KYLE J GILLETT

MASTERS STUDENT OF ATMOSPHERIC SCIENCES

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EDUCATION

Masters of Atmospheric Science   In progress
University of North Dakota, Grand Forks, ND

Bachelor of Science in Meteorology
Central Michigan University, Mount Pleasant, MI   May 2024
- Minor: Mathematics

RESEARCH INTERESTS

Severe Convective Storm Dynamics:
- Convection initiation, supercell environment dynamics, mesocyclones, storm interactions & mergers, tornadogenesis, severe convective storm-terrain interactions.

Programming:
- Visualizing meteorological data, data analysis, machine learning.

Methods:
- Field work[1], idealized modeling[1], data analysis[2], data visualization[2], reanalysis[2]
  [1]Open to/interested in; [2]Experience with

RESEARCH EXPERIENCE

Undergraduate Research Assistant   April 2023-Present
Central Michigan University
- Project: Synoptic & Mesoscale Variability of US Large Hail Environments
- Tasks: Developing tools to visualize self-organized-map nodes of ERA5 reanalysis data for over 100,000 hail reports

PERSONAL RESEARCH & PROJECT EXPERIENCE

SounderPy   July 2023-Present
Sole developer.
- SounderPy is PyPi python package that retrieves and plots vertical profile data for meteorological analysis.
- It's capable of retrieving data from the ECMWF ERA5, RAP reanalysis, RUC reanalysis, NCEP-FNL reanalysis, IGRAv2 observations, RAOB observations, BUFKIT forecasts, & ACARS observations.

- This package quickly and effectively retrieves, parses, and plots sounding data in easy-to-use formats.

- Institutions that use this package:
  - NWS Des Moines
  - State University of New York at Albany
  - Mississippi State University
- Available on GitHub & PyPi. Can be installed via pip.
- An operational SounderPy web-application can be found at *sounderpysoundings.anvil.app.*

Michigan Tornado Sounding Archive   June 2022-Present

Sole developer
- A library of model reanalysis vertical profiles (soundings) that represent near-storm environments of notable Michigan tornado and significant hail events.
- Created with some HTML/CSS, plots created with Python.
- Developed to provide a reference for Michigan forecasters to build pattern recognition of Michigan tornado and large hail events.
- ERA5, RAP, & RUC reanalysis & observation soundings that are meant to represent the modeled or true near-storm environment during tornado & hail events.
- Available at cmuweather.com

MetPy Advanced Sounding with Complex Layout   August 2023

Sole developer.
- An advanced vertical profile plotter created for MetPy's plotting examples.
- MetPy is a collection of tools in Python for reading, visualizing, and performing calculations with weather data.
- This example provides MetPy users with a more complex and advanced-sounding analysis tool that uses MetPy calculations and plotting functions.
- Available on GitHub & at unidata.github.io/metpy

Other GitHub Projects   Summer 2022-Present
- Complex-Sounding Viewer (Sole developer)
- Tornado-Tracks-Plotter-Tool (Sole developer)
- Buoy-Meteogram-Plot (Sole developer)
- STEVE-py (in development) (Sole developer)
  - A Python tool that retrieves and plots satellite magnetometer and solar-wind data for Space Weather analysis

Spring 2023

US Tornadoes Case Archive
Co-author with Dr. Cameron J Nixon
- ustornadoes.com tornado sounding archive page.
- Over 300 cases of US tornado, hail, derecho and photogenic supercell events since 1950 analyzed using ERA5, RAP, & RUC reanalysis data.

Fall 2022

Central Michigan University Electronic Mapwall Soundings
Sole developer of the code, implemented with Dr. Martin Baxter
- Developed a sounding plot to be used for CMU's Electronic Mapwall.
- An easy-to-read sounding plot for weather analysis & forecasting. Designed for younger students learning the Skew-T

WORK EXPERIENCE

Full Time On-air Broadcast Meteorologist
WNEM TV5, GRAY TV, Saginaw, Michigan
- On air broadcasts, forecasting, graphics creation
- Created a complex and automated CSV 'forecast document' that interacts with the WSI MAX graphics system. This automates our forecast input.

August 2022-Present

Freelance On-air Broadcast Meteorologist
WLNS TV6, Nexstar Broadcasting, Lansing, Michigan
- On air broadcasts, forecasting, graphics creation

October 2020-August 2021

LEADERSHIP EXPERIENCE

President
Central Michigan University Student Chapter of the American Meteorological Society
- Oversaw executive board and all chapter functions.
- Organized and developed a program for increased fundraising that would allow our chapter to send as many students to a spring conference as possible.
- Restructured general meeting format to improve effectiveness of completing business, shorten meetings.

April 2023-Present

Webmaster
Central Michigan University Student Chapter of the American Meteorological Society
- Maintained CMU-AMS Social Media accounts and cmuweather.com
- Increased social media activity that highlighted the Meteorology program at Central Michigan University

April 2020-April 2023

- Built the Michigan Tornado Sounding Archive, CMU Weather Model Data Viewer, & CMU Weather Mapwall for cmuweather.com

RELATED EXPERIENCE

Intern   June 2022-August 2022

KSNB Local 4, GRAY TV, Hastings, Nebraska
- On air broadcasts, forecasting, graphics creation, live in-field severe weather coverage.

June 2019-August 2019

Intern

WLNS TV6, Nexstar Broadcasting, Lansing, Michigan
- Forecasting, graphics creation.

CONFERENCE PRESENTATIONS

Posters   March 2024
- Gillett, K. G., March 2024: SounderPy: A Sounding Visualization Tool for Severe-Weather Analysis and Forecasting, Central Iowa National Weather Association Severe Storms and Doppler Radar Conference.

SKILLS

PROGRAMMING & DATA ANALYSIS
- Python
- HTML/CSS
- Javascript
- VBA
- JSON, CSV, TXT, netCDF, GRIB

OTHER COMPUTER
- Microsoft Office
- Google Sheets/Docs/Slides
- Windows
- Zoom & Webex
- Google Earth

METEOROLOGY
- Radar analysis
- Satellite analysis
- Mesoscale, severe convective storm forecasting/analysis
- Sounding analysis

OTHER TOOLS
- Adobe Lightroom, Photoshop, Premiere
- WSI MAX Broadcast Systems

For more information and some examples of my work, projects, & presentations, check out my website:

https://kylegillettphoto.com/my-work/