

Nancy H.F. French

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Professional Experience:

- 2023-Present – Technical Fellow, Michigan Tech Research Institute, MTU, Arbor, MI
- 2017-Present – Physical Sciences Group Lead, Michigan Tech Research Institute, MTU, Ann Arbor, MI
- 2006-Present – Senior Scientist, Michigan Tech Research Institute, MTU, Ann Arbor, MI
- 2006-Present – Adjunct Professor of Forest Resources and Environmental Science, MTU, Houghton, MI
- 2004 to 2006 – Instructor, Program in the Environment, University of Michigan, Ann Arbor
- 2000 to 2006 – Senior Research Scientist, Altarum Institute (formerly ERIM)
- 1989 to 2000 – Research Scientist, ERIM/ERIM International

Education:

- Ph.D. 2002 – Natural Resources, University of Michigan, Ann Arbor
- M.S. 1994 – Natural Resources, University of Michigan, Ann Arbor
- B.S. 1983 – Physics, Bates College, Lewiston, Maine

Fellowship:

- 1998 to 2001 – NASA Earth System Science Graduate Student Fellowship

Experience:

- Director of MichiganView, part of AmericaView, a nationwide consortium advancing the widespread use of remote-sensing data and technology.
- Co-Lead of the Fire and Smoke Model Evaluation Experiment (FASMEE), which aims to improve operational smoke modeling through a multi-disciplinary science-based experiment at large prescribed burns across the US.
- Co-Lead Biomass Burning Uncertainty ReactionNs, Emissions and Dynamics (BBURNED), an IGAC activity aimed at addressing the current understanding of the uncertainty and variability in biomass burning emission estimation.
- Core team member of the Western Forest Fire Initiative (WFFI) at Univ. of Michigan School of Environment and Sustainability, aimed at understanding human and ecological adaptation to wildfire risk as a complex system.
- Editorial Board and Assistant Editor for the International Journal of Wildland Fire.
- Authored or co-authored 30+ journal articles and more than 10 book chapters.

Selected Publications:

- [<https://www.ncbi.nlm.nih.gov/sites/myncbi/nancy.french.1/bibliography/41152348/public>]
- Merchant, M. A., Battaglia, M. J., French, N., Smith, K., Singer, H., Armstrong, L., Harriman, V. B., & Slattery, S. (2024). Species Abundance Modelling of Arctic-Boreal Zone Ducks Informed by Satellite Remote Sensing. *Remote Sensing*, 16(7), 1175.
- Rosenberg, A., Hoshiko, S., Buckman, J. R., Yeomans, K. R., Hayashi, T., Kramer, S. J., Huang, S., French, N. H. F., & Rappold, A. G. (2024). Health Impacts of Future Prescribed Fire Smoke: Considerations from an exposure scenario in California. *Earth's Future*, 12(2), e2023EF003778. doi:10.1029/2023EF003778
- Miller, C, Griffith, PC, Hoy, E, Pinto, NS, Lou, Y, Hensley, S, Chapman, BD, Baltzer, J, Bakian-Dogaheh, K, Bolton, WR, Bourgeau-Chavez, L, Chen, RH, Choe, BH, Clayton, LK, Douglas,

