CURRICULUM VITAE

Jeffrey B. Basara

August 2023

JEFFREY B. BASARA
Professor and Chair
Environmental, Earth, and Atmospheric Sciences
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PROFESSIONAL PREPARATION

University of Oklahoma, Norman, OK	Meteorology	Ph.D.	2001
University of Oklahoma, Norman, OK	Meteorology	M.S.	1998
Purdue University, West Lafayette, IN	Atmospheric Science	B.S.	1994

PROFESSIONAL APPOINTMENTS

2023-Present	Professor and Chair, Environmental, Earth, and Atmospheric Sciences, University of Massachusetts-Lowell
2012-2023	Associate Professor, School of Meteorology, University of Oklahoma
2018-2023	Associate Professor, School of Civil Engineering and Environmental Science, University of Oklahoma
2018-2023	Executive Associate Director, Hydrology and Water Security Program, University of Oklahoma
2017-2018	Associate Director for the Graduate Program, School of Meteorology, University of Oklahoma
2014-2020	Director, Kessler Atmospheric and Ecological Field Station
2002-2018	Director of Research, Oklahoma Climatological Survey, University of Oklahoma
2007-2012	Adjunct Associate Professor, School of Meteorology, University of Oklahoma
2001-2007	Adjunct Assistant Professor, School of Meteorology, University of Oklahoma
2001-2002	Research Scientist, Oklahoma Climatological Survey, University of Oklahoma

SIGNIFICANT HONORS AND AWARDS

2023	Vice President for Research and Partnerships Annual Award for Excellence in Research Grants, University of Oklahoma
2022	College of Atmospheric and Geographic Sciences Award for Excellence in Research, University of Oklahoma
2021	Awarded Tenure at the University of Oklahoma
2021	Vice President for Research and Partnerships Annual Award for Excellence in Research Grants, University of Oklahoma
2019	College of Atmospheric and Geographic Sciences Dean's Award for Excellence in Teaching, University of Oklahoma
2019	USDA Research Education Economics (REE) Under Secretary's Award
2019	USDA-NIFA Multistate Partnership Award

2014	Named a Kavli Fellow of the United States National Academy of Sciences.
2010	Special Award from the American Meteorological Society for "*A new paradigm for the nation's weather forecasting enterprise based on a voluntary grass-roots effort, with impressive national impact through its use in curricula at scores of universities*."
2004	Named a Fellow of the Cooperative Institute for Mesoscale Meteorological Studies.
2001	School of Meteorology Douglas Lilly Award for the best Ph. D. Manuscript
2001	School of Meteorology Outstanding Teaching Assistant Award
2000	The David James Schellberg Memorial Scholarship Award
1998-2001	NASA Earth System Science *Ph.D. Fellowship*
1996-1998	NASA Space Grant Consortium *Graduate Student Fellowship*
1992-1994	Citizens Scholarship Foundation of America Award

1. Teaching data

a. Statement of Teaching

The core foundation of any academic institution, organization, or department is the quality of instruction and preparation of the students. While this statement applies broadly, it is manifest in numerous capacities in today's academic system throughout undergraduate and graduate student education including traditional classroom-style instruction and mentored research at local campuses (graduate and undergraduate students) to new paradigms including online instruction that reach a global population. This places increasing challenges on faculty to pursue excellence in teaching across a changing landscape of instruction. Further, the complexity of instruction will likely increase into the foreseeable future (especially given the response to Covid-19 and its impacts) and the ultimate success of academic institutions will be dependent upon identifying strengths within current and future faculty to meet the needs of students in the changing educational environment.

I have a passion for teaching. This passion has been borne out in many ways, but all within one overarching goal – to provide excellent instruction that meets the needs of current students to be difference makers across the environmental sciences. To that end, I attempt to utilize every available asset that can increase learning capacity from traditional lecture-based approaches, to experimental and experiential techniques (i.e., "hands-on" approach), to discussion-based formats that foster collaborative efforts (e.g., the flipped classroom approach), and the incorporation of enhanced digital learning via online instruction.

b. Courses Taught and Enrollments (University of Oklahoma)

Course	Course Title	Semester Taught	Enrollment
METR 5633	Hydrometeorology	Summer 2022	19
METR 5733	Hydroclimatology	Summer 2022	68
CEES 5733			
METR 5413	Advanced Synoptic Meteorology	Spring 2023	28
METR 4424	Synoptic Meteorology Laboratory	Fall 2022	49
METR 5633	Hydrometeorology	Fall 2022	33
METR 5633	Hydrometeorology	Summer 2022	19
METR 5733	Hydroclimatology	Summer 2022	68
CEES 5733			
METR 4424	Synoptic Meteorology Laboratory	Fall 2021	54
METR 5633	Hydrometeorology	Fall 2021	51
METR 5633	Hydrometeorology	Summer 2021	37
METR 5733	Hydroclimatology	Summer 2021	50
CEES 5733			
METR 5633	Hydrometeorology	Fall 2020	82
METR 4424	Synoptic Meteorology Laboratory	Fall 2020	48
METR 5803	Hydroclimatology	Summer 2020	65
CEES 5020			
METR 4633	Hydrometeorology	Spring 2020	15
METR 5633			1
METR 4424	Synoptic Meteorology Laboratory	Fall 2019	38
METR 5633	Hydrometeorology	Fall 2019	63
METR 5803	Hydroclimatology	Summer 2019	45
CEES 5020			
METR 4970/5970	Environmental Sampling	Spring 2019	1
MBIO/PBIO	Techniques*		
4970/5970			4
METR 4633	Hydrometeorology	Spring 2019	21
METR 5633			2
METR 4424	Synoptic Meteorology Laboratory	Fall 2018	40
METR 5633	Hydrometeorology	Fall 2018	21
METR 4970/5970	Environmental Sampling		8
	Techniques*		1
METR 4633	Hydrometeorology	Spring 2018	10
METR 5633			1
METR 4424	Synoptic Meteorology Laboratory	Fall 2017	39
METR 4970/5970	Environmental Sampling	Spring 2017	4
PBIO 4970/5970	Techniques*		5
METR 4633	Hydrometeorology	Spring 2017	20
METR 5633			-
METR 4424	Synoptic Meteorology Laboratory	Fall 2016	49
METR 5413	Advanced Synoptic Meteorology	Spring 2016	16
METR 4424	Synoptic Meteorology Laboratory	Fall 2015	43

