Curriculum Vitae: Jonathan B. Snively

Contact Information

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Employment History

Embry-Riddle Aeronautical University, Daytona Beach, Florida USA
(Full) Professor and University Research Fellow — **March 17, 2025 - Present**
Director of the Center for Space and Atmospheric Research (CSAR) — **March 9, 2021 - January 10, 2025**
(Full) Professor — **August 16, 2021 - January 10, 2025**
Associate Professor of Engineering Physics — **August 16, 2016 - August 15, 2021**
Assistant Professor of Engineering Physics — **August 16, 2010 - August 15, 2016**
U. S. Naval Research Laboratory (NRL), Washington, DC USA
Research Physicist — **January 13, 2025 - March 14, 2025**
Utah State University, Logan, Utah USA
Postdoctoral Researcher, USU Center for Atmospheric and Space Sciences — **January 1, 2010 - July 16, 2010**
NSF CEDAR Postdoctoral Research Fellow — **January 1, 2008 - December 31, 2010**

Degrees Earned

The Pennsylvania State University, University Park, Pennsylvania USA
Ph.D., Electrical Engineering, December 2007.
- Thesis Title: "Mesopause Airglow Modulation by Ducted Short-Period Gravity Waves"
- Committee: V. P. Pasko (Advisor), J. D. Mathews, C. R. Philbrick, S-Y. Lee

M.S., Electrical Engineering, August 2003
- Thesis Title: "Tropospheric Forcing as a Source of Quasi-Monochromatic Short-Period Gravity Waves Observed in the Upper-Mesosphere and Lower-Thermosphere"
- Committee: V. P. Pasko (Advisor), J. D. Mathews

Elizabethtown College, Elizabethtown, Pennsylvania USA
B.S., Engineering Physics, August, 2001.
Magna Cum Laude, with minors in Computer Science and Philosophy.

Research Experience

Focused on the modeling, simulation, and synthesis of observations and experiments to capture compressible and transient dynamics of the atmosphere and space environment, from surface to exobase.

- Developer of the nonlinear, compressible, and shock-capturing atmospheric *M*odel for *A*coustic-*G*ravity wave *I*nteractions and *C*oupling, "MAGIC", and its adaptive mesh refinement (AMR) formulation "MAGIC Forest". MAGIC has been used in over 50 publications.
- Original PI of DARPA AtmoSense AIRWaveS project (*A*tmosphere-*I*onosphere *R*esponses to *W*ave *S*ignals) Project Phase 1+2 Teams (January 2021 – May 2025), to develop "FIGMENTS" capabilities for simulation of acoustic-gravity wave propagation, evolution, and effects from Earth's surface to exobase (in MAGIC Forest), including comprehensive ionospheric responses (in Trees GEMINI, led by M. D. Zettergren), with Phase 2 experimental validation. Assembled and led >10-institution international team across two phases, including university and federal partners.
- Deputy PI of the NASA AWE Mission of Opportunity and Science Co-I (for MAGIC applications to the OH airglow layer observed by the AWE AMTM), to support Mission Science Team needs (with USU PI Prof. L. Scherliess, formerly M. J. Taylor).

Honors & Awards

ERAU Eagle Research Award, 2024
ERAU Gulamabas Sivjee Researcher of the Year, Daytona Beach Campus, 2016
NASA Group Achievement Award, Hayabusa Re-entry Airborne Observation Project, 2011
NASA Ames Honor Award, Hayabusa Re-entry Airborne Observation Team, 2010
NSF CEDAR MLT Student Poster Competition, First Prize, CEDAR Workshop, 2003 & 2005
PSU Anthony J. Ferraro Graduate Research Award, 2004
Elizabethtown College Larry H. Reber Award in Physics, 2001.

Selected Publications

Piñeyro, B., R. Sabatini, and **J. B. Snively**, Impact of species diffusion on the attenuation of acoustic waves in multi-component planetary atmospheres. *J. Acoust. Soc. Am.*, 159(2), 10.1121/10.0042249, 2026.

