**CURRICULUM VITAE**

**ERIK T. CROSMAN**

|  |
| --- |
| **Email:** [**etcrosman@wtamu.edu**](mailto:etcrosman@wtamu.edu) **West Texas A&M University**  **Office: Natural Sciences Building 324 Dept. of Life, Earth, and**  **Phone: (806) 651-2294 Environmental Sciences**  **WTAMU NSB**  **Canyon, Texas 79016-0001** |

**EDUCATION**

University of Northern Colorado, Greeley, Colorado

Bachelor of Earth Science, emphasis in Meteorology 2003

GPA: 3.95

University of Utah, Salt Lake City, Utah

Master of Science degree in Atmospheric Sciences 2005

Doctor of Philosophy degree in Atmospheric Sciences 2011

GPA: 4.0

**PROFESSIONAL EXPERIENCE**

Assistant Professor of Env. Sci. – West Texas A&M University August 2019-present

Adjunct Assistant Research Professor – University of Utah August 2019-present

Assistant Research Professor – University of Utah July 2015-July 2019

Multi-sensor Improved Sea Surface Temperatures (MISST) Team Member Sept 2011-2018

Affiliate faculty member Global Change and Sustainability Center – U. Utah Oct 2018-present

Working Group Team Member, China Meteorological Administration MOUNTain Terrain Atmospheric Observations and Modeling (MOUNTAOM) Project September 2017-present

Advisor – U. of Utah Student Chapter of the American Meteorological Society 2016-present

Postdoctoral Research Assistant – University of Utah Jan 2011-June 2015

Research Assistant – University of Utah Fall 2003-Fall 2010

NASA SST Science Team Member 2009-2010

Co-chair of 2016 Mountain Meteorology Conference 2015-2016

Science Team from Inland Water Working Group, Group for High Resolution Sea Surface Temperature 2012-2015

Cold Pool Modeling Working Group, Environmental Protection Agency (EPA) 2015

**COURSES TAUGHT**

West Texas A&M University, ENVR 4305: Geographic Information Systems (GIS), Fall 2019

West Texas A&M University, ENVR 3092/6092: Fundamentals of Air Quality, Fall 2019

West Texas A&M University, ENVR 3092/6092: Modeling Earth and Environmental Systems, Fall 2019

University of Utah, ATMOS 5050/6050: Atmospheric Instrumentation Spring 2014, 2016, 2018, 2019.

University of Utah, ATMOS 1010: Severe and Extreme Weather Fall 2018

**SELECTED AWARDS AND SCHOLARSHIPS**

Edward Zipser Outstanding Graduate Student Award May 2011

Leadership Award for the Persistent Cold Air Pool Study Feb 2011

Best Student Oral Presentation award at the 14th Conference on Mtn Meteorology Aug 2010

NASA Earth Systems Science Fellowship 2006-2009

University of Utah College of Mines and Earth Sciences Outstanding Teaching Assistant Award,

May 2006

**SELECTED FIELD PROJECT EXPERIENCE**

Lead forecaster and research scientist participant, NOAA Utah Wintertime Fine Particulate Study (UWFPS) Jan-Feb 2017

Science coordinator, The Great Salt Lake Ozone Study May-Sept 2015

Research participant, The Meteor Crater Experiment 2 (METCRAX2) Oct 2013

Project coordinator for the Uintah Basin Ozone Study (UBOS) Jan-Feb 2013

Science operations manager, Persistent Cold Air Pool Study (PCAPS) Dec 2010-Feb 2011

Science operations manager. Great Salt Lake breeze system study. May-Oct 2009

**SELECTED PUBLICATIONS**

**Crosman, E.**, and J. Horel, 2009: MODIS-derived surface temperature of the Great Salt Lake.

*Remote Sensing of Environment*, **113**, 73-81.

