

William (Will) Chapman

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Research Interests: Weather and Climate Predictability, Machine Learning / Deep Learning, Climate Dynamics and Modeling, Air-Sea interaction, Numerical Weather Prediction (NWP), NWP Forecast Post-Processing

EDUCATION

Scripps Institution of Oceanography Ph.D. in Atmospheric Science	La Jolla, Ca 2022
Stanford University M.Sc. in Civil & Environmental Engineering	Palo Alto, Ca 2016
University of California San Diego B.Sc. in Environmental Engineering	La Jolla, Ca 2012

PROFESSIONAL EXPERIENCE

University of Colorado Boulder Assistant Professor	Boulder, Co August 2025 - current
Woods Hole Oceanographic Institution Guest Investigator - Physical Oceanography ⁺	Woods Hole, Ma May 2026 - current
National Center for Atmospheric Research Scientist IV ⁺	Boulder, Co August 2023- August 2025
Multiscale Machine Learning In Coupled Earth System Modeling Lead Scientist ⁺	Boulder, Co October 2024 - current
National Center for Atmospheric Research Post-Doctoral Fellow - Advanced Studies Program [*]	Boulder, Co 2022-July 2023
Multiscale Machine Learning In Coupled Earth System Modeling Post-Doctoral Scholar [*]	Boulder, Co 2022-July 2023
Scripps Institution of Oceanography Graduate Research Assistant	La Jolla, Ca 2016-2021
National Center for Atmospheric Research Research Applications Lab - Visiting Graduate Student	Boulder, Co 2019
Stanford University Graduate Research Assistant	Palo Alto, Ca 2015-2016
Scripps Institution of Oceanography Undergraduate Research Assistant	La Jolla, Ca 2011-2012
University of California San Diego Interim Assistant Resident Dean - Sixth College	La Jolla, Ca 2012, 2016

^{*,+} concurrent

PUBLICATIONS

- [1] **W. Chapman**, A. C. Subramanian, S.-P. Xie, M. D. Sierks, F. M. Ralph, and Y. Kamae, “Monthly modulations of enso teleconnections: Implications for potential predictability in north america”, *Journal of Climate*, pp. 1–71, Mar. 2021.
- [2] T. Beucler, J. D. Neelin, H. Su, S. Asthana, C. Bretherton, W. Chapman, C. Christopoulos, S. K. Clark, A. Grover, I. Lopez-Gomez, *et al.*, “Artificial intelligence pathways from weather to climate”, *arXiv preprint arXiv:2610.09770*, 2026, In review, *Science Advances*.
- [3] **W. Chapman**, J. Schreck, and Y. Sha, “Hard conservation correctors can hide a degrading model when training autoregressive emulators”, *arXiv preprint arXiv:2607.18416*, 2026, Minor revision, *Artificial Intelligence for the Earth Systems*.
- [4] T. B. Higgins, **W. Chapman**, A. C. Subramanian, and L. Delle Monache, “Generating a 1000-member ensemble of integrated water vapor transport forecasts with diffusion”, *Artificial Intelligence for the Earth Systems*, e250075, 2026.
- [5] A. Roux, K. J. Mayer, L. Harney, D. Amrhein, **W. Chapman**, *et al.*, “The nsf ncar community ai modeling hub for earth system science”, *Artificial Intelligence for the Earth Systems*, 2026, Submitted.
- [6] J. S. Schreck, **W. Chapman**, C. Becker, and D. J. Gagne II, “Conditional tropical cyclogenesis rates via rare-event sampling in a neural weather emulator”, *arXiv preprint arXiv:2606.30920*, 2026, In revision, *npj Climate and Atmospheric Science*.
- [7] J. M. Valdivia, **W. Chapman**, and K. Friedrich, “Radar data smoothing using the discrete cosine transform: A fast spectral domain algorithm”, *Atmospheric Measurement Techniques*, vol. 19, no. 15, pp. 5211–5222, 2026.
- [8] J. M. Valdivia, **W. Chapman**, and K. Friedrich, “Spectral-domain local statistics with missing-data support for cartesian and polar grids”, *Computers & Geosciences*, 2026, Submitted.
- [9] D. Watson-Parris, W. Tobin, A. Paçal, M. Schlund, V. Balaji, K. Bowman, C. Bretherton, P. M. Caldwell, W. Chapman, W. D. Collins, *et al.*, “Climatebench v2. 0: Probabilistic climate model benchmarking”, *arXiv preprint arXiv:2610.04558*, 2026, In review, *Journal of Advances in Modeling Earth Systems*.
- [10] **W. Chapman** and J. Berner, “Improving climate bias and variability via cnn-based state-dependent model-error corrections”, *Geophysical Research Letters*, vol. 52, no. 6, e2024GL114106, 2025.
- [11] **W. Chapman**, F. Schevenhoven, J. Berner, N. Keenlyside, I. Bethke, P.-G. Chiu, A. Gupta, and J. Nusbaumer, “Implementation and validation of a supermodeling framework into community earth system model version 2.1. 5”, *Geoscientific Model Development*, vol. 18, no. 17, pp. 5451–5465, 2025.
- [12] **W. Chapman**, J. S. Schreck, Y. Sha, D. J. Gagne II, D. Kimpara, L. Zanna, K. J. Mayer, and J. Berner, “Camulator: Fast emulation of the community atmosphere model”, *arXiv preprint arXiv:2504.06007*, 2025.
- [13] A. Mamalakis, **W. Chapman**, and K. J. Mayer, “Expanding the limits of explainable ai tools in generating physical insights”, 2025, In revision, *Scientific Reports*.
- [14] J. S. Schreck, **W. Chapman**, C. Becker, D. J. Gagne II, D. Kimpara, N. Cherukuru, J. Berner, K. J. Mayer, and N. Sobhani, “Controllable probabilistic forecasting with stochastic decomposition layers”, *arXiv preprint arXiv:2512.18815*, 2025, In revision, *Journal of Advances in Modeling Earth Systems*.
- [15] J. S. Schreck, Y. Sha, **W. Chapman**, D. Kimpara, J. Berner, S. McGinnis, A. Kazadi, N. Sobhani, B. Kirk, C. Becker, *et al.*, “Community research earth digital intelligence twin: A scalable framework for ai-driven earth system modeling”, *npj Climate and Atmospheric Science*, vol. 8, no. 1, p. 239, 2025.

