

## Response to Referees

**Manuscript ID:** ESSD-2024-437

**Title:** Global and National CO<sub>2</sub> Uptake by Cement Carbonation from 1928 to 2024.

We sincerely appreciate the time and effort invested by the reviewers in evaluating our work. We are grateful for their positive assessment and acceptance of the manuscript. We have made corresponding revisions by referring to the suggestions provided in the referee's report and provided a detailed response below.

### **Response to Referee#1:**

*The authors have addressed my concerns thoroughly and provided sufficient evidence to support their analysis. I appreciate their efforts on this important topic. However, some minor errors need to be corrected before the paper can be published.*

**Response:** Thank you sincerely for your time and thoughtful feedback on our manuscript. We have carefully revised and checked the paper according to the reviewer's comments and offered a point-by-point response.

*Line 99: Remove the period after the word "information."*

**Response:** Thank you for your comment. We have removed the period after the word "information".

*Line 182: Change "emission" to "emissions."*

**Response:** Thanks for your valuable comment. We have changed "emission" in Line 182 to "emissions", and we checked the entire paper to make sure "emissions" were being used correctly.

*Line 230: Ensure there is no space before the % symbol. Please check the entire draft for consistency.*

**Response:** Thanks for your meticulous review. We've removed the space before the % throughout the entire draft.

*Line 235: Revise to: "The results show that global cement carbon uptake in 2022 was 0.82 Gt CO<sub>2</sub>."*

**Response:** Thank you for your suggestion. The text has been adjusted in line with your comment.

*Line 415: Revise to: "The carbon offset by cement carbonation is expected to..."*

**Response:** Thank you for your suggestion. We have modified the text as your comment.

*Line 23: Change "emission" to "emissions."*

**Response:** Thanks for your comment. We have checked "emissions" in the entire draft to make it correct.

*Line 30: Revise to: "This study provides accurate bottom-up quantification 'of' cement carbonation sinks..."*

**Response:** Thank you for your suggestion. We have revised the text based on your suggestion.

**Response to Referee#2:**

**Response:** Thank you very much for your evaluation of our manuscript. We are extremely pleased to receive your decision of "accept as is." Your recognition means a great deal to us. We truly appreciate the time and effort you've dedicated to reviewing our work.