

S03.02.27. Ensuring Trustworthy Data for Communities Engaged in Environmental Sensing

John Volckens

John Volckens¹

1. Colorado State University, Fort Collins, CO, United States.

Abstract: The recent proliferation of low-cost air quality sensors has sparked much interest among scientists, policymakers, and the general public. These sensors have enabled measurements at unprecedented spatial and temporal scales, which, in turn, has led to the creation of distributed networks to support both traditional research and community-based studies. Low-cost sensors also show promise for the emerging field of citizen-science and for application in resource-limited environments. With these exciting prospects, however, come challenges of sensor performance, reliability, data management, and communications/messaging to various stakeholders. This presentation will summarize our research on the development, evaluation, and application of sampling and sensor technologies for exposure and health research. Our group has pioneered the development of several devices for assessing human exposure to particulate matter air pollution (i.e., the UPAS, AMAS, OAS instruments). We have deployed these technologies for epidemiologic research on children and adults, for citizen-science research at the individual and community level, and for stakeholder-driven assessment of air quality in distinct microenvironments. This presentation will summarize prospects and pitfalls associated with real-time and time-integrated data collection, with the choice of low-cost vs. reference-grade measurement devices, with data management/quality (and data protection), and with communicating and working with members of the community (i.e., non-scientists). We will conclude with some discussion on the topic of matching the measurement to the research question of interest and on the potential for disconnects/misalignment between the exposure and epidemiologic research communities.

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ABSTRACT BOOK



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