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RESEARCH PORTFOLIO

Publication Metrics

Citations: **320**+ | $h-$index: **10** | $i10-$index: **11**

Additional detail can be found on:

Google Scholar Profile | **ORCID**

Book Chapters

- Hamilton, N. M., M. Tutkun, and R. B. Cal. "Turbulent and Deterministic Stresses in the Near Wake of a Wind Turbine Array". *Whither Turbulence and Big Data in the 21st Century?* Springer, 2017. 255–271.

Journal Articles

- Doubrawa, P., E. W. Quon, L. A. Martinez-Tossas, K. Shaler, M. Debnath, N. Hamilton, T. G. Herges, D. Maniaci, C. L. Kelley, A. S. Hsieh, et al. "Multimodel validation of single wakes in neutral and stratified atmospheric conditions". *Wind Energy* (2020).
- Farrell, A., J. King, C. Draxl, R. Mudafort, N. Hamilton, C. J. Bay, P. Fleming, and E. Simley. "Design and analysis of a spatially heterogeneous wake". *Wind Energy Science Discussions* (Mar. 2020). Publisher: Copernicus GmbH: 1–25 29 June 2020.
- Hamilton, N. "Atmospheric condition identification in multivariate data through a metric for total variation". *Atmospheric Measurement Techniques* 13.2 (2020). Publisher: Copernicus GmbH: 1019–1032.
- Martínez-Tossas, L. A., J. King, E. Quon, C. J. Bay, R. Mudafort, N. Hamilton, and P. Fleming. "The curled wake model: A three-dimensional and extremely fast steady-state wake solver for wind plant flows". *Wind Energy Science Discussions* (2020). Publisher: Copernicus GmbH: 1–16.
- Ali, N., N. Hamilton, M. Calaf, and R. B. Cal. "Classification of the Reynolds stress anisotropy tensor in very large thermally stratified wind farms using colormap image segmentation". *Journal of Renewable and Sustainable Energy* 11.6 (2019). Publisher: AIP Publishing LLC.
- Ali, N., N. Hamilton, M. Calaf, and R. B. Cal. "Turbulence kinetic energy budget and conditional sampling of momentum, scalar, and intermittency fluxes in thermally stratified wind farms". *Journal of Turbulence* 20.1 (2019): 32–63.
- Ali, N., N. Hamilton, G. Cortina, M. Calaf, and R. B. Cal. "Anisotropy stress invariants of thermally stratified wind turbine array boundary layers using large eddy simulations". *J. Renew. Sustain. Energy* 10.1 (2018).
- Ali, N., N. Hamilton, D. DeLucia, and R. Bayoán Cal. "Assessing spacing impact on coherent features in a wind turbine array boundary layer". *Wind Energy Science (Online)* 3.NREL/JA-5000-72521 (2018). Publisher: National Renewable Energy Lab.(NREL), Golden, CO (United States).
- Debnath, M., N. Hamilton, and P. Moriarty. "Development of coherent structures in complex terrain". *Bulletin of the American Physical Society* 63 (2018). Publisher: American Physical Society.
- Hamilton, N., B. Viggiano, M. Calaf, M. Tutkun, and R. B. Cal. "A generalized framework for reduced-order modeling of a wind turbine wake". *Wind Energy* 21.6 (2018): 373–390.

