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Education	Ph.D., Planetary Sciences , University of Arizona	2014
	B.S., Astronomy , <i>magna cum laude</i> , University of Southern California	2009
Appointments and Research Experience	Assistant Professor	2019–present
	Director of Undergraduate Studies	2025–present
	Department of Earth and Planetary Sciences, Yale University	
	Visiting Assistant Researcher	2019
	Postdoctoral Fellow	2014–2018
	Department of Earth, Planetary, and Space Sciences, University of California, Los Angeles	
	Graduate Research and Teaching Assistant	2009–2014
	Department of Planetary Sciences, University of Arizona	
	Research Associate , NASA Academy, Goddard Space Flight Center	2008
	Undergraduate Researcher , University of Southern California	2007–2009
Additional Training	Effectively Communicating Science: Expert Witness Training Academy, Mitchell Hamline School of Law, Saint Paul, MN	2019
	Urbino Summer School in Paleoclimatology, Urbino, Italy	2016
	GFDL Summer School on Atmospheric Modeling, Princeton, NJ	2012
Mission Involvement	<i>Dragonfly</i> Co-Investigator, NASA's <i>Dragonfly</i> mission to Titan (New Frontiers 4)	2017–present
Honors and Awards	Arthur Greer Memorial Prize for Outstanding Research, Yale University	2023
	Harold C. Urey Prize in Planetary Science, AAS Division for Planetary Sciences	2022
	NASA Planetary Science Early Career Award	2022
	Ronald Greeley Early Career Award, American Geophysical Union	2020
	NASA Planetary Science Early Career Fellowship	2017
	Gerard P. Kuiper Memorial Award, University of Arizona	2014
	College of Science Graduate Teaching/Mentoring Award, University of Arizona	2011
	Golden Key International Honour Society	2010
	Renaissance Scholar Award, USC	2009
	Phi Beta Kappa Undergraduate Award	2009
	Dean Joan M. Schaefer Scholarship	2007–2009
	USC Provost's Undergraduate Research Fellowship	2007–2009
	Albert Fisher Science Scholarship	2007–2008
Refereed Publications	[†] <i>Yale advisee</i> Book Chapters:	
	1. Lora, J.M. , E.P. Turtle, and J.L. Mitchell (2025). Titan's weather, climate, and paleoclimate. In: <i>Titan After Cassini-Huygens</i> (COSPAR Book Series). R. Lopes, C. Elachi, I. Mueller-Wodarg, and A. Solomonidou, Eds. Elsevier, pp. 201–237. https://doi.org/10.1016/B978-0-323-99161-2.00002-4	

2. [†]Battalio, J.M., M. Cohen, P. Read, **J.M. Lora**, T. McConnachie, and K. McGouldrick (2024). Oscillations in terrestrial planetary atmospheres. In: *Atmospheric Oscillations: Sources of Subseasonal-to-Seasonal Variability and Predictability*. B. Guan, Ed. Elsevier, pp. 399–441. <https://doi.org/10.1016/B978-0-443-15638-0.00019-8>

Journal Articles:

3. [†]Han, S. and **J.M. Lora** (2025). Thermal inertia controls on Titan’s surface temperature and planetary boundary layer structure. *Planetary Science Journal*, accepted.
4. Marlin, T.C., E.F. Young, K. de Kleer, M. Cordiner, [†]N.A. Lombardo, I. de Pater, **J.M. Lora**, P. Corlies, R. Cosentino, C. Nixon, S. Rodriguez, and A. Thelen (2025). Zonal winds in Titan’s middle atmosphere from a stellar occultation observed with Keck adaptive optics. *Planetary Science Journal*, accepted.
5. [†]Baek, S.H., **J.M. Lora**, C.B. Skinner, M. Fu, and J. Zhu (2025). Atmospheric and oceanic energy transport during North Atlantic freshening events: influences of moisture transport and hydrologic cycle feedbacks. *Climate Dynamics* 63, 301. <https://doi.org/10.1007/s00382-025-07761-1>
6. Hill, S.A., S. Bordoni, J.L. Mitchell, and **J.M. Lora** (2025). Interpreting seasonal and interannual Hadley cell descending edge migrations via the cell-mean Rossby number. *Journal of Climate*, in press. <https://doi.org/10.1175/JCLI-D-24-0678.1>
7. Seltzer, A.M., R.L. Tyne, I. Musan, J.B. Langman, D.J. Amaya, K.B. Karnauskas, **J.M. Lora**, G.J. Bowen, P.H. Barry, M. Costantini, M.W. Broadley, W.J. Jenkins, and D.V. Bekaert (2025). Past aquifer responses to climate recorded by fossil groundwater. *Science Advances* 11, eadu7812. <https://doi.org/10.1126/sciadv.adu7812>
8. Wright, L., N.A. Teanby, P.G.J. Irwin, C.A. Nixon, [†]N.A. Lombardo, **J.M. Lora**, and D. Mitchell (2025). Seasonal evolution of Titan’s stratospheric tilt and temperature field at high resolution from Cassini/CIRS. *Planetary Science Journal* 6, 114. <https://doi.org/10.3847/PSJ/adcab3>
9. Nixon, C., B. Bézard, T. Cornet, B. Coy, I. de Pater, M. Es-Sayeh, H. Hammel, E. Lellouch, [†]N. Lombardo, M. López-Puertas, **J.M. Lora**, and 34 co-authors (2025). Titan’s atmosphere in late northern summer from JWST and Keck observations. *Nature Astronomy* 9, 969–981. <https://doi.org/10.1038/s41550-025-02537-3>
10. [†]Battalio, J.M., **J.M. Lora**, S.W. Lubis, and P. Hassanzadeh (2025). Propagation and periodicity of Mars’s northern annular mode modulates the dust cycle. *Geophysical Research Letters* 52, e2024GL112814. <http://dx.doi.org/10.1029/2024GL112814>
11. [†]Rush, W.D., **J.M. Lora**, C. Skinner, [†]S. Menemenlis, and 21 co-authors (2025). Atmospheric river detection under changing seasonality and mean-state climate: ARTMIP tier 2 paleoclimate experiments. *Journal of Geophysical Research: Atmospheres* 130, e2024JD042222. <https://doi.org/10.1029/2024JD042222>
12. [†]Olim, E., **J.M. Lora**, and [†]J.M. Battalio (2025). Methane storm characteristics and evolution in simulations of Titan’s hydroclimate. *Icarus* 425, 116290. <https://doi.org/10.1016/j.icarus.2024.116290>
13. [†]Scholz, S.R. and **J.M. Lora** (2024). Atmospheric rivers cause warm winters and extreme heat events. *Nature* 636, 640–646. <https://doi.org/10.1038/s41586-024-08238-7>
14. **Lora, J.M.** (2024). Moisture transport and the methane cycle of Titan’s lower atmosphere. *Icarus* 422, 116241 (Invited Contribution). <https://doi.org/10.1016/j.icarus.2024.116241>
15. [†]Battalio, J.M. and **J.M. Lora** (2024). Increases in the local eddy energetics of the extratropical atmosphere over the last four decades. *Journal of Climate* 37, 3283–3304. <https://doi.org/10.1175/JCLI-D-22-0930.1>

