

# CURRICULUM VITAE

25 May 2020

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## **Manuela Lehner**

University of Innsbruck  
Department of Atmospheric and Cryospheric Sciences  
Innrain 52f, A-6020 Innsbruck, Austria  
Manuela.Lehner@uibk.ac.at  
ORCID iD: 0000-0001-9600-0547

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### EDUCATION

- 2012**            **Ph.D.** in Atmospheric Sciences  
University of Utah, Department of Atmospheric Sciences
- 2008**            **Mag.rer.nat. (MS)** in Meteorology and Geophysics  
University of Innsbruck, Department of Meteorology and Geophysics

### PROFESSIONAL APPOINTMENTS

- 2016–present**    **Postdoctoral researcher (University assistant)**  
University of Innsbruck, Department of Atmospheric and Cryospheric Sciences  
**Adjunct assistant professor**  
University of Utah, Department of Atmospheric Sciences
- 2015–2016**      **Research assistant professor**  
University of Utah, Department of Atmospheric Sciences
- 2013–2015**      **Postdoctoral research associate**  
University of Utah, Department of Atmospheric Sciences

### VISITING SCIENTIST

- 2013, 2014**      National Center for Atmospheric Research (4 weeks)

## GRANTS AND FELLOWSHIPS

- 2019–2022**      **EGTC European Region Tyrol-South Tyrol-Trentino/Austrian Science Fund (FWF)**  
*Atmospheric boundary-layer modeling over complex terrain (ASTER)*  
 University of Innsbruck; Co-PIs: Lorenzo Giovannini (University of Trento), Massimo Tagliavini (Free University of Bolzano)
- 2014–2016**      **National Science Foundation**  
*Modeling Thermal Flows and Cold-Air Pools in a Small Basin*  
 University of Utah; Co-PI: C. David Whiteman (University of Utah)
- 2010–2012**      **DOC-fFORTE fellowship, Austrian Academy of Sciences**  
*Thermally induced cross-basin and cross-valley circulations*  
 University of Utah

## AWARDS AND HONORS

- 2012**              Edward J. Zipser Award for Excellence in Graduate Research  
 Department of Atmospheric Sciences, University of Utah
- 2010**              Scientific Computing Thesis Award 2009 (Diploma thesis)  
 University of Innsbruck
- 2009**              Scholarship *Stipendium für Kurzfristige wissenschaftliche Arbeiten im Ausland der Leopold-Franzens-Universität Innsbruck*
- 2008–2009**      Scholarship *Doktoratsstipendium aus der Nachwuchsförderung der Leopold-Franzens-Universität Innsbruck*

## TEACHING EXPERIENCE

### UNIVERSITY OF INNSBRUCK

**Theoretical Meteorology: Thermodynamics Exercises** (undergraduate): summer semesters 2017–2020

**Field course Atmospheric Sciences** (graduate): co-taught; summer semesters 2017–2020

**Geophysical Fluid Dynamics** (graduate): co-taught; winter semesters 2016–2019

**Boundary Layer Meteorology** (graduate): co-taught; winter semesters 2016–2019

**Graduate Seminar:** co-coordinator; winter and summer semesters 2016–2020

### UNIVERSITY OF UTAH

**Mountain Meteorology** (undergraduate): fall semester 2014, spring semester 2016

## **SUPERVISING STUDENTS**

**PhD:** G. Simonet (ongoing)

**MS:** J. Bär (2018, co-supervised), M. Rosenkranz (ongoing), A. Rudolph (ongoing, co-supervised)

**BS:** A. Engl (2019)

## **PROFESSIONAL SERVICE**

**Associate Editor** for Journal of Atmospheric Sciences

**Reviewer for** National Science Foundation (NSF), Advances in Atmospheric Sciences, Atmosphere, Atmospheric Research, Boundary Layer Meteorology, Earth and Planetary Sciences Letters, Environmental Fluid Mechanics, International Journal of Climatology, Journal of Applied Meteorology and Climatology, Journal of Atmospheric Sciences, Journal of Geophysical Research, Meteorologische Zeitschrift, Meteorology and Atmospheric Physics, Monthly Weather Review, Quarterly Journal of the Royal Meteorological Society

