Curriculum Vitae	Jung-Eun Lee	Associate Professor

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1. Education

B.S., Earth Science Education, Seoul National University (Minor: Chemistry), 1996.

M.A., Science Education, Seoul National University, 1998.

Ph.D., Earth and Planetary Science, University of California, Berkeley, 2005.

2. Awards

W. S. Cooper Award, Ecological Society of America, 2012

NSF CAREER, Faculty Early Career Development Award, 2020

3. Professional experience

Associate Professor, Brown University, from July 1, 2020-.
Director of Graduate Advising, from July 1, 2022-.
Assistant Professor, Brown University, from July 1, 2013-June, 2020.
Research Scientist, University of California, Los Angeles, 2011-2013.
Scientist III, NASA Jet Propulsion Laboratory, 2011-2013.
Visiting Researcher, California Institute of Technology, 2011-2013.
Instructor, University of Chicago, 2010.
Postdoctoral Scholar, University of Chicago, 2008-2010.
Postdoctoral Scholar, University of California, Berkeley, 2006-2008.
Visiting Scholar, Lawrence Berkeley National Lab., 1999.
Researcher, Korean Meteorological Research Institute, 1998.

4. Publications (*indicates grad student advisee; ^indicates undergrad student advisee; +indicates postdoctoral advisee)

(H-index: 36, Google Scholar)

4a. Referred Journal Articles

54. *Xu, W., J.-E. Lee, B. Fox-Kemper, Y. Planton, and M. J. McPhaden, The Andes Affect ENSO Statistics. *J. Clim.*, 35, 1–34, https://doi.org/10.1175/JCLI-D-21-0866.1 (2022).

53. *Kowalczyk, J. B. and **J.-E. Lee**, High CO_2 expands where plants can grow in CESM-CLM4-CNDV. *J. Geophys. Res.: Atmospheres*, 127, e2021JD035158. https://doi.org/10.1029/2021JD035158 (2022).

52. ^Mischell, E. A. and J.-E. Lee, Observed zonal variations of the relationship between ITCZ position and meridional temperature contrast. *Climate*, *10*, 30. https://doi.org/10.3390/cli10030030 (2022).

51. Sloat, L. L., M. Lin, E. E. Butler, D. Johnson, N. M. Holbrook, P. J. Huybers, P. J., ... **Lee, J. -E**. & Mueller, N. D. Evaluating the benefits of chlorophyll fluorescence for in-season crop productivity forecasting. *Remote Sensing of Environment*, *260*, 112478 (2021).

50. Yang, X., X. Xu, A. Stovall, M. Chen, and **J. -E. Lee,** Recovery: Fast and Slow—Vegetation Response During the 2012–2016 California Drought. *Journal of Geophysical Research: Biogeosciences*, *126*(4), e2020JG005976 (2021).

49. *Wu, M., **J.-E. Lee**, D. Wang, and ^M. Salameh, Suppressed Daytime Convection over the Amazon River, *J. Geophys. Res. Atmosphere*, *126*(13), e2020JD033627 (2021).

48. *Xu, W., and **J.-E. Lee,** The Andes and the Southeast Pacific Cold Tongue Simulation, J. Climate *J.Clim.* 34, 415-425, DOI: 10.1175/JCLI-D-19-0901.1 (2021).

47. ^Levey, J., and **J.-E. Lee**, Global and Regional Implications of Biome Evolution on the Hydrologic Cycle and Climate in the NCAR Dynamic Vegetation Model. *Land*, *9*, 342, doi:10.3390/land9100342 (2020).

46. **Lee, J.-E.**, B. Fox-Kemper, C. Horvat, and Y. Ming, The response of East Asian monsoon to the precessional cycle: A new study using the Geophysical Fluid Dynamics Laboratory model. *Geophy. Res. Lett.,* 46, https://doi.org/ 10.1029/2019GL082661 (2019).

45. *Wu, M., and **J.-E. Lee**, Thresholds for atmospheric convection in Amazonian rainforests. *Geophy. Res. Lett*., 46, https://doi.org/ 10.1029/2019GL082909 (2019).

44. Barros, F.V., P.R. Bittencourt, M. Brum, N.R.-Coupe, L. Pereira, G.S. Teodoro, S. Saleska, L.S. Borma, B.O. Christoersen, D. Penha, L.F. Alves, A.J.N. Lima, V.M.C. Carneiro, P. Gentine, **J.-E. Lee**, L.E.O.C. Aragão, V. Ivanov, L.S.M. Leal, A.C. Araujo and R.S. Oliveira, Differential responses of Amazonian forests to El-Nino- induced drought are explained by hydraulic traits. *New Phytologist*, https://doi.org/10.1111/nph.15909 (2019).