- [16] Y. Sha, J. S. Schreck, **W. Chapman**, and D. J. Gagne, “Investigating the use of terrain-following coordinates in ai-driven precipitation forecasts”, *Geophysical Research Letters*, vol. 52, no. 20, e2025GL118478, 2025.
- [17] Y. Sha, J. S. Schreck, **W. Chapman**, and D. J. Gagne, “Improving ai weather prediction models using global mass and energy conservation schemes”, *Journal of Advances in Modeling Earth Systems*, vol. 17, no. 11, e2025MS005138, 2025.
- [18] L. Zanna, W. Gregory, P. Perezhogin, A. Sane, C. Zhang, A. Adcroft, M. Bushuk, C. Fernandez-Granda, B. Reichl, D. Balwada, *et al.*, “Hybrid physics-ai models for stable ocean climate simulations”, *arXiv preprint arXiv:2510.22676*, 2025, In review, *Nature Computational Science*.
- [19] D. Balwada, R. Abernathey, S. Acharya, A. Adcroft, J. Brener, V. Balaji, M. A. Bhouri, J. Bruna, M. Bushuk, W. Chapman, *et al.*, “Learning machine learning with lorenz-96”, *Journal of Open Source Education*, vol. 7, no. 82, p. 241, 2024.
- [20] **W. Chapman**, K. Mayer ⁺, and W. Manriquez, “Exploring the relative importance of the mjo and enso to north pacific subseasonal predictability”, *Geophysical Research Letters*, vol. 46, no. 17-18, pp. 10 627–10 635, 2024.
- [21] **W. Chapman** ⁺, J. Schreck ⁺, K. Sha ⁺, D. Kimpara, J. Berner, S. McGinnis, A. Kazadi, N. Sobhani, B. Kirk, and D. J. Gagne II, “Community research earth digital intelligence twin (credit)”, *arXiv preprint arXiv:5988462*, 2024.
- [22] T. B. Higgins, A. C. Subramanian, **W. Chapman**, D. A. Lavers, and A. C. Winters, “Subseasonal potential predictability of horizontal water vapor transport and precipitation extremes in the north pacific”, *Weather and Forecasting*, 2024.
- [23] N. Rampal, S. Hobeichi, P. B. Gibson, J. Baño-Medina, G. Abramowitz, T. Beucler, J. González-Abad, **W. Chapman**, P. Harder, and J. M. Gutiérrez, “Enhancing regional climate downscaling through advances in machine learning”, *Artificial Intelligence for the Earth Systems*, vol. 3, no. 2, p. 230 066, 2024.
- [24] J. S. Schreck, D. J. Gagne, C. Becker, **W. Chapman**, K. Elmore, D. Fan, G. Gantos, E. Kim, D. Kimpara, T. Martin, M. J. Molina, V. M. Przybylo, J. Radford, B. Saavedra, J. Willson, and C. Wirz, “Evidential deep learning: Enhancing predictive uncertainty estimation for earth system science applications”, *Artificial Intelligence for the Earth Systems*, 2024.
- [25] C. D. Wirz, C. Sutter, J. L. Demuth, K. J. Mayer, **W. Chapman**, M. G. Cains, J. Radford, V. Przybylo, A. Evans, T. Martin, *et al.*, “Increasing the reproducibility and replicability of supervised ai/ml in the earth systems science by leveraging social science methods”, *Earth and Space Science*, vol. 11, no. 7, e2023EA003364, 2024.
- [26] A. Badrinath, L. Delle Monache, N. Hayatbini, **W. Chapman**, F. Cannon, and M. Ralph, “Improving precipitation forecasts with convolutional neural networks”, *Weather and Forecasting*, vol. 38, no. 2, pp. 291–306, 2023.
- [27] **W. Chapman** and J. Berner, “Benefits of deterministic and stochastic tendency adjustments in a climate model”, *arXiv preprint arXiv:2308.15295*, 2023.
- [28] **W. Chapman** and J. Berner, “Deterministic and stochastic tendency adjustments derived from data assimilation and nudging”, *Quarterly Journal of the Royal Meteorological Society*, 2023.
- [29] D. Du, A. Subramanian, W. Han, **W. Chapman**, J. Weiss, and E. Bradley, “Increase in mjo predictability under global warming”, *Nature Climate Change*, 2023.
- [30] T. B. Higgins, A. C. Subramanian, A. Graubner, L. Kapp-Schwoerer, P. A. Watson, S. Sparrow, K. Kashinath, S. Kim, L. Delle Monache, and **W. Chapman**, “Using deep learning for an analysis of atmospheric rivers in a high-resolution large ensemble climate data set”, *Journal of Advances in Modeling Earth Systems*, vol. 15, no. 4, e2022MS003495, 2023.