METR 4633	Hydrometeorology	Spring 2015	14
METR 5633			-
METR 4424	Synoptic Meteorology Laboratory	Fall 2014	52
METR 4633	Hydrometeorology	Spring 2014	30
METR 5633			-
METR 4424	Synoptic Meteorology Laboratory	Fall 2013	48
METR 4633	Hydrometeorology	Spring 2013	15
METR 5633			-
METR 4491	Weather Briefing	Fall 2012	5
METR 5491			1
METR 2013	Introduction to Meteorology (Honors Section)	Fall 2011	8
METR 2013	Introduction to Meteorology	Spring 2011	6
METR 2013	Introduction to Meteorology (Honors Section)	Fall 2010	16
METR 4633	Hydrometeorology	Spring 2010	22
METR 5633			-
METR 2013	Introduction to Meteorology (Honors Section)	Fall 2009	5
METR 5803	Climate Issues	Spring 2007	16
METR 4424	Synoptic Meteorology Laboratory	Fall 2004	54
METR 4424	Synoptic Meteorology Laboratory	Fall 2003	41
METR 4424	Synoptic Meteorology Laboratory	Fall 2002	37
METR 4803	Forecasting**	Spring 2002	9
METR 2413	Introduction to Synoptic Meteorology	Spring 2002	71
METR 1014	Introduction to Meteorology	Fall 2000	100

***** **Served as a Co-instructor - Lead Instructor was Dr. Phil Gibson**
****** **Served as a Co-instructor - Lead Instructor was Dr. Fred Carr**

c. Individual Work with Students

Due to my academic position(s) and because of the support provided by internal and external funding, I have had the privilege to advise, supervise, and mentor individual students from a variety of backgrounds and at multiple academic levels (i.e., both graduate and undergraduate). This is and has been one of the most fulfilling aspects of my role as an academic.

Graduate Advisees

Student	Thesis/Dissertation Title	Degree	Graduation Year
Kodi L. Nemunaitis	Validation of the North American Land Data Assimilation System (NLDAS) Using Data from Oklahoma Mesonet OASIS Sites	M.S.	2003

Donald J. Giuliano	Using the B-W Fuzzy Logic Technique to Estimate CBL Depth from 915 MHZ Wind Profiler Data	M.S.P.M.	2004
Christy Carlson	A Spatial and Temporal Climatology of 1% Temperatures and Coincident Dew Point Temperature for the Continental United States	M.S.P.M.	2004
Peter K. Hall	The Urban Environment of Oklahoma City: Spatial and Temporal Analysis of the Meteorological Conditions	M.S.	2004
Daniel R. Cheresnick	An Analysis of Severe Hail Swaths in the Southern Plains of the United States	M.S.	2005
James Hocker	A Geographic Information Based Analysis of Supercell and Squall Line Storms Swaths Across Oklahoma	M.S.	2006
Justin W. Monroe	Evaluating NARR surface Reanalysis Variables and NLDAS Using Oklahoma Mesonet Observations	M.S.	2007
Amanda Schroeder	A Quantitative Description of the Oklahoma City Urban Heat Island	M.S.	2010
Lindsay Tardif	Quantifying the Spatial and Temporal Variability of the Surface Energy Budget Across Oklahoma During a Period of Historic Precipitation	M.S.	2011
Aaron Gleason	Evolution of National Weather Service Forecast Products Using In Situ Observations in Oklahoma	M.S.	2011
Kodi L. Nemunaitis*	Observational and Model Analyses of the Oklahoma City Urban Heat Island	Ph.D.*	2014
Jing Liu	Quantitative Analysis of Evapotranspiration Climatology and Variation at Oklahoma Mesonet Sites during Drought Period	M.S.	2015
Paul Flanagan	The Dryline, Convective Initiation, and Rapid Evolution of Drought in Oklahoma During 2011	M.S.	2015
Hayden Mahan	In-Situ Measurements and Remotely Sensed Estimations of Surface Fluxes over the Southern Great Plains of the United States	M.S.	2016
Bradley G. Illston	Near Surface Atmopsheric Impacts Resulting from a Developing Metropolitan Area	Ph.D.	2016
Ryann Wakefield	A 16-Year Observational Analysis of Land-Atmosphere Coupling in	M.S.	2018

	Oklahoma Using Mesonet and North American Regional Reanalysis Data		
Paul Flanagan	The Changing Hydroclimate of the United States Great Plains: Meteorological and Climatological Impacts on Water Resources	Ph.D.	2018
Noah Brauer	Quantifying Precipitation Efficiency and Drivers of Excessive Precipitation in Post-Landfall Hurricane Harvey	M.S.	2019
Sarah Wugofski	Synoptic and Mesoscale Analysis of the 2015 Southern Great Plains Flash Pluvial	M.S.	2019
Stuart Edris	Evaluation of Flash Drought Criteria Components	M.S.	2020
Jordan Christian	Flash Droughts: A Local to Global Analysis of Rapid Drought Intensification and their Associated Impacts	Ph.D.	2020
Ryann Wakefield	Disentangling the relative contribution of land-atmosphere coupling toward the evolution of extreme events	Ph.D.	2021
Taylor Grace	An Applied Heat Wave Definition across the Southern Great Plains	M.S.	2021
Bryony Puxley**	Precipitation Whiplash Events Across the Southern Great Plains of the United States	M.S.	2021
Noah Brauer***	Satellite and Radar Remote Sensing of Tropical Cyclones to Quantify Microphysical and Precipitation Processes	Ph.D.	2022
Alyssa Woodward	A Multidimensional Analysis of an Anomalous, High-Impact, Early-Season Ice Storm in Oklahoma	M.S.	2022
Ben Fellman	Abrupt Agricultural Flash Drought: An Investigation of Rapid Drought Development across Vital Agricultural Zones of the United States	M.S.	2023
Devon Woods***		Ph.D.	Current Student – Expected 2023
Stuart Edris		Ph.D.	Current Student – Expected 2023
Daniel Mesheske		Ph.D.	Current Student – Expected 2023

