

**Santiago José BENAVIDES**

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Cambridge, MA 02139, USA

Dated: February 9, 2021

**EDUCATION**

**Massachusetts Institute of Technology (MIT)**

PhD candidate, Department of Earth, Atmospheric and Planetary Sciences

Focus: Nonlinear Dynamics in Geosciences

Advisors: Glenn R. Flierl & J. Taylor Perron

**2016-(2021, expected)**

Current GPA: 4.9/5

**École Normale Supérieure (ENS) rue d'Ulm, Paris, France**

Masters ENS-ICFP in Macroscopic Physics and Complexity

Advisor: Alexandros Alexakis

**2015-2016**

mention *Très Bien*

**The University of Texas at Austin**

Bachelor of Science in Physics (Option: Honors Physics)

Bachelor of Science in Mathematics (Option: Honors Mathematics)

Dean's Scholars Honors Program

Graduation Distinction: Dean's Honored Graduate (Top 1%) and Highest Honors (Top 4%)

**2010-2015**

GPA: 3.9628/4

**PUBLICATIONS**

**Benavides, S. J.**, Burns, K. J., Gallet, B., Cho, J. Y-K. & Flierl, G. R., "Inverse cascade suppression and shear layer formation in MHD turbulence subject to a strong background magnetic field and misaligned global rotation," (*In Preparation*).

**Benavides, S. J.**, Deal, E., Rushlow, M., Venditti, J. G., Zhang, Q., Kamrin, K., & Perron, J. T., "The impact of intermittency on bed load sediment transport," (*Submitted to Nature Geoscience*).  
<https://doi.org/10.31223/X5PW3Q>

Alexakis, A., Pétrélis, F., **Benavides, S. J.**, & Seshasayanan, K., "Symmetry breaking in a turbulent environment," (*In Press*). <https://arxiv.org/abs/2102.03618>

**Benavides, S. J.**, & Flierl, G. R., "Two-dimensional partially ionized magnetohydrodynamic turbulence," *Journal of Fluid Mechanics*. Volume 900, A28, (2020). <https://doi.org/10.1017/jfm.2020.500>

**Benavides, S. J.**, & Alexakis, A., "Critical transitions in thin layer turbulence," *Journal of Fluid Mechanics*, Volume 822, pg. 364-385 (2017). <https://doi.org/10.1017/jfm.2017.293>

Mentioned in feature article: Ecke, R. E. "From 2D to 3D in Fluid Turbulence: Unexpected Critical Transitions." *Journal of Fluid Mechanics*, Volume 828, pg. 1-4 (2017).

<https://doi.org/10.1017/jfm.2017.507>

Seshasayanan, K., **Benavides, S. J.**, & Alexakis, A., "On the edge of an inverse cascade," *Phys. Rev. E*. Volume 90, 051003(R) (2014). <http://dx.doi.org/10.1103/PhysRevE.90.051003>

**SCIENTIFIC EXPERIENCE**

**Participant in summer school at the Center for Computational Astrophysics  
The Flatiron Institute (Simons Foundation), New York, New York**  
Theme: “Multiscale Modeling of Astrophysical and Space Plasmas” **Summer 2019**

**Participant and speaker at workshop of Les Houches School of Physics, France**  
Theme: “New Challenges in Turbulence Research V” **April 2019**

**Guest Student at Geophysical Fluid Dynamics Summer School  
WHOI, Woods Hole, Massachusetts**  
Theme: Atmosphere, Ocean, and Climate Fluid Dynamics **Summer 2014**

### **HONORS AND AWARDS**

Future Investigators in NASA Earth  
and Space Science and Technology (FINESST) fellowship (\$45,000) **2020-2021**

**MIT**  
Jule Charney Prize (\$12,000) **2016-2019**

Robert R Shrock Graduate Fellowship (\$78,350) **2016**

**ENS**  
ENS-ICFP Scholarship (\$10,000) **2015-2016**

### **TEACHING EXPERIENCE**

**Mentor for MIT’s Undergraduate Research Opportunities Program**  
Directly mentoring two undergraduates on original research projects **Summer 2020**

**Teaching Assistant at Massachusetts Institute of Technology**  
12.820: “Turbulence in the Atmosphere and Ocean” (Graduate Course) **Spring 2020**

**Teaching Assistant at Massachusetts Institute of Technology**  
12.800: “Fluid Dynamics of the Atmosphere and Ocean” (Graduate)  
Overall rating in subject evaluation: 6.7/7. **Fall 2019**

**Undergraduate Teaching Assistant at the University of Texas at Austin**  
P S 303: “Introductory Physical Science I: Mechanics and Heat.” **Fall 2013**

### **SERVICES AND OUTREACH**

**Member of Graduate Student Advisory Committee (GSAG)  
to the faculty search committee** **Spring 2020**

**Member of the Diversity Council (EAPS, MIT)**  
Department-wide committee, including faculty and staff **Fall 2019 – Present**

**Creator and runner of Student Seminar (EAPS, MIT)**  
Department wide, weekly seminar for students **Fall 2018-Spring 2020**  
**Seminars given:**

How can we study extreme events efficiently?

**Fall 2020**

Epidemic processes in complex networks

**Spring 2020**

Atmospheric Predictability

**Fall 2019**

Knots and their surprising connections to fluids and turbulence

**Spring 2019**

Collective and critical phenomena in living systems

**Fall 2018**

### **ADDITIONAL SKILLS**

Programming: Python, Fortran, git. Languages: Spanish (fluent), French (fluent, but limited), Russian (limited)