April 2023
- "Kuyper on Science", a chapter review of *Calvinism for a Secular Age: A Twenty-First-Century Reading of Abraham Kuyper's Stone Lectures* (Jessica R. Joustra, Robert J. Joustra, eds.), *In All Things*, inallthings.org, February 2022

- "All I Want for Christmas" *In All Things*, inallthings.org, December 2021
- "The Making of Beautiful Things" a review of *Adorning the Dark* (Andrew Peterson), inallthings.org, October 2021
- "The Shared Virtues of Science and Faith" a review of *Why Science and Faith Need Each Other: Eight Shared Values That Move Us Beyond Fear* (Elaine Howard Ecklund), *In All Things*, inallthings.org, March 2021
- "Kinds of Science and Exploring the Past" *In All Things*, inallthings.org, August 2020
- "A Focus on the 'Fossil Whale' from Moby-Dick" *Pro Rege*, 47(4), June 2019
- "Against Common Sense" *In All Things*, inallthings.org, April 2018
- "Lunar Stories: The Violence of Creation" *Perspectives Journal*, May/June 2016;
- "The Joy of Exploration" *In All Things*, inallthings.org, June 2015

Patents

- Robertson, J. Benitez, C. A., **Visscher, C.**, and Woerner, D. L. Carbon Dioxide Absorbent. U.S. Patent #7,727,309.

Selected Presentations (*invited)

- *Worlds Without End: The Science of Exoplanet Discovery*. Discover Exoplanets, sponsored by SSI and NCIL, Sioux Center Public Library, June 2025.
- **Abundance Variations and Condensate Stability in Substellar Atmospheres*, Cool Stars 22 splinter session: *The Buddy System: Utilizing the Wealth of Host Star Data to Inform Substellar Physics*, University of California - San Diego, June 2024; also presented at NASA Goddard Exoplanet Seminar Series, May 2025.
- **Condensate Cloud Formation in Substellar Atmospheres*, Cloud Zwei Con, Max Planck Society; Schloss Ringberg, Germany, January 2023.
- *Can Clouds Talk to Each Other?*, Other Worlds Laboratory (OWL) Summer Exoplanet Program, University of California - Santa Cruz, July 2022.
- *Strategies to Advance Geoscience Understanding and Engagement in Religious Academic Institutions*, Goldschmidt, Barcelona, August 2019.
- **Chemistry of the Forming Moon* University of Oxford Atmospheric, Oceanic, and Planetary Physics (AOPP) seminar, Oxford, UK. July 2019.
- **Chemistry of Impact-Generated Disks: Implications for the Moon*. Goldschmidt, Paris, August 2017.
- **Let the [Colliding Black Holes] Declare the Glory of God*. Dordt University First Monday Speaker Series, September 2016.
- **Incomplete Lunar Accretion and the Depletion of Volatile Elements in the Moon*. European Lunar Symposium, Amsterdam, May 2016.
- **Chemistry of the Protolunar Disk and the Formation of the Moon*. Grinnell Physics Seminar, Grinnell University, April 2015.
- **Clouds and Chemistry in Exoplanet Atmospheres*. Kleigel Lectures in Planetary Sciences, Caltech Department of Planetary Sciences, Pasadena, CA, April 2013.

- **Worlds Without End: Planets Inside and Outside of the Solar System*. Wonderful Wednesdays (Dream Big! Program), Mamie Doud Eisenhower Library, Broomfield, CO, July 2012.
- **Chemical Processes in Exoplanet Atmospheres*. Comparative Climatology of Terrestrial Planets, Boulder, CO, June 2012
- *Hot Jupiters: Planetary Science Outside of the Solar System*. Faculty Institute for NASA Earth & Space Science Education (FINESSE), June 2010.