43. Raczka B., P. D. Blanken, S. P. Burns, H. Duarte, C. Frankenberg, K. Grossmann, P. Kohler, **J.-E. Lee**, J. C. Lin, Barry A. Logan, T. Magney, A. Porcar-Castell, J. Stutz, X. Yang, D. R. Bowling, Sustained non-photochemical quenching shapes the seasonal pattern of solar-induced fluorescence at a high-elevation evergreen forest, *J. Geophys. Res*., *124*, https:// doi.org/10.1029/2018JG004883 (2019).

42. **Lee, J.-E**., Understanding Neogene oxygen isotopes in the Great Plains using isotope-enabled General Circulation Model simulations. *J. Geophys. Res*., doi: 10.1029/2018JD028894 (2019).

41. ^Robinson, E., X. +Yang, **J.-E. Lee**, Ecosystem productivity and water stress in tropical East Africa: A Case Study of the 2010-11 drought. *Land, 8*, 52; doi:10.3390/land8030052 (2019).

40. Ibarra, D. E., J. K. C. Ruguenstein, A. Baresch, K. V. Lau, D. Thomas, **J.-E. Lee**, C. K. Boyce, and C. P. Chamberlain, Modeling of the consequences of land plants evolution on silicate weathering, *American Journal of Science*, 319, 1-43 (2019).

39. [+]Dee, S. G., J. Nusbaumer, A. Bailey, J. M. Russell, **J.-E. Lee**, B. Konecky, N. H. Buenning, D. C. Noone, Tracking the strength of the Walker Circulation with stable isotopes, *J. Geophys. Res.*, 123. https://doi.org/10.1029/2017JD027915 (2018).

38. [+]Yang, X., H. Shi, A. Stovall, K. Guan, G. Miao, Y. Zhang, Y. Zhang, X. Xiao, Y. Ryu, **J.-E. Lee**, FluoSpec 2 – An automated field spectroscopy system to monitor solar-induced fluorescence, Sensors, 18, 2063/doi:10.3390/s18072063 (2018).

37. Bindeman, I. N., and **J.-E. Lee**, The possibility of obtaining ultra-low-$\delta^{18}O$ signature of precipitation near equatorial latitudes during the Snowball Earth glaciation episodes, Precambrian Research, 10.1016/j.precamres.2017.07.030 (2017).

36. Boyce, C.K. and **J.-E. Lee**, Plant evolution and climate over geological timescales, *Annual Reviews of Earth and Planetary Science,* **45**, https://doi.org/10.1146/annurev-earth-063016-015629, (2017).

35. Green J., Konings, A. G., S. H Alemohammad, J. Berry, D. Entekhabi, J. Kolassa, **J.-E. Lee**, P. Gentine, Regionally strong feedbacks between the atmosphere and terrestrial biosphere, *Nature Geoscience*, **10**, 410-414 (2017).

34. **Lee, J.-E.**, A. Shen, B. Fox-Kemper, and Y. Ming, Hemispheric sea ice distribution sets the glacial tempo, *Geophys. Res. Lett*., 44, doi:10.1002/ 2016GL071307 (2017).

33. Jeong, S.-J., D. Schimel, C. Frankenberg. D. Drewry, J. B. Fisher, M. Verma, J. A. Berry, J. A., **J.-E. Lee**, and J. Joiner, Application of satellite solar-induced chlorophyll fluorescence to understanding large-scale variations in vegetation phenology and function over northern high latitude forests," *Remote Sensing of Environment*, 190, 178-187 (2017).

32. [+]Yang, X., J. Tang, J. F. Mustard, J. Wu, K. Zhao, S. Serbin, and **J.-E. Lee**, Seasonal variability of multiple leaf traits captured by leaf spectroscopy at two temperate deciduous forests. *Remote Sensing of Environment*, 179, 1-12 (2016).

31. Yoshida, Y., J. Joiner, C. Tucker, J. Berry**, J.-E Lee**, G. Walker, R. Reichle, R. Koster, A. Lyapustin, and Y. Wang, The 2010 Russian drought impact on satellite measurements of solar-induced chlorophyll fluorescence: Insights from modeling and comparisons with parameters derived from satellite reflectances. *Remote Sensing of Environment*, 166, 163-177 (2015).

