Zachary M. Labe

Contact Information

Ph.D. Student, 2101 Croul Hall
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Research Interests

applied climate dynamics • climate variability • seasonal transitions • Arctic sea ice • stratospheric dynamics • science communication

Education

The University of California, Irvine (GPA: 3.98/4.00)

Ph.D. Student, Earth System Science (expected May 2020)
Advisor: Dr. Gudrun Magnusdottir

Cornell University, Ithaca, NY

B.Sc. in Atmospheric Science, May 2015, *Distinction in Research*
Thesis: Anomalously Early Onset of Spring in the CESM Large Ensemble Project
Minor: Dyson Business Minor for Life Sciences

Scientific Research Experience

2015–Present **Graduate Research Assistant**
Assessing influences of Arctic amplification and sea ice variability on the stratosphere and extreme weather in the midlatitudes through global climate model experiments and historical observations
Advisor: Dr. Gudrun Magnusdottir, Earth System Science, University of California Irvine

Su. 2015 **Research Assistant**
Evaluated the magnitude, frequency, and dynamics of spring onset in the CESM Large Ensemble Project (LENS) through the implementation of the Extended Spring Indices Model
Advisor: Dr. Toby Ault, Earth and Atmospheric Science, Cornell University

2014 – 2015 **Undergraduate Research Assistant**
Analyzed Extended Spring Indices model to understand early spring onset through the Berkley Earth System Temperature Project (BEST).
Advisor: Dr. Toby Ault, Earth and Atmospheric Science, Cornell University

Publications

Refereed/Peer-Reviewed

[1] **Labe, Z.M.**, T.R. Ault, and R. Zurita-Milla (2016), Identifying Anomalously Early Spring Onsets in the CESM Large Ensemble Project, R. Clim Dyn, DOI:10.1007/s00382-016-3313-2. [Article]

Publications Submitted/in Preparation

[1] **Labe, Z.M.,** G. Magnusdottir, and H.S. Stern (2017), Variability of Arctic sea ice thickness using PIOMAS and the CESM Large Ensemble Project. (*submitted*)

Non-refereed/Other

[1] **Labe, Z.M.**, April 2015: Anomalously Early Onset of Spring in the CESM Large Ensemble. Cornell University. Undergraduate Honors Thesis. [PDF]

Oral Presentations

[3] **Labe, Z.M.,** G. Magnusdottir, and H.S. Stern. Variability and future projections of Arctic sea ice thickness. *Understanding the Causes and Consequences of Polar Amplification Workshop*, Aspen Global Change Institute, Aspen, CO (Jun 2017). [Recording]

[2] **Labe, Z.M.** Communicating the future of Arctic climate change. Natural Sciences Division, Fullerton College, CA (Nov 2016). (**Invited**)

[1] **Labe, Z.M.** Anomalously early onset of spring in the CESM Large Ensemble Project. *Earth and Atmospheric Science Undergraduate Research Symposium*, Cornell University, NY (May 2015).

Poster Presentations

[3] **Labe, Z.M.,** G. Magnusdottir, and H.S. Stern. Arctic Sea Ice Thickness Variability and the Large-scale Atmospheric Circulation Using Satellite Observations, PIOMAS, and the CESM Large Ensemble, *14th Conference on Polar Meteorology and Oceanography*. Seattle, WA (Jan 2017). [Abstract] [Poster]

[2] **Labe, Z.M.,** G. Magnusdottir, and H.S. Stern. Making the most of Arctic sea ice thickness observations, *Symposium on Recent Advances in Data Science*, University of California, Irvine (Oct 2016). [Poster]

[1] **Labe, Z.M.** and T.R. Ault. Anomalously Early Onset of Spring in the CESM Large Ensemble Project, *14th Annual AMS Student Conference*, Phoenix, AZ (Jan 2015). [Poster]

Fellowships and Awards

2016 – 2018	NSF NRT-DESE in Data Science and Physical Science Fellowship
Su. 2016	Data Science Initiative Fellowship, Department of Statistics, University of California, Irvine
Wi. 2016	Jenkins Family Graduate Fellowship in Earth System Science, Department of Earth System Science, University of California, Irvine
2014 – 2015	Fuerst Outstanding Library Student Employee Award Finalist, Cornell University

Teaching and Outreach

University of California, Irvine

Fa. 2016	Teaching Assistant, Fundamental Processes in Earth and Environmental Studies

Cornell University

Su. 2015	Guest Lecturer, Severe Weather Phenomena
Sp. 2015	Teaching Assistant, Programming and Meteorology Software (Python)
Fa. 2014	Teaching Assistant, Basic Principles of Meteorology Lab

Related Educational Activities

Aug. 2017	*Unified Irvine School District*, "Ask-A-Scientist/Engineer Night" at Rancho San Joaquin Middle School, Orange County, CA (**Volunteer**)
Aug. 2017	*NASA DIRECT-STEM Program*, Assessing a changing Arctic (**Invited Presenter**).
Apr. 2017	*Climate Data Hackathon*, Looking for clues to changes in Arctic sea ice (**Invited Presenter**). [Syllabus/GitHub] University of California, Irvine
Feb. 2017	*Irvine Unified School District's 36th Annual Science Fair*, Physical science project judge, Irvine, CA (**Volunteer**)

Feb. 2017	*Orange County Regional Science Olympiad*, Severe Storms-Meteorology exam writer and proctor, Irvine, CA (**Event Supervisor**)
Wi. 2017	Seminar Course – Teaching Topics in Earth System Science (**Training**)
Oct. 2016	*Unified Irvine School District*, "Ask-A-Scientist/Engineer Night" at Rancho San Joaquin Middle School, Orange County, CA (**Volunteer**)
Aug. 2016	*NASA DIRECT-STEM Workshop*, Data and Analysis of Arctic Climate Change in CMIP5 using Python (**Instructor**). [Syllabus/GitHub] University of California, Irvine