**Crosman, E.**, and J. Horel, 2010: Sea and lake breezes: A review of numerical studies.

*Boundary-Layer Meteorology*, [**137**(1](http://www.springerlink.com/content/0006-8314/137/1/)), 1-29

Silcox, G. D., Kelly, K.E., **Crosman, E.T.,** Whiteman, C.D., Allen, B.L., 2012: Wintertime

PM2.5 concentrations in Utah's Salt Lake Valley during persistent, multi-day cold-air

pools. *Atmos. Environ*., **46**, 17-24

**Crosman, E.T**., and J.D. Horel, 2012: Idealized large-eddy simulations of sea and lake

breezes: Sensitivity to lake diameter, heat flux, and stability. *Boundary-Layer*

*Meteorology*, **144**, 309–328

Lareau, N., **Crosman, E.,** Whiteman, C.D., Horel, J.D., Hoch, S.W., Brown, W.O.J., Horst,

T.W., 2013: The Persistent Cold Air Pool Study*, Bull. Amer. Meteor. Soc*., **94**(1), 51-64.

Grim, J.A., Knievel, J.C., **Crosman, E.T**., 2013: Techniques for using MODIS data to

remotely sense lake water surface temperatures. *Journal of Atmospheric and*

*Oceanic Technology* **30**(10), 2434-2451.

Strong, C., A. K. Kochanski, **Crosman, E.T**., 2014, A slab model of the Great Salt

Lake for regional climate simulation, *J. Adv. Model. Earth Syst*., **6**, 602–615.

Neemann, E. M., **Crosman, E. T**., Horel, J. D., and Avey, L, 2015: Simulations of a

cold-air pool associated with elevated wintertime ozone in the Uintah Basin, Utah,

*Atmos. Chem. Phys*., **15**, 135-151.

Jacques, A.A., Horel, J.D., **Crosman, E.T.,** Vernon, F.L., 2015: Central and eastern U.S.

surface pressure variations derived from the USArray network. *Mon. Wea. Rev.*,

**143**, 1472–1493.

Lehner, M., Whiteman, C., Hoch, S., **Crosman, E**, Jeglum, M., Cherukuru, N., Ronald

Calhoun, R., Adler, B., Kalthoff, N., Rotunno, R., Horst, T.W., Semmer, S., Brown,

W., Oncley, S., 2016: The METCRAX II field experiment—A study of downslope

windstorm-type flows in Arizona's Meteor Crater. *Bull. Amer. Meteor. Soc*., **97**:2,

217-235.

Crosman, E.T., Horel, J.D., 2016: Wintertime lake breezes near the Great Salt Lake.

*Boundary-Layer Meteorology.* 159(2), 439-464. doi: 10.1007/s10546-015-0117-6

Jacques, A. A., Horel, J. D., **Crosman, E. T.,** Vernon, F. and Tytell, J., 2016, The Earthscope

US transportable array 1 Hz surface pressure dataset. *Geosci. Data J*., **3**: 29–36.

doi:10.1002/gdj3.37

Horel, J., **Crosman, E**., Jacques, A., Blaylock, B., Arens, S., Long, A., Sohl, J. and Martin, R.,

2016:, Summer ozone concentrations in the vicinity of the Great Salt Lake. *Atmos. Sci.*

*Lett*., **17**: 480–486. doi:10.1002/asl.680

Foster, C., **Crosman**, E., Horel, J., 2017: Simulations of a cold-air pool in Utah’s Salt

Lake Valley: Sensitivity to land use and snow cover. *Boundary-Layer*

*Meteorolog****y,* 164**(1), 63–87.

Blaylock, B., Horel, J., Crosman, E., 2017: Impact of lake breezes on summer

ozone concentrations in the Salt Lake Valley. *J. Appl. Meteor. Climatol.,* 56, 353–

370.

