

Emission estimates of SO₂

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1. Introduction

For good air quality modelling and forecasting, a recent and reliable emission inventory is essential. We developed new emission inventory for China of sulphur dioxide (SO₂) by combining observations from satellites with information from the MEIC (Multi-resolution Emissions Inventory for China) inventory. Satellites observations of the OMI instrument aboard EOS-AURA have been used to derive emissions for China on 0.25 degree resolution (around 25 km resolution).

The SO₂ emission inventory covers East Asia from 18°N to 50°N and 102°E to 132°E on a 0.25° resolution. Apart from the populated and industrialized provinces of East China, the domain contains North and South Korea, Japanese Kyushu Island, and significant parts of Mongolia and Vietnam.

2. SO₂ emission data set

A trend study of SO₂ concentrations in China (van der A et al., 2017) has been performed in the MarcoPolo project (<http://www.marcopolo.eu/>). The annual trend figures have been calculated for each province of China based on the SO₂ observations of OMI. These trend figures have been applied on the MEIC data for the year 2010 resulting in an emission inventory for SO₂ for the years 2005-2014.

Our base situation is the MEIC inventory for SO₂ in the year 2010. In the next Figure the results for 2014 is shown in which year no SO₂ emission data had been derived before.

MEIC SO₂ emission 2014

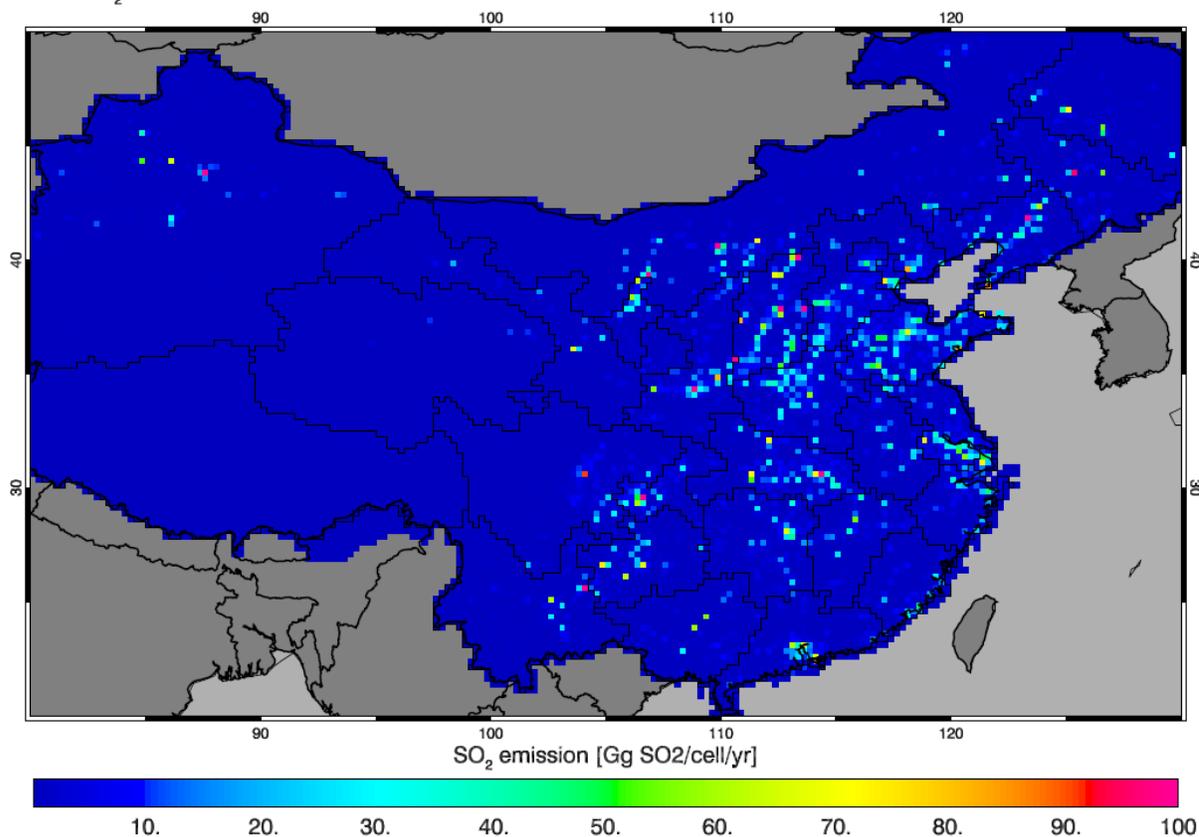


Figure SO₂ emissions for East China derived by applying satellite-derived trends on the MEIC inventory.

The SO₂ (Sulphur dioxide) emissions (OMI-based) can be found at http://www.globemission.eu/region_asia/datapage_so2.php

Reference

van der A, R.J., B. Mijling, J. Ding, M.E. Koukouli, F. Liu, Q. Li, H. Mao and N. Theys, *Cleaning up the air: effectiveness of air quality policy for SO₂ and NO_x emissions in China*, *Atm. Chem. Phys.*, 2017, 17, 1775-1789, doi:10.5194/acp-17-1775-2017.