

## EDUCATION

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<b>Ph.D.   Meteorology</b>   University of Oklahoma	2015 - 2019
<b>M.S.   Meteorology</b>   University of Oklahoma	2012 - 2014
<b>B.S.   Meteorology</b>   Plymouth State University	2009 - 2012

## RESEARCH

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<b>Graduate Research Assistant</b>   University of Oklahoma	Norman, OK 2015 - Present
<ul style="list-style-type: none"><li>➤ Predictability of high impact events on subseasonal to seasonal timescales.</li><li>➤ Diagnostics on error growth in NWP with a focus on major failures in global and subcontinental medium-range prediction.</li><li>➤ Rossby wave triggering in NWP with a focus on high impact events.</li></ul>	
<b>Graduate Research Assistant</b>   University of Oklahoma	Norman, OK 2012 - 2014
<ul style="list-style-type: none"><li>➤ Evolution of error growth in ECMWF medium-range forecast busts, focusing on the treatment of convection over the central US in the near term forecast, and how related errors develop and propagate downstream into Europe.</li></ul>	
<b>Ernest F. Hollings Intern</b>   National Weather Service	Anchorage, AK 2012
<ul style="list-style-type: none"><li>➤ Magnitude of high wind events in Anchorage, AK using regression modeling.</li></ul>	
<b>Undergraduate Research Assistant</b>   Plymouth State University	Plymouth, NH 2012
<ul style="list-style-type: none"><li>➤ Synoptic pattern leading to the Great Hurricane of 1938.</li><li>➤ Climatology of West Pacific extratropical bombs, and the downstream responses.</li></ul>	
<b>REU Student Researcher</b>   National Severe Storms Laboratory	Norman, OK 2011
<ul style="list-style-type: none"><li>➤ Sensitivity of microphysical parameters in a storm scale model on the motion, intensity, and characteristics of a supercell.</li></ul>	

## TEACHING

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<b>Dynamic Meteorology III</b>   University of Oklahoma	Norman, OK 2015, 2016, 2018
<ul style="list-style-type: none"><li>➤ Quasi-geostrophic theory and application, extra-tropical disturbances and baroclinic instability, fronts, jets, predictability, ensemble prediction and data assimilation.</li></ul>	
<b>Dynamic Meteorology II</b>   University of Oklahoma	Norman, OK 2016, 2017
<ul style="list-style-type: none"><li>➤ Streamlines and trajectories, thermal wind, vertical motion, pressure tendency, circulation and vorticity, potential vorticity, wave equations, Rossby waves, boundary layer.</li></ul>	
<b>Synoptic Meteorology Lab</b>   University of Oklahoma	Norman, OK 2012
<ul style="list-style-type: none"><li>➤ Hand analysis of synoptic maps, applications of QG, applications of potential vorticity, weather briefings, applications of programming, synoptic-scale research.</li></ul>	

### Research Meteorologist and Forecaster | Planalytics

Berwyn, PA  
2014

- Produced two-week and event-based forecasts for North America, Europe, and the tropics.
- Briefed the client services team, and clients directly.
- Developed tools for subseasonal to seasonal prediction and gave lessons to the forecast team on how to use them.

### Forecaster | New Hampshire Department of Transportation

Concord, NH  
2010 - 2012

- Developed a detailed forecasting process for use at the NH DOT.
- Gave lectures to NH DOT personnel.
- Produced short term and near term winter weather forecasts for the Transportation Management Center staff.

### Consultant | Massachusetts Office of Emergency Management

2015

- Contributed to a memo for FEMA regarding the unprecedented series of snow storms that impacted Boston in January 2015.

## TECHNICAL SKILLS

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<b>Programming</b>	• Python • MATLAB • Fortran • Perl • C / C++ • R Statistics
<b>Modeling</b>	• MPAS • WRF
<b>Computing</b>	• Mac OS X • Linux • Windows • High-performance computing
<b>Productivity</b>	• LaTeX • Microsoft Office (Word, Excel, PowerPoint)
<b>Web Design</b>	• HTML • CSS

## PUBLICATIONS

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**Lillo, S.P.**, and D.B. Parsons, in preparation: Modes of synoptic to planetary mid-latitude error growth and propagation in global NWP.

