

## **Response to Referee #2 (essd-2020-100)**

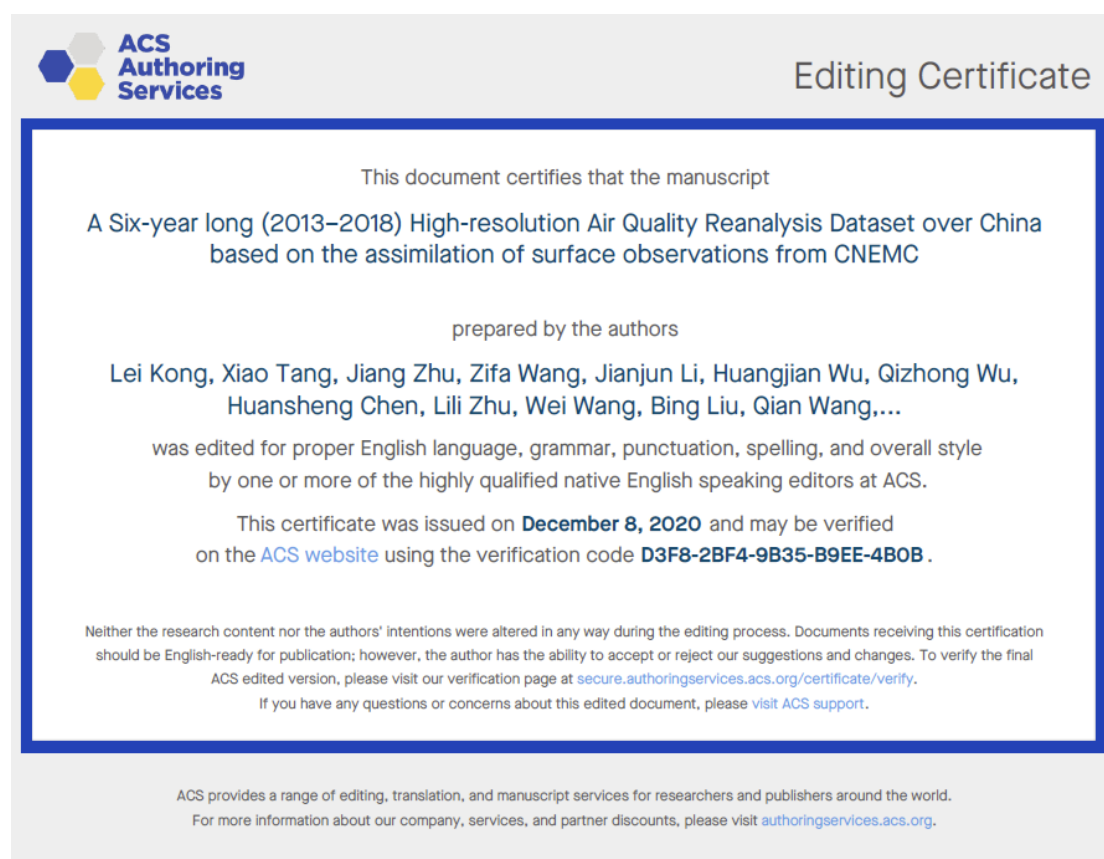
We Thank Reviewer for his/her constructive comments.

Responses to the Specific comments:

**General comments:** This paper presents a six-year reanalysis of air quality in China, providing data for six criteria air pollutants at 15 km spatial resolution and hourly temporal resolution. This is a unique data set and the methods for producing it appear to be sound. I presume that there will be some demand for the data set, although it would have been good to get a more specific identification of stakeholders from the paper. The main problem I have with the paper is that the writing is atrocious. The title is ungrammatical (should ‘base’ be “based”?), the first sentence of the abstract is vapid, and it doesn’t improve from there. The paper is basically unreadable. I don’t know to what extent this matters for an ESSD publication, but as a reader I would feel that if the paper is that bad then the dataset must be bad too. It’s not clear to me what to do about this except to request that the authors rewrite their paper to abide by grammatical, clear, and concise language - I will leave it to the Editor to decide whether this is an appropriate request.

Reply: We sincerely apologize for the poor presentation quality. A thorough revision has been made to improve the language of the paper. The paper was edited for grammar, phrasing, and punctuation. In addition, many edits were made to further improve the flow and readability of the text. Specifically, A variety of edits were made to ensure smooth transitions between sentences and to link related thoughts. Sentence flow is improved in the revised manuscript by ensuring the appropriate use of conjunctions and introductory words and phrases. Certain edits were made to remove redundant, repetitive or unnecessary phrasing and to present the information in a more straightforward manner. Some edits were also made to improve conciseness by trimming unnecessary words and streamlining the flow of the manuscript. The manuscript was also been polished by highly qualified native English speaking editors at American Chemical Society (Fig. R1). After these revisions, we believe the language of the revised manuscript can meet the requirement of the publication in ESSD.

Following the suggestion of reviewer, the potential usages of our reanalysis data are also emphasized in the revised manuscript to get a more specific identification of stakeholders from the paper. For example, the dataset can be used in the retrospective air quality analysis in China, health and environmental impact assessment of air pollution at fine scales, model evaluation and satellite calibration, optimization of monitoring sites and provision of basic training datasets for statistical or artificial intelligence (AI)-based forecasting (*please see lines 41–45 and lines 113–116*).



**Figure R1: The editing certificate of the revise manuscript provided by ACS.**