Taylor Grace		Ph.D.	Current Student – Expected 2024
Austin Dixon		Ph.D.	Current Student – Expected 2024
Bryony Puxley**		Ph.D.	Current Student – Expected 2024
Stephen Foskey		Ph.D.	Current Student – Expected 2025
Henry Olayiwola		Ph.D.	Current Student – Expected 2025

***** **Co-Advised with Dr. Petra Klein**
****** **Co-Advised with Dr. Elinor Martin**
******* **Co-Advised with Dr. Pierre Kirstetter**

Graduate Student Committees Served On

Student	Degree	Graduation Year	Department
Brad Illston	M.S.	2002	Meteorology (OU)
John Ensworth	Ph.D.	Withdrew in 2004	Meteorology (OU)
Michael James	M.S.	2006	Meteorology (OU)
Carlos Yanez-Uribe	M.S.	2008	Geography (OU)
Mang Lueck Cheuk	M.S.	2009	Geography (OU)
Shanon Connelly	M.S.	2010	Environmental Science, Policy, and Geography, University of South Florida
Diana Vanegas	M.S.	2011	Microbiology and Plant Biology (OU)
Jill Hardy	M.S.	2014	Meteorology (OU)
Reed Timmer	Ph.D.	2015	Meteorology (OU)
Amanda Schroeder	Ph.D.	2015	Department of Geography, University of Georgia
Zac Flamig	Ph.D.	2016	Meteorology (OU)
David Gagne	Ph.D.	2016	Meteorology (OU)
Cui Jin	Ph.D.	2016	Microbiology and Plant Biology (OU)
Race Clark	Ph.D.	2016	Meteorology (OU)
Rajen Bajgain	Ph.D.	2017	Microbiology and Plant Biology (OU)
Yuting Zhao	Ph.D.	2017	Microbiology and Plant Biology (OU)
Yao Zhang	Ph.D.	2017	Microbiology and Plant Biology (OU)
Jessica Erlingis	Ph.D.	2017	Meteorology (OU)
Bill Dower	Ph.D.	2017	Electrical Engineering (OU)
Manabendra Saharia	Ph.D.	2017	Microbiology and Plant Biology (OU)
Uvirkaa Akumagaa	Ph.D.	2018	Geography (OU)
Jay McDaniel	Ph.D.	2018	Electrical Engineering (OU)
Greg Blumberg	Ph.D.	2018	Meteorology (OU)
David Harrison	M.S.	2018	Meteorology (OU)

Russell Caldwell	Ph.D.	2019	Microbiology and Plant Biology (OU)
Greg Jennrich	M.S.	2019	Meteorology (OU)
Zhenhua Zou	Ph.D.	2019	Microbiology and Plant Biology (OU)
Jie Wang	Ph.D.	2019	Microbiology and Plant Biology (OU)
Ryan Lagerquist	Ph.D.	2020	Meteorology (OU)
Tri Pham	M.S.	2020	Environmental Science (OU)
Walter Chandler	M.S.	2020	Environmental Science (OU)
Xiaocui Wu	Ph.D.	2020	Microbiology and Plant Biology (OU)
Ryan Bunker	M.S.	2020	Meteorology (OU)
Anna Wanless	M.S.	2021	Meteorology (OU)
Stephen Foskey	M.S.	2022	Meteorology (OU)
Maresa Searls	M.S.	2022	Meteorology (OU)
Brian Sun	Ph.D.	2022	Electrical Engineering (OU)
David Harrison	Ph.D.	2022	Meteorology (OU)
Qing Chang	Ph.D.	Current Student	Microbiology and Plant Biology (OU)
Qingyu Wang	Ph.D.	Current Student	Meteorology (OU)
Jorge Celis	Ph.D.	Current Student	Microbiology and Plant Biology (OU)
Chenchen Zhang	Ph.D.	Current Student	Microbiology and Plant Biology (OU)
Ben Davis	Ph.D.	Current Student	Meteorology (OU)

Undergraduate Senior Capstone Mentorship (University of Oklahoma)

- Collin Caldwell, Steve Bodnar, Michael James, Grant Stewart, and Shane Young, 2003
- Chad Ringley, Michael Grogan, Beth Minter, Justin Monroe, Kelly Sugden, and Dianne Laird, 2004
- Eric Hunt and Cindy Morgan, 2004-2005
- Josh Benefield, Michael Morris, Scott Stevens, Chad Ganeau, Melissa Moon, and Amanda Schroeder, 2005-2006
- Megan Ferris, 2006-2007
- Kenneth Jackson, Ben Walnick, Jonathan Whitehead, Eric Hollingshead, Kyle Davis, Tommy Winning, Trevor Grout, Lauren Bodenhamer, 2008-2009.
- Landon Harrison, Mason Rowell, and Chase Thomason, 2009-2010.
- Lamont Bain, Brittany Benson, 2010-2011.
- Kyle Pennington, James Glenn, Kyle Thiem, Jessica Voveris, Emma Kuster, Wava Denito, Daniela Spade, 2012-2013
- Jordan Ferguson, Lauren Wigley, Jordan Christian, Katy Christian, 2013-2014
- Taylor McCorckle, Skylar Williams, Tim Pfieffer, 2014-2015
- Brett Borchardt, Andrew Moore, Kevin Biehl, Rachel Gaal, David King, 2015-2016
- Mathew Bray, Kristine Chen, Stephen Foskey, 2019-2020
- Virgil Enos, Mark McCoy, Jack Miller, 2020-2021
- Brett Scott, Emilie McReynolds, Matthew Rada, Haylee Glass, Hunter Martinez-Buehrer, Danya Meadows, Reed Drapela, Xander Teets, 2021-2022

