Earth Syst. Sci. Data Discuss.,
https://doi.org/10.5194/essd-2017-77-AC1, 2017

Open Access Earth System Science Data Discussions

Interactive comment on "Global CO_2 emissions from cement production" *by* Robbie M. Andrew

R. Andrew

robbie.andrew@cicero.oslo.no

Received and published: 19 September 2017

I thank the reviewer for their comments.

There is a need for (i) long time series, (ii) up-to-date data, (iii) data for individual countries, (iv) data that match as closely as possible official estimates, on emissions of CO2 from the production of cement. This article addresses all four of these needs.

The purpose of this article is not to present an estimate of something that has never been estimated before. This is an article describing the preparation of a new dataset, which is why it has been submitted to ESSD. The dataset associated with the article is a considerable improvement over similar datasets that already exist, in ways that are clearly described in the article.

I am not aware of existing time-series of estimates of cement process emissions by

Printer-friendly version

Discussion paper

country produced by the Energy Information Administration or International Energy Agency. This article fills that gap.

The reviewer is correct that it has previously been pointed out that CDIAC's estimates for China's cement emissions are too high, and the Supplementary Information of this article goes into considerable detail on this issue. First, the point of this article is not simply to demonstrate that CDIAC's estimates are too high for China, but this is something that is not widely understood in the community, so bears repeating here. China has the largest cement emissions, so that information deserves to be reasonably prominent in the article. The SI material refers to several previous studies that have concluded that CDIAC's estimates for China are too high, and the present article makes no claim to be the first to observe this. Moreover, none of the previous studies have shown China's emissions from cement production for more than a few decades. The paper the reviewer cites covers the years 2000-2009. The more recent article cited in the article by (a different) Liu et al. 2015, uses clinker production data only for 2005-2013, with a clear error in 2011, while the present article uses data for 2000-2016. In addition the present article provides a time-series for China back to 1928. Yes, these are incremental improvements, but there is no claim in the article otherwise. That cement emissions estimates should be based on clinker production statistics is not a major conclusion of this article, rather it is simply the starting point, and the point is made, again, because it is not widely understood in the community.

That the estimate produced in this article for global emissions in 2009 are in close agreement with those of EDGAR is in fact a good thing, because it means that – at the global level, at least – there are now two series in close agreement for that year. However, as the article makes very clear, a number of the assumptions made in the EDGAR database are here replaced with better data. The purpose of this article is not to compare "CDIAC/IEA/USGS data with Monte Carlo simulation", as the reviewer suggests. It is to present a new, long time-series of estimates of process emissions from cement production for all countries and at the global level, using information from

Printer-friendly version

Discussion paper

official sources where possible, and including uncertainty.

Interactive comment on Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2017-77, 2017.

Printer-friendly version

Discussion paper