

# JUAN M. LORA

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<b>Education</b>	<b>Ph.D., Planetary Sciences</b> , University of Arizona	2014
	<b>B.S., Astronomy</b> , <i>magna cum laude</i> , University of Southern California	2009
<b>Appointments and Research Experience</b>	<b>Assistant Professor</b> , Yale University Department of Geology and Geophysics	2019–present
	<b>Postdoctoral Fellow</b> , University of California, Los Angeles <i>Chancellor’s Fellow &amp; California Alliance Fellow</i>	2014–2018 2017–2018
	<i>NSF AGS Postdoctoral Research Fellow</i> Department of Earth, Planetary, and Space Sciences	2015–2017
	<b>Graduate Research and Teaching Assistant</b> , University of Arizona Department of Planetary Sciences	2009–2014
	<b>Research Associate</b> , NASA Academy, Goddard Space Flight Center	2008
	<b>Undergraduate Researcher</b> , University of Southern California	2007–2009
<b>Additional Training</b>	Urbino Summer School in Paleoclimatology, Urbino, Italy	2016
	GFDL Summer School on Atmospheric Modeling, Princeton, NJ	2012
<b>Mission Involvement</b>	NASA New Frontiers 4 (Phase A): <i>Dragonfly</i> mission to Titan (Co-I; E. P. Turtle, PI)	2017–2019
<b>Grants and Fellowships</b>	NASA Solar System Workings Grant: “The role of moist convection in Titan’s hydrologic cycle and general circulation” (PI)	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 Grant: “Understanding the controlling factors of Titan’s climate, weather and methane hydrology in space and time” (Co-I; J.L. Mitchell, PI)	2016–2019
	NSF AGS Postdoctoral Fellowship: “Impacts of large-scale dynamics on regional climate sensitivity: Model-paleodata comparisons in three mid-latitude regions” (PI)	2015–2017
	NASA Earth and Space Science Fellowship: “Modeling Titan’s atmospheric dynamics and interaction with methane”	2012–2014
	Shandel Education Plus Award (University of Arizona)	2012
<b>Honors and Awards</b>	NASA Planetary Science Early Career Fellowship (ECF)	2017
	Gerard P. Kuiper Memorial Award, Lunar & Planetary Laboratory, U. of Arizona	2014
	College of Science Graduate Teaching/Mentoring Award, University of Arizona	2011
	Golden Key International Honour Society	2010
	USC Renaissance Scholar Award	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

<b>Invited Colloquia and Seminars</b>	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 Seminar, Yale University	2018
	Department of Astronomy Colloquium, Cornell University	2018
	Whole Earth Seminar, Earth & Planetary Sciences, UCSC	2018
	Atmospheric and Oceanic Sciences Department Seminar, UCLA	2017
	Planetary Science Seminar, California Institute of Technology	2017
	AOPP 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
	Yung Lunch Seminar, California Institute of Technology	2015
	Lunar and Planetary Laboratory Conference, University of Arizona	2014
	Planetary Science Seminar, UCLA	2014
Planetary Science Seminar, NASA Goddard Space Flight Center	2014	
<b>Invited Conference Talks</b>	<b>Lora, J.M.</b> (2018). “The circulation and volatile cycles of Solar System atmospheres” (Invited Review). <i>Comparative Climatology of Terrestrial Planets III</i> , abstract #2030.	
	<b>Lora, J.M.</b> (2018). “Atmospheric rivers and the changing climate of western North America since the Last Glacial Maximum.” 2018 International Atmospheric Rivers Conference.	
	<b>Lora, J.M.</b> , J.L. Mitchell, C. Risi, and A.E. Tripathi (2017). “North Pacific atmospheric rivers and their influence on North America since the Last Glacial Maximum.” American Geophysical Union Fall Meeting, abstract #PP44C-06.	
	<b>Lora, J.M.</b> (2017). “The climate of Titan” (Invited Review). <i>Titan Through Time 4</i> .	
	<b>Lora, J.M.</b> , J.L. Mitchell, C. Risi, and A.E. Tripathi (2016). “Atmospheric moisture transport to western North America during the Last Glacial Maximum and deglaciation.” Geological Society of America Annual Meeting, abstract #288614.	
<b>Service</b>	<b>Associate Editor</b> for <i>Icarus</i> (2018–present)	
	<b>Referee</b> for <i>Geophysical Research Letters</i> , <i>Icarus</i> , <i>Nature Astronomy</i> , <i>Nature Communications</i> , <i>Nature Geoscience</i> , <i>Planetary and Space Science</i> , <i>Scientific Reports</i>	
	<b>Proposal Reviewer</b> (Panelist and External) for NASA Planetary Science Division, National Science Foundation	
	<b>Committee Member</b> for Local Organizing Committee, <i>Exoplanets, Biosignatures and Instruments</i> Conference, Tucson, AZ (2013–2014); Curriculum Committee, Lunar and Planetary Laboratory (2011–2013); Director Search Committee, Lunar and Planetary Laboratory (2011)	