16. Williams*, D.A., X. Ji*, P. Corlies*, and **J.M. Lora** (2024). Clouds and seasonality on terrestrial planets with varying rotation rates. *Astrophysical Journal* 963, 36. <https://doi.org/10.3847/1538-4357/ad192f>
*2022 Rossbypalooza summer school advisees
17. Chatain, A., S.C.R. Rafkin, A. Soto, E. Moisan, **J.M. Lora**, A. Le Gall, R. Hueso, and A. Spiga (2024). The impact of lake shape and size on lake breezes and air–lake exchanges on Titan. *Icarus* 411, 115925. <https://doi.org/10.1016/j.icarus.2023.115925>
18. [†]Lombardo, N.A. and **J.M. Lora** (2023). The heat and momentum budgets of Titan’s middle atmosphere. *Journal of Geophysical Research: Planets* 128, e2023JE008061. <https://doi.org/10.1029/2023JE008061>
19. Oster, J.L., S. Macarewicz, M. Lofverstrom, C. de Wet, I. Montañez, **J.M. Lora**, C. Skinner, and C. Tabor (2023). North Atlantic meltwater during Heinrich Stadial 1 drives wetter climate with more atmospheric rivers in western North America. *Science Advances* 9, eadj222. <https://doi.org/10.1126/sciadv.adj2225>
20. **Lora, J.M.**, C.B. Skinner, [†]W.D. Rush, and [†]S.H. Baek (2023). The hydrologic cycle and atmospheric rivers in CESM2 simulations of the Last Glacial Maximum. *Geophysical Research Letters* 50, e2023GL104805. <https://doi.org/10.1029/2023GL104805>
21. Lewis, N.T., [†]N.A. Lombardo, P.L. Read, and **J.M. Lora** (2023). Equatorial waves and superrotation in the stratosphere of a Titan general circulation model. *Planetary Science Journal* 4, 149. <https://doi.org/10.3847/PSJ/ace76f>
22. [†]Baek, S.H., Y. Kanzaki, **J.M. Lora**, N. Planavsky, C.T. Reinhard, and S. Zhang (2023). Impact of climate on the global capacity for enhanced rock weathering on croplands. *Earth’s Future* 11, e2023EF003698. <http://dx.doi.org/10.1029/2023EF003698>
23. Birch, S.P.D., G. Parker, P. Corlies, J.M. Soderblom, J.W. Miller, R.V. Palermo, **J.M. Lora**, A.D. Ashton, A.G. Hayes, and J.T. Perron (2023). Reconstructing river flows remotely on Earth, Titan, and Mars. *Proceedings of the National Academy of Sciences* 120, e2206837120. <https://doi.org/10.1073/pnas.2206837120>
24. Shields, C.A., et al. (including **J.M. Lora**) (2023). Future atmospheric rivers and impacts on precipitation: Overview of the ARTMIP Tier 2 high-resolution global warming experiment. *Geophysical Research Letters* 50, e2022GL102091. <https://doi.org/10.1029/2022GL102091>
25. [†]Baek, S.H., [†]J.M. Battalio, and **J.M. Lora** (2023). Atmospheric river variability over the last millennium driven by annular modes. *AGU Advances* 4, e2022AV000834. <https://doi.org/10.1029/2022AV000834>
26. Skinner, C.B., **J.M. Lora**, C. Tabor, J. Zhu (2023). Atmospheric river contributions to ice sheet hydroclimate at the Last Glacial Maximum. *Geophysical Research Letters* 50, e2022GL101750. <https://doi.org/10.1029/2022GL101750>
27. [†]Lombardo, N.A. and **J.M. Lora** (2023). Influence of observed seasonally varying composition on Titan’s stratospheric circulation. *Icarus* 390, 115291. <https://doi.org/10.1016/j.icarus.2022.115291>
28. Lee, H.-I., J.L. Mitchell, **J.M. Lora**, and A. Tripathi (2023). Influence of stationary waves on precipitation change in North American summer during the Last Glacial Maximum. *Journal of Climate* 36, 3165–3182. <https://doi.org/10.1175/JCLI-D-21-0886.1>
29. [†]Menemenlis, S., S.M. White, D.E. Ibarra, and **J.M. Lora** (2022). A proxy-model comparison for mid-Pliocene warm period hydroclimate in the Southwestern US. *Earth and Planetary Science Letters* 596, 117803. <https://doi.org/10.1016/j.epsl.2022.117803>

30. Lewis-Merrill, R.A., S. Moon, J.L. Mitchell, and **J.M. Lora** (2022). Assessing environmental factors of alluvial fan formation on Titan. *Planetary Science Journal* 3, 223. <https://doi.org/10.3847/PSJ/ac8d09>
31. **Lora, J.M.**, [†]J.M. Battalio, [†]M. Yap, and [†]C. Baciocco (2022). Topographic and orbital forcing of Titan’s hydroclimate. *Icarus* 384, 115095. <https://doi.org/10.1016/j.icarus.2022.115095>
32. [†]Baek, S.H., Y. Kushnir, M. Ting, J.E. Smerdon, and **J.M. Lora** (2022). Regional signatures of forced North Atlantic SST variability: A limited role for aerosols and greenhouse gases. *Geophysical Research Letters* 49, e2022GL097794. <https://doi.org/10.1029/2022GL097794>
33. Marquardt Collow, A., C.A. Shields, B. Guan, S. Kim, **J.M. Lora**, and 15 co-authors (2022). An overview of ARTMIP’s Tier 2 reanalysis intercomparison: Uncertainty in the detection of atmospheric rivers and their associated precipitation. *Journal of Geophysical Research: Atmospheres* 127, e2021JD036155. <https://doi.org/10.1029/2021JD036155>
34. Comola, F., J. Kok, **J.M. Lora**, K. Cohanin, X. Yu, C. He, P. McGuiggan, S. Hörst, and F. Turney (2022). Titan’s prevailing circulation might drive highly intermittent, yet significant sediment transport. *Geophysical Research Letters* 49, e2022GL097913. <https://doi.org/10.1029/2022GL097913>
35. O’Brien, T.A., et al. (including **J.M. Lora**) (2022). Increases in future AR count and size: Overview of the ARTMIP Tier 2 CMIP5/6 experiment. *Journal of Geophysical Research: Atmospheres* 127, e2021JD036013. <https://doi.org/10.1029/2021JD036013>
36. Amaya, D.J., A.M. Seltzer, K.B. Karnauskas, **J.M. Lora**, X. Zhang, and P.N. DiNezio (2022). Air-sea coupling shapes North American hydroclimate response to ice sheets during the Last Glacial Maximum. *Earth and Planetary Science Letters* 578, 117271. <https://doi.org/10.1016/j.epsl.2021.117271>
37. Rafkin, S., **J.M. Lora**, A. Soto, and [†]J.M. Battalio (2022). The interaction of deep convection with the general circulation in Titan’s atmosphere. Part 1: Cloud resolving simulations. *Icarus* 373, 114755. <https://doi.org/10.1016/j.icarus.2021.114755>
38. [†]Battalio, J.M., **J.M. Lora**, S. Rafkin, and A. Soto (2022). The interaction of deep convection with the general circulation in Titan’s atmosphere. Part 2: Impacts on the climate. *Icarus* 373, 114623. <https://doi.org/10.1016/j.icarus.2021.114623>
39. Rodriguez, S., et al. (including **J.M. Lora**) (2022). Science goals and new mission concepts for a future exploration of Titan’s atmosphere, geology and habitability: Titan POLar Scout/orbiteEr and In situ lake lander and DrONE explorer (POSEIDON). *Experimental Astronomy* 54, 911–973. <https://doi.org/10.1007/s10686-021-09815-8>
40. [†]Baek, S.H., Y. Kushnir, W.A. Robinson, **J.M. Lora**, D.E. Lee, M. Ting (2021). An atmospheric bridge between subpolar and tropical Atlantic regions: A perplexing asymmetric teleconnection. *Geophysical Research Letters* 48, e2021GL096602. <https://doi.org/10.1029/2021GL096602>
41. [†]Baek, S.H. and **J.M. Lora** (2021). Counterbalancing influences of aerosols and greenhouse gases on atmospheric rivers. *Nature Climate Change* 11, 958–965. <https://doi.org/10.1038/s41558-021-01166-8>
42. [†]Battalio, J.M. and **J.M. Lora** (2021). Global impacts from high-latitude storms on Titan. *Geophysical Research Letters* 48, e2021GL094244. <https://doi.org/10.1029/2021GL094244>
43. [†]Battalio, J.M. and **J.M. Lora** (2021). Annular modes of variability in the atmospheres of Mars and Titan. *Nature Astronomy* 5, 1139–1147. <https://doi.org/10.1038/s41550-021-01447-4>