Selected REU Projects Supervised

- Jocelyn Zonnefeld (Spring 2023). Kuyper Honors Program/Stat 290. "Chemical abundance variations in Hypatia and Gaia stellar databases."
- Elliott Schmidt (Spring 2023). CHEM 358/380 project. "Validating a sulfur kinetics network for the atmosphere of Venus".
- Evangeline Colarossi (Spring 2020). CHEM 358/380 project, "The chemical behavior of Rb during the formation of the Moon."
- Anna Vekony (Summer 2019). Oxford SCIO/CCCU Bridging the Two Cultures and the Dordt University Undergraduate Summer Research Program "Creation Stories for Planetary Systems". Summer seminar presentation by A. Vekony, "Marvel and the Multiverse", June 2019, and co-author on Goldschmidt 2019 talk, *Strategies to Advance Geoscience Understanding and Engagement in Religious Academic Institutions*, Goldschmidt, Barcelona, August 2019.
- Travis Van Roekel (Summer 2015). Dordt University Undergraduate Summer Research Program "Chemical Models of the Moon Following the Giant Impact." (presentation co-author).
- Nathan Ryder (Summer 2014). Supported by NASA Planetary Atmospheres (PATM) and the Dordt University Undergraduate Summer Research Program, "Chemistry and Kinetics in the Atmospheres of Brown Dwarfs."
- Sarah Saslow (Summer 2009). Lunar and Planetary Institute (LPI) Summer Intern Program, "Thermochemical and Photochemical Modeling of Jupiter's Troposphere." (co-author of Visscher et al. 2010, *Icarus*, 209, 602.).

Selected Awards, Interdisciplinary, & Outreach Activities

- Chair, Center for Extrasolar Planetary Systems (CEPS), Space Science Institute, 2018-present.
- Co-I, "A Theoretical and Laboratory Study of Refractory Cloud Formation in Exoplanet and Brown Dwarf Atmospheres," NASA Exoplanets Research Program (NNH23ZDA001N-XRP), 2024-2026 (***active***)
- Co-I, Center for Lunar Origin and Exploration (CLOE), NASA Solar System Exploration Research Virtual Institute (SSERVI; NNH22ZDA020C, 2023-2028 (***active***).
- Co-I "Exometeorology: Weather on an Isolated World Beyond Our Own", STScI JWST Cycle 2 GO program (3548), (***selected observing proposal***).
- Co-I "Sinking silicates: tracing rainout across the LT transition" STScI JWST Cycle 2 GO program (3670), (***selected observing proposal***).
- Co-I "The Chemistry of Sulfur and Phosphorus Species in Exoplanet Atmospheres", NASA Exoplanets Research Program (NNH21ZDA001N-XRP), 2022-2025 (***active***)

- Co-I “Precision Tests of the Physics of Mixing in Cool Planetary and Brown Dwarf Atmospheres”, STScI Cycle 1 JWST Archival Research Program (JWST-AR-02232.007-A), 2022-2025 (***active***)
- Director of the Andreas Center for Scholarship and Service, Dordt University 2020-2023.
- Participating Scientist, Other Worlds Laboratory (OWL) Exoplanet Summer Program, Collaborative Project: ”Clouds, Composition, and the Path to Addressing Formation in Substellar Objects”, University of California - Santa Cruz, July 2022.
- Faculty Fellow, Lilly Faculty Fellows Program,“Bridging the Disciplines: Faculty Opportunities for Collaborative Scholarship”, 2021-2023
- P-I “CC* Network Design and Implementation for Small Institutions: Rural Campus Connectivity for Research and Teaching on the Prairie”, NSF CC-NIE (Award #1827210), 2018-2020.
- SCCS 2nd Grade Chemistry Demonstrations, 2014-2023 (spring recurring); SC Middle School Stargazing Night, Fall 2018.
- Guest Lecturer in CORE 150 (Biblical Foundations) at Dordt University: “Scientific Paradigms & Cosmology”, 2016-2019 (F/S recurring).
- CCCU/SCIO Bridging the Two Cultures II Program Research Award and Faculty Participant: “Creation Stories for Planetary Systems”, Oxford, United Kingdom, 2017-2019.
- Co-I “Tropospheric Chemistry and Aerosol Formation on Jupiter and Saturn”, NASA OPR (Outer Planets Research) Program, 2015-2017.
- P-I “Collaborative Research: Characterizing Cloudy Exoplanet Atmospheres”, NSF Astronomy & Astrophysics Program, 2013-2016.
- Dordt University Faculty Forum: J. Ploegstra and C. Visscher, “Science for all Students: the CORE Science Program at Dordt University”, Summer 2017; co-editor (with J. Ploegstra and C. Fictorie) of “Science for all Christians” essay collection for BIO/CHEM 180 and CORE science, 2019.
- Post-Play Discussion Panelist, Dordt University Theatre Arts Department production of *Silent Sky*, by Lauren Gundersen, Spring 2017.
- Dordt University Summer Seminar Series and Dordt Facebook Live Event: C. Visscher, “Aliens? The Curious Case of KIC8462852”, Summer 2016.
- Perspectives in Practice Book Discussion (Project Leader): “Man, Mind, Machine”, comparative reading of *The Mind and the Machine* by M. Dickerson and *The Singularity is Near* by R. Kurzweil, Spring 2016.
- Dordt University Summer Seminar Series: R. Eppinga and C. Visscher, “Developing Tools to Facilitate Challenging Discussions: Biological Evolution and Earth History in the Christian Classroom”, Summer 2015.
- Leadership & Selection Team Member, Dordt University STEAM Grant (Science and Theology for Emerging Adult Ministries); Templeton Foundation and Fuller Theological Seminary, August 2016.
- Faculty Award for Noteworthy Scholarship, Dordt University, March 2016

