

Daniel Andrade Schuch

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Abstract

Meteorologist, with a specialization in micrometeorology, and a PhD in science, I bring extensive expertise in numerical weather and air quality models and the development of computational tools. My professional interests include atmospheric boundary layer, turbulence, transport phenomena, wind tunnel essays, atmospheric chemistry and analytical solutions. My work is focused on advancing our understanding of the atmosphere through innovative scientific research.

On-line: <https://schuch.github.io/resume>

Experience

POSITION TITLE: Postdoctoral Research Associated

EMPLOYER: Northeastern University

PERIOD: 01/02/2020-actual

HOURS: Full-time

POSITION TITLE: Pós-Doutorado (Postdoctoral Researcher)

EMPLOYER: Universidade de São Paulo (University of São Paulo - Brazil)

PERIOD: 06/01/2018-12/31/2019

HOURS: Full-time

POSITION TITLE: Pós-Doutorado (Postdoctoral Researcher)

EMPLOYER: Universidade de São Paulo (University of São Paulo - Brazil)

PERIOD: 05/01/2017-05/31/2018

HOURS: Full-time

POSITION TITLE: External consultor (External specialist consultor)

EMPLOYER: Eneva S.A. (Energy Company – Brazil)

PERIOD: 01/09/2016-31/10/2016

HOURS: 20 hours / week

POSITION TITLE: Pesquisador de desenvolvimentro tecnológico (Technological development researcher)

EMPLOYER: Instituto Nacional de Pesquisas Espaciais-INPE (National Institute for Space Research – Brazil)

PERIOD: 10/01/2011-02/28/2013

HOURS: Full-time

Academic formation

- **POST-DOC | 2020 | NORTHEASTERN UNIVERSITY**
- **POST-DOC | 2019 | SÃO PAULO UNIVERSITY**
- **POST-DOC | 2018 | SÃO PAULO UNIVERSITY**
- **PHD IN SCIENCE | 2017 | AERONAUTICS INSTITUTE OF TECHNOLOGY**
- **MASTER IN METEOROLOGY | 2011 | FEDERAL UNIVERSITY OF PELOTAS**
- **BACHELOR IN METEOROLOGY | 2009 | FEDERAL UNIVERSITY OF PELOTAS**

Complete articles published in periodicals

21. **SCHUCH, DANIEL**. a3dm: A R-package for model evaluation of 3D weather and air quality models. *Journal of Open Source Software*, v.10, p.1-6, 2025. <https://doi.org/10.21105/joss.07797>

20. SEULKEE HEO, **DANIEL SCHUCH**; WASHINGTON LEITE JUNGER; YANG ZHANG; MARIA DE FATIMA ANDRADE; MICHELLE L. BELL. The impact of exposure assessment on associations between air pollution and cardiovascular mortality risks in the city of Rio de Janeiro, Brazil. Submitted to *Environmental Research*, v. 267, 2024. <https://doi.org/10.1016/j.envres.2024.120150>

19. PACHON, J. E., OPAZO, M., LICHTIG, P., HUNNEUS, N., BOUARAR, I., BRASSEUR, G., LI, C. W. Y., FLEMMING, J., MENUT, L., MENARES, C., GALLARDO, L., GAUSS, M., SOFIEV, M., KOUZNETSOV, R., PALAMARCHUK, J., DAWIDOWSKI, L., ROJAS, N. Y., ANDRADE, M. D. F., GAVIDIA-CALDERÓN, M. E., DELGADO PERALTA, A. H., AND **SCHUCH, D.**: Air quality modeling intercomparison and multi-scale ensemble chain for Latin America, *EGUsphere*, 2024. <https://doi.org/10.5194/egusphere-2024-815>

18. GAVIDIA-CALDERÓN, MARIO; **SCHUCH, DANIEL**; VARA-VELA, ANGEL; INOUE, RITA; FREITAS, EDMILSON D.; ALBUQUERQUE, TACIANA TOLEDO DE A.; ZHANG, YANG; ANDRADE, MARIA DE FATIMA; BELL, MICHELLE L. Air quality modeling in the metropolitan area of São Paulo, Brazil: A review. *ATMOSPHERIC ENVIRONMENT*, v.319, p.120301, 2024. <http://doi.org/10.1016/j.atmosenv.2023.120301>