30. **Lee, J.-E.**, J. Berry, C., van der Tol, C., X. [+]Yang, L. Guanter, A. Damm, I. Baker, and C. Frankenberg, Calculations for chlorophyll fluorescence incorporated into the Community Land Model version 4. *Global Change Biology*, 9, 3469-3477, doi: 10.1111/gcb.12948 (2015).

29. [+]Yang, X., J. Tang, J. F. Mustard, **J.-E. Lee**, M. Rossini, J. Joiner, W. Munger, and A. D. Richardson, Seasonal pattern of solar-induced chlorophyll fluorescence and its relationship with canopy photosynthesis in a temperate deciduous forest. *Geophys. Res. Lett.*, 42, 2977-2987 (2015).

28. Aichner, B., S. Feakins, **J.-E. Lee**, U. Herzchuh, and X. Liu, High resolution leaf wax carbon and hydrogen isotope record of late Holocene paleoclimate in the eastern Pamir (Lake Karakuli, Xinjiang, China). Climate of the Past, 11, 619-633 (2015).

27. Cai, Y., I. Y. Fung, R. L. Edwards, Z. An, H., Cheng, **J.-E. Lee**, L. Tan, C.-C. She, X. Wang, J. A. Day, W. Zhou, M. J. Kelley, and J. Chiang, Variability of stalagmite-inferred Indian monsoon precipitation over the past 252,000 y. *P. Natl. Acad. Sci. USA*., 112, 2954-2959 (2015).

26. Guanter, L., Y. Zhang, M. Jung, J. Joiner, M. Voigt, J. A. Berry, C. Frankenberg, A. Huete, P. Zarco-Tejada, **J.-E. Lee**, M. S. Moran, G. Ponce-Campos, C. Beer, G. Camps-Valls, N. Buchmann, D. Gianelle, K. Klumpp, A. Cescatti, J. M. Baker, and T. J. Griffith., Global and time-resolved monitoring of crop photosynthesis with chlorophyll fluorescence. Proceedings of the National Academy of Sciences, 111(14), E1327-E1333 (2014).

25. Fisher J. B., M. Sikka, S. Sitch, P. Ciais, B. Poulter, D. Galbraith, **J.-E. Lee**, C. Huntingford, N. Viovy, N. Zeng, A. Ahlstrom, M. R. Lomas, P. E. Levy, C. Frankenberg, S. Saatchi, and Y. Malhi, Net CO_2 fluxes for African tropical rainforests in the 20th century: uncertainty doubled in second half of century. *Phil Trans R Soc B* 368: 20120376 (2013).

24. **Lee J.-E**[a], C. Frankenberg[a], S. Saatchi, C. K. Boyce, L. Guanter, C. Van der Tol, E. Morrow, J. B. Fisher, J. A. Berry, J. Worden, and G. Badgley, Forest productivity and water stress in Amazonia: observations from GOSAT chlorophyll fluorescence. *Proceedings of Royal Society, B*, 280: 20130171 (2013). ([a]: equal contributions)

23. Parazoo, N.C., K. Bowman, C. Frankenberg, **J.-E. Lee**, J.B. Fisher, J. Worden, D. Jones, J. Berry, G.J. Collatz, I.T. Baker, M. Jung, and J. Liu, Interpreting seasonal changes in the carbon balance of southern Amazonia using measurements of XCO_2 and chlorophyll fluorescence from GOSAT. Geophys. Res. Lett., 40, 2829–2833, doi:10.1002/grl.50452 (2013).

22. Frankenberg, C., D. Wunch, G. Toon, C. Risi, R. Scheepmaker, **J.-E. Lee**, and J. Worden, Water vapor isotopologues retrievals from high resolution GOSAT short-wave infrared spectra, *Atmos. Meas. Tech.*, (2013).

21. Guanter, L., M. Rossini, R. Colombo, M. Meroni, C. Frankenberg, **J.-E. Lee,** , and Joiner, J. (2013). Using field spectroscopy to assess the potential of statistical approaches for the retrieval of sun-induced chlorophyll fluorescence from ground and space. Remote sensing of environment, 133:52–61 (2013).

20. **Lee, J.-E**., B.R. Lintner, J. D. Neelin, X. Jiang, C. K. Boyce, J. B. Fisher, J. T. Perron, T. L. Kubar, J. Lee, and J. Worden, Reduction of precipitation variability via plant transpiration. *Geophys. Res. Lett.*, 39, L19704, doi:10.1029/2012GL053417 (2012).