- [31] W. Hu, M. Ghazvinian, **W. Chapman**, A. Sengupta, F. M. Ralph, and L. Delle Monache, “Deep learning forecast uncertainty for precipitation over the western united states”, *Monthly Weather Review*, vol. 151, no. 6, pp. 1367–1385, 2023.
- [32] F. Schevenhoven, N. Keenlyside, F. Counillon, A. Carrassi, **W. Chapman**, M. Devilliers, A. Gupta, S. Koseki, F. Selten, M.-L. Shen, *et al.*, “Supermodeling: Improving predictions with an ensemble of interacting models”, *Bulletin of the American Meteorological Society*, 2023.
- [33] **W. Chapman**, L. Delle Monache, S. Alessandrini, A. C. Subramanian, F. M. Ralph, S.-P. Xie, S. Lerch, and N. Hayatbini, “Probabilistic predictions from deterministic atmospheric river forecasts with deep learning”, *Monthly Weather Review*, vol. 150, no. 1, pp. 215–234, 2022.
- [34] S. Michael, P. David, **W. Chapman**, and R. F. Martin, “Seasonally anchored bias correction of cmip5 hydrological simulations”, *Authorea Preprints*, 2022.
- [35] P. B. Gibson, **W. Chapman**, A. Altinok, L. Delle Monache, M. J. DeFlorio, and D. E. Waliser, “Training machine learning models on climate model output yields skillful interpretable seasonal precipitation forecasts”, *Nature - Communications Earth & Environment*, vol. 2, no. 1, p. 159, Aug. 2021, ISSN: 2662-4435.
- [36] S. E. Haupt, **W. Chapman**, S. V. Adams, C. Kirkwood, J. S. Hosking, N. H. Robinson, S. Lerch, and A. C. Subramanian, “Towards implementing artificial intelligence post-processing in weather and climate: Proposed actions from the oxford 2019 workshop”, *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, vol. 379, no. 2194, p. 20 200 091, 2021. eprint: <https://royalsocietypublishing.org/doi/pdf/10.1098/rsta.2020.0091>.
- [37] S. Meech, S. Alessandrini, **W. Chapman**, and L. Delle Monache, “Post-processing rainfall in a high-resolution simulation of the 1994 piedmont flood”, *Bulletin of Atmospheric Science and Technology*, Jan. 2021, ISSN: 2662-1509.
- [38] Prabhat, K. Kashinath, M. Mudigonda, S. Kim, L. Kapp-Schwoerer, A. Graubner, E. Karaismailoglu, L. von Kleist, T. Kurth, A. Greiner, A. Mahesh, K. Yang, C. Lewis, J. Chen, A. Lou, S. Chandran, B. Toms, **W. Chapman**, K. Dagon, C. A. Shields, T. O’Brien, M. Wehner, and W. Collins, “ClimateNet: An expert-labeled open dataset and deep learning architecture for enabling high-precision analyses of extreme weather”, *Geoscientific Model Development*, vol. 14, no. 1, pp. 107–124, 2021.
- [39] G. Schamberg, **W. Chapman**, S.-P. Xie, and T. P. Coleman, “Direct and indirect effects—an information theoretic perspective”, *Entropy*, vol. 22, no. 8, p. 854, 2020.
- [40] A. M. Wilson, **W. Chapman**, A. Payne, A. M. Ramos, C. Boehm, D. Campos, J. Cordeira, R. Garreaud, I. V. Gorodetskaya, J. J. Rutz, *et al.*, “Training the next generation of researchers in the science and application of atmospheric rivers”, *Bulletin of the American Meteorological Society*, vol. 101, no. 6, E738–E743, 2020.
- [41] **W. Chapman**, S. E. Haupt, C. Kirkwood, S. Lerch, M. Matsueda, and A. C. Subramanian, “Data from: Towards implementing ai post-processing in weather and climate: Proposed actions from the oxford 2019 workshop”, 2019.
- [42] **W. Chapman**, A. Subramanian, L. Delle Monache, S. Xie, and F. Ralph, “Improving atmospheric river forecasts with machine learning”, *Geophysical Research Letters*, vol. 46, no. 17-18, pp. 10 627–10 635, 2019.
- [43] M. Z. Jacobson, M. A. Delucchi, Z. A. Bauer, S. C. Goodman, **W. Chapman**, M. A. Cameron, C. Bozonnat, L. Chobadi, H. A. Clonts, P. Enevoldsen, *et al.*, “100% clean and renewable wind, water, and sunlight all-sector energy roadmaps for 139 countries of the world”, *Joule*, vol. 1, no. 1, pp. 108–121, 2017.

