

Curriculum Vitae

Beth Carpenter

Thermodynamic Solutions LLC, Yorktown, IN

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EDUCATION

- **Bachelor of Science in Professional Meteorology and Climatology**, Ball State University, Muncie, Indiana, December 2017.
- **Minor in Geographic Information Systems**, Ball State University, Muncie, Indiana, December 2017.

PROFESSIONAL PROFILE

- September 2016-Current
Co-Owner and Operational Meteorologist, Thermodynamic Solutions LLC, Yorktown, IN.
Operational Responsibilities: Creator and forecaster for daily, weekly, monthly, and seasonal forecasts for the Ohio Valley and Great Lakes region; Effectively communicate complex weather information and aid in decision-making processes for clients in a variety of industries including: hospitals, agriculture, snow removal, landscaping, outdoor event venues, Minor League Baseball stadiums, golf courses, schools, and more.
Product Management/Development Responsibilities: Invention of custom weather forecasting products for Commercial and Agricultural clients to improve forecast accuracy and decision-making processes.
Research Responsibilities: Invention of the C-C Index, a tornado forecasting parameter used in severe weather forecasts for clients, that has been successful at forecasting tornadoes to the county level 24 hours before the event occurs.
Media Responsibilities: Weather blogger for tdsweather.com clients and followers; Featured in agricultural and turf news website articles as a guest weather analyst for outlets including Bloomberg News and CDGA.org; Several on-air news appearances on nation-wide outlets including Fox News, CBS, and NBC; Operate social media accounts for the company (@tdswx) including Twitter, Instagram, Periscope, LinkedIn, and Facebook.
- September 2018-Current
Emergency Preparedness Coordinator, Department of Homeland Security, Indianapolis, IN.
Operational Responsibilities: Handle emergency resource requests for Indiana Department of Environmental Management (IDEM), arson investigators, radiation investigations, elevator and amusement ride inspections, search and rescue canines, cyber-attacks and incidents, Indiana State Department of Health (ISDH) Chempack program, and the Indiana Mutual Aid Response Program; Assist in the activation of the

State Emergency Operations Center; Coordinate field response operations with IDHS, and other field personnel regarding initial response operations; Prepare daily weather briefings, presentations, and reports that pertain to public safety activities, identify activities with potentially significant impacts; Provide GIS analyses for agency executives and other key local government stakeholders.

- May 2015-August 2015 **Intern**, National Weather Service, Indianapolis, IN.
Intensively researched severe weather outbreaks in the Midwest to improve tornado forecasting in the Ohio Valley that bypasses morning temperature inversions which inhibit forecast data. The results were used to create a severe weather index for the National Weather Service employees to utilize; Monitored radar and weather observations to aid in the issuance of tornado and severe thunderstorm warnings, along with filing storm reports and performing damage surveys; Aviation forecasting; Worked closely with hydrologists and COOP supervisors.
- August 2013-May 2014 **Intern**, Fox59 WXIN Weather Center, Indianapolis, IN.
Worked closely with Chief Meteorologist Brian Wilkes creating forecast products and publications for viewers on-air and online; Analyzed weather models and raw weather data, learning model biases and weaknesses; Used unique pattern recognition tools to out-perform weather model data.
- August 2015-December 2017 **Lab Assistant**, Geographic Information Systems Lab, Muncie, IN.
Assisted students with ArcMap and ArcCatalog software, along with GIS projects and spatial analyses.
- August 2015-December 2017 **Tutor**, Ball State University, Muncie, IN.
Tutored English, Writing, Telecommunications, Meteorology, and Geography to undergraduate, graduate, and doctoral students, as well as English Second Language (ESL) Students; Improving communication and presentation skills of groups of students.

RESEARCH

- March 2015-Current **C-C Index**, Thermodynamic Solutions LLC, Yorktown, IN.
Designing and researching a tornado forecasting parameter in high-resolution weather models to accurately predict tornadoes and tornado outbreaks in the United States. The index has been successful at predicting tornadoes at the county level 24 hours before the event occurs.
- January 2017-May 2017 **Hendricks County Emergency Management**, Hendricks County, IN.
Analyzing the effectiveness of emergency siren locations within Hendricks County, Indiana, relative to public gathering places, transportation hubs, hazardous material facilities, critical infrastructures, and population distribution; using ArcMap and ArcCatalog software; Proposed new siren locations within the county based on results of the analysis; Aided in the development of the Hendricks County 2017 Multi-Hazard Mitigation Plan; Worked closely with community partners to assess needs.

- January 2017-May 2017 **8Twelve Coalition**, Muncie, IN.
Gathered thermal imagery of homes and businesses in the 8Twelve Coalition, a designated area of Muncie, Indiana, as well as portions of Ball State University, to assess heat loss and energy efficiency; Gained knowledge and experience using ERDAS Imagine software to process and enhance thermal images; Results were mapped in ArcGIS Online to visually provide results to the Coalition where government assistance may be needed.

AWARDS AND CERTIFICATIONS

- Presidential Scholarship, Ball State University; 2014
- Indiana LEPC Award, State of Indiana; October 2017
- Member and Treasurer of the National Geography Honors Society *Gamma Theta Upsilon*, Ball State University; 2015-2017
- Dean's List Recipient, Ball State University; 2015-2017
- National Master Tutor; August 2017
- Certified Storm Spotter; August 2013
- EMAC Level 1 Certification; April 2019

SPECIALIZED TRAINING

- FEMA ISP Courses: IS-100.c; IS-200.b; IS-700; IS-800.c; IS-5.A; IS-42; IS-230.D; IS-247.A; IS-251; IS-271.A; IS-775; IS-240.b; IS-546.a; IS-75; IS-241.a; IS-242.B; IS-120.A; IS-235.C; IS-324..A; IS-15.A; IS-102.C; IS-111.A; IS-393.A; IS-632; IS-703.A; IS-706
- Operation Security (OPSEC)
- Chemical-Terrorism Vulnerability (CVI)
- WMD Awareness Level Training
- EMAC Practice and Implementation and Pre-Event Preparation for Resource Providers Training
- COMET Storm Spotter Training
- CJIS Level 1 Security Training

EXERCISES

- August 2019 **Radiological Emergency Preparedness**, LaPorte, IN.
Provided GIS analysis for the Radiological Emergency Preparedness (REP) full-scale exercise, evaluated by FEMA, and given a passing score. The main tasks were to aid in the development of a mapping software in Falcon to analyze the accuracy of FRMAC radiological plumes and select sampling sites for the incident commander based on locations of dairy farms, agriculture, surface water sources, and the like. Afterward, this information was used in the creation and execution of the sample plan.