17. LYU, XIAOPU; LI, KE; GUO, HAI; MORAWSKA, LIDIA; ZHOU, BEINING; ZEREN, YANGZONG; JIANG, FEI; CHEN, CHANGHONG; GOLDSTEIN, ALLEN H.; XU, XIAOBIN; WANG, TAO; LU, XIAO; ZHU, TONG; QUEROL, XAVIER; CHATANI, SATORU; LATIF, MOHD TALIB; **SCHUCH, DANIEL**; SINHA, VINAYAK; KUMAR, PRASHANT; MULLINS, BENJAMIN; SEGUEL, RODRIGO; SHAO, MIN; XUE, LIKUN; WANG, NAN; CHEN, JIANMIN; GAO, JIAN; CHAI, FAHE; SIMPSON, ISOBEL; SINHA, BAERBEL; BLAKE, DONALD R. A synergistic ozone-climate control to address emerging ozone pollution challenges. *One Earth*, v.6, p.964 - 977, 2023. <http://doi.org/10.1016/j.oneear.2023.07.004>

16. PENDHARKAR, JAYANT; FIGUEROA, SILVIO NILO; VARA-VELA, ANGEL; KRISHNA, R. PHANI MURALI; **SCHUCH, DANIEL**; KUBOTA, PAULO YOSHIO; ALVIM, DÉBORA SOUZA; VENDRASCO, EDER PAULO; GOMES, HELBER BARROS; NOBRE, PAULO; HERDIES, DIRCEU LUÍS. Towards Unified Online-Coupled Aerosol Parameterization for the Brazilian Global Atmospheric Model (BAM): Aerosol-Cloud Microphysical-Radiation Interactions. *Remote Sensing*, v.15, p.278 - , 2023. <http://doi.org/doi:10.3390/rs15010278>

15. MEDEIROS, LUIZ E.; FISCH, G.; ACEVEDO, OTÁVIO C.; COSTA, FELIPE D.; IRIART, PAULO G.; ANABOR, VAGNER; **SCHUCH, Daniel**. Low-Level Atmospheric Flow at the Central North Coast of Brazil. *BOUNDARY-LAYER METEOROLOGY*, v.179, p.1 - 15, 2021. <http://doi.org/10.1007/s10546-021-00625-1>

14. **SCHUCH, DANIEL**; ANDRADE, MARIA DE FATIMA; ZHANG, YANG; DIAS DE FREITAS, EDMILSON; BELL, MICHELLE L. Short-Term Responses of Air Quality to Changes in Emissions under the Representative Concentration Pathway 4.5 Scenario over Brazil. *Atmosphere*, v.11, p.799, 2020. <https://doi.org/10.3390/atmos11080799>

13. **DANIEL SCHUCH**; Sergio Ibarra Espinosa; Leila Dropninchinski Martins; Vanessa Silveira Barreto Carvalho; Bruna Ferreira Ramin; Jayne Souza Silva; Jorge Alberto Martins; Edmilson Dias de Freitas and Maria de Fatima Andrade. A two decades study on ozone variability and trend over the main urban areas of the São Paulo state – Brazil. *Environmental Science and Pollution Research* (2019). <https://doi.org/10.1007/s11356-019-06200-z>

12. **SCHUCH, DANIEL**, DIAS DE FREITAS, EDMILSON, IBARRA-ESPINOSA ANDRADE, M. F. EmissV: A preprocessor for WRF-Chem model. *Journal of Atmospheric Science Research*. v.1, p.1 - 5, 2019. <https://doi.org/10.30564/jasr.v1i1.347>

