

Profile

Helena Pliszka joined TD Enviro with over 2 years of research and educational outreach experience in air quality. Her work with TD Enviro focuses on community-driven data science to inform hyperlocal and regional air quality stakeholders and decisions.

Air Quality Data Science

Helena leads data analysis across air monitoring projects at TD Enviro, tailoring analyses to the specific needs and interests of various stakeholder groups, including community-based organizations, school districts, and city and state government agencies.

Her work is driven by the need to translate air quality measurements into meaningful frameworks that address health outcomes and actionable mitigation and remedial strategies for stakeholders. She uses her experience with various data platforms, methodologies, and programming languages (Python, R, Matlab) to support groups in their diverse objectives. Her data analyses have provided insight on local PM pollution in Bayview Hunters Point through the Bay Air Center, informed seasonal trends and spatial variability of residential wood burning in Anchorage, AK, investigated pollutant transport into the TriChapter Area of the Navajo Nation, and assessed the capacity and performance of city-scale air sensor networks in Central Europe.

Across TD Enviro projects, she conducts rigorous data processing and quality control for air quality networks from neighborhood to regional scales. At the Bay Air Center, Helena led the efforts in assembling and conducting quality-control for a five-year historical Air Sensor Dataset, developing the resource to support the local air district and community groups throughout the region. In support of this work, she developed hourly and daily wildfire spatial analysis videos and a CalEnviroScreen-informed air sensor data accessibility graphic, demonstrating the possibilities of the vast dataset. Tasked with technical data support across a variety of monitoring networks, Helena deeply understands the need for universal methods for describing and exchanging data across organizations, and has supported the development of a draft AQ Data Exchange Format (AQDx) with partners at Colorado Department of Public Health and Environment and the U.S. Environmental Protection Agency. Helena's experience and approach make the complexities of air quality data easier to understand and more approachable for community-based organizations.

Air Quality Planning Support

Helena also provides technical planning and serves as a field and data manager on various projects. She has supported groups in achieving their data quality and project objectives by scheduling, coordinating, overseeing, and evaluating routine and corrective field activities, calibrations, and collocations.

Helena has also supported groups before air monitoring data collection begins by collaboratively developing extensive quality assurance project plans for projects, including the Marin Community Air Monitoring Project with the Bay Air Center. Through this planning work, she brings different organizations and roles together to ensure that QA/QC processes are developed to support each project's air monitoring goals, and important discussions around needs and team capacity are intentionally prioritized before network deployment.

Research Experience

Helena cultivated her passion for air quality communication through comprehensive research experiences across her academic career. Her graduate experience spanned low-cost sensor hardware integration, calibration, temporal and spatial analyses, landfill methane monitoring, and air quality education and outreach.



During her thesis, she led a year-long methane sensor deployment at a Northern Colorado landfill in partnership with WM to support management of fugitive methane emissions through continuous ground-based and low-cost monitoring. She focused on spatial interpolation and emission estimation to better inform the complex methane landscape and landfill operations.

STEM Educational Outreach

Across her graduate career, Helena served as a student mentor and Technical and Teaching Assistant (TA) for a K-12 project-based air quality course (Air Quality Inquiry - AQIQ) in predominantly rural areas of Colorado and Mongolia. Her work addressed the universal importance of clean air by facilitating hands-on learning, supporting youth agency and awareness with regards to their own health and that of the environment. Helena's involvement reached communities and schools outside of the AQIQ project, involving undergraduates from local community colleges, high school students from Commerce City, CO, and middle and high schoolers from Fort Morgan, CO in partnership with the International Association for Refugees program. She also leveraged her role as TA, revising the program's curriculum to support bias-informed teaching that empowers individuals to pursue asset and place-based air quality exploration.

Education

MS, Environmental Engineering, University of Colorado - Boulder

Certificate, Global Engineering, University of Colorado - Boulder

BS, Chemistry, University of Wisconsin - Madison