⁺shared first author

PEER-REVIEWED CONFERENCE PAPERS

1. Yu, Yang, KR, Moy, **W.**, **Chapman**, PL O'Neill, and R Rajagopal, "Assessing climate change vulnerability of microgrid systems.", *2016 IEEE Power and Energy Society General Meeting (PESGM). IEEE, 2016*
2. A. Jakubisin, **W. Chapman**, and M. Sierks, "Sustainability and the Student Affairs Professional", *National Association of Student Personnel Administrators Annual Conference, March 2015*

SELECTED CONFERENCES

1. **W Chapman**, "Atmospheric Rivers in an AI Emulator: Faithful Vapor Transport and a Targeted Path to Better Rainfall Extremes", *NH027: Extreme Atmospheric Rivers and Compound Hazard Risk - AGU Annual Meeting, San Francisco, Dec. 2026 Invited Oral*
2. P Aggarwal, D Watson-Parris, and **W Chapman**, "FASST: A Compact Stateless Atmosphere Model for Long-Term Ocean Coupling", *Tackling Climate Change with Machine Learning Workshop - NeurIPS 2026 Accepted Workshop Paper*
3. **W Chapman**, "Training Machine Learning Models on Climate Model Output Yields Skillful Interpretable Seasonal Precipitation Forecasts ", *3rd NOAA Workshop on Leveraging AI in Environmental Sciences – Sept. 14, 2021 Highlighted Talk*
4. **W Chapman**, "Deep-learning Applications for Environmental Science Artificial Intelligence for Feature Detection ", *20th Conference on Artificial Intelligence for Environmental Science - AMS 101st Annual Meeting - January 2021, 2020 Session Co-Chair*
5. **W Chapman**, "AI, Ethics, and Inclusion for Geosciences, part 1", *20th Conference on Artificial Intelligence for Environmental Science - AMS 101st Annual Meeting - January 2021, 2020 Session Co-Chair*
6. **W Chapman**, L Delle Monache, S Alessandrini, AC Subramanian, N Hayatbini, SP Xie, and FM Ralph, "Probabilistic Weather Prediction with Bayesian Neural Networks", *Machine Learning for Weather and Climate Modeling II - AGU Fall Meeting 2020, 2020*
7. P Gibson, **W Chapman**, A Altinok, MJ Deflorio, L Delle Monache, and D Waliser, "Interpretable Machine Learning applied to Seasonal Forecasting of Western US Precipitation", *Machine Learning for Weather and Climate Modeling III - AGU Fall Meeting 2020, 2020*
8. M Sierks, MD Dettinger, **W Chapman**, and M Ralph, "Assessing Vulnerability and Adaptive Management Under Climate Change Scenarios: Lessons from California's Largest Reservoir", *AGU Fall Meeting 2020, 2020*
9. **W Chapman**, TJ Kilpatrick, "Machine Learning for inpainting QuikSCAT winds in Hawaii's Lee Region", *AI Applied to Airborne or Spaceborne Earth Observation Datasets - 100th American Meteorological Society Annual Meeting, January 2020, 2020. AMS Student Presentation Award - 1st Place*
10. **W Chapman**, "Atmospheric River Forecast Model Bias Correction", *19th Conference on Artificial Intelligence for Environmental Science - 99th American Meteorological Society Annual Meeting, 2019.*
11. **W Chapman**, S.-P.Xie, and T.Kilpatrick, "Machine Learning to Improve QuikSCAT Ambiguity Selection Near Hawaii's Big Island", *The International Ocean Vector Science Team Meeting, May 2019.*