Professional Activities

2017–Present	Web Chair, Student Chapter of the American Meteorological Society at the University of California, Irvine [Website]
2017–Present	Member, Student Communications Working Group, University of California, Irvine
2017 – 2019	Student Representative, American Meteorological Society's Committee on Climate Variability and Change
2014 – 2015	President, American Meteorological Society Student Chapter, Cornell University

Affiliations/Memberships

2016–Present	Association of Polar Early Career Scientists, Member
2015–Present	American Geophysical Union, Member
2014–Present	National Weather Association, Member
2009–Present	American Meteorological Society, Member

Professional Travel

Field Work

May 2017	INTPART Arctic Field Summer Schools: Norway–Canada–USA collaboration, University of Tromsø, Norway (Workshops); Longyearbyen, Svalbard (Field Cruise - sea ice)

Workshops

Jun. 2017	Understanding the Causes and Consequences of Polar Amplification, Aspen Global Change Institute, Aspen, CO

Conferences

Jan. 2017	97^{th} American Meteorological Society Annual Meeting, Seattle, WA
Jan. 2015	95^{th} American Meteorological Society Annual Meeting, Phoenix, AZ
Feb. 2014	94^{th} American Meteorological Society Annual Meeting, Atlanta, GA
Jan. 2013	93^{rd} American Meteorological Society Annual Meeting, Austin, TX

Technical Skills

Programming:	Python, MATLAB, Fortran, Unix, HTML, TEX, LATEX, BIBTEX
Software/Tools:	NCL, PyNGL/PyNIO, NCO, CDO, GrADS, Git

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Graduate Coursework

- ❑ Atmospheric Chemistry & Physics
- ❑ Geophysical Fluid Dynamics
- ❑ Global Biogeochemical Cycles
- ❑ Land Surface Processes
- ❑ Ocean Processes
- ❑ Geoscience Modeling and Data Analysis
- ❑ Global Physical Climatology
- ❑ Climate Dynamics
- ❑ Climate Change

Undergraduate Coursework

- ❑ Atmospheric Dynamics
- ❑ Synoptic Meteorology II
- ❑ Physical Meteorology
- ❑ Climate Dynamics
- ❑ Thermodynamics and Hydrostatics
- ❑ Remote Sensing and GIS
- ❑ Statistics in Meteorology and Climatology
- ❑ Programming and Meteorology Software
- ❑ Ordinary and Partial Differential Equations

News and Media

Aug. 2017	*The Verge*, "This Artist's New Landscape Studies are of Melting Glaciers (**Quoted**). [Article]
Jul. 2017	*Climate Central*, "Here's How Much Arctic Sea Ice Has Melted Since the '80s" (**Quoted**). [Article]
Jun. 2017	*Climate Central*, "We Couldn't Monitor Larsen C Without These Satellites" (**Quoted**). [Article]
Apr. 2017	*Mashable*, "Arctic ice in retreat: NASA's airborne survey shows how global warming is transforming the Arctic" (**Quoted**). [Article]
Apr. 2017	*UCI News*, "UCI Doctoral student is helping people visualize climate change and its impact on the entire planet" (**Interview**). [Article]
Mar. 2017	*Carbon Brief*, "Sea ice falls to record lows in both the Arctic and Antarctic" (**Quoted**). [Article]
Mar. 2017	*Climate Central*, "Arctic Sea Ice Continues Its Astonishing Streak of Lows" (**Quoted**). [Article]
Feb. 2017	*The Washington Post, Capital Weather Gang*, "'Beyond the extreme': Scientists marvel at 'increasingly non-natural' Arctic warmth" (**Quoted**). [Article]
Jan. 2017	*UCI News*, "Climate change champions" (**Interview**). [Article]
Dec. 2016	*NPR*, "North Pole Temperatures Expected To Rise 50 Degrees Above Normal" (**Interview**). [Recording]
Dec. 2016	*Yahoo News*, "Bizarre North Pole temperatures cap off year of record-setting warmth" (**Quoted**). [Article]
Dec. 2016	*The Washington Post, Capital Weather Gang*, "Forecast: North Pole to warm 50 degrees above normal Thursday, near melting point" (**Quoted**). [Article]
Nov. 2016	*American Geophysical Union Blogs*, "A conversation with Zack Labe" (**Interview**). [Article]
Nov. 2016	*The Washington Post*, "The North Pole is an insane 36 degrees warmer than normal as winter descends" (**Quoted**). [Article]
Oct. 2016	*The Sydney Morning Herald*, "Polar heatwaves have ice in retreat at both ends of the planet" (**Quoted**). [Article]
Oct. 2016	*The Washington Post, Capital Weather Gang*, "Arctic sea ice is at a record low and could, in spurts, disappear within our lifetimes" (**Quoted**). [Article]
Oct. 2016	*Climate Central*, "This is What It's Like To Be a Young Climate Scientist" (**Interview**). [Article]
Sep. 2016	*New York Times, Dot Earth*, "Arctic Summer Sea Ice – Going Down, Down, Down" (**Contributed**). [Article]
Sep. 2016	*Mashable*, "Sailboat nears goal of circumnavigating the Arctic as sea ice plummets" (**Quoted**). [Article]
Aug. 2016	*Cornell University*, "Early-onset spring models may indicate 'nightmare' for ag" (**Press Release**). [Article]
Jul. 2016	*The Weather Junkies Podcast*, "The Science of Modeling Climate & Weather" (**Interview**). [Recording]

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Personal Interests

Vegetable gardening, travel, cooking, hiking, fishing, winter synoptic storms, long-range and seasonal weather forecasting