Matthew D. Miksch

Curriculum Vitae

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Research Interests

Land-air interactions, remote sensing of land surfaces, urban energy balance and climate

Education

Utah State University **May 2019 (expected)**
M.S. in Climate Science, GPA: 4.0 **Logan, UT**
Advising Professors: Dr. Lawrence Hipps and Dr. Simon Wang
Thesis: Evapotranspiration and Energy Balance of Irrigated Urban Turfgrass

Iowa State University **May 2016**
B.S. in Meteorology, GPA: 3.71 **Ames, IA**

Research Experience

Graduate Research Assistant **August 2016 - Present**
Utah State University, iUTAH, US Golf Association **Logan, UT**

- Collecting and processing eddy covariance, energy balance, and weather station data at a sub-urban golf course during the 2016-2018 growing seasons
- Comparing observed latent heat fluxes to simple remote sensing evapotranspiration models using surface imagery from Landsat and MODIS
- Diagnostically modeling evapotranspiration to estimate changes in water use for large irrigated urban landscapes

Biological Science Aid **May 2014 - June 2016**
National Laboratory for Agriculture and the Environment **Ames, IA**

- Assisted technician in the micrometeorology group to maintain and troubleshoot weather and eddy covariance stations
- Utilized Microsoft Excel and Python to assist with preliminary data QA/QC
- Performed instrument calibrations and kept lab organized

Atmospheric Science REU **Summer 2015**
Texas A&M University **College Station, TX**

- Studied forecast uncertainty in global ensemble models in the Southern Hemisphere extra-tropics
- Participated in a field experience measuring properties of the sea breeze in Galveston, TX
- Presented poster at the end of the REU and at the National AMS Student Conference

Teaching Experience

Student Helper **Fall 2018**
***Software and Data Carpentry*, Utah State University, Course size: 8-13** **Logan, UT**
- Aided students with properly setting up their Python environments, debugging code, and providing insights outside of the in-class exercises

Teaching Assistant **Spring 2018**
***Aviation Weather*, Utah State University, Course size: 64** **Logan, UT**
- Assisted in creating course content, grading labs, and answering student questions during labs and outside of class

Teaching Assistant **Fall 2017**
***The Atmosphere and Weather*, Utah State University, Course size: 119** **Logan, UT**
- Gave weather discussions, created visualizations to supplement lecture material, and graded assignments and exams

Conference Posters and Presentations

Miksch, M., L. Hipps, A. Torres-Rua (2018), Evapotranspiration and Energy Balance of Irrigated Urban Turfgrass, *AGU Fall Meeting 2018*, Washington, D.C. (poster)

Miksch, M., L. Hipps, S. Wang (2018), Evapotranspiration and Energy Balance of Irrigated Urban Turfgrass, *33rd Conference on Agricultural and Forest Meteorology*, Boise, ID (presentation)

Miksch, M. and L. Hipps (2018), Evapotranspiration and Energy Balance of Irrigated Urban Turfgrass: Testing a Simple Remote Sensing Model, *Spring Runoff Conference*, Logan, UT (poster, lightning talk)

Miksch, M., I. Szunyogh, M. Herrera (2016), The Southern Hemisphere Forecast Uncertainty Dynamics in the THORPEX Interactive Grand Global Ensemble (TIGGE), *96th American Meteorological Society Annual Meeting*, New Orleans, LA (poster)

Other Select Presentations

Miksch, M., L. Hipps, S. Wang (2018), Quantifying Inter-Annual Changes in Evapotranspiration by Using a Diagnostic Evapotranspiration Model, *PSC 2018 Spring Seminar Series*, Logan, UT

Miksch, M., L. Hipps, S. Wang (2017), Evapotranspiration and Energy Balance of Urban Turfgrass in a Semi-Arid Environment, *PSC 2017 Fall Seminar Series*, Logan, UT

Miksch, M., I. Szunyogh, M. Herrera (2015), The Southern Hemisphere Forecast Uncertainty Dynamics in the THORPEX Interactive Grand Global Ensemble (TIGGE), *ISU Atmospheric Science Undergraduate Research Symposium*, Ames, IA

Awards and Fellowships

Apogee Instruments – Campbell Scientific Graduate Fellowship **April 2017**
USU College of Agriculture and Applied Sciences

Burt Tanner – Campbell Scientific Graduate Fellowship **April 2017**
USU College of Agriculture and Applied Sciences

Runner-Up Senior Thesis Award **December 2015**
ISU Department of Geological and Atmospheric Sciences

Short Courses

10th Annual Flux Course **July 2017**
University of Colorado Mountain Research Station **Nederland, CO**

- Took a two-week intensive course taught by several scientists and professors about measuring and modeling CO2 and H2O fluxes
- Completed two mini group projects: using machine learning for CO2 flux synthesis and examining which sensitivities drive NEE in carbon ensemble models

Technical Skills

Programming Languages

- Multiple years of experience in Python, including: reading and processing of timeseries and gridded data products, plotting, and multiprocessing
- Proficient in Fortran, JavaScript, and CR Basic
- Elementary knowledge of MATLAB, Java, HTML, CSS, and MPI-Fortran

Other Computing Skills

- Comfortable in both Unix and Windows environments
- Some experience with bash commands and shell scripting
- Working knowledge of Google Earth Engine API
- Experience with Adobe InDesign, Lightroom, and Photoshop

Affiliations

National American Meteorological Society — August 2013 - Present
ISU AMS Student Chapter — August 2012 - May 2016
Central Iowa National Weather Association — August 2013 - May 2016

Service

Utah Public Radio Forecaster — December 2016 - Present
ISU AMS Student Chapter Webmaster — Fall 2014 - Spring 2015
Central Iowa NWA Technology Committee — Spring 2015