
Cross-Inventory Uncertainty Analysis of Fossil Fuel CO₂ Emissions for Prefecture-Level Cities in Shandong Province

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Information about industrial emissions from involved inventories

1. EDGAR

References: [1, 2]

Main category of industrial emission sectors: Energy comprises the production, handling, transmission and combustion of fossil fuels and biofuels. Industrial Processes refer to non-combustion emissions from either manufacturing of cement, lime, soda ash, carbides, ammonia, methanol, ethylene, methanol, adipic acid, nitric acid, caprolactam, glyoxal and other chemicals, or from production of metals and from the use of soda ash, limestone and dolomite, from production of ferrous and non-ferrous metals and from non-energy use of lubricants and waxes.

The industrial emission used in our study are EDGAR sector with code: ENE, IND, REF_TRF, PRO, CHE, IRO, NEU, NFE, NMM. The rest sectors are considered as non-industrial emissions.

Source data of industrial emission: The fossil fuels and bio fuels are calculated with national-level energy statistics. The emission estimates use the volume of industrial product produced (and traded) from the industry statistics.

2. PKU-CO₂

References: [3, 4] & Online Table2 (<http://inventory.pku.edu.cn/Table%202.pdf>)

Industrial emission sectors: PKU-CO₂ were constructed around 64 fuel sub-types in 5 categories and 6 sectors. Due to differences in data sources and data processing methods, the 64 fuel subtypes were further classified into 8 group. We used the sum of “energy production” and “industry” sectors from official website to represent the industrial emissions. The other sectors, including “transportation”, “residential and commercial”, “agriculture”, “deforestation & wildfire” are considered as non-industrial emissions.

Source of data: Fuel consumptions in China were determined based on the provincial fuel consumption and a set of provincial-data-based regression models[5]. Fuel consumptions by 26 239 major power stations from the CARMA v2.0 list.

3. MEIC

References: [6, 7]

Industrial emission sectors: MEIC provides CO₂ emissions from power, industry, transportation and residential sectors. Here we use the sum of power and industry sectors as industrial emissions.

Source of data: This inventory is constructed from a unit-based database compiled in this study, named the China coal-fired Power plant Emissions Database (CPED), which includes detailed information on the technologies, activity data, operation situation, emission factors, and locations of individual units.

4. CHRED

References:[8]

Industrial emission sectors: We use the sum of “industrial energy” and “industrial process” as the industrial emissions.

Source of data:

The enterprise-level point-source are collected to calculate the industrial emissions, which includes about 1.5 million industrial facilities, 2000 landfills and 4000 wastewater treatment plants.

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