Undergraduate Research Mentorship (University of Oklahoma)

Student	Support/Activity	Period
Andrew Philpott	OWC REU Program	Summer 2002
Justin Monroe	OCS Undergraduate Research Assistant	2003-2005
Dutin Rapp	OWC REU Program	Summer 2002
Collin Caldwell, Steve Bodnar	SMEX03 Field Sampling; Grant Funded via USDA	Summer 2003
Michael James, Grant Stewart, Michael Morris, Kristen Poole	Joint Urban 2003 Field Campagian; Grant Funded via DoD	Summer 2003
Jim Southard, Eric Hunt	OCS Undergraduate Summer Internship Program	Summer 2004
Scott Stevens, Amanda Schroeder	OCS Undergraduate Summer Internship Program	Summer 2005
Sophie Denis, Adrien Dalhun	Undergraduate Research Exchange Program with the Université de Limoges	Summer 2005
Heather Campbell, Tommy Winning	OCS Undergraduate Summer Internship Program	Summer 2006
Emilie Delanoue, François Bélingard	Undergraduate Research Exchange Program with the Université de Limoges	Summer 2006
Tommy Winning	OCS Undergraduate Research Assistant	2006-2009
John Barr, Aaron Gleason	OCS Undergraduate Summer Internship Program	Summer 2007
Nicolas Ducleroir, Jonathan Dautrement	Undergraduate Research Exchange Program with the Université de Limoges	Summer 2007
Maxime Renoux, Arnaud Rival	Undergraduate Research Exchange Program with the Université de Limoges	Summer 2008
Pierre-Antione Dutheil	Undergraduate Research Exchange Program with the Université de Limoges	Summer 2009
Megan Conway	KAEFS Undergraduate Research Assistant	2014-2015
Nicholas Balderas	KAEFS Undergraduate Research Assistant	2015-2018
Morgan Clark	NWC REU Program	Summer 2018
Raquel Dominguez	NWC REU Program	Summer 2019
Emily West	Undergraduate Research Assistant	2020 - 2021
Mac Syrett	Undergraduate Research Assistant	2021 - 2022

Undergraduate Student Awards

- **Eric Hunt** and **Cindy Morgan** (Jeffrey Basara, Student Mentor) - David Shellberg Memorial Scholarship, University of Oklahoma. Served as the mentor and co-author of the research project entitled *Significant Inversions and Rapid In-Situ Cooling at a Well-Sited Oklahoma Mesonet Station* and published in the Journal of Applied Meteorology. (April 2005).

- **Joanna N. Maybourn, Casey M. Peirano, Jennifer E. Tate, Parker J. Brown, Jake D. Hoey, Brandon R. Smith** (Jeffrey Basara, Student Mentor) - McCasland Award for Outstanding Undergraduate Research, School of Meteorology. Served as the mentor and co-author of the research project entitled *Drought and associated impacts in the Great Plains of the United States - A review* and published in the International Journal of Geosciences. (April 2014).
- **Taylor McCorckle, Skylar Williams, Tim Pfieffer** (Jeffrey Basara, Student Mentor) McCasland Award for Outstanding Undergraduate Research, School of Meteorology. Served as the mentor and co-author of the research project entitled *Atmospheric Contributors to Heavy Rainfall Events in the Arkansas-Red River Basin* and published in Advances in Meteorology. (April 2016).
- **Ben Toms** (Jeffrey Basara, Student Mentor) - McCasland Award for Outstanding Undergraduate Research, School of Meteorology. Served as the mentor and co-author of the research project entitled *Usage of Existing Meteorological Data Networks for Parameterized Road Ice Formation Modeling* published in the Journal of Applied Meteorology and Climatology. (April 2017).

Graduate Student Awards, Fellowships, and Internships

- **Paul Flanagan** (Jeffrey Basara Ph.D. Student Advisor) - David Shellberg Memorial Scholarship, University of Oklahoma. (April 2016).
- **Jordan Christian** (Jeffrey Basara Ph.D. Student Advisor) - 1st Place Student Oral Presentation Award, The American Meteorological Society 32nd Conference on Hydrology. "The Evaporative Stress Index as an Indicator for Flash Drought Across the United States Using Reanalysis Datasets". (2018)
- **Ryann Wakefield** (Jeffrey Basara M.S. Student Advisor) - 2nd Place Poster Presentation, 2018 Student Research and Creativity Day - Engineering/Science A Category. (February 2018).
- **Ryann Wakefield** (Jeffrey Basara M.S. Student Advisor) – Outstanding Teaching Assistant Award, School of Meteorology. (2018).
- **Paul Flanagan** (Jeffrey Basara Ph.D. Student Advisor) - Outstanding Performance as a Graduate Student, School of Meteorology. (2018).
- **Ryann Wakefield** (Jeffrey Basara Ph.D. Student Advisor) - David Shellberg Memorial Scholarship, University of Oklahoma. (2019).
- **Ryann Wakefield** (Jeffrey Basara Ph.D. Student Advisor) - Provost's Certificate of Distinction in Teaching, University of Oklahoma. (2019).
- **Ryann Wakefield** (Jeffrey Basara Ph.D. Student Advisor) - Future Investigators in NASA Earth and Space Science and Technology (FINESST) Fellowship Recipient. (2019).
- **Noah Brauer** (Jeffrey Basara Ph.D. Student Advisor) - James Bruce Morehead Award, University of Oklahoma. (2019).
- **Jordan Christian** (Jeffrey Basara Ph.D. Student Advisor) - David Shellberg Memorial Scholarship, Graduate College, University of Oklahoma (2020).
- **Jordan Christian** (Jeffrey Basara Ph.D. Student Advisor) - Bullard Dissertation Completion Fellowship, University of Oklahoma (2020).
- **Jordan Christian** (Jeffrey Basara Ph.D. Student Advisor) - Provost's Graduate Teaching Assistant Award, University of Oklahoma (2020).