19. **Lee, J.-E**., C. Risi, I. Fung, J. Worden, R. Scheepmaker, B.R. Lintner, and C. Frankenberg, Asian monsoon hydrometeorology from TES and SCIAMACHY water vapor isotope measurements and LMDZ simulations: Implications for speleothem climate record interpretation. *J. Geophys. Res.*, D15112, doi:10.1029/2011JD017133 (2012).

18. Feakins S. J., S. Warny, and **J.-E. Lee**, Plant leaf waxes record Antarctic precipitation 20 to 15 million years ago. *Nature Geoscience*, DOI: 10.1038/NGEO1498 (2012).

17. Lintner, B.R., M. Biasutti, N. Diffenbaugh , **J.-E. Lee** , M. Niznik , and K. Findell, Amplification of wet and dry month occurrence over tropical land regions in response to global warming. *J. Geophys. Res.*, 117, D11106, doi:10.1029/2012JD017499 (2012).

16. Worden, J., S. Kulawik, C. Frankenberg, K. Bowman, V. Payne, K. Cady-Peirara, K. Wecht, **J.-E. Lee**, D. Noone, and C. Risi, Profiles of CH_4, HDO, H_2O, and N_2O with improved lower tropospheric vertical resolution from Aura TES radiances. *Atmospheric Measurement Techniques, 5, 397–411,* doi:10.5194/amt-5-397-2012 (2012).

15. **Lee, J.-E**., B.R. Lintner, C.K. Boyce, and P.J. Lawrence, Land use change exacerbates tropical South American drought by sea surface temperature variability. *Geophy. Res. Lett*, 38*,* L19706, doi:10.1029/2011GL049066 (2011).

14. Frankenberg, C., J. B. Fisher, J. Worden, G. Badgley, S. S. Saatchi, **J.-E., Lee**, G.C. Toon, A. Butz, A. Kuze, and T. Yokota, New global observations of the terrestrial carbon cycle from GOSAT: Patterns of plant fluorescence with gross primary productivity. *Geophy. Res. Lett*, 38, L17706, doi:10.1029/2011GL048738 (2011).

13. Boyce, C.K., and **J.-E. Lee**, Could land plant evolution have fed the marine revolution? *Paleontological Research*, **15**, 100-105, (2011).

12. Boyce, C. K., **J.-E. Lee**, T. S. Feild, T. J. Brodribb, and M. A. Zwieniecki. 2010. Angiosperms helped put the rain in the rainforests: The impact of plant physiological evolution on tropical biodiversity. *Annals of the Missouri Botanical Garden* 97: 527-540.

11. **Lee, J.-E**., C.K. Boyce, The impact of hydraulic capacity on water and carbon cycles in tropical South America. *J. Geophys. Res*., 115, D23123, doi:10.1029/2010JD014568 (2010).

10. Boyce, C.K. [a], and **J.-E. Lee**[a], An exceptional role for flowering plants in modifying tropical climate and biodiversity. *Proceedings of Royal Society, B*., doi:10.1098/rspb.2010.0485 (2010). ([a]: equal contributions).

9. **Lee, J.-E**., and A. Swann, Evaluation of using the "amount effect" to interpret speleothem data: Asian monsoon study. *IOP Conf. Series: Earth and Environmental Science*, 9, L23801 (2010).

8. **Lee, J.-E**., R. Pierrehumbert, B. Lintner, and A. Swann, Sensitivity of the stable water isotopic values on the convective parameterization schemes. *Geophy. Res. Lett*, 36, L23801, doi:10.1029/2009GL040880 (2009).

7. **Lee, J.-E**., K. Johnson, and I. Fung, Precipitation over South America during the Last Glacial Maximum: An analysis of the "amount effect" with a water isotope-enabled General Circulation Model. *Geophy. Res. Lett.*, 36, L19701, doi:10.1029/2009GL039265 (2009).

6. **Lee, J.-E**., I. Fung, D.J. DePaolo, and B. Otto-Bliesner, Water isotopes during the Last Glacial Maximum: New GCM calculations. *J. Geophys. Res*. 113, D19109, doi:10.1029/2008JD009859 (2008).

5. Angert, A., **J.-E. Lee**, and D. Yakir, Seasonal variations in the isotopic composition of near surface water vapor in the Eastern-Mediterranean. *Tellus B*, doi:10.1111/j.1600-0889.2008.00357.x, 60B, 674-684 (2008).

