

Review of “Global CO2 emissions from cement production” by R. M. Andrew

Ref: ESSDD-2017-77

20 September 2017

General remark:

The article focuses on global trends of CO2 process emissions from cement production and compares their estimates with CDIAC and UNFCCC data. The EDGAR report series on Global Trends in CO2 emissions has been providing very similar data as this study does. It would be appreciated that the EDGAR data are taken up in the main figures 3 and 4, based on e.g. Table A2.3 of the 2016 report on http://edgar.jrc.ec.europa.eu/news_docs/jrc-2016-trends-in-global-co2-emissions-2016-report-103425.pdf.

Specific requests:

The abstract and introduction list cement production as third largest anthropogenic emission source of CO2, after fossil fuels (to be interpreted as fossil fuels combustion) and land-use change (to be interpreted as agriculture and land-use change, in order to include also agricultural waste, field and Savannah burning). What about the biofuel combustion? The latter is an important source, in particular in some large developing countries, which overtakes the cement production at global scale, even though uncertainties are large for this source.

The abstract mentions global emissions in 2016 of 1.45 Gt CO2 and it should be mentioned here explicitly that this counts only the process emissions.

Further the abstract reports 39.3 Gt CO2 of cumulated (process) emissions of cement production, covering a period that ends in 2016 but the paper does not reveal when this counting starts.

At the end of section 2 the estimates of EDGAR are described but only for older versions (only till v4.1). For a complete overview it is needed to update the sentence (p.4 lines4-6) with a mentioning of the data of the versions v4.2, v4.2FT2010, v4.3FT2015 and v4.3.2. The most recent time series (until 2015) are reported for v4.3FT2015 in the CO2 report of 2016 (see link above).

Section 3 refers to officially reported emissions (p.4 line 19 e.g.), but the complete references to the UNFCCC submissions (with the year of submission) need to be added for full transparency. Moreover, for China, it would be more complete to include also the National communication of January 2017.

Section 4 refers to a value of EDGAR, which seems to be the EDGARv4.2FT2010 value for 2010 with 1.21 Gt CO2 process emissions. When referring to EDGARv4.2, the estimate of 1.13 Gt CO2 process emissions for 2008 should be used.