

Reading List

Here are some papers that are essential or useful reading for members of our group. Everyone should read the papers in the **General** section, and the others are good starting points if the topic area is relevant or of interest.

General

- Keller, K., Helgeson, C., & Srikrishnan, V. (2021). Climate Risk Management. *Annual Review of Earth and Planetary Sciences*, 49(1), 95–116. <https://doi.org/10.1146/annurev-earth-080320-055847>
- Bankes, S. (1993). Exploratory Modeling for Policy Analysis. *Operations Research*, 41(3), 435–449. <https://doi.org/10.1287/opre.41.3.435>
- Saltelli, A. (2019). A short comment on statistical versus mathematical modelling. *Nature Communications*, 10(1), 3870. <https://doi.org/10.1038/s41467-019-11865-8>
- O'Hagan, T. (2004). Dicing with the unknown. *Significance*, 1(3), 132–133. <https://doi.org/10.1111/j.1740-9713.2004.00050.x>
- Box, G. E. P. (1976). Science and Statistics. *Journal of the American Statistical Association*, 71(356), 791–799. <https://doi.org/10.1080/01621459.1976.10480949>
- Oreskes, N., Shrader-Frechette, K., & Belitz, K. (1994). Verification, validation, and confirmation of numerical models in the Earth sciences. *Science*, 263(5147), 641–646. <https://doi.org/10.1126/science.263.5147.641>

Complex Systems and Wicked Problems

- Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, 4(2), 155–169. <https://doi.org/10.1007/BF01405730>
- Carpenter, S. R., Brock, W. A., Folke, C., van Nes, E. H., & Scheffer, M. (2015). Allowing variance may enlarge the safe operating space for exploited ecosystems. *Proceedings of the National Academy of Sciences of the United States of America*, 112(46), 14384–14389. <https://doi.org/10.1073/pnas.1511804112>
- Anderies, J. M., Rodriguez, A. A., Janssen, M. A., & Cifdaloz, O. (2007). Panaceas, uncertainty, and the robust control framework in sustainability

science. *Proceedings of the National Academy of Sciences of the United States of America*, 104(39), 15194–15199. <https://doi.org/10.1073/pnas.0702655104>

Statistics and Uncertainty

- Schneider, S. H. (2002). Can we Estimate the Likelihood of Climatic Changes at 2100? *Climatic Change*, 52(4), 441–451. <https://doi.org/10.1023/A:1014276210717>
- Shmueli, G. (2010). To Explain or to Predict? *Statistical Science*, 25(3), 289–310. <https://doi.org/10.1214/10-STS330>
- Kennedy, M. C., & O’Hagan, A. (2001). Bayesian calibration of computer models. *Journal of the Royal Statistical Society. Series B, Statistical Methodology*, 63(3), 425–464. <https://doi.org/10.1111/1467-9868.00294>
- Hargreaves, J., & Annan, J. (2002). Assimilation of paleo-data in a simple Earth system model. *Climate Dynamics*, 19(5), 371–381. <https://doi.org/10.1007/s00382-002-0241-0>
- Draper, D. (1995). Assessment and Propagation of Model Uncertainty. *Journal of the Royal Statistical Society. Series B, Statistical Methodology*, 57(1), 45–97. <http://www.jstor.org/stable/2346087>
- Gelman, A., & Shalizi, C. R. (2013). Philosophy and the practice of Bayesian statistics. *The British Journal of Mathematical and Statistical Psychology*, 66(1), 8–38. <https://doi.org/10.1111/j.2044-8317.2011.02037.x>
- Brynjarsdóttir, J., & O’Hagan, A. (2014). Learning about physical parameters: the importance of model discrepancy. *Inverse Problems*, 30, 114007. <https://doi.org/10.1088/0266-5611/30/11/114007>