4. **Lee, J.-E**., and I. Fung, Amount effect of water isotopes and quantitative analysis of post-condensation processes. *Hydrological Processes*, doi: 10.1002/hyp.6637 (2008).

3. **Lee, J.-E**., I. Fung, D.J. DePaolo, and C. Henning, Analysis of the global distribution of water isotopes using the NCAR atmospheric general circulation model. *J. Geophys. Res*., 112, D16306, doi:10.1029/2006JD007657 (2007).

2. **Lee, J.-E**., R.S. Oliveira, T.E. Dawson, and I. Fung, Root functioning modifies seasonal climate. *P. Natl. Acad. Sci. USA*., 102, 17576-17581 (2005).

1. Kim, J., and **J.-E. Lee**, A multi-year regional climate hindcast for the western United States using the Mesoscale Atmospheric Simulation Model. *J. Hydrometeorol*., 4, 878-890 (2003).

4b. Work In Review

1. Kowalczyk, J. B., **J. -E. Lee**, and J. Zhu, Wetter past, drier future? How vegetation and geography affect North American precipitation under high CO_2, submitted to Paleoceanography.

4c. Work In Prep.

1. Wu, M., J.-E. Lee, Size of tropical precipitating convection: A case study in the Amazon region, in prep.
2. Xu, W., J.-E. Lee, The Andes and extreme precipitation in South America, in prep.

4d. Abstracts (Recent National and International Meetings)

37. Ukaonu, C., and **J. -E. Lee,** How Amazonian Transpiration Affects South American Climate, American Geophysical Union Fall Meeting (2022).

36. Ukaonu, C., and **J. -E. Lee,** How Amazonian Transpiration Affects South American Climate, The Leadership Alliance National Symposium, Hartford, CT (2022).

35. Xu, R., B. Marston, Z. Zhu, B. Fox-Kemper, and **J. -E. Lee**, Topological signature of stratospheric Poincaré-Gravity waves, Atmospheric and Oceanic Dynamics Meeting, Breckenridge, CO (2022).

34. Wu, M., and **J.-E. Lee,** Thresholds for atmospheric convection in Amazonian rainforests. Poster in *Gordon Research Conference* (2022).

33. Colunga, S., J. B. Kowalczyk, and **J. -E. Lee**, Effects of Higher Climate Sensitivity on Vegetation Distribution in a Warming Climate, The Leadership Alliance National Symposium, Online meeting (2021).

32. Xu, W. and **J.-E. Lee,** The Andes and ENSO Statistics Correction, In 2020 AGU Annual Fall Meeting, online, (2020).

31. Xu, W. and **J.-E. Lee,** How South American Topography Influences Climate Simulation over the South Pacific Ocean in CESM, In 100th American Meteorological Society Annual Meeting, Boston (2020).

30. Wu, M., and **J.-E. Lee,** Decomposing mesoscale convective systems and isolated convection in tropical South America. Talk in *American Geophysical Union Fall Meeting*, online (2020).

29. Wu, M., and **J.-E. Lee,** Thresholds for atmospheric convection in Amazonian rainforests. Poster in *American Meteorological Society Annual Meeting*, Boston, MA (2020).

28. Wu, M., and **J.-E. Lee,** Thresholds for atmospheric convection over land and over ocean. Poster in *American Geophysical Union Fall Meeting*, San Francisco, CA (2019).

27. Wu, M., and **J.-E. Lee,.** Thresholds for atmospheric convection in Amazonian rainforests. Poster in *Gordon Research Conference on Radiation and Climate*, Lewiston, ME, CA, 2019.

26. *Wu, M., and **J.-E. Lee**, Thresholds for atmospheric convection in Amazonian rainforests. European Geophysical Union, Vienna, April 2019.

25. Raczka B., P. D. Blanken, S. P. Burns, H. Duarte, C. Frankenberg, K. Grossmann, P. Kohler, **J.-E. Lee**, J. C. Lin, Barry A. Logan, T. Magney, A. Porcar-Castell, J. Stutz, X. Yang, D. R. Bowling, Sustained non-photochemical quenching shapes the seasonal pattern of solar-induced fluorescence at a high-elevation evergreen forest, Washington DC, 2018.

24. **Lee, J.-E**. The response of East Asian monsoon to the precessional cycle, AGU Fall Meeting, New Orleans, 2017.

23. Wu, M. and **J.-E. Lee**, Satellite-Observed vertical structures of clouds over the Amazon Basin, AGU Fall Meeting, New Orleans, 2017.