44. [†]Menemenlis, S.A., **J.M. Lora**, M. Lofverstrom, and D. Chandan (2021). Influence of stationary waves on mid-Pliocene atmospheric rivers and hydroclimate. *Global and Planetary Change* 204, 103557. <https://doi.org/10.1016/j.gloplacha.2021.103557>
45. Nichols-Fleming, F., P. Corlies, A.G. Hayes, M. Ádámkovics, P. Rojo, S. Rodriguez, E.P. Turtle, **J.M. Lora**, and J.M. Soderblom (2021). Tracking short-term variations in the haze distribution of Titan’s atmosphere with SINFONI VLT. *Planetary Science Journal* 2, 180. <https://doi.org/10.3847/PSJ/abffd7>
46. Barnes, J.W., et al. (including **J.M. Lora**) (2021). Science goals and objectives for the Dragonfly Titan rotorcraft relocatable lander. *Planetary Science Journal* 2, 130. <https://doi.org/10.3847/PSJ/abfdcf>
47. MacKenzie, S.M., S.P.D. Birch, S. Hörst, C. Sotin, E. Barth, **J.M. Lora**, and 27 co-authors (2021). Titan: Earth-like on the outside, Ocean World on the inside. *Planetary Science Journal* 2, 112. <https://doi.org/10.3847/PSJ/abf7c9>
48. Kageyama, M., S.P. Harrison, M.-L. Kapsch, M. Lofverstrom, **J.M. Lora**, and 24 co-authors (2021). The PMIP4 Last Glacial Maximum experiments: preliminary results and comparison with the PMIP3 simulations. *Climate of the Past* 17, 1065–1089. <https://doi.org/10.5194/cp-17-1065-2021>
49. **Lora, J.M.**, C.A. Shields, and J.J. Rutz (2020). Consensus and disagreement in atmospheric river detection: ARTMIP global catalogues. *Geophysical Research Letters* 47, e2020GL089302. <https://doi.org/10.1029/2020GL089302>
50. Skinner, C.B., **J.M. Lora**, A.E. Payne, and C.J. Poulsen (2020). Atmospheric river changes shaped mid-latitude hydroclimate since the mid-Holocene. *Earth and Planetary Science Letters* 541, 116293. <https://doi.org/10.1016/j.epsl.2020.116293>
51. Rehfeld, K., R. Hébert, **J.M. Lora**, M. Lofverstrom, and C.M. Brierley (2020). Variability of surface climate in simulations of past and future. *Earth System Dynamics* 11, 447–468. <https://doi.org/10.5194/esd-11-447-2020>
52. O’Brien, T.A., et al. (including **J.M. Lora**) (2020). Detection uncertainty matters for understanding atmospheric rivers. *Bulletin of the American Meteorological Society* 101, E790–E796. <https://doi.org/10.1175/BAMS-D-19-0348.1>
53. Dixit, Y., S. Toucanne, C. Fontanier, V. Pasquier, **J.M. Lora**, G. Jouet, and A. Tripathi (2020). Enhanced western Mediterranean rainfall during past interglacials driven by North Atlantic pressure changes. *Quaternary International* 553, 1–13. <https://doi.org/10.1016/j.quaint.2020.08.017>
54. Santi, L.M., A.J. Arnold, D.E. Ibarra, C.A. Whicker, J.A. Mering, R.B. Lomarda, **J.M. Lora**, and A. Tripathi (2020). Clumped isotope constraints on changes in latest Pleistocene hydroclimate in the northwestern Great Basin: Lake Surprise, California. *GSA Bulletin* 132, 2669–2683. <https://doi.org/10.1130/B35484.1>
55. Faulk*, S.P., **J.M. Lora***, J.L. Mitchell, and P.C.D. Milly (2020). Titan’s climate patterns and surface methane distribution due to the coupling of land hydrology and atmosphere. *Nature Astronomy* 4, 390–398. <https://doi.org/10.1038/s41550-019-0963-0>
*equal-contribution authors
56. Rutz, J.J., C.A. Shields, **J.M. Lora**, and 35 co-authors (2019). The Atmospheric River Tracking Method Intercomparison Project (ARTMIP): Quantifying uncertainties in atmospheric river climatology. *Journal of Geophysical Research: Atmospheres* 124, 13,777–13,802. <https://doi.org/10.1029/2019JD030936>
57. **Lora, J.M.** and D.E. Ibarra (2019). The North American hydrologic cycle through the last deglaciation. *Quaternary Science Reviews* 226, 105991 (Invited Contribution). <https://doi.org/10.1016/j.quascirev.2019.105991>

58. Lee, H.-I., J.L. Mitchell, A. Tripathi, **J.M. Lora**, G. Chen, and Q. Ding (2019). North Atlantic and Pacific quasi-stationary parts of atmospheric rivers and their implications for East Asian monsoon onset. *Geophysical Research Letters* 46, 12311–12320. <https://doi.org/10.1029/2019GL084272>
59. **Lora, J.M.**, T. Tokano, J. Vatant d’Ollone, S. Lebonnois, and R.D. Lorenz (2019). A model intercomparison of Titan’s climate and low-latitude environment. *Icarus* 333, 113–126. <https://doi.org/10.1016/j.icarus.2019.05.031>
60. MacKenzie, S.M., **J.M. Lora**, and R.D. Lorenz (2019). A thermal inertia map of Titan. *Journal of Geophysical Research: Planets* 124, 1728–1742. <https://doi.org/10.1029/2019JE005930>
61. Molaro, J.L., M. Choukroun, C. Phillips, E. Phelps, R. Hodyss, K. Mitchell, **J.M. Lora**, and G. Meirion-Griffith (2019). The microstructural evolution of water ice in the solar system through sintering. *Journal of Geophysical Research: Planets* 124, 243–277. <https://doi.org/10.1029/2018JE005773>
62. Hill, S.A., **J.M. Lora**, N. Khoo, S.P. Faulk, and J. Aurnou (2018). Affordable rotating fluid demonstrations for geoscience education: The DIYdynamics project. *Bulletin of the American Meteorological Society* 99, 2529–2538. <https://doi.org/10.1175/BAMS-D-17-0215.1>
63. **Lora, J.M.** (2018). Components and mechanisms of hydrologic cycle changes over North America at the Last Glacial Maximum. *Journal of Climate* 31, 7035–7051. <https://doi.org/10.1175/JCLI-D-17-0544.1>
64. Shields, C.A., J.J. Rutz, L.R. Leung, F.M. Ralph, M. Wehner, B. Kawzenuk, **J.M. Lora**, and 32 co-authors (2018). Atmospheric River Tracking Method Intercomparison Project (ARTMIP): Experimental design and project goals. *Geoscientific Model Development* 11, 2455–2474. <https://doi.org/10.5194/gmd-2017-295>
65. Turtle, E.P., J.E. Perry, J.M. Barbara, A.D. Del Genio, S. Rodriguez, C. Sotin, **J.M. Lora**, S. Faulk, P. Corlies, J. Kelland, S.M. MacKenzie, R.A. West, A.S. McEwen, J.I. Lunine, J. Pitesky, T.L. Ray, and M. Roy (2018). Titan’s meteorology over the Cassini mission: Evidence for extensive subsurface methane reservoirs. *Geophysical Research Letters* 45, 5320–5328. <https://doi.org/10.1029/2018GL078170>
66. **Lora, J.M.**, T. Kataria, and P. Gao (2018). Atmospheric circulation, chemistry, and infrared spectra of Titan-like exoplanets around different stellar types. *Astrophysical Journal* 853, 58–67. <https://doi.org/10.3847/1538-4357/aaa132>
67. Faulk, S.P., S. Moon, J.L. Mitchell, and **J.M. Lora** (2017). Regional patterns of extreme precipitation on Titan consistent with observed alluvial fan distribution. *Nature Geoscience* 10, 827–831. <https://doi.org/10.1038/ngeo3043>
68. Löfverström, M. and **J.M. Lora** (2017). Abrupt regime shifts in the North Atlantic atmospheric circulation over the last deglaciation. *Geophysical Research Letters* 44, 8047–8055. <https://doi.org/10.1002/2017GL074274>
69. **Lora, J.M.**, J.L. Mitchell, C. Risi, and A.E. Tripathi (2017). North Pacific atmospheric rivers and their influence on North America at the Last Glacial Maximum. *Geophysical Research Letters* 44, 1051–1059. <https://doi.org/10.1002/2016GL071541>
70. **Lora, J.M.** and M. Ádámkovics (2017). The near-surface methane humidity on Titan. *Icarus* 286, 270–279. <https://doi.org/10.1016/j.icarus.2016.10.012>
71. **Lora, J.M.**, J.L. Mitchell, and A.E. Tripathi (2016). Abrupt reorganization of North Pacific and western North American climate during the last deglaciation. *Geophysical Research Letters* 43, 11796–11804. <https://doi.org/10.1002/2016GL071244>

