

Tyler Matthew Bell

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Contact Info

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EDUCATION

August 2018 - Present **Ph.D. Student in Meteorology**

University of Oklahoma - Norman, OK
• Advisor: Dr. Phillip Chilson

August 2016 - August 2018 **M.S. in Meteorology**

University of Oklahoma - Norman, OK
• Advisor: Dr. Petra Klein
• Thesis Title: Analysis of Flow and Thermodynamic Characteristics at a Site in Complex Terrain

August 2012 - May 2016 **B.S. in Meteorology**

University of Oklahoma - Norman, OK

RESEARCH INTERESTS

Atmospheric boundary layer processes, remote sensing, in-situ sensing, weather sensing unmanned aerial systems, boundary layer profiling, turbulence, open-source development, flow in complex terrain, wind energy meteorology

PROFESSIONAL EXPERIENCE

August 2018 - Present **Graduate Research Assistant**

Center for Autonomous Sensing and Sampling - Norman, OK

August 2016 - August 2018 **Graduate Research Assistant**

Cooperative Institute for Mesoscale Meteorological Studies - Norman, OK

September 2015 - August 2016 **Undergraduate Research Assistant**

Cooperative Institute for Mesoscale Meteorological Studies - Norman, OK

September 2014 - August 2016 **Undergraduate Research Assistant**

Oklahoma Biological Survey - Norman, OK

November 2013 - August 2016 **Student Meteorologist/Developer**

DTN (formerly Weather Decision Technologies, Inc.) - Norman, OK

FIELD EXPERIENCE

May - June 2017 **Perdigão**

During this campaign, I assisted in the operation of the Collaborative Lower Atmospheric Mobile Profiling System (CLAMPS) in the valley between two parallel ridges in Perdigão, Portugal to measure flow in complex terrain. I also assisted NCAR in launching radiosondes from inside the valley.

July 2018 **LAPSE-RATE: Lower Atmospheric Profiling Studies at Elevation - A Remotely-Piloted Aircraft Team Experiment**

I assisted in the deployment of CLAMPS in the San Luis Valley in Colorado in conjunction International Society for Atmospheric Research using Remotely Piloted Aircraft (ISARRA) flight week campaign. Additionally, I assisted the Center for Autonomous Sensing and Sampling in deploying state of the art boundary layer profiling Unmanned Aerial Systems (UAS).

June 2019 **TORUS: Targeted Observations By Radars and UAS of Supercells**
During this campaign, I assisted in multiple different missions. I contributed to software to help retrieve and process live data from a rapid deployment Doppler lidar system that measured winds in the inflow region of supercells. During the campaign, I also assisted in launching radiosondes from both the near-field and far-field inflow regions of the supercell.

TEACHING EXPERIENCE

Fall 2019 **Meteorological Measurement Systems - Lab**
Teaching Assistant (2 sections)

Fall 2018 **Undergraduate Orientations to Professional Meteorology**
Teaching Assistant

Fall 2017 **Undergraduate Dynamics I**
Teaching Assistant

PROFESSIONAL SERVICE

2019 **OU Research Experiences for Undergraduates**
Mentor

2018 – Present **OU Student Affairs Committee**

- Chairperson (2019-Present)
- Secretary (2018-2019)

2018 – Present **Faculty Search Committee**
Student representative for the Williams Chair search committee

2017 – Present **OU Visiting Student Weekend**
Volunteer

2018 – 2019 **Four Year Research Engagement (FYRE)**
Mentor

2016 – 2017 **Student Chapter of the American Meteorological Society & National Weather Association**
Web Manager

TECHNICAL SKILLS

Programming Languages

- Python2 and 3 – Proficient
- MATLAB – Proficient
- Unix – Proficient
- FORTRAN – Working knowledge
- JAVA – Working knowledge
- C++ – Working knowledge
- HTML/CSS – Working knowledge

Cloud Computing Services

- Amazon Web Services – Proficient
- Google Cloud Services – Proficient

Modeling

- Weather Research and Forecasting (WRF) Model – Working Knowledge

Other Technical Skills

- Git – Proficient
- Photoshop – Proficient
- Illustrator – Proficient
- InDesign – Proficient
- QGIS/ArcGIS – Working knowledge

Peer-Reviewed Publications

In Review **Bell, T. M.**, Klein, P. M., Wildmann, N., Menke, R.: Analysis of Flow in Complex Terrain Using Multi-Doppler Lidar Retrievals, *Atmos. Meas. Tech. Disc.*, doi:10.5194/amt-2018-417, <https://www.atmos-meas-tech-discuss.net/amt-2018-417/>

In Preparation **Bell, T. M.**, B.R. Greene, P.B. Chilson, P. Klein, M. Carney, D. Turner: Confronting the Boundary Layer Data Gap: Evaluating New and Existing Methodologies of Probing the Lower Atmosphere. *Atmos. Meas. Tech.*, to be submitted 2019.

