

Kathryn Boyd

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Professional Profile:

- Experienced professional with over six years of experience developing, implementing and delivering quality scientific educational programs engaging various ages
- Ten years of scientific research experience; three years focused on informal science educational research and evaluation
- Utilize computer software including Excel, SPSS, IDL, Fortran, & Matlab to collect and analyze data
- Recipient of Graduate Teaching Certificate from the Institute for Teaching & Learning
- Well-developed skills in writing and delivering scientific information at professional conferences and in scientific publications
- Knowledge of educational survey instruments, development and delivery for evaluation and change implementation

Current position

Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO
Education and Outreach Associate; Evaluation and Educational Research since May 2018

- Manages CLEAN, a large climate change education project
- Evaluator on multiple educational and outreach projects and assists with research efforts

Education:

Colorado State University, Fort Collins, CO

Master of Science, Ecology

December 2016

- Interdisciplinary program focused on science educational outreach and communication

Thesis: Investigating discourse dynamics in an atmospheric science educational outreach program

Master of Science, Atmospheric Science

December 2011

- Classes and research focused on climate and hydrologic effects of pollution

Thesis: Regional aerosol effects on precipitation: An observational study

University of Washington, Seattle, WA

Bachelor of Science, Atmospheric Science

August 2007

- Minor: Applied Mathematics
- Graduated Magna cum Laude

Research Project: Analyzing statistical errors of ensemble forecasts using Matlab

Research Experience

Exploratorium, San Francisco, CA

Research & Evaluation Coordinator

April 2017-September 2018

- Evaluated exhibits and programs – collected and analyzed qualitative and quantitative data and wrote evaluation reports
- Coordinated research and evaluation efforts for large projects funded by NSF and IMLS grants, including helping to collect and analyze data, as well as write papers, technical reports, and proposals
- Developed and managed a large study to help understand the museum audience through exit surveys
- Tested novel survey methods, designed an info graphic-style report to communicate findings, and wrote many technical reports on data that was collected

- Managed IT for the department, including overseeing software used as well as multiple complex camera and audio recording systems and training others to use these systems and software

Colorado State University, Fort Collins, CO

Research Assistant, School of Education & STEM Center

February 2013-November 2015

- Researched and evaluated science education and outreach projects funded by large NSF grants
- Collected and analyzed qualitative and quantitative data and communicated results in written reports and through presentations
- Wrote research plans and developed data collection instruments for education research projects
- Solicited consent, managed IRB documents, conducted interviews, and managed audio data for evaluation projects

Research Assistant, Graduate Degree Program in Ecology

August 2013-December 2016

- Research focused on how science is communicated by scientists through education/outreach efforts and the subsequent discourse in which K-12 students engage during outreach
- Recruited teachers and their students to participate in study
- Used thematic and discourse analysis to study how the facilitator interacts and communicates information about science with students
- Performed statistical analysis using SPSS and Excel of pre/post surveys to understand the impacts on student knowledge of the nature of science

Research Assistant, Department of Atmospheric Science

August 2008 – March 2012

- Utilized data to analyze aerosol effects on clouds and precipitation
- Statistical analysis using IDL and Fortran with data from ground-based cloud radar, meteorological instrumentation, and satellites to draw conclusions and create report

Teaching and Outreach Experience:

Colorado State University, Fort Collins, CO

Teaching Assistant, School of Education

January – May 2015

- Assisted students with introductory statistics course concepts
- Facilitated help sessions and proctor quizzes and exams
- Point of Pride: Individual student increased performance by a letter grade after attending multiple help sessions

Outreach Specialist Volunteer, Little Shop of Physics

February 2009 – April 2016

- Assist with atmospheric science displays and exhibits at annual open house for community
- Teach sections of weather and climate workshop and atmospheric science college course for teachers
- Assist in all aspects of delivering high quality hands-on physics based science experiments for youth of all ages
- Work with students from various backgrounds to gain a deeper meaning and comprehension of science experiments
- Design and implement instruction lessons for teachers to help them understand weather and climate principles and how to implement into a classroom learning environment

Teaching Assistant, Department of Atmospheric Science

July 2009 – July 2010

- Instructor for undergraduate atmospheric science course
- Developed curriculum, materials and assignments
- Developed successful interactive methods of communicating basic weather and climate scientific principles

Fort Collins Museum of Discovery, Fort Collins, CO

Summer Camp Instructor Summers 2014 and 2015

- Instructed summer science camp for grades K-2
- Evaluated summer camps and provided feedback for improving the program

Education Volunteer October 2012 – April 2016

- Assisted with guest services and education programs
- Aided with development of science basics training sessions for volunteers

Colorado Climate Center/CoCoRaHS Program, Fort Collins, CO

Education and Outreach Volunteer March 2012 – April 2016

- Assisted with classroom and festival presentations

Education and Outreach Coordinator Assistant May – November 2012

- Assisted with campaign to introduce rain gauges into Colorado schools
- Presented to students of all ages in classrooms and water festival on various topics
- Recruited and trained over 50 teachers and their students to participate in the citizen science rain gauge network
- Aided in the development of marketing materials which increased school participation

University of Colorado, CIRES, Boulder, CO

Climate 101 Online Course Consultant August 2012 – May 2013

- Provided professional consultation services in the design and implementation for an online course for formal and informal educators
- Developed a webinar on the hydrological cycle and climate and presented online for participants

CIRA, Fort Collins, CO

Education and Outreach Volunteer March 2012 – May 2013

- Assisted with meteorological displays and satellite exhibits at various community events educating the public on climate matters