AWARDS

CU System Wide. AI Recognition Award, Scholarly & Creative Work.. 2026, Scalable and Embedded Artificial Intelligence for Next-Generation Earth System Modeling. This award honors faculty members who use Artificial Intelligence (AI) in innovative ways to advance their scholarly and creative endeavors and achieve impactful results.

NCAR — CISL, Special Recognition Award — Digital Twin. 2024, For leading the Community Runnable Earth Digital Intelligence Twin (CREDIT) software framework.

2024 Cross-VESRI Convening, *Excellence in Research Award*. 2024, Cambridge, UK: A State-Dependent Model-Error Representation for Online Climate Model Bias Correction with Focus on MJO representation.

Edward A. Frieman Prize, *For Excellence in Graduate Research*. 2020, Scripps Institution of Oceanography, institution-wide award.

AMS AI for Environmental Science Conference, *Student Presentation — 1st place*. 2019, For excellence in research.

UCSD, *Provost Honors (11×)*. 2008–2012, Consistently high academic performance during undergraduate environmental engineering (fluid dynamics).

FUNDED PROPOSALS

Office of Naval Research, *Sea-Air Fluxes and Atmospheric River Initiation (SAFARI)*. 2027–2030, Bridging Adjoint, Machine Learning, and Ensemble Sensitivity Analysis for Pacific Atmospheric Rivers **PI**: Will Chapman. Awarded: \$655,549.

RIO seed grant, *Research & Innovation Seed Grant Program*. 2026–2027, If Forecasts Could Talk: Prithvi WxC-LLM Downscaling for Actionable Predictions **PI**: Will Chapman. Awarded: \$60,000/year; link to proposal information.

University of Bergen Bjerknes Visiting Fellow, *Bjerknes Centre for Climate Research: Forside*. 2026, Supermodeling research **PI**: Will Chapman. Awarded: \$5,000/year; link to proposal information.

CU-NYU Subaward, *Multiscale Machine Learning In Coupled Earth System Modeling*. 2025–2027, Leading Coupled Emulator Research at CU Boulder **PI**: Will Chapman. Awarded: \$150,000/year; link to proposal information.

University of Illinois – CSBS Small Grant, *Actionable AI Forecasts for Farmers Through User-Engaged Interdisciplinary Research*. 2026, **PI**: Christopher Wirz; **Co-I**: Will Chapman. Awarded: \$30,000.

DoD - SERDP ESTCP, *Bridging the Weather to Climate Continuum for Climate Resilience — ESTCP W2CC*. 2024–2027, **PI**: Andrew Newman; **CO-PI**: Will Chapman. Awarded: \$895,000.

NAIRR Pilot Project, *CREDIT Digital Twin Training and Reforecasts*. 2024–2026, National AI Research Resource (NAIRR) Pilot initiative. Awarded: 500,000 node-hours (850,000,000 SUs) ($\approx$ 3 million GPU-hours) on DOE ORNL Summit; estimated value: \$2,000,000.

NCAR — Advanced Studies Program, *Post-Doctoral Fellowship; Advancing Machine Learning Parameterizations for Structural Error in CESM using Data Assimilation*. 2022–2023, **PI**: Will Chapman. Awarded: estimated value \$250,000 (salary, benefits, travel/publication, and institutional investment).

UW-CICOES Post-Doctoral Fellowship, *Post-Doctoral Fellowship; Improving Coupled Machine Learning Emulation (declined)*. 2022, **PI**: Will Chapman. Awarded: estimated value \$250,000 (salary, benefits, travel/publication, and institutional investment).

Microsoft AI for Earth, *Fellow: Improving Atmospheric River Prediction with Machine Learning*. 2018–2021, **PI**: Will Chapman. Awarded: \$15,000/year Azure resources.