11. IBARRA-ESPINOSA, SERGIO; **SCHUCH, DANIEL**; DIAS DE FREITAS, EDMILSON eixport: An R package to export emissions to atmospheric models. Journal of Open-Source Software, v.3, p.607 - 1, 2018. <https://doi.org/10.21105/joss.00607>
10. **SCHUCH, DANIEL**; IBARRA-ESPINOSA, SERGIO; DIAS DE FREITAS, EDMILSON EmissV: An R package to create vehicular and other emissions for air quality models. Journal of Open Source Software, v.3, p.662 - 6, 2018. <https://doi.org/10.21105/joss.00662>
9. LEITE, HENRIQUE FANINI; AVELAR, ANA CRISTINA; DE ABREU, LEANDRA; **SCHUCH, DANIEL**; CAVALIERI, ANDRÉ Proper Orthogonal Decomposition and Spectral Analysis of a Wall-Mounted Square Cylinder Wake. JOURNAL OF AEROSPACE TECHNOLOGY AND MANAGEMENT (ONLINE), v.10, p.1 - 1, 2018. <https://doi.org/10.5028/jatm.v10.867>
8. **SCHUCH, Daniel**; FISCH, G. Rocket emissions representation in atmospheric air quality models: The short-range atmospheric transport and reaction of gases released by solid propellant engines. Meteorological Applications, v.25, p.1 - 10, 2018. <https://doi.org/10.1002/met.1750>
7. CORRÊA, CLEBER SOUZA; **SCHUCH, DANIEL**; DE QUEIROZ, ANTONIO PAULO; FISCH, GILBERTO FERNANDO; CORRÊA, FELIPE DO NASCIMENTO; COUTINHO, MARIANE MENDES The Long-Range Memory and the Fractal Dimension: A Case Study for Alcântara. JOURNAL OF AEROSPACE TECHNOLOGY AND MANAGEMENT (ONLINE), v.9, p.461 - 468, 2017. <https://doi.org/10.5028/jatm.v9i4.683>
6. **SCHUCH, DANIEL**; FISCH, GILBERTO. The Use of an Atmospheric Model to Simulate the Rocket Exhaust Effluents Transport and Dispersion for the Centro de Lançamento de Alcântara. JOURNAL OF AEROSPACE TECHNOLOGY AND MANAGEMENT (ONLINE), v.9, p.137 - 146, 2017. <https://doi.org/10.5028/jatm.v9i2.740>
5. MEDEIROS, LUIZ E.; FISCH, G.; IRIART, P.; COSTA, F. D.; OLIVEIRA, D. W.; **SCHUCH, Daniel**. Padrões de vento a nível de superfície para região da costa norte do Brasil (*Surface-level wind patterns for the northern Brazilian coast region*). CIÊNCIA E NATURE. v.38, p.383 - 387, 2016.
4. **SCHUCH, DANIEL**; MARCIOTTO, EDSON R.; ACEVEDO, OTÁVIO; FISCH, GILBERTO; AVELAR, ANA CRISTINA. Estudo do escoamento turbulento atmosférico utilizando ensaios em túnel de vento e simulação numérica (*Study of atmospheric turbulent flow using wind tunnel and numerical simulation*). Revista Brasileira de Meteorologia, v.29, p.338 - 350, 2014. <https://doi.org/10.1590/0102-778620130580>
3. DEMARCO, G.; PUHALES, F. S.; COSTA, F. D.; **SCHUCH, Daniel**; FARIA, A. F.; AVELAR, A. C.; FISCH, G.; ACEVEDO, O. Análise da influência da estratificação sobre perfis de vento e temperatura em experimentos de túnel de vento (*Analysis of the influence of stratification on wind profiles and temperature in wind tunnel experiments*). Ciência e Natura, v.Esp, p.172 - 174, 2013.
2. **SCHUCH, Daniel**; MARCIOTTO, E. R.; FISCH, G.; AVELAR, A. C. Perfis de vento e turbulência atmosférica simulados em túnel de vento (*Wind profiles and atmospheric turbulence simulated in wind tunnel*). Ciência e Natura, v.Esp, p.159 - 161, 2013. <https://doi.org/10.5902/2179460X11588>
1. **SCHUCH, Daniel**; WEYMAR, Guilherme J.; FURTADO, Igor C.; QUADROS, R. S.; BUSKE, D. Simulação da dispersão de poluentes na camada limite atmosférica incluindo o efeito da deposição seca no solo (*Simulation of dispersion of pollutants in the atmospheric boundary layer including the effect of dry deposition on soil*). Ciência e Natura. v.33, p.127 - 130, 2011.