Archana Dayalu, PhD

Greenhouse Gas, Carbon Cycle, and Air Quality Scientist
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Archana Dayalu is currently the manager of the Air Quality and Greenhouse Gases Modeling Group at AER. Her research interests and experience include land-atmosphere carbon exchange in midlatitudes and the tropics; greenhouse gas modeling (carbon dioxide, methane); air quality impacts of fire; and air quality impacts of natural gas. Her current projects include: (1) synthesizing models and observations to explore changes in the Amazon's carbon balance; (2) using observations and machine learning techniques to identify smoke impacts on air quality; and (3) exploring the air quality and climate impacts of natural gas leaks in urban areas. Archana has also served as a reviewer for the National Science Foundation and for scientific journals.

Education

- PhD, Earth & Planetary Sciences, Harvard University
- BS, Chemistry, University of Washington
- BA, Environmental Studies, University of Washington

Memberships

- American Geophysical Union

For a list of publications, see Archana Dayalu's Google Scholar Profile.

Archana obtained her PhD from the Earth & Planetary Sciences Department at Harvard University where she studied sources and sinks of carbon dioxide in northern China. In collaboration with the Harvard China Project, her PhD research used data from ground-level and remote sensing platforms to construct a method for assessing the quality of recent carbon dioxide (CO_2) anthropogenic emissions inventories in the data-sparse northern China region. She has assimilated both large (satellite; MODIS) and sparse (ground-level; ChinaFlux and others) observational datasets into policy-relevant signals using a meteorology model (Weather, Research, and Forecasting model; WRF) and an air transport model (Stochastic Time-Inverted Lagrangian Transport model; STILT). As a component of her CO_2 inventory evaluation project, Dr. Dayalu also built upon a vegetation model (Vegetation, Photosynthesis, and Respiration Model; VPRM) and developed it for use in the unique multi-cropping regimes of the Northern China Plain.