PENDING PROPOSALS

NSF, *Unraveling North Pacific Jet Predictability: Combining Differentiable Forecasts, Regime Diagnostics, and Predictable Component Analysis for Improved Hazard Prediction*. submitted 2026, **PI**: Will Chapman; **Co-PI**: Andrew Winters. Awarded: Pending.

NASA – A.13 Accelerating Earth Solutions, *User-Centered Weather & Agriculture Decision Support*. submitted 2026, **PI**: Will Chapman. Awarded: Pending.

NSF–SNSF Lead Agency, *SHARE-CD: Surface Heterogeneity For Advancing the Representation of Turbulent Exchange in Cryospheric Domains*. submitted 2026, **PI**: David Clemens-Sewall; **Co-PI**: Will Chapman; partner: WSL SLF (Switzerland). Awarded: \$1,058,344; Pending.

NIH – R01, *Health & Extreme Weather*. submitted 2026, **PI**: Ellen Considine; **Key Personnel**: Will Chapman. Awarded: Pending.

DOE BER – Regional Research Center, *SWELTER: Severe Weather, Land-Atmosphere Feedbacks, and Energy Resilience in the Southeast*. submitted 2026, CU Boulder-led team; Will Chapman, contributor. Awarded: Pending.

NASA FINESST (2), *Diagnosing Dynamical Drivers of Kona Low Induced Extreme Rainfall Using Deep-Learning Forecast Operators; Machine-Learning and Data Assimilation Based Error Discovery for Forecast and Parameterization Improvement in the NASA GEOS-S2S-2 Model*. submitted 2026, **PI**: Will Chapman; **Future Investigators**: Ona Melvin, Aiden Pape. Awarded: Pending.

SELECTED INVITED TALKS, TEACHING, & SEMINARS

1. **W Chapman**, NSF NCAR AI Initiative Town Hall, AGU Annual Meeting, San Francisco. *Dec. 2026. Panelist*
2. **W Chapman**, “On Slow Atmospheric Modes and Biases in Coupled Emulation”, Ai2 Conference: What is the Role of Physics in Data-Driven Climate Modeling?, Allen Institute for AI, Seattle. *Nov. 5, 2026. Invited Speaker*
3. **W Chapman**, “Extremes and slow biases in a climate-model emulator”, AICE: AI for Climate Speaker Series - University of Chicago - Data Science Institute. *Oct. 14, 2026.*
4. **W Chapman**, “Towards coupled data-driven Earth system prediction”, BCCR Seminar, Bjerknes Centre for Climate Research, Bergen, Norway. *May 27, 2026.*
5. **W Chapman** and Y Li, Coupling of emulators and their evaluation, M²LInES Annual Meeting. *May 21, 2026.*
6. **W Chapman**, CGD Exchange, NSF NCAR Climate & Global Dynamics Laboratory. *Apr. 30, 2026.*
7. **W Chapman**, “Towards coupled data-driven Earth system prediction”, UN ITU AI for Good – AI for Climate Science Webinar Series. *Mar. 30, 2026.*
8. **W Chapman**, NSF NCAR Postdoc Career Development Retreat. *Jan. 14, 2026. Career Panelist*
9. **W Chapman**, AI breakout session, UCAR Annual Members Meeting, Boulder, Co. *Oct. 2025.*
10. **W Chapman**, “Machine Learning (ML) Approaches, use of ML in atmospheric science for weather and climate”, The Dynamical Core Model Intercomparison Project and Summer School. *Jun. 2, 2025.*
11. **W Chapman**, “CNN-based state-dependent model-error corrections in CESM”, Mesoscale and Microscale Meteorology Seminar. *NCAR May. 8, 2025.*
12. **W Chapman**, “Community Research Earth Digital Intelligence Twin (CREDIT)”, Simons Foundation, Foundation Models for Science conference. *April. 30, 2025.*
13. **W Chapman**, “Machine Learning for Climate Science: Emulation & Scientific Discovery”, University of Virginia Department of Environmental Sciences Seminar. *Apr. 17, 2025.*
14. **W Chapman**, “CNN-based state-dependent model-error corrections in CESM”, Taiwan-US Workshop on AI/ML for Satellite Data, Severe Weather, and Tropical Cyclones. *NCAR Apr. 16, 2025.*
15. **W Chapman**, “A Perspective on AI/ML in Atmospheric Science”, Colorado State University ATS Department Seminar. *Mar. 24, 2025.*
16. **W Chapman**, “A Perspective on AI/ML in Atmospheric Science”, University of Colorado Boulder ATOC Department Seminar. *Mar. 14, 2025.*