22. Dee, S. G., J. Nusbaumer, A. Bailey, J. M. Russell, **J.-E. Lee**, Br. Konecky, N. H. Buenning, D. C. Noone, Tracking the strength of the Walker Circulation with stable isotopes, AGU Fall Meeting, New Orleans, 2017.

21. Green J., Konings, A. G., S. H Alemohammad, J. Berry, D. Entekhabi, J. Kolassa, **J.-E. Lee**, P. Gentine, Regionally strong feedbacks between the atmosphere and terrestrial biosphere, AGU Fall Meeting, New Orleans, 2017.

20. Ibarra, D. E., J. K. C. Ruguenstein, A. Baresch, K. V. Lau, D. Thomas, **J.-E. Lee**, C. K. Boyce, and C. P. Chamberlain, The evolution of land plants and the silicate weathering feedback, AGU Fall Meeting, New Orleans, 2017.

19. Raczka, B. M., D. R. Bowling, J. C. Lin, **J.-E. Lee**, X. Yang, H, Duarte, L. Zuromski, Simulating canopy-level solar induced fluorescence with CLM-SIF 4.5 at a sub-alpine conifer forest in the Colorado Rockies, AGU Fall Meeting, New Orleans, 2017.

18. Kowalczyk, J. B. and **J. -E. Lee**, CO_2 fertilization amplifies high latitude warming in Earth system model simulations, Climatic and Biotic Events of the Paleogene conference, Salt Lake City, UT, 2017

17. **Lee, J.-E.**, A. Shen, B. Fox-Kemper, and Y. Ming, Hemispheric sea ice distri- bution

sets the glacial tempo, AGU Fall Meeting, San Francisco, 2016.

16. **Lee, J.-E**., Understanding Neogene oxygen isotopes in the Great Plains using isotope-enabled General Circulation Model simulations, NSF Meade Basin project meeting, University of Minnesota, MN, 2016.

15. **Lee, J.-E.**, P. Gentine, J. Berry, B. Linter, L. Borma, T Domingues, R. Oliveira, Ecophysiological controls on Amazonian precipitation seasonality and variability, DOE PI meeting, Potomac, MD, 2016.

14. Yang, X., J. -E. Lee, J. A. Berry, J. Tang, J. F. Mustard, C. Van der Tol, J. R. Kellner, C. E. Silva, Solar-induced Fluorescence as a Proxy for Canopy Photosynthesis in a Temperate Deciduous Forest: Comparisons between Observations and Model Results, AGU Fall Meeting, San Francisco, 2015.

13. Green, J., J. -E. Lee, P. Gentine, J. A. Berry, A. G. Konings, The Global Drivers of Photosynthesis and Light Use Efficiency Seasonality: A Granger Frequency Causality Analysis, AGU Fall Meeting, San Francisco, 2015.

12. Baker, I.T., J. A. Berry, A. B. Harper, A. S. Denning, J. -E. Lee, J. Joiner, C. Frankenberg, Understanding Tropical Forest Response to Seasonal and Interannual Variability: The Goldilocks Problem, AGU Fall Meeting, San Francisco, 2015.

11. Joiner, J., Y. Yoshida, L. Guanter, Y. Zhang, A. P. Vasilkov, K. M. Schaefer, K. F. Huemmrich, E. Middleton, P. Koehler, M. Jung, C. J. Tucker, A. Lyapustin, Y. Wang, C. Frankenberg, J. A. Berry, R. D. Koster, R. H. Reichle, J.-E. Lee, S. R. Kawa, G. J. Collatz, G. K. Walker, C. Van der Tol, On Variability in Satellite Terrestrial Chlorophyll Fluorescence Measurements: Relationships with Phenology and Ecosystem-Atmosphere Carbon Exchange, Vegetation Structure, Clouds, and Sun-Satellite Geometry, AGU Fall Meeting, San Francisco, 2014.

10. Jeong. S. -J, D. Schimel, C. Frankenberg, D. Drewry, J. B. Fisher, M. Verma, J. A. Berry, J.-E. Lee, Joanna Joiner, and Luis Guanter, Seasonal decoupling between vegetation greenness and function over northern high latitude forests, AGU Fall Meeting, San Francisco, 2014.

9. Payne, R., and J.-E. Lee, Response of Monsoons to Extreme Climates Using an Idealized GCM, AGU Fall Meeting, San Francisco, 2014.