## **OUTREACH**

Co-taught a Meteorology class for the “MINT Sommertechnikum” summer school of the University of Innsbruck for female High School students; 2017 and 2018

## **PROFESSIONAL MEMBERSHIPS**

Member **American Meteorological Society** (since 2010)

Member **American Geophysical Union** (since 2014)

**PEER-REVIEWED PUBLICATIONS****IN PRESS AND SUBMITTED**

Adler, B., A. Gohm, N. Kalthoff, N. Babić, U. Corsmeier, **M. Lehner**, M. W. Rotach, M. Haid, P. Markmann, E. Gast, G. Tsaknakis, and G. Georgoussis, 2020: CROSSINN—a field experiment to study the three-dimensional flow structure in the Inn Valley, Austria. *Bull. Amer. Meteor. Soc.*, submitted.

**PUBLISHED**

Stiperski, I., C. D. Whiteman, A. A. M. Holtslag, **M. Lehner**, S. W. Hoch, 2020: On the turbulence structure of deep katabatic flows on a gentle mesoscale slope. *Q. J. R. Meteor. Soc.*, **146**, 1206–1231. DOI: 10.1002/qj.3734

**Lehner, M.**, M. W. Rotach, F. Obleitner, 2019: A method to identify synoptically undisturbed, clear-sky conditions for valley-wind analysis. *Boundary-Layer Meteorol.*, **173**, 435–450. DOI: 10.1007/s10546-019-00471-2

**Lehner, M.**, C. D. Whiteman, S. W. Hoch, B. Adler, and N. Kalthoff, 2019: Flow separation in the lee of a crater rim. *Boundary-Layer Meteorol.*, **173**, 263–287. DOI: 10.1007/s10546-019-00466-z

Sfyri, E., M. W. Rotach, I. Stiperski, F. C. Bosveld, **M. Lehner**, and F. Obleitner, 2018: Scalar flux similarity in the layer near the surface over mountainous terrain. *Boundary-Layer Meteorol.*, **169**, 11–46. DOI: 10.1007/s10546-018-0365-3

**Lehner, M.**, and M. W. Rotach, 2018: Current Challenges in Understanding and Predicting Transport and Exchange in the Atmosphere over Mountainous Terrain. *Atmosphere*, **9**, **276**, 1–28. DOI: 10.3390/atmos9070276.

Whiteman, C. D., **M. Lehner**, S. W. Hoch, B. Adler, N. Kalthoff, R. Vogt, I. Feigenwinter, T. Haiden, and M. O. G. Hills, 2018: The evolution of atmospheric structure in a crater basin as a nocturnal katabatic flow is lifted over its rim. *J. Appl. Meteor. Climatol.*, **57**, 969–989. DOI: 10.1175/JAMC-D-17-0156.1

Whiteman, C. D., **M. Lehner**, S. W. Hoch, B. Adler, N. Kalthoff, and T. Haiden, 2018: Katabatically driven cold air intrusions into a basin atmosphere. *J. Appl. Meteor. Climatol.*, **57**, 435–455. DOI: 10.1175/JAMC-D-17-0131.1

**Lehner, M.**, C. D. Whiteman, and M. Dorninger, 2017: Inversion buildup and cold-air outflow in a small Alpine sinkhole. *Boundary-Layer Meteorol.*, **163**, 497–522.

Rotunno, R., and **M. Lehner**, 2016: Two-layer stratified flow past a valley. *J. Atmos. Sci.*, **73**, 4065–4076.

**Lehner, M.**, R. Rotunno, and C. D. Whiteman, 2016: Flow regimes over a basin induced by upstream katabatic flows - An idealized modeling study. *J. Atmos. Sci.*, **73**, 3821–3842.

**Lehner, M.**, C. D. Whiteman, S. W. Hoch, E. T. Crosman, M. E. Jeglum, N. W. Cherukuru,

R. Calhoun, B. Adler, N. Kalthoff, R. Rotunno, T. W. Horst, S. Semmer, W. O. J. Brown, S. P. Oncley, R. Vogt, A. M. Grudzielanek, J. Cermak, N. J. Fonteyne, C. Bernhofer, A. Pitacco, and P. Klein, 2016: The METCRAX II field experiment—A study of downslope windstorm-type flows in Arizona’s Meteor Crater. *Bull. Amer. Meteor. Soc.*, **97**, 217–235.