Inchin, P. A., K. Deshpande, S. Egan, E. H. Lay, K. S. Obenberger, M. D. Zettergren, and **J. B. Snively**, Ionospheric disturbances in GNSS TEC data: SpaceX Falcon 9 deorbit maneuvers over CONUS in April–May 2024. *Geophys. Res. Lett.*, 52(8), e2024GL112364, 2025.

Inchin, P. A., A. Bhatt, S. Cummer, S. Eckermann, B. Harding, D. Kuhl, J. Ma, J. Makela, R. Sabatini, and **J. B. Snively**, Multi-layer evolution of acoustic-gravity waves and ionospheric disturbances over the United States after the 2022 Hunga Tonga volcano eruption, *AGU Advances*, e2023AV000870, 2023.

Dong, W., Fritts, D. C., Liu, A. Z., Lund, T. S., Liu, H.-L., and **Snively, J. B.**, Accelerating atmospheric gravity wave simulations using machine learning: Kelvin-Helmholtz instability and mountain wave sources driving gravity wave breaking and secondary gravity wave generation, *Geophys. Res. Lett.*, 50, e2023GL104668, 2023.

Matoza, R. S., et al., Atmospheric waves and global seismoacoustic observations of the January 2022 Hunga eruption, Tonga, *Science*, 10.1126/science.abo7063, 2022.

Inchin, P. A., **J. B. Snively**, Y. Kaneko, M. D. Zettergren, and A. Komjathy, Inferring the evolution of a large earthquake from its acoustic impacts on the ionosphere, *AGU Advances*, 2(2), e2020AV000260, 2021.

Heale, C. J., **J. B. Snively**, A. N. Bhatt, L. Hoffmann, C. Stephan, and E. A. Kendall, Multilayer observations and modeling of thunderstorm-generated gravity waves over the Midwestern United States. *Geophys. Res. Lett.*, 46(23), 14164-14174, 10.1029/2019GL085934, 2019.

Burleigh, M. R., C. J. Heale, M. D. Zettergren, and **J. B. Snively**, Modulation of Low-Altitude Ionospheric Upflow by Linear and Nonlinear Atmospheric Gravity Waves, *J. Geophys. Res.*, 123, 9, 10.1029/2018JA025721, 2018.

Bossert, K., C. G. Kruse, C. J. Heale, D. C. Fritts, B. P. Williams, **J. B. Snively**, P-D. Pautet, M. J. Taylor, Secondary gravity wave generation over New Zealand during the DEEPWAVE campaign, *J. Geophys. Res.*, 122, 10.1002/2016JD026079, 2017.

Zettergren, M. D. and **J. B. Snively**, Ionospheric response to infrasonic acoustic waves generated by natural hazard events, *J. Geophys. Res.*, 120, 10.1002/2015JA021116, 2015.

Snively, J. B., Mesospheric hydroxyl airglow signatures of acoustic and gravity waves generated by transient tropospheric forcing, *Geophys. Res. Lett.*, 40, 17, 4533-4537, 10.1002/grl.50886, 2013.

Galvan, D. A., A. Komjathy, M. P. Hickey, P. Stephens, **J. B. Snively**, Y. T. Song, M. D. Butala, A. J. Mannucci, Ionospheric signatures of Tohoku-Oki tsunami of March 11, 2011: Model comparisons near the epicenter, *Radio Science*, 47(4), RS4003, 10.1029/2012RS005023, 2012.

Snively, J. B. and V. P. Pasko, Breaking of thunderstorm-generated gravity waves as a source of short-period ducted waves at mesopause altitudes, *Geophys. Res. Lett.*, 30(24), 10.1029/2003GL018436, 2003.

Society Membership

American Geophysical Union (AGU), Member, 2003-Present (*Primary Society Affiliation*)
Acoustical Society of America, Associate Member, 2022-Present
European Geophysical Union (EGU), Member, 2010-2011; 2017-2018
American Meteorological Society (AMS), Member, 2016-2018
American Institute of Aeronautics and Astronautics (AIAA), Member, 2011-2014