Crosman, E.T., Horel, J.D., 2017: Large eddy-simulations of a Salt Lake Valley cold-air

pool. *Atmospheric Research,* 193*,* 10-25*.*

Jacques, A. A., Horel, J. D., **Crosman, E. T**., Vernon, F., 2017: Tracking mesoscale pressure

perturbations using the USArray Transportable Array. *Mon. Wea. Rev.,* **145***,* 3119–3142*.*

Widanagamaachchi, W., Jacques, A., Wang, B., **Crosman, E**., Bremer, P., Pascucci, V., Horel,

J., 2017: Exploring the Evolution of Pressure-Perturbations to Understand Atmospheric

Phenomena. *IEEE PacificVis 2017*.

**Crosman, E.T**, Jacques, A., Horel, J. D., 2017: A Novel Approach for Monitoring Vertical

Profiles of Boundary-Layer Pollutants: Utilizing Routine News Helicopter Flights.

*Atmospheric Pollution Research*, **8(5)**, 828-835.

**Crosman, E.T.**, Vazquez, J., Chin, T.M., 2017. Evaluation of the Multi-scale Ultra-high

Resolution (MUR) analysis of lake surface temperature. *Remote Sensing,* **9(7)**, 723.

Foster, C. S., **Crosman, E. T.,** Holland, L., Mallia, D. V., Fasoli, B., Bares, R., Horel,

J.D., Lin, J. C., 2017: Confirmation of elevated methane emissions in Utah's

Uintah Basin with ground-based observations and a high-resolution transport

model. *Journal of Geophysical Research: Atmospheres*, **122**, 13,026–13,044.

Tran, T., Tran, H., Mansfield, M., Lyman, S., **Crosman, E**., 2018: Four dimensional

data assimilation (FDDA) impacts on WRF performance in simulating inversion

layer structure and distributions of CMAQ-simulated winter ozone concentrations

in Uintah Basin. *Atmos. Environ.,* **177**, 75-92.

Mitchell, L., **E. Crosman**, Jacques, A., Fasoli, B., Leclair-Marzolf, L., Horel, J., Bowling, D.,

Ehleringer, J., Lin, J., 2018: Continuous monitoring of trace gases and pollutants using a

light rail public transit platform. *Atmos. Environ*.,187, 9-23.

Lin, J.C., L. Mitchell, **E. Crosman**, D.L. Mendoza, M. Buchert, R. Bares, B. Fasoli, D.R.

Bowling, D. Pataki, D. Catharine, C. Strong, K.R. Gurney, R. Patarasuk, M.

Baasandorj, A. Jacques, S. Hoch, J. Horel, and J. Ehleringer, 2018: CO2 and

carbon emissions from cities: linkages to air quality, socioeconomic activity and

stakeholders in the Salt Lake City urban area, *Bull. Amer. Meteor. Soc..,* **99**, 2325–

2339, <https://doi.org/10.1175/BAMS-D-17-0037.1>

Franchin, A., **Crosman, E.T.**, Docherty, K.S., Fibiger, D., Goldberger, L., Hoch, S.W., Hrdina,

A., Lee, B., Long, R., McDuffie, E., Moravek, A., Murphy, J., Thornton, J., Womack, C.,

Brown, S.S., Baasandorj, M., Middlebrook, A.M., 2018: Airborne and ground based

observations of aerosol chemical and physical properties during intense winter

pollution episodes in the Great Salt Lake Basin, *Atmospheric Chemistry and*

*Physics,* 18, 17259-17276.

Foster, CS, **Crosman, E.T.,** Horel, JD, Lyman, S, Fasoli, B, Bares, R and Lin, JC. 2019.

Quantifying methane emissions in the Uintah Basin during wintertime stagnation

episodes. Elem Sci Anth, 7: 24. DOI: <https://doi.org/10.1525/elementa.362>

Mendoza, D.L.; **Crosman, E.T.,** Mitchell, L.E., Jacques, A.A., Fasoli, B., Park, A.M., Lin,

J.C., Horel, J.D. The TRAX Light-Rail Train Air Quality Observation Project. Urban

Sci. **2019**, 3, 108.

Hoch, S., **Crosman, E**., and co-authors, 2020: Exchange processes within wintertime cold-air

pools. In preparation, *J. Appl. Meteor. Climatol*.

