

## 5.119 The Community Emissions Data System (CEDs).

Early Career Scientist

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Abstract:

We report on an open-source data system that produces estimates of anthropogenic pollutant and greenhouse gas emissions over the entire industrial era. The first product (Spring 2016) from this project is an updated historical time series, from 1750 to 2014 for anthropogenic emissions of reactive gases, aerosols, and carbon dioxide (BC, OC, SO<sub>2</sub>, NO<sub>x</sub>, CO, NH<sub>3</sub>, NMVOC, CH<sub>4</sub>, CO<sub>2</sub>) for use in the Coupled Model Inter-Comparison exercise phase 6 (CMIP6). We will continue to improve the consistency of this dataset and add additional dimensions that will be of use to the research community. A central focus of the project over the next two years is the development of consistent uncertainty estimates and ensembles of historical emissions trajectories. This presentation will report on recent updates to the dataset and analysis, focusing on an analysis of emissions uncertainty in the most recent years of the dataset.

These emissions data products are derived from a combination of emission inventories produced by national governments and the research community. We have developed a data system to extend these emissions products over time using global energy, agricultural, and other relevant driver datasets. The combination of inventory and driver data allows examination of consistency across countries and time. Such analysis can be used to inform uncertainty estimates and also allows identification of potential inconsistencies. Community engagement is an important part of this process in order to improve our understanding of regional to global emissions and their uncertainties. The data and data system, based in R, an open source statistical software, will also be released as open source software, allowing users to conduct research and analysis.  
<http://www.globalchange.umd.edu/CEDS/>