- **Ryann Wakefield** (Jeffrey Basara Ph.D. Student Advisor) – Yoshi Sasaki Award for best M.S. Publication, School of Meteorology, University of Oklahoma (2020).
- **Noah Brauer** (Jeffrey Basara Ph.D. Student Co-Advisor) - Outstanding Teaching Assistant Award, School of Meteorology, University of Oklahoma (2020).
- **Jordan Christian** (Jeffrey Basara Ph.D. Student Advisor) - Outstanding Performance as a Graduate Student, School of Meteorology, University of Oklahoma (2020).
- **Bryony Puxley** (Jeffrey Basara M.S. Student Co-Advisor) – Douglas K. Lilly Scholarship in Climate Science, School of Meteorology, University of Oklahoma (2020).
- **Noah Brauer** (Jeffrey Basara Ph.D. Student Co-Advisor) - Student Journal Paper Award, ARRC, University of Oklahoma (2021).
- **Noah Brauer** (Jeffrey Basara Ph.D. Student Co-Advisor) - Tommy C. Craighead Award for Best Paper in Radar Meteorology, School of Meteorology, University of Oklahoma (2021).
- **Jordan Christian** (Jeffrey Basara Ph.D. Student Advisor) – Edwin Adlerman Award for Graduate Student Research, School of Meteorology, University of Oklahoma (2021).
- **Noah Brauer** (Jeffrey Basara Ph.D. Student Co-Advisor) - Future Investigators in NASA Earth and Space Science and Technology (FINESST) Fellowship Recipient. (2021).
- **Taylor Grace** (Jeffrey Basara Ph.D. Student Advisor) – 2nd Place Student Oral Presentation Award, The American Meteorological Society 35th Conference on Climate Variability and Change. "A Heat Wave Definition Trend Analysis from 1979 through 2019 in the Southern Great Plains" (2022).
- **Benjamin Fellman** (Jeffrey Basara M.S. Student Advisor) **–** NCAR Earth System Science Internship. (2022).
- **Taylor Grace** (Jeffrey Basara Ph.D. Student Advisor) – Outstanding Poster Presentation Award, The American Meteorological Society 36th Conference on Climate Variability and Change. "A Statistical Analysis Toward the Development of a Heat Wave Definition in the Contiguous United States" (2023).
- **Taylor Grace** (Jeffrey Basara Ph.D. Student Advisor) – Outstanding Teaching Assistant Award, School of Meteorology. (2023).
- **Bryony Puxley** (Jeffrey Basara Ph.D. Student Co-Advisor) – Outstanding Service to the Department, School of Meteorology. (2023).
- **Benjamin Fellman** (Jeffrey Basara M.S. Student Advisor) **–** Outstanding Student Oral Presentation Award, Oklahoma EPSCOR State Conference. (2023).

2. Research/Creative Activity Data

a. Statement of Research/Creative Activities

My research interests have focused on the integration of increased understanding across weather, climate, water, and ecosystems, with specific research activities that include the physical processes which impact the development of the planetary boundary layer, surface-atmosphere exchange, urban meteorology, severe weather, in situ instrumentation, precipitation extremes (droughts, flash droughts, flash floods, and pluvial periods) the development, validation, and improvement of land surface models used in numerical weather prediction, and the validation and application of remotely sensed soil moisture, skin temperature, and vegetation conditions from satellite mounted

instruments. Because of the nature of past research positions affiliated with the Oklahoma Climatological Survey, a primary focus of my research has been on the Great Plains of North America. However, in more recent years and in concert with leading the CHEWe Research Group, the work has taken on a broader perspective: local to global with specific focus on how surface-atmosphere coupling drives hydrometeorological and hydroclimatological extremes. Many of these research projects require collaboration with a range of colleagues and scientists and true interdisciplinary partnerships.

b. Publications

As of August 2023, my h-index ranges from **37** to **42** via peer-reviewed or edited publications throughout the environmental sciences. The overall metrics of scholarly impact are dependent on the information source, including those at the links below:

Web of Science **(37)**: https://www.webofscience.com/wos/author/record/1643394
Google Scholar **(42)**: https://scholar.google.com/citations?hl=en&user=4osNQTUAAAAJ
ResearchGate **(40)**: https://www.researchgate.net/profile/Jeffrey_Basara

Publications Accepted or In Press:

Publications In Final Form (Reverse Chronological Order):