- TA, French, N., . . . Goetz, SJ (2023). The ABoVE L-band and P-band Airborne SAR Surveys. *Earth Syst. Sci. Data Discuss.*, 2023, 1-37. doi:10.5194/essd-2021-172
- French, NHF, Hudak, A. (2024) Biomass burning fuel consumption and emissions for air quality. In T V Loboda , NHF French, & RC Puett (Eds.), *Landscape Fire, Smoke and Health: Linking biomass burning emissions to human well-being*. Wylie-AGU. Hoboken, NJ: Wylie. Chapter 5; p.69-88.
- Loboda, TV, French, NHF, & Puett, RC (Eds.). (2024). *Landscape Fire, Smoke and Health: Linking biomass burning emissions to human well-being* [Book]. American Geophysical Union; Wylie.
- McCarley, TR, Hudak, A, Restaino, J, Billmire, M, French, NHF, Ottmar, R, Hass, B, Zarzana, K, Goulden, T, & Volkamer, R. (2022). A Comparison of Multitemporal Airborne Laser Scanning Data and the Fuel Characteristics Classification System for Estimating Fuel Load and Consumption. *Journal of Geophysical Research*, 127(5). doi:10.1029/2021JG006733
- French, NHF, Loboda, T, Puett, R (2021) Consequences of a future increase in fire: The human health perspective. *One Earth* 4, 487-488. doi: 10.1016/j.oneear.2021.03.008
- French, NHF, Graham, J, Whitman, E, Bourgeau-Chavez, LL (2020) Quantifying surface severity of the 2014 and 2015 fires in the Great Slave Lake area of Canada. *International Journal of Wildland Fire*, 29, 892-906. doi: 10.1071/WF20008
- Kennedy, MC, Prichard, SJ, McKenzie, D, French, NHF (2020) Quantifying how sources of uncertainty in combustible biomass propagate to prediction of wildland fire emissions. *International Journal of Wildland Fire* 29, 793-806. doi: 10.1071/WF19160
- Koman PD, Billmire M, Baker KR, de Majo R, Anderson FJ, Hoshiko S, Thelen BJ, French NHF (2019) Mapping Modeled Exposure of Wildland Fire Smoke for Human Health Studies in California. *Atmosphere* 10(6). doi: 10.3390/atmos10060308.
- Liu Y, Kochanski A, Baker K, Mell W, Linn R, Paugam R, Mandel J, Fournier A, Jenkins M, Goodrick S., Achtemeier G., Zhao, F., Ottmar, R., French, NHF (2019) Fire behaviour and smoke modelling: model improvement and measurement needs for next-generation smoke research and forecasting systems. *International Journal of Wildland Fire* 8(8):570-588.
- Prichard, SJ, Kennedy, MC, Andreu, AG, Eagle, P, French, NHF (2019) Next-generation biomass mapping for regional emissions and carbon inventories: Incorporating uncertainty in wildland fuel characterization. *J. Geophysical Research* 134. doi:10.1029/2019JGR005083
- Prichard, S. N Larkin, R Ottmar, NHF French, K Baker, T Brown, C Clements, M Dickinson, A Hudak, A Kochanski, R Linn, Y Liu, B Potter, W Mell, D Tanzer, S Urbanski, A Watts. (2019). The Fire and Smoke Model Evaluation Experiment - A Plan for Integrated, Large Fire–Atmosphere Field Campaigns. *Atmosphere* 10:66.
- Hutchinson, J. A., Vargo, J., Milet, M., French, N. H. F., Billmire, M., Johnson, J., & Hoshiko, S. (2018). The San Diego 2007 wildfires and Medi-Cal emergency department presentations, inpatient hospitalizations, and outpatient visits: An observational study of smoke exposure periods and a bidirectional case-crossover analysis. *PLOS Medicine*, 15(7), e1002601. doi:10.1371/journal.pmed.1002601
- Zheng, T., French, N. H., & Baxter, M. (2018). Development of the WRF-CO2 4D-Var assimilation system v1.0. *Geoscientific Model Development*, 11, 1725-1752. doi:10.5194/gmd-11-1725-2018
- Banskota, A., Falkowski, M. J., Smith, A. M. S., Kane, E. S., Meingast, K. M., Bourgeau-Chavez, L. L., Miller, M. E., & French, N. H. (2016). Continuous Wavelet Analysis for Spectroscopic Determination of Subsurface Moisture and Water-Table Height in Northern

