Dear Editor:

Thank you for your letter and the reviewers' comments on our manuscript titled "Analysis of the Spatiotemporal Evolution, Key Control Features, and Driving Mechanisms of Carbon Emission/Absorption in the Continental Ecosystem of Shandong Province from 2001 to 2020" (manuscript number: ijgi-3687862). All comments are highly valuable and have been instrumental in helping us revise and improve the paper. We have carefully reviewed these comments and made the corresponding revisions in the original text, highlighting them in red. We hope you will find these revisions satisfactory.

Comments 1: It would be better if the title referenced "China's Shandong Province" rather than simply "Shandong Province."

Response 1: Thank you for your suggestion. We have changed "Shandong Province" in the title to " China's Shandong Province" in accordance with your suggestion to clarify the geographical scope of the study (lines 1-5). We believe this change will help readers better understand the geographical context of the study.

Thank you again for your valuable comments and feedback. We believe these changes will greatly improve the quality of the paper.

Comments 2: Rather than including websites in parentheses, it would be better if they were fully written out as numbered citations (with full info in the bibliography).

Response 2: Thank you very much for your reminder. We have replaced the website links in the text with numbered references as you suggested, and provided complete reference information in the reference list (lines 98-114). This modification makes the references more standardized and compliant with academic writing requirements.

Thank you again for your careful review of our paper and valuable suggestions. We believe these modifications will improve the quality of the paper and look forward to your further comments.

Comments 3: In order to say that the "study highlights that changes in land use are a primary driver of carbon source and sink dynamics," the article must present the primary drivers of carbon for the province — presumably that's automobiles and trucks, factories, electricity production, residential heating and others — along with their numbers for context. In other words, the content of the article as written does not justify its own conclusion. Either the findings need to result in a more narrowly defined conclusion, the conclusion needs to be placed in the numeric context of other carbon sources, or both. This affects the whole purpose of the article.

Response 3: Thank you for your insightful suggestions regarding the conclusions of our paper. We have carefully considered your feedback and made the necessary revisions and additions. To further support our conclusions, we have explicitly listed the primary drivers of carbon emissions in Shandong Province in the discussion and analysis section, including industrial facilities, power generation, and residential heating, and provided relevant carbon emission data and references. We have also conducted a more detailed analysis of the impact of land-use changes on carbon source and sink dynamics based on these data (lines 413–435).

Once again, we sincerely thank you for your meticulous review and valuable suggestions. We believe these revisions will enhance the quality of the paper.

We would like to express our sincere gratitude for your valuable comments.

We have made every effort to improve the manuscript and have made the necessary revisions. These revisions do not affect the conclusions or framework of the paper. We appreciate the helpful suggestions and comments from the editors and reviewers and hope that our revisions will be accepted.

Once again, thank you for your comments and suggestions.