Accepted

1. Fernando, H., J. Mann, J. Palma, J. Lundquist, R. Barthelmie, M. BeloPereira, W. Brown, F. Chow, T. Gerz, C. Hocut, P. Klein, L. Leo, J. Matos, S. Oncley, S. Pryor, L. Bariteau, **T. M. Bell**, and co-authors: The Perdigão: Peering into Microscale Details of Mountain Winds. *Bull. Amer. Meteor. Soc.*, 100 (5), 799–819. <https://doi.org/10.1175/BAMS-D-17-0227.1>.
2. Greene, B. R., A. R. Segales, **T. M. Bell**, E. A. Pillar-Little, and P. B. Chilson, 2019: Environmental and sensor integration influences on temperature measurements by rotary-wing unmanned air- craft systems. *Sensors*, 19 (6), doi:10.3390/s19061470, <http://www.mdpi.com/1424-8220/19/6/1470>.
3. Chilson, P. B. , **T. M. Bell**, K. A. Brewster, G. Britto Hupsel de Azevedo, F. H. Carr, K. Carson, W. Doyle, C. A. Fiebrich, B. R. Greene, J. L. Grimsley, S. T. Kaneganti11, J. Martin, A. Moore, R. D. Palmer, E. A. Pillar-Little, J. L. Salazar-Cerreno, A. R. Segales, M. E. Weber, M. Yearly, and K. K. Drogemeier: Moving Towards a Network of Autonomous UAS Atmospheric Profiling Stations for Observations in the Earth's Lower Atmosphere: The 3D Mesonet Concept. *Sensors*, 19 (12), doi:10.3390/s19122720, <https://www.mdpi.com/1424-8220/19/12/2720>.

Selected Conference Presentations

1. **Bell, T. M.**, P. Klein, E. Smith, J. Gebauer, M. Carney, and D. Turner, 2017. Nocturnal boundary-layer phenomena observed at a complex site during the Perdigão experiment. Complex Terrain Meteorological Studies Relevant to Wind Energy Forecasting I, A23J-08, New Orleans, LA., American Geophysical Union – *Talk*
2. **Bell, T. M.**, P.M. Klein, N. Wildmann, and R. Menke, 2018. General flow spatial variability during the perdigao campaign. Perdigão Data Meeting, Boulder, CO. – *Talk*
3. **Bell, T. M.**, P.M. Klein, N. Wildmann, and R. Menke, 2018. Analysis of flow in complex terrain using innovative multi-doppler lidar retrievals. 23rd Symposium on Boundary Layers and Turbulence, Oklahoma City, OK., Amer. Met. Soc. – *Talk*
4. **Bell, T. M.** and B. R. Greene, 2019. Toys to Tools: Leveraging Drones to Better Understand the Atmosphere. National Tropical Weather Conference, South Padre Island, TX. – *Invited Talk*
5. **Bell, T. M.**, B. R. Greene, P. B. Chilson, P. Klein, M. Carney, D. D. Turner, J. K. Lundquist, P. D. Murphy, C. T. Plunkett, A. R. Segales, G. Britto Huspel de Azevedo, and W. Doyle, 2019. Confronting the Boundary Layer Data Gap: Evaluating New and Existing Methodologies of Probing the Lower Atmosphere. Special Symposium on Meteorological Observations and Instrumentation, 783, Phoenix, AZ., Amer. Met. Soc. – *Poster*
6. **Bell, T. M.**, B. R. Greene, A. R. Segales, P. B. Chilson, P. Klein, M. Carney, D. D. Turner, 2019. Confronting the Boundary Layer Data Gap: Evaluating New and Existing Methodologies of Probing the Lower Atmosphere. Special Symposium on Meteorological Observations and Instrumentation. International Society for Atmospheric Research using Remotely piloted Aircraft, Lugo, Spain.