- Peatland Ecosystems. *IEEE Transactions on Geoscience and Remote Sensing*, 55(3), 1526-1536. doi:10.1109/TGRS.2016.2626460
- French, NHF, M.A. Whitley and L.K. Jenkins (2016). Fire disturbance effects on land surface albedo in Alaskan tundra. *J. Geophysical Research* 121(3): 841-854 Doi: 10.1002/2015JG003177
- French, N. H. F., Jenkins, L. K., Loboda, T. V., Flannigan, M., Jandt, R., Bourgeau-Chavez, L. L., & Whitley, M. (2015). Fire in arctic tundra of Alaska: past fire activity, future fire potential, and significance for land management and ecology. *International Journal of Wildland Fire*, 24(8), 1045-1061. doi:10.1071/WF14167
- Billmire, M., French, N. H. F., Loboda, T., Owen, R. C., & Tyner, M. (2014). Santa Ana winds and predictors of wildfire progression in southern California. *International Journal of Wildland Fire*, 23(8), 1119-1129. doi:10.1071/WF13046
- French, NHF, D McKenzie, T Erickson, B Koziol, M Billmire, KA Endsley, NKY Scheinerman, L Jenkins, ME Miller, R Ottmar, S Prichard (2014) Modeling regional-scale fire emissions with the Wildland Fire Emissions Information System. *Earth Interactions* 18:1-26. doi:10.1175/EI-D-14-0002.1
- Jenkins, L. K., Bourgeau-Chavez, L. L., French, N. H. F., Loboda, T. V., & Thelen, B. J. (2014). Development of Methods for Detection and Monitoring of Fire Disturbance in the Alaskan Tundra Using a Two-Decade Long Record of Synthetic Aperture Radar Satellite Images. *Remote Sensing*, 6, 6347-6364. doi:10.3390/rs6076347
- van Leeuwen, T. T., van der Werf, G. R., Hoffmann, A. A., Detmers, R. G., Rücker, G., French, N. H. F., Archibald, S., Carvalho Jr, J. A., Cook, G. D., de Groot, W. J., Hély, C., Kasischke, E. S., Kloster, S., McCarty, J. L., Pettinari, M. L., Savadogo, P., Alvarado, E. C., Boschetti, L., . . . Trollope, W. S. W. (2014). Biomass burning fuel consumption rates: a field measurement database. *Biogeosciences*, 11(24), 7305-7329. doi:10.5194/bg-11-7305-2014
- Huang, Y., Wu, S., Dubey, M. K., & French, N. H. F. (2013). Impact of aging mechanism on model simulated carbonaceous aerosols. *Atmos. Chem. Phys.*, 13(13), 6329-6343. doi:10.5194/acp-13-6329-2013
- Loboda, T. V., French, N. H. F., Hight-Harf, C., Jenkins, L. K., & Miller, M. E. (2013). Mapping fire extent and burn severity in Alaskan tussock tundra: An analysis of the spectral response of tundra vegetation to wildland fire. *Remote Sensing of Environment*, 134, 194-209. doi:10.1016/j.rse.2013.03.003
- Thelen, B., French, N. H. F., Koziol, B. W., Billmire, M., Owen, R. C., Johnson, J., Ginsberg, M., Loboda, T., & Wu, S. (2013). Modeling acute respiratory illness during the 2007 San Diego wildland fires using a coupled emissions-transport system and general additive modeling. *Environmental Health*, 12(1), 94. doi:10.1186/1476-069X-12-94
- French, NHF, WJ de Groot, LK Jenkins, BM Rogers, EC Alvarado, B Amiro, B De Jong, S Goetz, E Hoy, E Hyer, R Keane, D McKenzie, SG McNulty, BE Law, R Ottmar, DR Perez-Salicrup, J Randerson, KM Robertson, M Turetsky (2011) Model comparisons for estimating carbon emissions from North American wildland fire. *J. Geophysical Research* 116, G00K05
- French, NHF, Kasischke, E, Hall, RJ, Murphy, KA, Verbyla, DL, Hoy, EE, Allen, JL (2008) Using Landsat data to assess fire and burn severity in the North American boreal forest region: An overview and summary of results. *International Journal of Wildland Fire*, 17(4):443-462.
- French, NHF, P Goovaerts, ES Kasischke (2004). Uncertainty in estimating carbon emissions from boreal forest fires. *J. Geophysical Research* 109:D14S08, doi:10.1029/2003JD003635.