72. Mitchell, J.L. and **J.M. Lora** (2016). The climate of Titan. *Annual Reviews of Earth and Planetary Science* 44, 353–380 (Invited Contribution).
<https://doi.org/10.1146/annurev-earth-060115-012428>
73. McDonald, G.D., A.G. Hayes, R.C. Ewing, **J.M. Lora**, C.E. Newman, T. Tokano, A. Lucas, A. Soto, and G. Chen (2016). Variations in Titan’s dune orientations as a result of orbital forcing. *Icarus* 270, 197–210. <https://doi.org/10.1016/j.icarus.2015.11.036>
74. Neish, C.D., J.L. Molaro., **J.M. Lora**, A.D. Howard, R.L. Kirk, P. Schenk, V.J. Bray, and R.D. Lorenz (2016). Fluvial erosion as a mechanism for crater modification on Titan. *Icarus* 270, 114–129. <https://doi.org/10.1016/j.icarus.2015.07.022>
75. **Lora, J.M.** and J.L. Mitchell (2015). Titan’s asymmetric lake distribution mediated by methane transport due to atmospheric eddies. *Geophysical Research Letters* 42, 6213–6220. <https://doi.org/10.1002/2015GL064912>
76. **Lora, J.M.**, J.I. Lunine, and J.L. Russell (2015). GCM simulations of Titan’s middle and lower atmosphere and comparison to observations. *Icarus* 250, 516–528.
<https://doi.org/10.1016/j.icarus.2014.12.030>
77. **Lora, J.M.**, J.I. Lunine, J.L. Russell, and A.G. Hayes (2014). Simulations of Titan’s paleoclimate. *Icarus* 243, 264–273. <https://doi.org/10.1016/j.icarus.2014.08.042>
78. Griffith, C.A., **J.M. Lora**, J. Turner, P.F. Penteado, R.H. Brown, M.G. Tomasko, L. Doose, and C. See (2012). Possible tropical lakes on Titan from observations of dark terrain. *Nature* 486, 237–239. <https://doi.org/10.1038/nature11165>
79. **Lora, J.M.**, P.J. Goodman, J.L. Russell, and J.I. Lunine (2011). Insolation in Titan’s troposphere. *Icarus* 216, 116–119. <https://doi.org/10.1016/j.icarus.2011.08.017>

**Funded
Grants and
Fellowships**

Current:

NSF Frontier Research in Earth Sciences: <i>Collaborative Research: Testing the impact of land plants on the Earth system</i> (Co-Principal Investigator)	2024–2028
NASA New Frontiers Program: <i>Dragonfly</i> mission to Titan, Phases B–D (Co-Investigator)	2019–2028
NASA Cassini Data Analysis Program: <i>Understanding the global structure and seasonal behavior of Titan’s planetary boundary layer</i> (Principal Investigator)	2025–2027
NASA FINESST: <i>Investigating the atmospheric circulation of Uranus with global climate modeling</i> (Principal Investigator*)	2025–2027
*Future Investigator is C. Keaveney, student advisee	
NASA Solar System Observations: <i>Winds of change: a multi-decade study of Titan’s middle atmosphere across seasons</i> (Co-Investigator)	2024–2027
NASA Planetary Science Early Career Award: <i>Disseminating the science of planetary atmospheres and climates</i> (Principal Investigator)	2022–2027
NASA Cassini Data Analysis Program: <i>Climate change on Titan due to Saturn’s billion-year obliquity evolution</i> (Co-Investigator)	2024–2026
DOE Earthshots: Carbon Negative Shot: <i>Carbon dioxide removal and high-performance computing: Planetary boundaries of Earth shots</i> (Co-Principal Investigator)	2023–2026
NASA Interdisciplinary Consortia for Astrobiology Research: <i>Alternative Earths – how to build and sustain a detectable biosphere</i> (Co-Investigator)	2020–2025

Previous:

NSF P2C2: *Collaborative Research: An integrated model-proxy approach to understanding Western US hydroclimate change since the last glacial period* (Co-Principal Investigator) 2021–2024

NASA Mars Data Analysis Program: *Annular modes of variability in the Martian atmosphere* (Co-Investigator*) 2021–2024

*Principal Investigator was J.M. Battalio, postdoctoral advisee

Yale Planetary Solutions Project Seed Grants: *Simulating Pliocene climate as a blueprint for future warming: From cloud physics and ocean circulation to extreme precipitation and droughts* (Co-Investigator) 2022–2023

NASA Cassini Data Analysis Program: *The dynamics and seasonal evolution of Titan’s polar vortex* (Principal Investigator) 2020–2022

NASA Cassini Data Analysis Program: *DeltaT: Dynamics and detectability of deltas on Titan* (Co-Investigator) 2020–2022

NSF P2C2: *Collaborative Research: Elucidating the drivers and consequences of changes in atmospheric rivers from the Last Glacial Maximum to the present day* (Co-Principal Investigator) 2019–2022

NASA Solar System Workings: *The role of moist convection in Titan’s hydrologic cycle and general circulation* (Principal Investigator) 2017–2020

University of California Chancellor’s Postdoctoral Fellowship 2017–2019

California Alliance (NSF-AGEP) Postdoctoral Fellowship 2017–2019

NASA Cassini Data Analysis and Participating Scientist Program: *Understanding the controlling factors of Titan’s climate, weather and methane hydrology in space and time* (Co-Investigator) 2016–2019

NSF AGS Postdoctoral Fellowship: *Impacts of large-scale dynamics on regional climate sensitivity: Model-paleodata comparisons in three mid-latitude regions* (Principal Investigator) 2015–2017

NASA Earth and Space Science Fellowship: *Modeling Titan’s atmospheric dynamics and interaction with methane* (Student Investigator) 2012–2014

Advising and Mentoring**Yale Research Scientists:**

J. Michael Battalio 2022–present

Yale Postdoctoral Advisees:

Bowen Fan 2025–present

Seung Hun Baik (now Researcher at LLNL) 2020–2023

William Rush (now Assistant Professor at Santa Clara University) 2022–2023

J. Michael Battalio (now Associate Research Scientist at Yale) 2019–2022

Yale Graduate Students:

Caleb Keaveney 2023–present

Sooman Han 2022–present

Serena Yang (née Scholz) 2022–present

Nicholas Lombardo (defended dissertation April 2025; PhD pending) 2019–present

Yiming Bian (minor discourse) 2025–present

Demetra Yancopoulos (minor discourse) 2024–present

Annika Margevich (minor discourse) 2021–present

Ashley Arroyo (minor discourse) 2020–present

Zhiyuan Li (minor discourse) 2019–present

Guillaume Delavie (minor discourse; MSc 2022) 2019–2021

Other Yale Doctoral Committees:

Suhani Dalal	2024–present
Jennifer Kosty	2023–present
Paul Curtis	2021–present
Elizabeth Bailey	2020–present
Jingjun Liu	2020–present
Sam De Abreu	2023–2024
Manpreet Singh (MSc 2023)	2019–2023
Yu Liang (PhD 2023)	2019–2022
Ulla Heede (PhD 2022)	2019–2022

External Graduate Students:

Jan Vatan d'Ollone (PhD 2020, Sorbonne Université; doctoral committee)	2020
Hung-I Lee (PhD 2019, UCLA; research collaborator and advisor)	2015–2019
Sean Faulk (PhD 2018, UCLA; research collaborator and advisor)	2014–2018

Yale Postgraduate Advisees:

Sofia Menemenlis (now PhD candidate at Princeton)	2020–2021
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Yale Undergraduate Senior Theses Supervised:

Sophia Getz (Physics)	2023–2024
Alyse Olcott (EPS)	2023–2024
Kunsang Dorjee (Physics)	2022
Nicholas Archambault (Physics)	2020–2021
Colin Baciocco (EPS)	2020–2021
Mary Yap (EPS)	2020–2021
Sofia Menemenlis (EPS)	2019–2020
Michael Machado (Physics)	2019

Other Undergraduate Research Advisees:

Ethan Olim, Yale	2022–2024
Jaden Uram, Yale	2023–2024
Alyse Olcott, Yale	2023–2024
Kunsang Dorjee, Yale	2019–2022
Juliana Surprenant, Yale	2020–2021
Nicholas Archambault, Yale	2019–2021
Chloe Whicker, UCLA	2017–2019
Alexandrea Arnold, UCLA	2016–2017
Shelley Cheng, UCLA	2016–2017
Raul Reyes, UCLA	2016–2017
Tyler Vollmer, UCLA	2015–2016

Teaching**Yale Courses:**

EPS 3220/5220: <i>Physics of Weather and Climate</i> , 13 students. Course Director/Instructor; 25 lectures.	Fall 2025
EPS 140: <i>Atmosphere, Ocean, and Climate Change</i> , 16 students. Course Director/Instructor; 36 lectures.	Spring 2025
EPS 750: <i>Seminar on Planetary Atmospheric Dynamics</i> , 3 students, Course Director; weekly 2-hour sessions.	Fall 2024
EPS 620: <i>Essentials of Earth and Planetary Sciences</i> , 11 students. Co-instructor, 2 lectures.	Fall 2024
EPS 140: <i>Atmosphere, Ocean, and Climate Change</i> , 37 students. Course Director/Instructor; 36 lectures.	Spring 2023

EPS 750: *Seminar on Planetary Atmospheric Dynamics*, 2 students, 3 guest students. Course Director; weekly 2-hour sessions. Fall 2022

EPS 620: *Essentials of Earth and Planetary Sciences*, 25 students. Co-instructor, 2 lectures. Fall 2022

EPS 322/522: *Physics of Weather and Climate*, 12 students. Course Director/Instructor; 25 lectures. Spring 2022

EPS 756: *Seminar in Earth System Science*, 8 students. Co-Instructor; weekly 2-hour sessions. Spring 2022

EPS 140: *Atmosphere, Ocean, and Climate Change*, 19 students. Course Director/Instructor; 36 lectures. Spring 2021

EPS 756: *Seminar in Earth System Science*, 6 students, 10 guest students. Co-Instructor; weekly 2-hour sessions. Spring 2021

EPS 750: *Seminar on Planetary Atmospheric Dynamics*, 5 students, 2 guest students. Course Director; weekly 2-hour sessions. Fall 2020

EPS 755: *Seminar in Earth System Science*, 10 students, 3 guest students. Co-Instructor; weekly 2-hour sessions. Fall 2020

G&G 322/522: *Physics of Weather and Climate*, 13 students. Course Director/Instructor; 25 lectures. Spring 2020

G&G 140: *Atmosphere, Ocean, and Climate Change*, 27 students. Co-Director/Co-Instructor; 15 of 35 lectures. Fall 2019

Additional Teaching:

EPS 362/562: *Observing Earth from Space*, Yale (1 lecture/year) 2020–present

GLBL 7165: *Earth System Science for Public Policy*, Yale (1 lecture/year) 2023–present

Rosshypalooza Summer School, University of Chicago Summer 2022

Earth, Resources, Energy and the Environment, Yale (1 lecture) 2019

The Process of Change in Science: Discovery of Global Warming, USC (1 lecture) 2018

Oceans and Atmospheres, UCLA (several lectures) 2015, 2016

Blue Planet: Introduction to Oceanography, UCLA (1 lecture) 2016

The Universe and Humanity: Origin and Destiny, Honors, U. Arizona (4 lectures) 2012

Professional Service

Editor: *Icarus* 2018–2024

Referee:

Astrobiology, *Astrophysical Journal Letters*, *Bulletin of the American Meteorological Society*, *Climate Dynamics*, *Climate of the Past*, *CRC Press*, *Geophysical Research Letters*, *Icarus*, *IOP eBooks*, *Journal of the Atmospheric Sciences*, *Journal of Climate*, *Journal of Geophysical Research: Atmospheres*, *Journal of Hydrometeorology*, *Nature Astronomy*, *Nature Communications*, *Nature Geoscience*, *npj Climate and Atmospheric Science*, *Oxford University Press*, *Planetary Science Journal*, *Planetary and Space Science*, *Proceedings of the National Academy of Sciences*, *Science Advances*, *Scientific Reports*

Proposal Reviewer:

Group Chief, Panelist, and External Reviewer for NASA Planetary Science Division

Reviewer for NSF Geosciences Directorate

Reviewer for Agence Nationale de la Recherche (French National Research Agency)

Reviewer for Chilean National Research and Development Agency

Reviewer for Deutsche Forschungsgemeinschaft (German Research Foundation)

Reviewer for UK Science and Technology Facilities Council

Reviewer for US–Israel Binational Science Foundation

Service to Societies and Agencies:

Prize Subcommittee Member, AAS Division for Planetary Sciences	2024–present
Member Representative for Yale University, University Corporation for Atmospheric Research (UCAR)	2019–present
Steering Committee Member, NASA Network for Ocean Worlds	2020–2023
Invited panelist, National Academies Workshop: <i>Identifying New Community-Driven Science Themes for NSF’s Support of Paleoclimate Research</i>	2021

Conference Activities and External Committees:

Primary/Session Convener, <i>Atmospheric Rivers: Processes, Impacts, and Uncertainties</i> Session, AGU Fall Meeting	2022, 2023, 2024
Invited panelist, <i>Ice-Ocean Interactions on Icy Moons in the Solar System</i> Workshop, Princeton, NJ	2022
Outstanding Student Paper Award Judge, AGU Fall Meeting	2016
Co-chair, <i>Titan: Upper Atmosphere</i> Session, DPS/EPSC Joint Meeting	2016
Local Organizing Committee Member, <i>Exoplanets, Biosignatures and Instruments</i> Conference, Tucson, AZ	2013–2014
Curriculum Committee Member, Lunar and Planetary Laboratory	2011–2013
Co-chair, <i>Titan 3</i> Session, DPS Meeting	2013
Director Search Committee Member, Lunar and Planetary Laboratory	2011

**University
Service****University:**

Steering Committee, Yale Hub for WCRP <i>My Climate Risk</i> Activity	2025–present
Heising-Simons 51 Peg b Fellowship Internal Review Committee	2019–present
Yale College Postgraduate Fellowships Committee	2019–2021

Department:

Director of Undergraduate Studies	2025–present
Chair, Earth System Modeling Search Committee	2024–2025
Flint Postdoctoral Fellowship Committee	2024–2025
Ad Hoc Committee on Qualifying Exams	2024–2025
Planetary Science Search Committee	2023–2024
Climate Search Committee	2022–2023
YCNCC Cluster Search EPS Committee	2022
Program Review and Exam Committee	2019, 2021, 2022
Graduate Admissions and Recruiting Committee	2020–2021, 2022
Colloquium Committee	2019–2021
Computer Facilities & Users Committee	2019–2020
New Departmental Name Ad Hoc Committee	2020

Berkeley College Adviser:

Victoria Cantú Rodríguez	2024–present
Dylan Corey	2024–present
Avni Kabra	2024–present
Kenny Tung	2022–2023
Nava Minsky-Primus	2022–2023
Kevin Zhou	2020–2021
Jason Lee (2 semesters)	2020–2021
Edward Seol (3 semesters)	2019–2020
Samuel Tigistu (3 semesters)	2019–2020