17. **W Chapman**, “Improving climate model bias and variability via a CNN-based state-dependent model-error correction”, Woods Hole - Physical Oceanography Seminar. *Jan. 21, 2025.*
18. **W Chapman**, “The Potential for Artificial Intelligence and Machine Learning to Transform Numerical Weather Prediction”, NOAA/OSTP, Washington D.C. *May, 06 2024. **Panelist***
19. **W Chapman**, “Harnessing Machine Learning for CESM: Innovation and Integration”, Boulder , Co. *June, 10 2024. **Co-Lead Organizer***
20. **W Chapman**, “Advancing Weather and Climate Prediction with Data-Driven Methods”, University of Washington, Allen School Colloquia Series *Feb, 2024.*
21. **W Chapman**, “Advancing Weather and Climate Prediction with Data-Driven Methods”, Naval Post-Graduate School, *Mar, 2024.*
22. **W Chapman**, “AI/ML Efforts in CESM Using Python”, *CESM SE Working Group Annual Meeting – Mar, 2024.*
23. **W Chapman** and Kirsten Mayer, “Methods in eXplainable Artificial Intelligence (XAI) + Coding Exercises”, *UNIDATA users workshop – June, 2023.*
24. **W Chapman**, “Leveraging DART and Nudging Increments to Address Model Bias in CAM6”, *NOAA - Atmosphere-Ocean Processes and Predictability Section – March, 2023.*
25. **W Chapman**, “Monthly Modulations of ENSO teleconnections”, *NCAR ASP 2022 Workshop on S2S Science and prediction – July, 2022.*
26. **W Chapman**, “AI for Earth and Space Science Workshop at Microsoft ICLR 2022”, *Atmosphere Session – May, 2022. **Organizer***
27. **W Chapman**, “Probabilistic Forecasting of Atmospheric River Events with Deep Learning”, *UCLA Student Seminar Series.-Dec. 03, 2021*
28. **W Chapman**, “Week 3-6 Prediction of North American Temperature Anomalies in the CESM LENS”, *2021 ASP Colloquium - The Science of Subseasonal to Seasonal (S2S) Predictions – July 12-23, 2021. **Instructor***
29. **W Chapman**, “Probabilistic Weather Prediction with Neural Networks”, *TRUSTWORTHY ARTIFICIAL INTELLIGENCE FOR ENVIRONMENTAL SCIENCE (TAI4ES) SUMMER SCHOOL – July 27, 2021. **Lecture***
30. **W Chapman**, “Methods for Accurate Uncertainty for Deep Learning Regression Problems”, *SIO Machine Learners – March 16, 2021*
31. **W Chapman**, “Machine Learning in Python for Environmental Science Problems: Introduction to Machine Learning”, AMS committe on Artificial Intelligence Applications to Environmental Science, *20th Conference on Artificial Intelligence for Environmental Science - AMS 101st Annual Meeting - April 2021 **Instructor - Supervised Learning Fundamentals***
32. **W Chapman**, L Delle Monache, S Alessandrini, AC Subramanian, N Hayatbini, SP Xie, and FM Ralph, “Deterministic and Probabilistic Methods for Improving Atmospheric River Forecasts with Machine Learning”, *Scripps Institutional Seminar – November 17, 2020*
33. **W Chapman**, “Bayesian Neural Networks and NWP Forecast Post-Processing”, *UCI/Columbia CBrain Meeting – April 21, 2020*
34. **W Chapman**, “AGU Tutorial on Machine Learning and Deep Learning for the Environmental and Geosciences”, *AGU Fall Meeting – December 08, 2019 **Instructor***
35. **W Chapman**, AC Subramanian, L Delle Monache, SP Xie, and FM Ralph, “Spatial Correction of NWP Forecasts”, *National Center for Atmospheric Research RAL – November 7, 2019*
36. **W Chapman**, T Kilpatrick, and SP Xie, “Comparative Field Reconstruction: Deep Learning, MCA, CCA”, *National Center for Atmospheric Research - Artificial Intelligence Affinity Group (AIAG) – Oct 9, 2019*

37. **W Chapman**, A Wilson, and FM Ralph, “Center for Western Weather and Water Extremes: Atmospheric River Colloquium”, *Western States Water Council and the California Department of Water Resources Subseasonal to Seasonal Workshop – May 23, 2019*
38. **W Chapman**, SP Xie, and FM Ralph, “High Impact Weather, Climate Extremes, and Non-Gaussian Statistics”, *Climate Science Policy Ocean/Atmos Ph.D. Student Seminar – February 8, 2019*
39. **W Chapman**, “No Red Meat or a New Electric Vehicle, Food Choices and Emissions”, *Connecting the Dots 2015: The Food, Energy, Water and Climate Nexus*, Stanford University – April 17, 2015