1. Wakefield, R.A., D.D. Turner, T. Rosenbeger, T. Heus, T.J. Wagner, J. Santanello, and **J.B. Basara**, 2023: A Methodology for Estimating the Energy and Moisture Budget of the Convective Boundary Layer Using Continuous Ground-based Infrared Spectrometer Observations. *J. Appl. Meteor. Climatol., **62**, 901–914, https://doi.org/10.1175/JAMC-D-22-0163.1.*
2. Christian, J., E. Martin, **Basara, J. B.**, Furtado, J., Otkin, J., L. Lowman, Hunt, E., V. Mishra, Xiao, X., 2023: Global Projections of Flash Drought in a Warming Climate, *Nature Communications Earth & Environment,* **4**, 165. https://doi.org/10.1038/s43247-023-00826-1
3. Celis, J., Xiao, X., **Basara, J. B.,** Wagle, P., McCarthy, H., 2023. Simple and innovative methods to estimate gross primary production and transpiration of crops: a review. *Digital Ecosystem for Innovation in Agriculture*. 125-156, DOI: 10.1007/978-981-99-0577-5_7.
4. Edris, S. E., **J. B. Basara**; J. I. Christian; E. D. Hunt; J. A. Otkin; S. T. Salesky; B. G. Illston, 2023: Decomposing the Critical Components of Flash Drought Using the Standardized Evaporative Stress Ratio. *Agriculture and Forest Meteorology*, **330,** 109288.
5. Paudel, S. N. Gomez-Casanovas, E. H. Boughton, S. D. Chamberlain, P. Wagle, B. L Peterson, R. Bajgain, P. J Starks, **J. B. Basara**, C. J Bernacchi, E. H. DeLucia, L. E Goodman, P. H. Gowda, R. Reuter, J. P. Sparks, H. M Swain, X. Xiao, and J. L Steiner, 2023: Intensification differentially affects the delivery of multiple ecosystem services in subtropical and temperate grasslands. *Agriculture, Ecology & Environment*, 108398.
6. Woods, D., P.-E. Kirstetter, H. Vergara, J. A. Duarte, and **J. Basara**, 2023: Hydrologic

evaluation of the Global Precipitation Measurement Mission over the U.S.: flood peak discharge and duration. *Journal of Hydrology***,** 129124.

7. Brauer, N. S., A. A. Alford, S. M. Waugh, M. I. Biggerstaff, G. D. Carrie, P. E. Kirstetter, **J. B. Basara**, D. T Dawson, K. L. Elmore, J. Stevenson, and R. W. Moore, 2022: Hurricane Laura (2020): A comparison of drop size distribution moments using numerous ground and radar remote sensing retrievals methods. *Journal of Geophysical Research: Atmospheres*, **127**, e2021JD035845.
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c. External and Internal Funding

In Reverse Chronological Order

1. *PIPP Phase I: International Center for Avian Influenza Pandemic Prediction and Prevention*, NSF, Co-PI; Project Total = $999,999, 2022-2023, 0.5 months of support.

2. *OU-ARS Cooperative Agreement.* USDA ARS, PI, Total funds awarded: $75,000, 2021-2023, 0 months of support.

3. *Enhancing Communities Preparedness and Resilience to Post-Wildfire Hydrology in Mountainous Areas* NSF, Co-PI; Project Total = $41,287, 2021, 0 months of support.

4. *RII Track-1: Socially Sustainable Solutions for Water, Carbon, and Infrastructure Resilience in Oklahoma***,** NSF EPSCOR, Project Co-PI; Project Total = $20M; PI, S2S Focus Area - Total = $2.35M. 2020-2025, 3 months of support.

5. *OU-ARS Cooperative Agreement.* USDA ARS, PI, Total funds awarded: $161,765, 2020-2023, 0.5 months of support.

6. *Enhancing National Security Decision-making Process for Regions Vulnerable to the Impacts of Flash Droughts Through Greater Use of NASA Resources*, Project Co-PI; OU PI, NASA, Project total = $400,000, 2019-2021, 1 month of support.

7. *OU-ARS Cooperative Agreement.* USDA ARS, PI, Total funds awarded: $156,000, 2019-2020, 0 months of support.

8. *RII Track-2 FEC: Marshalling Diverse Big Data Streams to Understand Complexity of Tick-borne Diseases in the Southern Great Plains*, NSF, KU is the Lead Institution (~$4M Total), OU Total = $883,8468, Co-PI, 2019-2023, PI- X. Xiao, 1.75 months of support.

9. *Evaluating the Contributions of Local and Non-Local Land-Atmosphere Coupling to Flash Drought Evolution and Prediction*, PI, NASA, $135,000, 0 months of support.

10. *OU-ARS Cooperative Agreement.* USDA ARS, PI, $75,000, 2018-2019, 0 months of support.

11. *Modernization of Mesonet Long Term Averages.* Earth Networks / NOAA, Co-PI, Total funds awarded: $200,000, 2018-2019. PI – B. Moore, 0 months of support.

12. *Space-borne Antennas and Circuits for Condensed Radars and STEM.* NASA, Co-PI, Total funds awarded: $889,761, 2018-2020, PI – H. Sigmarsson, 0.75 months of support.

13. *PREEVENTS Track 2: Collaborative Research: Developing a Framework for Seamless Prediction of Sub-Seasonal to Seasonal Extreme Precipitation Events in the United States.* NSF, Senior Personnel, Total funds awarded: $1,842,562, 2017-2022, PI – E. Martin, 3 months of support.

14. *Multi-scale analysis of microbe-climate interactions in greenhouse gas emissions from*

grasslands and croplands with livestock and manure use. USDA, Co-PI, Total funds awarded: $3M, 2016-2021, PI – X. Xiao, 3 months of support.

15. *Central Oklahoma Rural Partnership for Science (CORPS).* State of Oklahoma, Department of Education, Co-PI, Total funds awarded: $2,072,087, 2016-2020. PI – L. Atkinson, 1 month of support.

16. *Evaluating the Impacts of Sensor Return Interval on Remote Estimates of Evapotranspiration at Field Scales.* USDA, PI, Total funds awarded: $36,890, 2013-2015, 0 months of support.

17. *Facilitating adaptive management under conditions of rapid drought onset using the GOES-based evaporative stress index.* NOAA, PI, Total funds awarded: $149,350, 2013-2015, 3 months of support.