Submitted JWST Cycle 4 General Observer (GO) proposals (Visscher as Co-I)

- Submission #7283 with Mullens as Principal Investigator and a title of: Leader of the Pack: Probing Disequilibrium Chemistry in Highly Eccentric Wolf 503b
- Submission #7427 with Burgasser as Principal Investigator and a title of: The Devil's Element: Tracing Phosphorus Through Phosphine in Cold Substellar Atmospheres
- Submission #7445 with Miles as Principal Investigator and a title of: Purple Rain: Survey for Weather and Water-Ice Clouds in Cold Planet-like Atmospheres
- Submission #7649 with Biller as Principal Investigator and a title of: Clouds vs. Chemistry?: 3D spectroscopic tomography of a characteristic exoplanet analog
- Submission #7657 with Faherty as Principal Investigator and a title of: Anchoring Diverse Cold World Spectra With Bolometric Luminosity and Temperature
- Submission #7670 with Whiteford as Principal Investigator and a title of: From artist's impressions to reality: meteorological mapping of a gaseous world beyond our solar system
- Submission #7686 with Mullens as Principal Investigator and a title of: Brown Dwarf Broiler: Probing Chemical Quenching and Heat Redistribution in a Highly-Eccentric Brown Dwarf
- Submission #7705 with Beiler as Principal Investigator and a title of: A Direct Test of The Newly Proposed CO2 Chemical Profile
- Submission #7995 with Faherty as Principal Investigator and a title of: Cold World Secrets Revealed through a G395H Survey of Isolated Brown Dwarfs
- Submission #8140 with Zhang as Principal Investigator and a title of: Empirically anchoring the physics of silicate clouds using L0- T9 benchmark brown dwarfs
- Submission #8236 with Vos as Principal Investigator and a title of: Wild Weather on a Widely Separated Companion
- Submission #8406 with Suarez as Principal Investigator and a title of: The Cloudy Weather Report Across Diverse Young Extrasolar Worlds
- Submission #8441 with Faherty as Principal Investigator and a title of: The Cold Worlds Spectral Library
- Submission #8617 with Faherty as Principal Investigator and a title of: Building A Library of Cold Exo-Giant Worlds With Brown Dwarf Spectra
- Submission #8911 with Rothermich as Principal Investigator and a title of: Tracing the Chemical Behavior of Cold Worlds Using Stellar Fraternal Twins
- Submission #8957 with Phillips as Principal Investigator and a title of: This'a Way or That'a Way - Revealing Potential Distinct Pathways of Formation for A Unique Trio of Exoplanet Doppelgangers in the Beta Pictoris Moving Group
- Submission #9186 with Calamari as Principal Investigator and a title of: The Buddy System: Advancing Ultracool Science with Benchmark Companions