**Crosman, E**., and co-authors, 2020: Remote sensing of lake surface temperature: A review. In

preparation, *J. Remote Sens. Env.*

**STUDENT THESES COMMITTEES**

**University of Utah**

Brian Blaylock, M.S. (2016): "Impact of a Lake Breeze on Summer Ozone Concentrations in the

Salt Lake Valley"

Brian Blaylock, Ph.D. (2019): "High-Resolution Rapid Refresh Model Data Analytics for

Wildland Fire Weather Assessment”

Alex Jacques, Ph.D. (2016): “Temporal & Spatial Analyses of Pressure Perturbations from the

USArray Transportable Array”

Kevin Craft, M.S. (2018): “Albedo and climate studies on the Great Salt Lake.”

Alex Argyle, M.S. (2018): “Limited Parameter Water Quality Index for Natural Water Systems

of Utah.”

Taylor McCorkle, Ph.D. candidate “GPM satellite precipitation estimates in Alaska.”

Alex Robertson, M.S. candidate: “GOES-16 Albedo and climate studies on the Great Salt

Lake.”

**West Texas A&M University**

Hannah Tripp, TBA

**UNDERGRADUATE SENIOR CAPSTONE ADVISOR**

Anthony Rondazzo, Univ. Utah Undergraduate Senior (2018). “Micro Weather Sensors: Applications and Analysis.”

Eric Swenson, Univ. Utah Undergraduate Senior (2020).

**GRADUATE STUDENTS**

Chris Foster, PhD (2019). “Constraining Methane Emissions from the Natural Gas & Oil Industry in Utah’s Uintah Basin with Ground-Based Observations & a Transport Model.”

**THESES AND DISSERTATIONS**

Crosman, E. T., 2005: Remote Sensing of the Surface Temperature of the Great Salt Lake. M.S.

thesis, Department of Meteorology, the University of Utah 95 pp.

Crosman, E.T., 2011: Idealized large-eddy Simulation Sensitivity Studies of Sea and

Lake Breezes, Ph.D. Thesis, Department of Atmospheric Sciences, University

of Utah 134 pp. Available online at: http://content.lib.utah.edu/u?/us-etd3,20977

**SELECTED CONFERENCE PRESENTATIONS AND WORKSHOPS**

Jacques, A., Mendoza, D., Crosman, E., Mitchell, L., Fasoli, B., Lin, J., Horel, J. Urban

spatial monitoring of pollutants using light rail-based sensor systems. 100th AMS

Annual Meeting 12–16 January 2020 Boston MA.

Hoch, S., Crosman, E., and R. Martin. Interbasin airmass exchange estimates for air quality

applications using Doppler wind lidar. *35th International Conference on Alpine*

*Meteorology*. 2-6 September 2019. Riva del Garda, Italy.

Crosman, E.T., Mendoza, D., and Mitchell, L., 2019. “Mobile observations of air quality in the

Salt Lake Valley: Implications for Health. Seminar, Department of Atmospheric

Sciences, Salt Lake Utah.

Hoch, S. and Crosman, E.T., 2019. Exchange processes during wintertime cold-air pools. 3rd

Annual Air Quality Science for Solutions workshop, Logan, Utah

Crosman, E.T., 2019. “Toward improved weather simulations of cold-air pools.” Wintertime

photochemical modeling and air quality science for solutions workshop, Logan, Utah.

Crosman, E.T., 2018. Attended workshop. National Science Foundation coastlines and people

scoping session. San Diego, California.

Crosman, E.T., C. Foster, J. Horel, B Fasoli, R. Bares, J. Lin, 2018: Constraining Emissions of

methane in the mountainous Uintah Basin with ground-based observations and a time-

reversed lagrangian transport model. *18th Conference on Mountain*

*Meteorology*, Santa Fe, New Mexico

Crosman, E.T., Invited presentation: University of Reno, Nevada, 2018. Meteorological

Modeling and Observations of Persistent Cold-air Pools in Utah Basins.

*Department of Physics Colloquium*, Reno, Nevada.