- Outreach**
- Co-lead** for *DIYdynamics* Outreach Program, (*diy.dynamics.github.io*), UCLA (2016–present)
- Guest** on NASA CCTP3 Livestream (~20,000 views) “*Storms of the Solar System*” (2018); AAS Afternoon Astronomy Coffee Hangout “*Moons and Exoplanets: The same or different species?*” (2018); *Windfall Films* segment for TV Series on the Cosmos (2016)
- Volunteer and Exhibitor** for UCLA and Santa Monica College paleoclimate research workshops (2015–2016); UCLA iPLEX K-12 classroom visits and workshops (2014–2016); *Exploring Your Universe*, UCLA (2014–2017); DPS/EPSC Meeting Art Shows (2010–2012, 2016); LPL Art of Planetary Science (2013–2015); Telescope Nights, University of Arizona (2010–2012)
- Committee Member** for Organizing Committee, *Exploring Your Universe*, UCLA (2015)
- Teaching Experience**
- Guest Lecturer, CORE 103, University of Southern California 2018  
 “The Process of Change in Science: Discovery of Global Warming” (1 lecture)
- Lecturer and Fluids Laboratory Assistant, EPSS 153/200B, UCLA 2015–2016  
 “Oceans and Atmospheres” (2 quarters)
- Guest Lecturer, EPSS 15, UCLA 2016  
 “Blue Planet: Introduction to Oceanography” (1 lecture)
- Guest Lecturer, PTYS 170B, University of Arizona 2012  
 “The Universe and Humanity: Origin and Destiny, Honors” (4 lectures)
- Teaching Assistant, NATS 102, University of Arizona 2010–2011  
 “The Universe and Humanity: Origin and Destiny” (2 semesters)
- Advising & Mentoring Experience**
- UCLA graduate students:** Sean Faulk (principally advised by J.L. Mitchell; 2016–2018); Hung-I Lee (principally advised by J.L. Mitchell and A.E. Tripathi; 2014–2018)
- UCLA undergraduate students:** Chloe Whicker (2016–2018); Raúl Reyes (2016–2018); Alexandra Arnold (2016–2017); Shelley Cheng (2017); Tyler Vollmer (2015–2016)
- Refereed Publications**
1. 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*, accepted.
  2. 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*, in press. <https://doi.org/10.1175/BAMS-D-17-0215.1>
  3. **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>
  4. 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>
  5. 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>
  6. **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>

7. 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>
8. 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>
9. **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>
10. **Lora, J.M.** and M. Ádámkóvics (2017). The near-surface methane humidity on Titan. *Icarus* 286, 270–279. <https://doi.org/10.1016/j.icarus.2016.10.012>
11. **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>
12. Mitchell, J.L. and **J.M. Lora** (2016). The climate of Titan. *Annual Reviews of Earth and Planetary Science* 44, 353–380. <https://doi.org/10.1146/annurev-earth-060115-012428>
13. 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>
14. 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>
15. **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>
16. **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>
17. **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>
18. Griffith, C.A., **J.M. Lora**, J. Turner, P.F. Penteadó, 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>
19. **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>

**Selected  
Conference  
Presentations  
(Last 5 Years)**

1. **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.
2. **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.
3. Rafkin, S.C.R., R.D. Lorenz, E.P. Turtle, J.W. Barnes, M.G. Trainer, A. Le Gall, **J.M. Lora**, C.P. McKay, C.E. Newman, M.P. Panning, K.S. Sotzen, T. Tokano, C. Wilson, and the Dragonfly Science Team (2018). “Exploring Titan’s meteorology with Dragonfly.” EPSC 2018, abstract #597