Invited Colloquia and Seminars	SwRI Boulder Colloquium, Southwest Research Institute	2025
	Seminar of the University Library, Université de Reims Champagne-Ardenne	2025
	ClimaTea Seminar, Harvard University	2025
	Department of Earth Sciences Seminar, University of Connecticut	2024
	Department of Mathematics and Statistics Seminar, University of Exeter	2024
	Earth System Science Interdisciplinary Center Seminar, University of Maryland	2024
	Department of Physics Colloquium, Boise State University	2023
	Geophysical Sciences Seminar, University of Chicago	2023
	Atmosphere Ocean Science Colloquium, NYU Courant	2022
	<i>Rosshypalooza</i> , University of Chicago	2022
	Atmospheric Science Seminar, University of California, Davis	2022
	Geological Sciences Department Seminar, University of Alaska, Anchorage	2022
	Atmospheres and Oceans Seminar, Johns Hopkins University	2021
	Earth and Atmospheric Sciences Colloquium, Indiana University, Bloomington	2021
	Atmospheric Oceanic and Planetary Physics Seminar, University of Oxford	2021
	DEEPS Colloquium, Brown University	2021
	NASA Network for Ocean Worlds Lecture	2021
	DEEPS Colloquium, Brown University	2020
	Lamont-Doherty Earth Observatory Seminar, Columbia University	2020
	Earth and Planetary Sciences Department Seminar, University of California, Davis	2020
	Physical Oceanography Seminar, University of Rhode Island	2020
	Paleoclimate Seminar, Woods Hole Oceanographic Institution	2020
	Earth Section Seminar, Scripps Institution of Oceanography	2019
	<i>Origin and Evolution of Planet Earth</i> Symposium, Yale University	2019
	Departmental Seminar, Geological Sciences, Stanford University	2018
	Earth/Planetary Science Special Seminar, California Institute of Technology	2018
	Earth System Science Seminar, UC Irvine	2018
	CLaSP Seminar, University of Michigan	2018
	Department of Geology and Geophysics Colloquium, Yale University	2018
	Department of Astronomy Colloquium, Cornell University	2018
	Planetary Science Seminar, UCLA	2018
	Whole Earth Seminar, Earth and Planetary Sciences, UCSC	2018
	Atmospheric and Oceanic Sciences Department Seminar, UCLA	2017
	Planetary Science Seminar, California Institute of Technology	2017
	Atmospheric Oceanic and Planetary Physics Seminar, University of Oxford	2017
	Physics Department Lecture, Westmont College	2016
	Planetary Science Seminar, Jet Propulsion Laboratory	2016
	Planetary Science Seminar, UCLA	2016
	Laboratoire de Météorologie Dynamique Seminar, IPSL, Paris	2015
	Planetary Seminar, Georgia Institute of Technology	2015
	Planetary Science Seminar, UCLA	2014
	Planetary Science Seminar, NASA Goddard Space Flight Center	2014

Invited Conference Talks	Lora, J.M. (2025). “Global variability and impacts of atmospheric rivers in a changing climate.” 5th Climate, Weather and Water Forum.	
	Lora, J.M. (2023). “The influence of orbital forcing on the distribution of Titan’s surface liquids” (Plenary Talk). 54th Lunar and Planetary Science Conference.	
	Lora, J.M. (2022). “Understanding Titan’s weather, climate, and paleoclimate.” <i>Urey Prize Lecture</i> (Plenary Talk). 54th Division for Planetary Sciences Annual Meeting.	
	Lora, J.M. , D.E. Ibarra, C.B. Skinner (2020). “Components and Mechanisms of the North American hydrologic cycle since the Last Glacial Maximum.” American Geophysical Union Fall Meeting.	

Lora, J.M., C.B. Skinner (2020). “Atmospheric river shifts in response to Holocene forcings and their impact on millennial-scale hydroclimate changes.” American Geophysical Union Fall Meeting.

Lora, J.M. (2018). “The circulation and volatile cycles of Solar System atmospheres” (Invited Review). Comparative Climatology of Terrestrial Planets III.

Lora, J.M. (2018). “Atmospheric rivers and the changing climate of western North America since the Last Glacial Maximum.” 2018 International Atmospheric Rivers Conference.

Lora, J.M., J.L. Mitchell, C. Risi, and A.E. Tripati (2017). “North Pacific atmospheric rivers and their influence on North America since the Last Glacial Maximum.” American Geophysical Union Fall Meeting.

Lora, J.M. (2017). “The climate of Titan” (Invited Review). Titan Through Time 4.

Lora, J.M., J.L. Mitchell, C. Risi, and A.E. Tripati (2016). “Atmospheric moisture transport to western North America during the Last Glacial Maximum and deglaciation.” Geological Society of America Annual Meeting.

**Selected
Contributed
Conference
Presentations**

[†] *Yale advisee*

First Author and Advisee Only:

1. [†]Battalio, J.M., **J.M. Lora**, S. Lubis, P. Hassanzadeh (2025). “Periodicity of Mars’s northern annular mode may help explain global dust storm frequency.” Talk. EPSC/DPS Joint Meeting, abstract #1209.
2. [†]Han, S. and **J.M. Lora** (2025). “Diurnal and seasonal variations of Titan’s surface temperature and planetary boundary layer structure simulated with dry and moist GCMs.” Talk. EPSC/DPS Joint Meeting, abstract #1087.
3. [†]Keaveney, C. and **J.M. Lora** (2025). “Toward a comprehensive global climate model of Uranus: radiative-convective and dynamical simulations.” Poster. EPSC/DPS Joint Meeting, abstract #413.
4. [†]Lombardo, N.A., B. de Batz de Trenquelléon, J. Shultis, **J.M. Lora**, P. Rannou, D. Waugh, Y. Lian, and C. Newman (2025). “The Titan middle atmosphere intercomparison project.” Talk. EPSC/DPS Joint Meeting, abstract #1150.
5. [†]Battalio, J.M., D. Williams, and **J.M. Lora** (2025). “Internal climate variability adds complexity to zonal-mean winds.” Poster. Exoclines VII.
6. [†]Lombardo, N.A. and **J.M. Lora** (2025). “Simulating the production of ice clouds in Titan’s stratosphere using an idealized tracer scheme in a three-dimensional general circulation model.” Talk. Earth and Planetary Cloud Workshop 2025.
7. [†]Battalio, J.M. and **J.M. Lora** (2025). “The transient baroclinic annular mode captures the baroclinic wave lifecycle.” Talk. Stormtracks 2025 Workshop.
8. **Lora, J.M.** and [†]N.A. Lombardo (2024). “Understanding the transport of methane into Titan’s stratosphere.” Poster. AGU Fall Meeting, abstract #P43D-3039.
9. [†]Rush, W.R., **J.M. Lora**, C. Skinner, [†]S. Menemenlis, and 24 co-authors (2024). “Atmospheric river detection under changing seasonality and mean-state climate: ARTMIP tier 2 paleoclimate experiments.” Talk. AGU Fall Meeting, abstract #A51C-07.
10. [†]Scholz, S.R. and **J.M. Lora** (2024). “Global trends in atmospheric river temperatures, snowfall, and precipitation.” Talk. AGU Fall Meeting, abstract #A52B-01.
11. **Lora, J.M.**, [†]E. Olim, and [†]J. Battalio (2024). “Distribution, characteristics, and evolution of methane storms on Titan.” Talk. DPS Meeting, abstract #408.03.
12. [†]Battalio, M. Cohen, P. Read, J.M. and **J.M. Lora**, T. McConnochie, and K. McGouldrick (2024). “Terrestrial climate variability at seasonal to subseasonal timescales.” Talk. DPS Meeting, abstract #406.04.