Modeling and Model Diagnostics

- Helgeson, C., Srikrishnan, V., Keller, K., & Tuana, N. (2021). Why Simpler Computer Simulation Models Can Be Epistemically Better for Informing Decisions. *Philosophy of Science*. <https://doi.org/10.1086/711501>
- Bennett, N. D., Croke, B. F. W., Guariso, G., Guillaume, J. H. A., Hamilton, S. H., Jakeman, A. J., et al. (2013). Characterising performance of environmental models. *Environmental Modelling & Software*, 40, 1–20. <https://doi.org/10.1016/j.envsoft.2012.09.011>
- Iwanaga, T., Wang, H.-H., Hamilton, S. H., Grimm, V., Koralewski, T. E., Salado, A., et al. (2021). Socio-technical scales in socio-environmental modeling: Managing a system-of-systems modeling approach. *Environmental Modelling and Software*, 135, 104885. <https://doi.org/10.1016/j.envsoft.2020.104885>

- Reichstein, M., Camps-Valls, G., Stevens, B., Jung, M., Denzler, J., Carvalhais, N., & Prabhat. (2019). Deep learning and process understanding for data-driven Earth system science. *Nature*, 566(7743), 195–204. <https://doi.org/10.1038/s41586-019-0912-1>
- Quinn, J. D., Reed, P. M., & Keller, K. (2017). Direct policy search for robust multi-objective management of deeply uncertain socio-ecological tipping points. *Environmental Modelling & Software*, 92, 125–141. <https://doi.org/10.1016/j.envsoft.2017.02.017>
- Quinn, J. D., Reed, P. M., Giuliani, M., & Castelletti, A. (2017). Rival framings: A framework for discovering how problem formulation uncertainties shape risk management trade-offs in water resources systems. *Water Resources Research*, 53(8), 7208–7233. <https://doi.org/10.1002/2017WR020524>

Decision-Making Under Uncertainty

- Oddo, P. C., Lee, B. S., Garner, G. G., Srikrishnan, V., Reed, P. M., Forest, C. E., & Keller, K. (2020). Deep Uncertainties in Sea-Level Rise and Storm Surge Projections: Implications for Coastal Flood Risk Management. *Risk Analysis*, 40(1), 153–168. <https://doi.org/10.1111/risa.12888>
- Herman, J. D., Quinn, J. D., Steinschneider, S., Giuliani, M., & Fletcher, S. (2020). Climate Adaptation as a Control Problem: Review and Perspectives on Dynamic Water Resources Planning Under Uncertainty. *Water Resources Research*, 56(2), 35. <https://doi.org/10.1029/2019WR025502>
- Walker, W. E., Haasnoot, M., & Kwakkel, J. H. (2013). Adapt or Perish: A Review of Planning Approaches for Adaptation under Deep Uncertainty. *Sustainability: Science Practice and Policy*, 5(3), 955–979. <https://doi.org/10.3390/su5030955>

Social Impacts and Risk Perception

- Wong-Parodi, G. (2020). When climate change adaptation becomes a “looming threat” to society: Exploring views and responses to California wildfires and public safety power shutoffs. *Energy Research & Social Science*, 70, 101757. <https://doi.org/10.1016/j.erss.2020.101757>
- Kunreuther, H., Novemsky, N., & Kahneman, D. (2001). Making Low Probabilities Useful. *Journal of Risk and Uncertainty*, 23(2), 103–120. <https://doi.org/10.1023/A:1011111601406>
- Mayer, L. A., Loa, K., Cwik, B., Tuana, N., Keller, K., Gonnerman, C., et al. (2017). Understanding scientists’ computational modeling decisions about

climate risk management strategies using values-informed mental models. *Global Environmental Change: Human and Policy Dimensions*, 42, 107–116. <https://doi.org/10.1016/j.gloenvcha.2016.12.007>

- Bessette, D. L., Mayer, L. A., Cwik, B., Vezér, M., Keller, K., Lempert, R. J., & Tuana, N. (2017). Building a Values-Informed Mental Model for New Orleans Climate Risk Management. *Risk Analysis*, 37(10), 1993–2004. <https://doi.org/10.1111/risa.12743>
- Bessette, D. L., Wilson, R. S., & Arvai, J. L. (2019). Do people disagree with themselves? Exploring the internal consistency of complex, unfamiliar, and risky decisions. *Journal of Risk Research*, 1–13. <https://doi.org/10.1080/13669877.2019.1569107>

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