Fernando, H. J. S., E. R. Pardyjak, S. Di Sabatino, F. K. Chow, S. F. J. De Wekker, S. W. Hoch, J. Hacker, J. C. Pace, T. Pratt, Z. Pu, W. J. Steenburgh, C. D. Whiteman, Y. Wang, D. Zajic, B. Balsley, R. Dimitrova, G. D. Emmitt, C. W. Higgins, J. C. R. Hunt, J. G. Knievel, D. Lawrence, Y. Liu, D. F. Nadeau, E. Kit, B. W. Blomquist, P. Conry, R. S. Coppersmith, E. Creegan, M. Felton, A. Grachev, N. Gunawardena, C. Hang, C. M. Hocut, G. Huynh, M. E. Jeglum, D. Jensen, V. Kulandaivelu, **M. Lehner**, L. S. Leo, D. Liberzon, J. D. Massey, K. McEnerney, S. Pal, T. Price, M. Sghiatti, Z. Silver, M. Thomson, H. Zhang, and T. Zsedrovits, 2015: The MATERHORN—Unraveling the intricacies of mountain weather. *Bull. Amer. Meteor. Soc.*, **96**, 1946–1967.

**Lehner, M.**, C. D. Whiteman, S. W. Hoch, D. Jensen, E. R. Pardyjak, L. S. Leo, S. Di Sabatino, H. J. S. Fernando, 2015: A case study of nocturnal boundary-layer evolution on a slope at the foot of a desert mountain. *J. Appl. Meteor. Climatol.*, **54**, 732–751.

Cherukuru, N. W., R. Calhoun, **M. Lehner**, S. W. Hoch, and C. D. Whiteman, 2015: Instrument configuration for Dual Doppler Lidar co-planar scans: METCRAX II. *J. Appl. Remote Sensing*, **9**, 096090.

**Lehner, M.**, and C. D. Whiteman, 2014: Physical Mechanisms of the Thermally Driven Cross-Basin Circulation. *Quart. J. Royal Meteorol. Soc.*, **140**, 895–907.

Martínez Villagrasa, D., **M. Lehner**, C. D. Whiteman, S. W. Hoch, and J. Cuxart, 2013: The upslope-downslope flow transition on a basin sidewall. *J. Appl. Meteor. Climatol.*, **52**, 2715–2734.

**Lehner, M.**, and C. D. Whiteman, 2012: The Thermally Driven Cross-Basin Circulation in Idealized Basins under Varying Wind Conditions. *J. Appl. Meteor. Climatol.*, **51**, 1026–1045.

Adler, B., C. D. Whiteman, S. W. Hoch, **M. Lehner**, and N. Kalthoff, 2012: Warm-Air Intrusions in Arizona’s Meteor Crater. *J. Appl. Meteor. Climatol.*, **51**, 1010–1025.

Haiden, T., C. D. Whiteman, S. W. Hoch, and **M. Lehner**, 2011: A Mass-flux Model of Nocturnal Cold Air Intrusions into a Closed Basin. *J. Appl. Meteor. Climatol.*, **50**, 933–943.

**Lehner, M.**, C. D. Whiteman, and S. W. Hoch, 2011: Diurnal Cycle of Cross-Basin Winds in Arizona’s Meteor Crater. *J. Appl. Meteor. Climatol.*, **50**, 729–744.

Whiteman, C. D., S. W. Hoch, **M. Lehner**, and T. Haiden, 2010: Nocturnal Cold Air Intrusions into a Closed Basin: Observational Evidence and Conceptual Model. *J. Appl. Meteor. Climatol.*, **49**, 1894–1905.

**Lehner, M.** and A. Gohm, 2010: Idealised Simulations of Daytime Pollution Transport in a Steep Valley and its Sensitivity to Thermal Stratification and Surface Albedo. *Boundary-Layer Meteorol.*, **134**, 327–351.