

**Submission Title:**

Flexible Data Fusion for Air Quality Estimation and Forecasting in Google Earth Engine to support Global Health Management Needs

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**Abstract**

The assessment and forecasting of air quality around the world at high spatial and temporal resolution can be enhanced by integrating data from multiple sources including models, satellites, regulatory monitors, and low-cost sensors. Such integration is subject to numerous technical challenges, however, including heterogeneous data resolution and formatting, different levels of data availability and

reliability, and computational and capacity challenges to developing data fusion tools and platforms. This presentation will provide an overview of a NASA-funded effort to develop a data fusion system within the Google Earth Engine platform which integrates these air quality data sources to produce comprehensive assessments and forecasts of key air pollutants at sub-daily and sub-city scales. The system is being developed in collaboration with city- and regional-level air quality managers and will provide them with information to assess and anticipate the health impacts of poor air quality, track local changes in air quality due to ongoing transportation and land use changes, and identify potential gaps in their current air quality monitoring strategies. The presentation will report advances achieved through the project, including bringing local air quality monitoring data into Google Earth Engine, quantifying uncertainties in air quality estimates and forecasts, and tailored communications tools providing integration into end-user processes to meet their needs.