INSTRUCTOR OF RECORD

- **ATOC 5860 Objective Data Analysis | 14 Students** Fall 2025
- **ATOC 4815/5815 Scientific Programming, Data Analysis and Visualization | 18 Students** Spring 2026
- **ATOC 4870/5870 Climate Modeling | 21 Students** Fall 2026

TEACHING, MENTORING EXPERIENCE & SERVICE

- **Post-Doc Advisor** Spring 2026 - current
Yuanpu Li - ATOC CU Boulder
- **PhD Academic Advisor** Fall 2025 - current
Sean Heslin, Ona Melvin, Aiden Pape, Charlie Becker - ATOC CU Boulder
- **PhD Committee Member** Fall 2024 - current
Isaac Davis, Ash Gilbert, Cari De Santos - ATOC CU Boulder
- **PhD Committee Member** Spring 2024 - Summer 2026
Diya Kamnani - DEAS Indiana University
- **PhD Committee Member** Fall 2021 - Spring 2024
Danni Du, Tim Higgins - ATOC CU Boulder
- **Honors Thesis Advisor** Fall 2026 - current
Tate Voeller
- **PhD Thesis Reader** Spring 2026
Christopher Womack - Massachusetts Institute of Technology
- **WCRP Committee Member** Spring 2026 - current
Digital Earths Lighthouse Activity - AI and Data Assimilation (AI-DA) Working Group (Model-Data Fusion)
- **US CLIVAR Panel Member** Spring 2026 - March 2030
Process Study and Model Improvement (PSMI) Panel
- **CLIVAR Research Focus Member** Summer 2026 - current
CEMT-MV Research Focus, International CLIVAR
- **FERS - Lead/Instructor** Winter 2024
Future Earth Research School (FERS)- Data Driven Modeling of the Earth System (CMCC). Bertinoro, Italy
- **FERS - Lead/Instructor** Summer 2026
FERS- Data Driven Modeling of the Earth System (CMCC). Bertinoro, Italy
- **FERS - Lead/Instructor** Summer 2027
FERS- Data Driven Modeling of the Earth System (CMCC). Bertinoro, Italy
- **Workshop Co-Organizer** 2025 - May 2027
Hybrid ML-Physics Climate Models & Climate Emulation Workshop, NSF NCAR Mesa Lab (with A. Gettelman, A. Subramanian, D.J. Gagne)
- **Organizing Committee (advisory)** Spring 2026
M²LInES 2026 Annual Meeting
- **Peer Reviewer** 2025 - current
JAMES, Geoscientific Model Development; NSF ad-hoc proposal reviewer
- **ATOC Department Service** Fall 2025 - current
Graduate Admissions Committee (AY25/26, AY26/27); Faculty Search Committee - Boundary Layer & AI (2026); Colloquium Committee; Technology Committee
- **ACES - CGD at NCAR** Fall 2024
Group to advocate for early career interests at NCAR
- **ASP Visitor Mentor at NCAR** Summer 2024
Tim Higgins - Diffusion for Model Post-Processing and Ensemble Generation
- **Lecture - Climate Variability at The University of Colorado - Boulder** Fall 2022
Climate Dynamics and Modeling ATOC 4870
- **SOARS research mentor at The National Center for Atmospheric Research** Summer 2022

Tony Manriquez (Now B.Sc at CSU) - Significant Opportunities in Atmospheric Research Program. Winner of Society for the Advancement of Chicanos/Hispanics and Native Americans in Science 2024 SACNAS Student Presentation Award

- **SOARS computational mentor** at The National Center for Atmospheric Research Summer 2022
Jocelyn Rodriguez (Now B.Sc at UC Davis) - Significant Opportunities in Atmospheric Research Program
- **Intern Program Supervisor** at Scripps Institution of Oceanography Summer 2020
Center for Western Weather and Water Extremes (12 interns)
- **Intern Supervisor** at Scripps Institution of Oceanography 2020
Anirudhan Badrinath (Now M.Sc. Candidate Stanford): Deep Learning NWP Precipitation Post-Processing
- **Intern Supervisor** at Scripps Institution of Oceanography 2019
Laura Thapa (Now Post-Doc at BU): Machine Learning for Physics Discovery
- **Teaching Assistant** at Stanford University Fall 2015
Weather and Storms (CEE 263C)

TECHNICAL SKILLS

- **Languages:** Bash, Fortran, LaTeX, Objective C/C++
- **Modeling Tools:** NetCDF, CDO, NCO, HPC, Machine Learning, Open MPI
- **Development Tools :** Git/GitHub, Jupyter Suite
- **Scientific Visualization & Analysis:** Python, R, Matlab, Pytorch, Keras, Tensorflow