8. Lee, J. -E., J. A. Berry, C. Van der Tol, L. Guanter, A. Damm, I. T. Baker, C. Frankenberg, Calculations for chlorophyll fluorescence incorporated into the Community Land Model, AGU Fall Meeting, San Francisco, 2014.

7. Baker, I. T., J. A. Berry, C. Frankenberg, J. Joiner, C. Van der Tol, Jung-Eun Lee, Scott Denning, Simulations of Solar Induced Fluorescence compared to observations from GOSAT and GOME-2 Satellites, AGU Fall Meeting, San Francisco, 2014.

6. Robinson, E. S., J. -E. Lee, X. Yang, Forest productivity and drought in tropical Africa: observations from the Global Ozone Monitoring Experiment-2, AGU Fall Meeting, San Francisco, 2014.

5. Yang, X, Tang, J., Mustard, J. F., J. -E. Lee, M. Rossini, J. Joiner, J. W. Munger, and A. D. Richardson, Seasonal pattern of solar-induced fluorescence as a proxy for canopy

photosynthesis in a temperate deciduous forest, AGU Fall Meeting, San Francisco, 2014.

4. Lee, J. -E., Will forests grow back after deforestation? The role of transpiration on rainfall, Continental Dynamics workshop, Estes Park, CO, 2013.

3. Lee, J. -E., C. Risi, I. Y. Fung, J. Worden, and C. Frankenberg, Asian monsoon hydrometeorology from TES and SCIAMACHY water vapor isotope measurements and LMDZ simulations: Implications for speleothem climate record interpretation, Workshop on Stable Isotopes in Atmospheric Vapor, IPSL (France), 2013.

2. Lee, J. -E., C. Risi, I. Y. Fung, J. Worden, and C. Frankenberg, The impact of orbital forcings on precipitation and its isotope values over East Asia: the contrast between continental interior and the southern part of China, Continental Dynamics workshop, Friday Harbor, WA, 2013.

1. Lee, J. -E., C. Risi, I. Y. Fung, J. Worden, and C. Frankenberg, Asian monsoon hydrometeorology from TES and SCIAMACHY water vapor isotope measurements and LMDZ simulations: Implications for speleothem climate record interpretation,TES science team meeting, Cambridge, MA, 2013.

5. Research Grants and Support

5a. Current

NSF CAREER: The onset of the rainy season in Amazonia. PI, NSF AGS-1944545, $660K to Brown, 2020-2025.

The response of East Asian monsoon to the precessional cycle: A new stable isotope study. PI, NSF AGS-1944545, $371K to Brown, 2022-2025.

Tropical hydroclimate change during the last deglaciation: a synthesis of isotope-enabled transient climate model simulations and proxy data, Co-PI (PI Xiaojing Du), NSF AGS, $343K to Brown, 2023-2025.

5b. Completed

Ecophysiological controls on Amazonian precipitation seasonality and variability. PI, DOE (DE-SC0011111), $970K total, $312K to Brown, 2014-2016.

Collaborative research: Evolutionary and ecological responses of small mammal communities to habitat and climate change over the last 5 million years. Co-PI (PI: D. Fox, University of Michigan), NSF ELT (NSF-EAR-1415464), $687K total, $137K to Brown, 2013-2016.

6. Invited talks

2018:

Yale University, “Plants and rainfall in Amazonia: The role of transpiration on precipitation”

2016:

University of Connecticut, “Chlorophyll fluorescence: modeling and application”

2015:

Boston University, “Chlorophyll fluorescence: modeling and application”

Columbia University, “Ocean Geometry and Glacial Cycles”

Korea Institute for Geoscience and Mineral Resources, “Ocean Geometry and Glacial Cycles”

Association for Tropical Biology and Conservation, “Will forests grow back after deforestation?”

CalTech Ronald and Maxine Linde Center workshop on Monsoons, “Will forests grow back after deforestation?”

Department of Energy, Biological and Environmental Research Principal Investigators’ Meeting, “Will forests grow back after deforestation?”

2014:

University of Oregon, “Plants and rainfall”

Harvard University, “Plants and rainfall”

AGU Fall meeting, “The role of transpiration on the hydrological cycle;”

MIT, “Will forests grow back after deforestation?”

2013:

Geophysical Fluid Dynamics Laboratory, “The changing terrestrial water cycle: Climate dynamics from biogeochemical clues”

Marine Biology Lab, “Forest productivity and water stress in Amazonia: Observations from GOSAT chlorophyll fluorescence”

Harvard University, Forest productivity and water stress in Amazonia: Observations from GOSAT chlorophyll fluorescence

Goldschmidt, “Asian monsoon hydrometeorology from TES and SCIAMACHY water vapor isotope measurements and LMDZ simulations: Implications for speleothem climate record interpretation,” Florence, Italy.