**Lillo, S.P.**, and Coauthors, in preparation: The role of a tropopause polar vortex in the January 2019 extreme cold air outbreak.

Butler, A.H., Z.D. Lawrence, S.H. Lee, **S.P. Lillo**, and C.S. Long, in preparation: Different predictability and surface impacts of two similarly split stratospheric vortex events.

**Lillo, S.P.**, D.B. Parsons, and M. Peña, 2019: Dynamics behind a record-breaking trough over Mexico and future implications for El Niño and downstream predictability. *Bull. Amer. Meteor. Soc.*, Early Online Release, <https://doi.org/10.1175/BAMS-D-18-0331.1>.

**Lillo, S. P.**, and D. B. Parsons, 2017: Investigating the dynamics of error growth in ECMWF medium-range forecast busts. *Quart. J. Roy. Meteor. Soc.*, 143, 1211–1226, <https://doi.org/10.1002/qj.2938>.

Carbin, G. W., M. K. Tippett, **S. P. Lillo**, and H. E. Brooks, 2016: Visualizing long-range severe thunderstorm environment guidance from CFSv2. *Bull. Amer. Meteor. Soc.*, 97, 1021–1031, <https://doi.org/10.1175/BAMS-D-14-00136.1>.

## CONFERENCE PRESENTATIONS

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**Lillo, S.P.** and Parsons, D.B., 2017: The role of anomalous wave activity in high-impact weather events during the 2015-16 winter. *Climate Diagnostics and Prediction Workshop*, Norman, OK.

**Lillo, S.P.** and Parsons, D.B., 2017: Growth and propagation of synoptic-scale forecast error in NWP forecast busts. 18th Cyclone Workshop, Sainte Adele, QC.

**Lillo, S.P.** and Parsons, D.B., 2016: Impacts of anomalous mid-latitude wave activity during a strong El Niño. *ESRL Physical Sciences Division Seminars*, Boulder, CO.

**Lillo, S.P.** and Parsons, D.B., 2015: Evaluating the Limits of Predictability in the ECMWF. 17th Cyclone Workshop, Pacific Grove, CA.

**Lillo, S.P.** and Parsons, D.B., 2015: Evaluating the Limits of Predictability in the ECMWF. 23rd Conference On Numerical Weather Prediction, Amer. Met. Soc. Chicago, IL.

**Lillo, S.P.**, 2013: Defining a New Framework for Monitoring the QBO. 3rd International Symposium on Earth-Science Challenges, Kyoto, Japan.

**Lillo, S.P.** and Parsons, D.B., 2013: Investigating the Dynamics of Error Growth in ECMWF Forecast Busts. 3rd International Symposium on Earth-Science Challenges, Kyoto, Japan.

**Lillo, S.P.** and Parsons, D.B., 2013: Investigating the Dynamics of Error Growth in ECMWF Forecast Busts. 16th Cyclone Workshop, Sainte Adele, Quebec.

**Lillo, S.P.**, 2013: Synoptic Patterns Supporting High Wind Events in Anchorage, AK. 12th AMS Student Conference, Amer. Met. Soc., Austin, TX.

**Lillo, S.P.**, 2012: Downstream Effects of West Pacific Bombs. 37th Northeast Storm Conference. Rutland, VT.

**Lillo, S.P.** and Aviles, L.B., 2012: Investigating the Synoptic Pattern leading to the Great Hurricane of 1938. 37th Northeast Storm Conference. Rutland, VT.

**Lillo, S.P.** and Mansell, E.R., 2012: Sensitivity of Microphysics on the Evolution of a Supercell. 11th AMS Student Conference, Amer. Met. Soc., New Orleans, LA.

## SERVICE / OUTREACH / MEMBERSHIPS

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<b>Reviewer</b>   Bulletin of the American Meteorological Society	2017 - Present
Quarterly Journal of the Royal Meteorological Society	2015 - Present
<b>Member</b>   MAPP S2S Prediction Task Force	2016 - Present
American Meteorological Society	2011 - Present
<b>Tutor</b>   School of Meteorology Help Desk	2018