4. Turtle, E.P., J.E. Perry, J.M. Barbara, P. Corlies, J. Kelland, **J.M. Lora**, S. Faulk, E. Karkoschka, J.D. Hofgartner, and the Cassini Titan Remote Sensing Planning Team (2018). “Insights into Titan’s atmosphere and surface at the end of the Cassini Mission.” COSPAR 2018
5. Rafkin, S.C.R., R.D. Lorenz, E.P. Turtle, J.W. Barnes, M.G. Trainer, A. Le Gall, **J.M. Lora**, C.P. McKay, C.E. Newman, M.P. Panning, K.S. Sotzen, T. Tokano, C. Wilson and the Dragonfly Science Team (2018). “Dragonfly: *In situ* exploration of Titan’s meteorology.” Poster. EGU General Assembly
6. Hand, K.P., E.P. Turtle, J.W. Barnes, R.D. Lorenz, S.M. MacKenzie, M.L. Cable, C.D. Neish, M.G. Trainer, E.R. Stofan, C. Freissinet, S.M. Hörst, C.P. McKay, **J.M. Lora**, J. Radebaugh, and A.G. Hayes (2018). “Dragonfly and the exploration of Titan’s astrobiological potential.” Poster. LPSC #49
7. Turtle, E.P. and 38 co-authors, incl. **J.M. Lora** (2018). “Dragonfly: *In situ* exploration of Titan’s organic chemistry and habitability.” Poster. LPSC #49, abstract #1641
8. Turtle, E.P., J.E. Perry, J. M. Barbara, A.D. Del Genio, C. Sotin, S. Rodriguez, **J.M. Lora**, S. Faulk, R.A. West, E. Karkoschka, A.S. McEwen, M. Mastrogiuseppe, J.D. Hofgartner, P. Corlies, J. Kelland, A.G. Hayes, T. Ray, and J. Pitesky (2018). “Titan insights during the final year of the Cassini mission.” Talk. LPSC #49, abstract #1656
9. **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
10. **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
11. Faulk, S., **J.M. Lora**, and J. Mitchell (2017). “The impact of runoff and surface hydrology on Titan’s climate.” Talk. DPS meeting, abstract #304.01
12. Corlies, P., A. Hayes, M. Ádámkovics, S. Rodriguez, J. Kelland, E.P. Turtle, J. Mitchell, **J.M. Lora**, P. Rojo, and J.I. Lunine (2017). “A report of clouds on Titan.” Talk. DPS meeting, abstract #304.12D
13. **Lora, J.M.**, J.L. Mitchell, C. Risi, and A. Tripathi (2017). “North Pacific atmospheric rivers at the Last Glacial Maximum.” PMIP4 conference, Stockholm
14. **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
15. **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
16. **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
17. **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 meeting, abstract #520.01
18. Ádámkovics, M., **J.M. Lora**, and J.L. Mitchell (2016). “Retrievals of boundary layer methane and isotope fractionation on Titan.” Talk. DPS/EPSC meeting, abstract #515.02
19. Faulk, S.P., J.L. Mitchell, S. Moon, and **J.M. Lora** (2016). “Quantifying precipitation variability on Titan using a GCM and implications for observed geomorphology.” Talk. DPS/EPSC meeting, abstract #502.05
20. Kataria, T., **J.M. Lora**, P. Gao, H. Wakeford, N. Lewis, M. Marley, D. Sing, and Y. Lian (2016). “Weather on extrasolar worlds.” Poster. Exoclimates 2016

21. **Lora, J.M.**, M. *Ádámkóvics*, and J.L. Mitchell (2016). “Constraining and interpreting Titan’s methane hydrologic cycle.” Talk. Titan Aeronomy and Climate Workshop, Reims, France
22. **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
23. **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
24. **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
25. **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
26. **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
27. **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
28. **Lora, J.M.**, J. Lunine, J. Russell, and A. Hayes (2014). “GCM simulations of Titan’s paleoclimate.” Talk. DPS meeting, abstract #115.05D
29. **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
30. **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
31. **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

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