

# Matthew D. Miksch

Cirriculum Vitae

Email: miksch@aggiemail.usu.edu

Phone: 1-319-461-3566

Web: miksch.github.io

GitHub: miksch

## Research Interests

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

## Education

**Utah State University**

M.S. in Climate Science, GPA: 4.0

Advising Professors: Dr. Lawrence Hipps and Dr. Simon Wang

Thesis: Evapotranspiration and Energy Balance of Irrigated Urban Turfgrass

**May 2019 (expected)**

**Logan, UT**

**Iowa State University**

B.S. in Meteorology, GPA: 3.71

**May 2016**

**Ames, IA**

## Research Experience

**Graduate Research Assistant**

Utah State University, iUTAH, US Golf Association

**August 2016 - Present**

**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**

National Laboratory for Agriculture and the Environment

**May 2014 - June 2016**

**Ames, IA**

- Assisted technician in the soil, water, and air resources 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**

Texas A&M University

**Summer 2015**

**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

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

**Mikschi, 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)

**Mikschi, 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

**Mikschi, 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

**Mikschi, 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

**Mikschi, 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**  
USU College of Agriculture and Applied Sciences

**April 2017**

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

**April 2017**

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

**December 2015**

## 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 CO<sub>2</sub> and H<sub>2</sub>O fluxes
- Completed two mini group projects: using machine learning for CO<sub>2</sub> 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

## Affiliations

National American Meteorological Society  
ISU AMS Student Chapter  
Central Iowa National Weather Association

August 2013 - Present  
August 2012 - May 2016  
August 2013 - May 2016

## Service

Utah Public Radio Forecaster  
ISU AMS Student Chapter Webmaster  
Central Iowa NWA Technology Committee

December 2016 - Present  
Fall 2014 - Spring 2015  
Spring 2015