Crosman, E.T., J. Horel, J. Steenburgh, D. Whiteman, S. Hoch, 2017: Invited

presentation: Utah post-2002 Winter Olympics forecasting. MOUNTAOM

working group meeting, Institute of Urban Meteorology, Beijing, China.

Crosman, E.T, J. Horel, C. Foster, E. Neemann, 2017: Invited presentation: Modeling

wintertime cold-air pool pollution events in Utah Basins. *Meteorology and*

*Climate – Modeling for Air Quality*, Davis, California

Crosman, E.T, and coauthors, 2016: The 2015 Great Salt Lake Summer Ozone Study.

*AMS 22nd Symposium on Boundary-layers and Turbulence*, Salt Lake City,

Utah

Crosman, E.T, J. Horel, and C. Foster, 2015: Toward improved NWP simulations of Utah

basin cold air pools, *International Conference on Alpine Meteorology*,

Innsbruck, AU.

Crosman, E.T., J. Horel, N. Larsen, Will Howard, 2015: Validation of Satellite-derived

Lake Surface Temperatures. *(GHRSST XVI) European Space Agency ESTEC*,

Leiden, Netherlands

Crosman, E.T., J. Horel, C. Foster, E. Neemann, Trang Tran, Huy Tran, Numerical modeling of

cold air pools in Utah Basins, 2015: *Modeling Air Quality from the Global to Local*

*Scales*, Boulder, CO

Crosman, E.T., J. Horel, C. Foster, and L. Avey, 2015: Understanding the weather leading to

poor wintertime air quality (invited). *Air Quality in Utah. Science for Solutions*. Salt

Lake City, UT

Crosman, E.T, J. Horel, C. Foster, and E. Neemann, 2014: Meteorological modeling of

wintertime cold air pool stagnation episodes in the Uintah and Salt Lake Basins. *47th*

*Annual Meeting of the American Geophysical Union* (AGU), San Francisco, CA

Crosman, E.T., and J.D. Horel, 2014: The sensitivity of Salt Lake Valley persistent cold air pools

to surface state. *16th AMS Conference on Mountain Meteorology*, San Diego, CA

Crosman, E.T., and J.D. Horel, Neil Lareau, Dave Whiteman, and Joe Young, 2014:

Observations and modeling of persistent cold air pools in Utah’s Salt Lake Valley. *94th*

*Annual Meeting of the American Meteorological Society,* Atlanta, GA

Crosman, E.T., and J.D. Horel, 2013: Large-eddy simulations of persistent cold air pools.

*2013 Western Air Quality Modeling Workshop*, Boulder, CO

Crosman, E.T., and J.D. Horel, 2012: The impact of the Great Salt Lake on Salt Lake

Valley Persistent Cold Air Pools. *15th Conference on Mountain*

*Meteorology*, Steamboat Spring CO

Crosman, E.T., and J.D. Horel, 2010: The sensitivity of sea and lake breezes to variations in

surface and atmospheric state in large-eddy simulations. *14th AMS Conference on*

*Mountain Meteorology*, Olympic Village, CA

Crosman, E.T., and J.D. Horel, 2010: Numerical and observational study of the Great Salt Lake

Breeze. *2010* *Great Salt Lake Issues Forum*, Salt Lake City, UT

Crosman, E.T., and J.D. Horel, 2009: Idealized large-eddy simulations of sea and lake

breezes.13th Conference on Mesoscale Processes, Salt Lake City, UT

Crosman, E.T., and J.D. Horel, 2009: Observational and numerical study of the Great Salt Lake

Breeze. *89th Annual Meeting of the American Meteorological Society*, Phoenix, AZ

**HONOR SOCIETIES AND PROFESSIONAL ORGANIZATIONS**

American Meteorological Society U of U Member 2004-present

American Meteorological Society Utah Member 2008-present

American Meteorological Society National Member 2001-present

Golden Key Honor Society Member 2002-present

**RESEARCH FUNDING**

\* 2019 Campbell Scientific Educational Imagine Grant. Agency Campbell Scientific. $24,000 (PI)

