**CURRICULUM VITAE**

**ERIK T. CROSMAN**

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**EDUCATION**

University of Northern Colorado, Greeley, Colorado

Bachelor of Earth Science, emphasis in Meteorology 2003

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 Research Professor – University of Utah July 2015-present

Instructor for class ATMOS 5050/6050: Atmospheric Instrumentation 2014, 2016

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

**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., **Crosman**, E., Holland, L., Mallia, D., Fasoli, B., Bares, R., Horel, J., Lin, J

 2017: Constraining methane emissions in Utah’s Uintah Basin with ground-based

 concentration observations and a time-reversed Lagrangian transport model

 (STILT). *Journal of Geophysical Research, Atmospheres*, accepted.

Tran, T., Tran, H., Mansfield, M., Lyman, S., **Crosman, E**., 2017: 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.,* In review

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

 Ehleringer, J., Lin, J., 2017: Continuous monitoring of trace gases and pollutants using a

 light rail public transit platform. In preparation*, Atmospheric Environment*.

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

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

 Baasandorj, M., Jacques, A., Hoch, S., Horel, J., Ehleringer, J., 2017: 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.* In Review.

Hoch, S., **Crosman, E**., and co-authors, 2017: Exchange processes within wintertime cold-air

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

**Crosman, E**., and co-authors, 2017: Remote sensing of lake surface temperature: A review. In

 review, *J. Remote Sens. Env.*

**STUDENT THESES COMMITTEES**

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

 Salt Lake Valley"

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

 USArray Transportable Array”

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

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

 of Utah.”

**GRADUATE STUDENTS**

Chris Foster, PhD. 2016-present

**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**

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**

\*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 NOAA (PI)

\*Mongolian air quality NASA (co-PI)

**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