13. [†]Lombardo, N. and **J.M. Lora** (2024). “Feedbacks between idealized chemical tracers and dynamics through radiative heating in Titan’s middle atmosphere.” Talk. DPS Meeting, abstract #309.06D.
14. **Lora, J.M.** and C. Skinner (2024). “The global response of atmospheric rivers to glacial conditions and their influence on ice sheets at the Last Glacial Maximum.” Talk. International Atmospheric Rivers Conference 2024, abstract #110.
15. [†]Scholz, S. and **J.M. Lora** (2024). “Global impacts of atmospheric rivers on surface temperatures and heat fluxes.” Talk. International Atmospheric Rivers Conference 2024, abstract #82.
16. [†]Baek, S.H., [†]J.M. Battalio, and **J.M. Lora** (2024). “Atmospheric river variability over the last millennium driven by annular modes.” Poster. International Atmospheric Rivers Conference 2024, abstract #93.
17. [†]Battalio, J.M. and **J.M. Lora** (2024). “Identification of coupling between the baroclinic and barotropic annular modes using transient eddy energetics.” Talk. AMS AOFD Meeting, abstract #8.2.
18. [†]Battalio, J.M. and **J.M. Lora** (2024). “Annular modes on Mars explain large portions of climate variability and propagate in the northern hemisphere.” Poster. AMS AOFD Meeting, abstract #P13.
19. [†]Battalio, J.M. and **J.M. Lora** (2024). “Increases in the local eddy energetics of the extratropical atmosphere over the last four decades.” Poster. AMS AOFD Meeting, abstract #P111.
20. [†]Lombardo, N.A. and **J.M. Lora** (2024). “Seasonal-scale transport of heat and momentum in Titan’s middle atmosphere.” Poster. AMS AOFD Meeting, abstract #P11.
21. [†]Lombardo, N.A. and **J.M. Lora** (2024). “Transport of trace species by Titan’s middle atmospheric circulation.” Poster. AMS AOFD Meeting, abstract #P64.
22. Williams*, D.A., X. Ji*, P. Corlies*, and **J.M. Lora** (2024). “Clouds and seasonality on terrestrial planets with varying rotation rates.” Talk. AMS AOFD Meeting, abstract #14.4.
*2022 Rossbypalooza summer school advisees
23. [†]Battalio, J.M. and **J.M. Lora** (2024). “Changes in local eddy energetics of extratropical storm tracks.” Talk. AMS Annual Meeting, abstract #4A.2.
24. [†]Baek, S.H., Y. Kanzaki, **J.M. Lora**, N. Planavsky, C.T. Reinhard and S. Zhang (2023). “Impact of climate on the global capacity for enhanced rock weathering on croplands.” Poster. AGU Fall Meeting, abstract #B43K-2707.
25. [†]Lombardo, N.A., **J.M. Lora**, C.A. Nixon, T. Greathouse, K. Willacy, M. Cordiner, A.E. Thelen, N.A. Teanby and P.G.J. Irwin (2023). “Measurement of hydrogen isocyanide (HNC) in Titan’s lower stratosphere and simulating its distribution with a general circulation model.” Talk. AGU Fall Meeting, abstract #P41D-02.
26. **Lora, J.M.**, C.B. Skinner, W. Rush and S.H. Baek (2023). “The hydrologic cycle and atmospheric rivers in simulations of the Last Glacial Maximum.” eLightning Talk/Poster. AGU Fall Meeting, abstract #PP23E-08.
27. **Lora, J.M.**, D. Williams, X. Ji and P. Corlies (2023). “Clouds and seasonality on terrestrial planets with varying rotation rates.” Poster. AGU Fall Meeting, abstract #P21B-3002.
28. [†]Rush, W., **J.M. Lora**, et al. (2023). “Atmospheric river detection under changing mean-state climate and seasonality: ARTMIP Tier 2 single-forcing paleoclimate experiments.” Poster. AGU Fall Meeting, abstract #A53M-2440.

29. [†]Scholz, S.R. and **J.M. Lora** (2023). “Atmospheric rivers cause extreme heat excursions and anomalously warm temperatures.” Talk. AGU Fall Meeting, abstract #A51B-05.
30. [†]Lombardo, N.A. and **J.M. Lora** (2023). “Simulating the production of stratospheric ice clouds over Titan’s winter pole with the Titan Atmospheric Model.” Talk. DPS/EPSC Joint Meeting, abstract #208.06.
31. [†]Lombardo, N.A. and **J.M. Lora** (2023). “The heat and momentum budgets of Titan’s stratosphere.” Talk. Titan Through Time VI.
32. **Lora, J.M.**, [†]E. Olim and [†]J.M. Battalio (2023). “Methane storm distribution and evolution in simulations of Titan’s climate.” Talk. Titan Through Time VI.
33. [†]Han, S. and **J.M. Lora** (2023). “Titan’s planetary boundary layer structure modulated by moisture processes in a climate model.” Poster. Titan Through Time VI.
34. [†]Lombardo, N.A., C.A. Nixon, **J.M. Lora**, T.K. Greathouse, K. Willacy, M. Cordiner, A. Thelen, N.A. Teanby and P.G.J. Irwin (2023). “Measurement of hydrogen isocyanide (HNC) in Titan’s lower stratosphere.” Poster. Titan Through Time VI.
35. [†]Baek, S.H., [†]J.M. Battalio and **J.M. Lora** (2022). “Atmospheric river variability over the Last Millennium driven by annular modes.” Talk. AGU Fall Meeting, abstract #A52C-03.
36. [†]Battalio, J.M. and **J.M. Lora** (2022). “Impact of extratropical eddy kinetic energy energetics on atmospheric rivers.” Poster. AGU Fall Meeting, abstract #A55M-1277.
37. [†]Lombardo, N.A. and **J.M. Lora** (2022). “Interaction of chemical tracers with Titan’s general circulation.” Talk. AGU Fall Meeting, abstract #P46B-04.
38. [†]Lombardo, N.A. and **J.M. Lora** (2022). “The energy and momentum budget of Titan’s stratospheric polar vortex.” Talk. DPS Meeting, abstract #401.04.
39. [†]Baek, S.H., [†]J.M. Battalio, and **J.M. Lora** (2022). “Atmospheric river variability over the last millennium driven by annular modes.” Talk. International Atmospheric Rivers Conference 2022.
40. [†]Lombardo, N.A. and **J.M. Lora** (2022). “The energy and momentum balance of Titan’s stratospheric polar vortex as simulated in a general circulation model.” Talk. Europlanet Science Congress, abstract #655.
41. **Lora, J.M.** and [†]J.M. Battalio (2022). “Global impacts from convective polar storms on Titan.” Talk. AMS AOFD Meeting, abstract #12.2.
42. [†]Baek, S.H. and **J.M. Lora** (2022). “Counterbalancing influences of aerosols and greenhouse gases on atmospheric rivers.” Poster. AMS AOFD Meeting, abstract #V11.
43. [†]Baek, S.H., Y. Kushnir, W.A. Robinson, **J.M. Lora**, D.E. Lee, and M. Ting (2022). “An atmospheric bridge between the subpolar and tropical Atlantic regions: a perplexing asymmetric teleconnection.” Talk. EGU General Assembly, abstract #8888.
44. [†]Baek, S.H. and **J.M. Lora** (2022). “Counterbalancing influences of aerosols and GHGs on atmospheric rivers.” Talk. AMS Annual Meeting, abstract #10A.1.
45. [†]Battalio, J.M. and **J.M. Lora** (2022). “Trends in transient wave eddy kinetic energetics in ERA5.” Talk. AMS Annual Meeting, abstract #J6A.3.
46. [†]Battalio, J.M. and **J.M. Lora** (2022). “Annular modes on Mars and Titan.” Poster. AMS Annual Meeting, abstract #294.
47. [†]Battalio, J.M. and **J.M. Lora** (2021). “Annular modes of climate variability and their relationship to dust storms on Mars.” Talk. AGU Fall Meeting, abstract #P31B-02.
48. **Lora, J.M.**, [†]J. M. Battalio, [†]M. Yap, and [†]C. Baciocco (2021). “Understanding the influences of topography and orbital forcing on Titan’s surface methane.” Talk. AGU Fall Meeting, abstract #P43B-06.