18. *Resilience and vulnerability of beef cattle production in the Southern Great Plains under changing climate, land use and markets.* USDA, Total funds awarded: ~$10M, OSU/KSU were lead agencies, Co-PI, 2013-2018, 5 months of support.

19. *Black Ice Detection and Road Closure and Warning Control System for Oklahoma.* Oklahoma Department of Transportation, Co-PI, Total funds awarded: $230,544, 2012-2014, PI - Y. Hong, 0 months of support.

NOTE: *Prior to 2012, position did not require summer salary due to 12-month appointment.*

20. *A Mobile Intelligent Transportation System (ITS) Platform*. Oklahoma State University, Co-PI, Total funds awarded: $341,352, Y. Hong, 0 months of support.

21. *Drought Monitoring: A System for Tracking Plant Available Soil Moisture Based on the Oklahoma Mesonet.* Oklahoma Water Resource Research Institute, Co-PI, Total funds awarded: $50,000, T. Ochnser (OSU), 0 months of support.

22. *Evaluation of Downscaled High-Resolution WRF Simulations For Use in Operational Forecasting*. Cooperative Program for Operational Meteorology, Education and Training (COMET) Outreach Program, PI, Total funds awarded: $76,849, 2009-2010, 0 months of support.

23. *Quantifying Evaporation and Effective Precipitation Across Varying Seasonal and Within-Season Climatic Signals Across Oklahoma*. Oklahoma Water Resources Board, PI, Total funds awarded: $118,902, 2009-2012, 0 months of support.

24. *Support of CLASIC field activities*, USDA, PI, $40,000, 2007, 0 months of support.

25. As the lead scientist for the project, awarded $333,715 from the Office of the Vice President for Research at the University of Oklahoma to implement the Oklahoma City Micronet, PI, 2006, 0 months of support.

26. Develop an implementation plan for meteorological monitoring and air quality stations within the SHENAIR project. James Madison University Awarded, PI, $24,862, 2006, 0 months of support, PI – B. Nairn, 0 months of support.

27. *Remediation and Restoration Monitoring at the Tar Creek Superfund Site*. USGS, Co-PI, Co-PI Total funds award = $76,273, 2005.

28. *Development of an urban micronet in Oklahoma City*. Oklahoma Regents for Higher Education, PI, $250,000, 2005, 0 months of support.

29. *Quantifying the Structure of the Planetary Boundary Layer In and Around Oklahoma City*. NASA New Investigator Award, PI, Total funds awarded: $274,433, 2004-2008, 0 months of support.

30. *Remediation and Restoration Monitoring at the Tar Creek Superfund Site*. USGS, Co-PI, The total award from the USGS of $888,570 included $154,718 for OCS research activities, 2004, PI – B. Nairn, 0 months of support.

31. *Evaluating NARR and LDAS Data Using the Oklahoma Mesonet.* NASA, PI, $25,000, 2004, 0 months of support.

32. *Research Activities at the University of Oklahoma in Support of the Joint Urban 2003 Field Experiment (FY03-FY04)*. The Department of Defense (DoD) Defense Threat Reduction Agency (DTRA) through the H. E. Cramer Company, PI, Total funds awarded: $252,999, 2003-2007, 0 months of support.

33. The Department of Transportation (VOLPE) awarded a contract in the amount of $9,731. PI, 2003, 0 months of support.

34. ITT Industries awarded a contract in the amount of $2,949. PI, 2003, 0 months of support.

35. *Support the SMEX03 Field Experiment*, USDA, PI, $11,000, 2003, 0 months of support.

36. *Scientific Evaluation of Weather Modification in Oklahoma*. Oklahoma Water Resources Board, PI, Total funds awarded: $61,748, 2003-2005, 0 months of support.

37. Awarded a NASA EPSCoR a Research Initiation Grant in the amount of $19,047. PI, 2002, 0 months of support.

38. *Land-Atmosphere Memory Quantified Using Observations from the Oklahoma Mesonet and the NOAH Land Surface Model*. NOAA, PI, Total funds awarded: $336,592, 2002-2006, 0 months of support.

39. *Research Activities at the University of Oklahoma in Support of the 2003 Oklahoma City Field Experiment (FY02)*. The Department of Defense (DoD) Defense Threat Reduction

Agency (DTRA) through the H. E. Cramer Company, PI, Total funds awarded: $53,980, 2002-2003, 0 months of support.

3. Service Data

a. Statement of Service

During the formative years of my development, I was fortunate to be exposed to coaches and mentors that helped me to develop a worldview whereby leadership and responsibility were not simply important concepts, but were expected. Through those encounters I have valued the position of the servant-leader who was repeatedly modeled to me by great men and women throughout my life. I watched and admired how individuals grounded in honesty, integrity, and a dedicated work ethic could lead many and accomplish more than the individuals, or parts, alone. To me, service and leadership are entirely synonymous and intricately connected. In that vein, I have intentionally chosen a path by which to continuously gain experience and wisdom in effective leadership to serve others, accomplish more, and to pass on what I have learned.

b. List of Service (University of Oklahoma)

Academic Service

2018-2023	Executive Associate Director, Hydrology and Water Security Program, University of Oklahoma
2018-2023	Committee Member, Graduate Admission Committee, Hydrology and Water Security Program
2018	Evaluation Committee for the Dean of the College of Atmospheric and Geographic Sciences
2017-2022	Chair, Graduate Admission Committee, School of Meteorology, University of Oklahoma
2017-2022	Graduate Liaison, School of Meteorology, University of Oklahoma
2017-2021	Committee Member, Provost's Advisory Committee for General Education Oversight, University of Oklahoma
2017-2018	Faculty Search Committee, Hydrology and Water Security Program, University of Oklahoma
2017-2018	Associate Director of the Graduate Program, School of Meteorology, University of Oklahoma
2016-present	Graduate Admissions Committee, School, School of Meteorology, University of Oklahoma
2014-2020	Director, Kessler Atmospheric and Ecological Field Station