- Ali, N., G. Cortina, N. Hamilton, M. Calaf, and R. B. Cal. “Turbulence characteristics of a thermally stratified wind turbine array boundary layer via proper orthogonal decomposition”. *J. Fluid Mech.* 828 (2017): 175–195.
- Hamilton, N., M. Tutkun, and R. B. Cal. “Anisotropic character of low-order turbulent flow descriptions through the proper orthogonal decomposition”. *Phys. Rev. Fluids* 2.1 (2017): 1–33.
- Hamilton, N., M. Tutkun, and R. B. Cal. “Low-order dynamical system model of a fully developed turbulent channel flow”. *Phys. Fluids* 29.6 (2017).
- Hamilton, N., M. Tutkun, and R. B. Cal. “Low-order representations of the canonical wind turbine array boundary layer via double proper orthogonal decomposition”. *Phys. Fluids* 28.2 (2016): 25103.
- Hamilton, N. and R. B. Cal. “Anisotropy of the Reynolds stress tensor in the wakes of wind turbine arrays in Cartesian arrangements with counter-rotating rotors”. *Phys. Fluids* 27.1 (2015).
- Hamilton, N., M. Melius, and R. B. Cal. “Wind turbine boundary layer arrays for Cartesian and staggered configurations-Part I, flow field and power measurements”. *Wind Energy* 18.2 (2015): 277–295.
- Hamilton, N., M. Tutkun, and R. B. Cal. “Wind turbine boundary layer arrays for Cartesian and staggered configurations: Part II, low-dimensional representations via the proper orthogonal decomposition”. *Wind Energy* 18.2 (2015): 297–315.
- Hamilton, N., M. Tutkun, and R. Cal. “Characterization of Turbulence and Deterministic Stresses through Phase-Dependent Measurements in the Near Wake of a Wind Turbine in an Infinite Turbine Array” (2014).
- Vested, M., N. Hamilton, J. Sørensen, and R. Cal. “More efficient wind farms by the use of different height wind turbines” (2014).
- Hamilton, N., H. S. Kang, C. Meneveau, and R. B. Cal. “Statistical analysis of kinetic energy entrainment in a model wind turbine array boundary layer”. *J. Renew. Sustain. Energy* 4.6 (2012).

Conference Proceedings

- Debnath, M., et al. “Longitudinal coherence and short-term wind speed prediction based on a nacelle-mounted Doppler lidar”. Publisher: IOP Publishing. Sept. 2020. 032051.
- Fleming, P., J. King, C. J. Bay, E. Simley, R. Mudafort, N. Hamilton, A. Farrell, and L. Martinez-Tossas. “Overview of FLORIS updates”. Publisher: IOP Publishing. Sept. 2020. 022028.
- Hamilton, N. “Highlighting the impact of yaw control by parsing atmospheric conditions based on total variation”. *Journal of Physics: Conference Series*. 2020. 012006.
- Hulsman, P., L. A. Martínez-Tossas, N. Hamilton, and M. Kühn. “Modelling and assessing the near-wake representation and turbulence behaviour of control-oriented wake models”. Publisher: IOP Publishing. Sept. 2020. 022056.
- Sadek, Z., R. B. Cal, and N. Hamilton. “A new analytical wavelet-Gaussian wake model”. Publisher: American Physical Society. 2020.
- Hamilton, N. “Identification of Dynamic Atmospheric Conditions via Total Variation”. 2019. P20–008.
- Quon, E. W., P. Doubrawa, J. Annoni, N. Hamilton, and M. J. Churchfield. “Validation of Wind Power Plant Modeling Approaches in Complex Terrain”. *AIAA Scitech 2019 Forum*. 2019. 2085.
- Shaler, K., J. Jonkman, and N. Hamilton. “Effects of Inflow Spatiotemporal Discretization on Wake Meandering and Turbine Structural Response using FAST. Farm”. *Journal of Physics: Conference Series*. Issue: 1. IOP Publishing, 2019. 012023.
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- Hamilton, N. and R. Cal. “Characteristic shapes of the normalized Reynolds stress anisotropy tensor in the wakes of wind turbines with counter-rotating rotors”. *17th international symposium on applications of laser techniques to fluid mechanics*. 2014. 1–18.
- Hamilton, N. and R. Cal. “Statistical development of wind turbine wakes for the fully developed wind turbine array boundary layer characterized via wall-normal-spanwise planes”. *19th Australasian Fluid Mechanics Conference*. 2014.
- Vested, M. H., N. Hamilton, J. N. Sørensen, and R. Cal. “Wake interaction and power production of variable height model wind farms”. *Journal of Physics: Conference Series*. Issue: 1. IOP Publishing, 2014. 012169.

- Cal, R., M. Melius, N. Hamilton, and D. Houck. “Experimental study of turbine hub height variation on wind farms”. *51st AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition*. 2013. 609.