\* AQUARIUS - Air QUAlity Research In the western US Workshop Proposal. 2019/2020. Agency NSF. $25,000 (PI)

\*AQUARIUS - Air QUAlity Research In the western US Workshop Proposal. 2019/2020. Agency NOAA. $25,000 (c0-PI)

\*TRAX air quality observations. Utah Division of Air Quality. 07/01/2018-06/30/2023. $500,000 (co-PI)

\*Jordan Narrows Transport Study 2018/19. Utah Division of Air Quality. 07/01/2018-06/30/2019. $19,200 (co-PI)

\*UUNET Data Purchase for NWS National Mesonet Program. Synoptic Data Corporation. 08/17/2018-08/16/2019, 33,600 (PI).

\*UUNET Data Purchase for NWS National Mesonet Program. Synoptic Data Corporation. 01/17/2017-01/16/2018, 33,600 (PI).

\*Assessment of HRRR Model Forecasts of Convective Outflow in the Fire Environment. Joint Fire Science Program. 9/17-8/19. $277,060 (co-PI).

\*Cold Air Pool Exchange Processes during the Utah Wintertime Fine Particulate Study (UWFPS). Agency NSF. 01/01/17-12/31/17. $45,000 (co-PI).

\*Fine Particulate Study 2016/17 forecasting support. Utah Division of Air Quality. 12/1/2016-12/30/2017. $10,000 (co-PI)

\*MISST2. Subcontract to Remote Sensing Systems. Agency: NOAA/NASA IOOS. 11/12-11/17. 127,500 (PI).

\*Quantifying the Impacts of Great Salt Lake (GSL) Dust Plumes on Local Air Quality. Utah Department of Natural Resources. 07/01/16-06/30/17. $75,000 (co-PI)

\*Potential Impacts of Local Dust Plumes on the Proposed Utah State Prison Site. UT Division of Facilities Construction. 05/31/2016-08/19/2017. $99,636 (co-PI)

\*Perturbation Pressure Variations Deduced from Earthscope’s US Array. Agency NSF. 3/13-2/17. 381,605 (co-PI)

\*Improving air quality modeling for the Wasatch Front and Cache Valley Winter Air Pollution Episodes and 2015 Great Salt Lake Summer Ozone Study. Utah Division of Air Quality. 7/14-1/16, $165,000 (co-PI)

**\***Sensors for Mobile Air Quality Monitoring Along the Wasatch Front. University of Utah Research Instrumentation Fund. 12/01/2015-12/30/2016, 30,000 (co-PI)

**PROPOSED RESEARCH FUNDING**

\*Improved Lake Temperature NSF (PI)

\*Terminal Lake Basin Weather and Climate (NSF)

**COLLABORATORS AND OTHER AFFILIATIONS**

Seth Arens, Western Water Assessment and CIRES, NWS-NOAA

Lance Avey, Environmental Protection Agency

Mike Chin, NASA JPL/Caltech

Nancy Daher, Utah Division of Air Quality

Stephan de Wekker, University of Virginia

Ben Fasoli, University of Utah

Bob Grumbine, NOAA

John Horel, University of Utah

Alex Jacques, University of Utah

John Lin, University of Utah

Randy Martin, Utah State University

Trang Tran, Utah State University

Huy Tran, Utah State University

Ben Tidswell, KSL-TV

Teresa Jessen, Utah Transit Authority

Daniel Mendoza, University of Utah

Logan Mitchell, University of Utah

Erik Neemann, US Air Force

Chris Pennell, Utah Division of Air Quality

Jorge Vasquez, NASA JPL/Caltech

Patrick Barickman, Utah Division of Air Quality

Joshua Hacker, National Center for Atmospheric Research

Court Strong, University of Utah

Adam Kochanski, University of Utah

Lindsey Nesbitt, University of Utah

Brenda Bowen, University of Utah

Kevin Perry, University of Utah