2013-present Member, Graduate Studies Committee, School of Meteorology, University of Oklahoma

2012 College of Atmospheric and Geographic Sciences Faculty Marshall, University of Oklahoma

2010-2011 Search Committee Member, Climate Ecologist faculty position, University of Oklahoma

2010 Strategic Weather Enterprise Committee member, University of Oklahoma

2010 College of Atmospheric and Geographic Sciences Faculty Marshall, University of Oklahoma

2009-2012 Advisory Board member for the Atmospheric Radar Research Center at the University of Oklahoma

2008 Strategic Planning Committee member for the School of Meteorology, University of Oklahoma

2006-2011 Co-convenor of the Boundary-Layer, Urban, and Land Atmosphere Interactions Specialty Seminar Series

2005-2006 Transition Committee member for the College of Atmospheric and Geographic Sciences

2004-2014 Executive Committee member for the Kessler Farm Field Laboratory (Kessler Atmospheric and Ecological Field Station), University of Oklahoma

Professional Service and Instruction

2022-present Lead, GEWEX US-RHP Impactful Extremes Working Group

2022-present Member, Committee on Hydrology, American Meteorological Society.

2021-present Member, GEWEX US-RHP Affinity Group

2021 Expert Testimony - United States House of Representatives - House Subcommittee on the Environment, Washington D.C.

2020-2021 COMET Instructor for the Chinese Meteorological Administration and the forecast team for the 2022 Beijing Winter Olympics.

2020 Reviewer-Panelist, NASA Science Utilization of the Soil Moisture Active-Passive Mission solicitation.

2020	Co-Chair, Improvements to the Analysis and Prediction of Flash Drought and Long-Term Drought, American Meteorological Society Annual Meeting, Boston, MA.
2019	Co-Chair, Integrating Water and Energy Cycle Pathways to Better Understand Weather and Climate Extremes, American Meteorological Society Annual Meeting, Phoenix, AZ.
2018	Co-Chair, Variability of Regional Hydroclimate, American Meteorological Society Annual Meeting, Austin, TX.
2016	Reviewer-Panelist, NASA Science Utilization of the Soil Moisture Active-Passive Mission solicitation.
2015	US Chair, Sixth Indo-American Symposium, United States National Academy of Sciences, Kavli Frontiers of Science. Irvine, CA, August.
2015	Reviewer-Panelist, National Science Foundation East Asia Pacific Summer Institute Graduate Fellowship Program.
2014-2022	WxChallenge National Manager
2015	US Representative and Presenter, 16th Chinese-American Symposium, United States National Academy of Sciences, Kavli Frontiers of Science. Beijing, China, October.
2014	Reviewer-Panelist, National Science Foundation East Asia Pacific Summer Institute Graduate Fellowship Program.
2011-present	COMET Advisory Panel member
2010-2016	American Meteorological Society Committee member on Artificial Intelligence Applications to Environmental Science.
2010	Lead Instructor for the Seventh COMET Symposium on Processes in the PBL in Boulder, CO in September.
2009-2011	Named to the National Science Foundation Facilities Assessment Editorial Board and Represented the In-Situ Surface and Surface-Atmosphere Exchange Area.
2009	Reviewer-Panelist, National Science Foundation East Asia Pacific Summer Institute Graduate Fellowship Program.
2008	Lead Instructor for the Sixth COMET Symposium on Processes in the PBL in Boulder, CO in September.

2008 Served as a member of the science team which conducted the BEAREX field experiment in Bushland, TX.

2007 Lead Instructor for the Fifth COMET Symposium on Processes in the PBL in Boulder, CO in August.

2006-2014 WxChallenge Advisory Board Member

2006 Lead Instructor for the Fourth COMET Symposium on Processes in the PBL in Boulder, CO in September.

2006 Reviewer-Panelist, National Science Foundation East Asia Pacific Summer Institute Graduate Fellowship Program.

2004 Lead Instructor for the Second and Third COMET Symposia on Processes in the PBL in Boulder, CO in June and August.

2004 NASA Earth System Science Scholars Network Organizing Committee member.

2003 Invited lecturer at First COMET Symposium on Processes in the PBL in Boulder, CO in September. Provided two lectures entitled "The Impact of Soil Moisture on Processes within the PBL" and "The Impact of Vegetation on Atmospheric Processes within the PBL"

2002 Invited participant at a planning workshop for the national ecological observing network (NEON) infrastructure. Served as a working group leader for automated observing networks.

Professional Stakeholder Engagement

Direct engagement with stakeholders and the transmission of critical scientific findings is a critical act of service to our communities. A summary of recent, **invited** presentations at stakeholder workshops and conferences are provided below:

- Kansas State University Cattleman's Day (2022), Manhattan, KS
- OSU Winter Crops School (2022), Stillwater, OK
- Ag Educator – Mesonet In-Service (2022), Norman, OK
- Southern Plains DEWS Partners Meeting (2022), Norman, OK
- Oklahoma Governor's Water Conference (2021), Oklahoma City, OK
- Citizen Science and Drought Monitoring (2021), Stillwater, OK
- Oklahoma Irrigation Conference (2020), Altus OK
- 21st Annual Crop Production Clinic (2020), Goodwell, OK
- Ag Education – Mesonet (2019), Norman, OK
- CPOF 2019 Western Region Conference (2019), Oakley, KS

- KRC Farm and Food Conference (2019), Wichita, KS
- USDA-ARS Range Research Field Day (2019), Woodward, OK
- KS Extension Roundup (2019), Hays, KS
- K-State Research and Extension (2018), Garden City, KS
- Adapting Grazing Management for Future Needs Conference (2018), Shawnee OK
- K-State Research and Extension (2018), Hays, KS
- Cover Your Acres Winter Conference (2018), Oberlin, KS