49. [†]Battalio, J.M. and **J.M. Lora** (2021). “Titan’s annular modes of climate variability compared to Earth and Mars.” Talk. Titan Through Time V.
50. [†]Lombardo, N.A., and **J.M. Lora** (2021). “Dynamical simulations of Titan’s stratosphere using observationally derived molecular abundance and aerosol opacity.” Poster. Titan Through Time V.
51. **Lora, J.M.** and [†]J.M. Battalio (2021). “Global influences of polar storms in simulations of Titan’s climate.” Talk. Titan Through Time V.
52. [†]Battalio, J.M. and **J.M. Lora** (2020). “Barotropic and baroclinic annular modes of variability in the atmospheres of Mars and Titan.” Talk. AGU Fall Meeting, abstract #A170-02.
53. [†]Menemenlis, S., **J.M. Lora**, M. Lofverstrom, D. Chandan, D.E. Ibarra (2020). “Regional precipitation influenced by stationary wave changes in model of mid-Pliocene climate.” Poster. AGU Fall Meeting, abstract #PP024-0015.
54. [†]Menemenlis, S., **J.M. Lora**, M. Löfverström, D. Chandan (2020). “Atmospheric rivers influenced by stationary wave changes in model of mid-Pliocene climate.” IARC-Sponsored Symposium, abstract #041.
55. **Lora, J.M.** (2020). “On the consensus and disagreement in atmospheric river detection in ARTMIP global catalogues.” IARC-Sponsored Symposium, abstract #052.
56. **Lora, J.M.** and C.B. Skinner (2019). “Tier XX: Paleo Atmospheric River Tracking Method Intercomparison Project.” Talk. 3rd ARTMIP Workshop, Lawrence Berkeley National Laboratory.
57. **Lora, J.M.**, T. Tokano, J. Vatan d’Ollone, S. Lebonnois, R.D. Lorenz (2019). “A model intercomparison of Titan’s climate.” Talk. Titan after Cassini-Huygens Workshop, Madrid.
58. **Lora, J.M.**, S.P. Faulk, J.L. Mitchell, P.C.D. Milly (2019). “The influence of surface and subsurface hydrology on Titan’s climate system.” Poster. EPSC-DPS Joint Meeting, abstract #1027.
59. **Lora, J.M.**, T. Kataria, and P. Gao (2018). “Understanding Titan and Titan-like exoplanets around different stellar types.” Talk. AGU Fall Meeting, abstract #P52A-04.
60. **Lora, J.M.**, S.P. Faulk, J.L. Mitchell, and C.P.D. Milly (2018). “Uncovering the influence of surface and subsurface hydrology on Titan’s climate system.” Talk. Cassini Science Symposium 2018.
61. **Lora, J.M.**, J. Mitchell, and A. Tripathi (2017). “The North American hydrologic cycle at the Last Glacial Maximum.” Talk. AGU Fall Meeting, abstract #PP33D-04.
62. **Lora, J.M.**, S. Faulk, and J. Mitchell (2017). “The influence of topography on Titan’s atmospheric circulation and hydrologic cycle.” Talk. DPS Meeting, abstract #304.02.
63. **Lora, J.M.**, J.L. Mitchell, C. Risi, and A. Tripathi (2017). “North Pacific atmospheric rivers at the Last Glacial Maximum.” PMIP4 Conference, Stockholm.
64. **Lora, J.M.**, J.L. Mitchell, M. Ádámkovics, and S. Faulk (2017). “Surface-atmosphere coupling in Titan’s hydrologic cycle.” Poster. Outer Planets Assessment Group Meeting, Atlanta, GA.
65. **Lora, J.M.**, J.L. Mitchell, C. Risi, and A.E. Tripathi (2016). “Atmospheric moisture transport to western North America during the Last Glacial Maximum and deglaciation.” Talk. AGU Fall Meeting, abstract #PP51F-02.
66. **Lora, J.M.**, J.L. Mitchell, C. Risi, and A.E. Tripathi (2016). “Exploring changes in the hydroclimate of western North America since the Last Glacial Maximum.” Model Hierarchies Workshop, Princeton University.

67. **Lora, J.M.**, M. Ádámkovics, and J.L. Mitchell (2016). “Constraining the distribution of methane on the surface and in the troposphere of Titan.” Talk. DPS/EPSC Joint Meeting, abstract #520.01.
68. **Lora, J.M.**, M. Ádámkovics, and J.L. Mitchell (2016). “Constraining and interpreting Titan’s methane hydrologic cycle.” Talk. Titan Aeronomy and Climate Workshop, Reims, France.
69. **Lora, J.M.**, J.L. Mitchell, C. Risi, and A.E. Tripathi (2015). “Atmospheric rivers enhanced water delivery to southwestern North America at the Last Glacial Maximum.” Poster. AGU Fall Meeting, abstract #PP43B-2272.
70. **Lora, J.M.** and J.L. Mitchell (2015). “Asymmetric lake distribution on Titan mediated by methane transport due to atmospheric eddies.” Talk. DPS Meeting, abstract #300.04.
71. **Lora, J.M.**, J.L. Mitchell, C. Risi, and A.K. Tripathi (2015). “Atmospheric moisture transport on Earth and Titan.” Poster. Comparative Climatology of Terrestrial Planets II, abstract #2.
72. **Lora, J.M.** and J.L. Mitchell (2015). “The influence of baroclinic eddies on moisture transport in Titan’s atmosphere.” Talk. AMS AOFD Meeting, abstract #9.4.
73. **Lora, J.M.** and J.L. Mitchell, C. Risi, and A.K. Tripathi (2015). “Evaluating the role of the jet stream and atmospheric rivers in the moisture budget of glacial western North America.” Poster. AMS AOFD Meeting, abstract #12.
74. **Lora, J.M.** and J.L. Mitchell (2014). “The impact of ‘wetlands’ on Titan’s mid-latitude cloudiness.” Poster. AGU Fall Meeting, abstract #P23D-4015.
75. **Lora, J.M.**, J. Lunine, J. Russell, and A. Hayes (2014). “GCM simulations of Titan’s paleoclimate.” Talk. DPS Meeting, abstract #115.05D.
76. **Lora, J.M.**, J. Lunine, J. Russell, and A. Hayes (2014). “Simulations of Titan’s paleoclimate with a new GCM.” Talk. Titan Through Time 3.
77. **Lora, J.M.**, J. Russell, and J. Lunine (2013). “Titan’s methane cycle and the surface energy budget.” Poster. AGU Fall Meeting, abstract #P53D-1901.
78. **Lora, J.M.**, J. Russell, and J. Lunine (2013). “Surface energy budget from a Titan GCM with realistic radiative transfer.” Poster. DPS Meeting, abstract #309.04.
79. **Lora, J.M.**, J. Russell, and J. Lunine (2012). “Distribution of radiative heating rates in Titan’s lower atmosphere.” Poster. AGU Fall Meeting, abstract #P21E-1889.
80. **Lora, J.M.**, J. Russell, and J. Lunine (2012). “Insolation distribution in Titan’s lower atmosphere.” Talk. Titan Through Time 2.
81. **Lora, J.M.**, P. Goodman, J. Russell, and J. Lunine (2011). “Insolation and Titan’s tropospheric circulation.” Poster. EPSC-DPS Joint Meeting, abstract #176.
82. **Lora, J.M.**, C.A. Griffith, J. Turner, and P. Penteado (2010). “Evidence for ethane (or lack thereof) on Titan’s tropical surface.” Talk. DPS Meeting, abstract #55.09.

Selected Outreach Activities	Project Co-lead and Member, <i>DIYnamics</i> Outreach Program (<i>diyynamics.github.io</i>)	2016–present
	First Friday Astronomy Public Lecture, Boise State University	2023
	Workshop Co-Convener, Earth Educators’ Rendezvous, “ <i>Teaching atmosphere, ocean, and planetary fluid dynamic fundamentals vividly with rotating tanks</i> ”	2022
	Lecturer, “ <i>Weather across the Solar System</i> ” Virtual Lecture, <i>Adventure in Science</i> Program	2021
	Presenter, <i>Climate Change Professional Development Virtual Workshop</i> for middle and high school teachers, U. Mass. Lowell	2020, 2021

Panelist, “ <i>Storms of the Solar System</i> ,” NASA CCTP3 Livestream (~20,000 views)	2018
Guest, “ <i>Moons and Exoplanets: The same or different species?</i> ”, <i>AAS Afternoon Astronomy Coffee Hangout</i> Podcast	2018
Featured Scientist, <i>Windfall Films</i> segment for TV Series on the Cosmos	2016

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