University of Washington, Seattle, WA

Education and Outreach Program Volunteer, Dept. of Atmospheric Science November 2006 – June 2007

- Performed school and science fair presentations on Atmospheric Science principles

Other Employment

University of Washington, Seattle, WA

Student Building Manager, Husky Union Building July 2005 – September 2007

- Hired, trained, and supervised building staff and successfully delivered events of all sizes

Lead Office Assistant, Husky Union Building January 2004 – February 2008

- Provided excellent customer service to on and off campus groups ensuring events were successful
- Performed administrative and clerical tasks; trained in invoicing and billing
- Supervised colleagues and reviewed work

Professional Memberships

American Meteorological Society

American Geophysical Union

Geological Society of America

National Association for Research in Science Teaching

National Association of Geoscience Teachers

Phi Beta Kappa Honors Society (June 2006)

Publications

- Boyd, K.J.**, Balgopal, M.M., & Birner, T. (In preparation). Exploring the Sky: Investigating discourse dynamics in an atmospheric science educational outreach program. *International Journal of Science Education Part B: Communication and Public Engagement*.
- Trott, C.D., Sample McMeeking, L.B., Bowker, C.L., & **Boyd, K.J.** (2019). Exploring the long-term academic and career impacts of undergraduate research in geoscience: A case study. *Journal of Geoscience Education*.
- Boyd, K.** (2016) Outreach as a unifying concept in science education and science communication (White paper literature review). Center for Advancement of Informal Science Education, www.informalscience.org.
- Sample McMeeking, L.B., Weinberg, A.E., **Boyd, K.J.**, & Balgopal, M.M. (2016). Student perceptions of interest, learning, and engagement from an informal traveling Science museum. *School Science and Mathematics*, 116(5), 253-264.
- Boyd, K.J.**, & Kummerow, C.D. (2012). Regional aerosol effects on precipitation: An observational study. M.S. thesis, Department of Atmospheric Science, Colorado State University, 95 pp.

Presentations

- Boyd, K.**, Gold, A., Taylor, J., Lynds, S., Niepold, F., Morton, A., Bruckner, M., Fox, S., Kirk, K., & Shapiro Ledley, T. (December 2018). The Climate Literacy and Energy Awareness Network. Poster presentation at the annual fall meeting of the American Geophysical Union. Washington, D.C.
- Boyd, K.**, & Gold, A. (November 2018). CLEAN & NGSS. Presentation at the annual Colorado Science Conference. Denver, CO.
- Boyd, K.**, Balgopal, M., & Birner, T. (December, 2016). Outreach as a unifying concept in science education and science communication. Poster presentation at the annual fall meeting of the American Geophysical Union. San Francisco, CA.
- Boyd, K.**, Balgopal, M., & Birner, T. (April, 2016). Exploring the sky: Investigating discourse dynamics in an atmospheric science educational outreach program. Paper presented at the National Association for Research in Science Teaching Annual International Conference. Baltimore, MD.
- Boyd, K.**, Balgopal, M., & Birner, T. (February, 2016). Exploring the sky: A study on discourse in an atmospheric science outreach program. Poster presented at the Front Range Student Ecology Symposium. Fort Collins, CO.
- Sample McMeeking, L.B., Trott, C.D., **Boyd, K.J.**, & Bowker, C.L. (December, 2015). Long-term academic and career impacts of undergraduate research: Diverse pathways to geoscience careers following a summer atmospheric science research internship. Presentation at the annual fall meeting of the American Geophysical Union. San Francisco, CA.
- Boyd, K.**, Balgopal, M., & Birner, T. (December, 2015). Exploring the sky: An exploratory study on discourse in an atmospheric science outreach program. Presentation at the annual fall meeting of the American Geophysical Union. San Francisco, CA.
- Sample McMeeking, L.B., Weinberg, A.E., & **Boyd, K.J.** (April, 2015). Participatory action research experiences for undergraduates. Paper presented at the annual meeting of the American Educational Research Association. Chicago, IL.
- Boyd, K.**, & Kummerow, C. (January, 2012). Regional aerosol effects on precipitation: An observational study. Presentation at the annual conference of the American Meteorological Society. New Orleans, LA.
- Boyd, K.** & Kummerow, C. (January, 2011). The effect of aerosols on the onset of precipitation Using data from ARM sites. Poster presented at the annual conference of the American Meteorological Society. Seattle, WA.

Boyd, K. & Kummerow, C., Berg, W., & Saleeby, S. (April 2010). The effect of aerosols on the onset of precipitation. Presentation at the American Association for Aerosol Research Front Range Student Aerosol Meeting. Fort Collins, CO.

Boyd, K., Kummerow, C., Berg, W., & Saleeby, S. (March 2010). The effect of aerosols on the onset of precipitation. Presentation at the Department of Energy Science Team Meeting. Washington, D.C.

Boyd, K., Kummerow, C., Berg, W., & Saleeby, S. (March 2010). Effect of aerosols on the onset of precipitation: AMF deployment in Shouxian, China. Poster presented at the Department of Energy Science Team Meeting. Washington, D.C.

Awards and Service

Graduate Teaching Certificate from CSU Institute for Teaching & Learning (TILT)

Graduate School Committees: Development of campus climate survey and Advising & mentoring task force

Phi Beta Kappa Honors Society (inducted June 2006)

UW Atmospheric Science Academic Achievement Award & Phil Church Award