University of Minnesota, “Amazon Drought Vulnerability: Analysis From Climate Model Simulations and Satellite Chlorophyll Fluorescence Measurements”

7. Teaching and Advising

Teaching

Instructor: Introduction to Atmospheric Dynamics (EEPS 1510)

Instructor: Principles of Planetary Climate (GEOL 1430; Fall 2014, 2015, 2017, 2018, 2019, 2020)

Instructor: Global Water Cycle (GEOL 1310; Spring 2014, 2015, 2017, 2019, 2021)

Instructor: Dynamics of tropical climate and ecosystem (GEOL 2820I, Spring 2018)

Instructor: Evolution of a Habitable Planet (GEOL 240; Spring 2016)

Instructor: Global carbon cycle with an emphasis on terrestrial systems (Fall 2010)

Guest lecturer: Environmental Stable Isotopes (Spring 2018)

Guest Lecturer: Introduction to Atmospheric Dynamics (3 lectures, Spring 2014)

Guest lecturer: Isotope biogeochemistry (Winter 2009 and 2010)

Graduate Student Instructor, Seoul National University (1996-1997): Introduction to atmospheric science

Intern teacher, Seoul National University Busok Girls' Middle School, Seoul, Korea (Spring 1995)

Students and postdocs

Postdocs: Xi Yang, Sylvia Dee (with Steve Clemens and James Russell)

Graduate students: Jennifer Kowalczyk, Mengxi Wu, Weixuan Rosa Xu, Xi Chen

Undergraduate students:

Brown: Rebecca Payne, Eugene Robinson, Andres Chang, Monica Caparas, Harsh Chandra, Monica Caparas, Jessica Levey, Eric Mischell, Maria Salameh, Benny Smith

Leadership Alliance: Carlos Olivares (U of Chicago), Samantha Colunga (U of Texas Rio Grande valley), Caleb Ukaonu (Georgia Tech)
University of Chicago: Sarah Bang

Committee member for preliminary exam: Chelsea Parker, Keith Spangler, David Weiss, James Cassanelli, Hannah Kaplan, Jinxuan Zhu, Erica Jawin, Ashley Palumbo, Abigail Bodner, Sydney Clark, Nora Richter, Sloane Garelick, Ethan Kyzivat, Anson Cheung, Emily Joyce, Heejeong Kim, Sarah Esenther, Alexandra MacFarland

Committee member for Ph.D Thesis: Chelsea Parker, Cat Scanlon, Marc Meyers, David Weiss, Erica Jawin, Carlos Silva, Keith Spangler, Sloan Garelick

8. Service

Department

Diversity and Inclusion Action Committee (2020-2021)

Computer Committee (2017-2020)

Curriculum Committee (2015-2016, 2020-2021)

Search committee (2014; 2015; 2019; 2022).

Participant, Brown's Graduate Women in Science and Engineering (Fall 2013- 2016).

Discussion leader, Princeton Women in Geosciences group (2013).

University

Member, Brown University Community Council (2018-)

Representative for Brown, University Corporation for Atmospheric Research (2017-)

Interviewer during the mock interviews at the Young Scholars Conference (2018)

Brown's advising program (advising ~6 freshmen and ~6 sophomore students) (2014-)

Professional

Instructor: Summer school on mountain ranges and high plateaus (Summer 2011, Summer 2015)

Review panel, DOE Office of Biological & Environmental Research (2014, 2015, 2016, 2017, and 2019)

Participant, Agri-Conservation workshop, Brasilia, Brazil (2017)

Review panel, NSF (2014 and 2019)

Review panel, NOAA (2014)

Reviewer (~10 papers per year), NSF, Oecologia, Earth and Planetary Science Letters, Geophysical Research Letters, Journal of Climate, Science, Paleoceanography, Journal of Geophysical Research-Atmosphere, Journal of Geophysical Research Biogeoscience, Climate of Past, Proceeding of National Academy of Science, Science, Nature Geoscience, Global Biogeochemical Cycle, Geoscientific Model Development.

Community:

Workshop for Providence school elementary school teachers to support their science curriculum (summer 2021) through DEEPS STEP (Department of Earth, Environmental, and Planetary Sciences' Science-Teaching and Education Program)