**Response to Reviewer #2:**

Thank you for your feedback. We have made the revisions requested to the manuscript and addressed your comments in this document in blue. We hope this adequately addresses the concerns raised.

**To the editor, here are our responses/explanations based on the email:**

**International Journal of Greenhouse Gas Control**Reviewer's Responses to Questions

Note: In order to effectively convey your recommendations for improvement to the author(s), and help editors make well-informed and efficient decisions, we ask you to answer the following specific questions about the manuscript and provide additional suggestions where appropriate.  
  
1. Are the objectives and the rationale of the study clearly stated?  
  
Please provide suggestions to the author(s) on how to improve the clarity of the objectives and rationale of the study. Please number each suggestion so that author(s) can more easily respond.

Reviewer #2: Although the authors have attempted to analyze some prediction methods, a deeper discussion would be expected. Otherwise, the motivation for this study may not be sufficiently strong.

Author Response: Thank you. We have included an additional section explain the motivation in the introduction.

2. If applicable, is the application/theory/method/study reported in sufficient detail to allow for its replicability and/or reproducibility?  
  
Please provide suggestions to the author(s) on how to improve the replicability/reproducibility of their study. Please number each suggestion so that the author(s) can more easily respond.

Reviewer #2: Mark as appropriate with an X:  
Yes [X] No [] N/A []  
Provide further comments here:  
While basic metrics like mean square error and MAE are used to evaluate your regression model, such validation may not be strong enough. Therefore, it is suggested to design and incorporate other cross-validation techniques or specific metrics for a more robust evaluation.

Author Response: We thank the reviewer for this response, but the reviewer is mistaken. We did do a k-fold cross-validation methods for this work (line 255-256).

3. If applicable, are statistical analyses, controls, sampling mechanism, and statistical reporting (e.g., P-values, CIs, effect sizes) appropriate and well described?  
  
Please clearly indicate if the manuscript requires additional peer review by a statistician. Kindly provide suggestions to the author(s) on how to improve the statistical analyses, controls, sampling mechanism, or statistical reporting. Please number each suggestion so that the author(s) can more easily respond.

Reviewer #2: Mark as appropriate with an X:  
Yes [] No [X] N/A []  
Provide further comments here:  
A more profound discussion should be provided to support the algorithm and its engineering applications.

Author Response: Thank you. We have included a real world case study in the introduction section.

4. Could the manuscript benefit from additional tables or figures, or from improving or removing (some of the) existing ones?  
  
Please provide specific suggestions for improvements, removals, or additions of figures or tables. Please number each suggestion so that author(s) can more easily respond.

Reviewer #2: The figure quality needs improvement; some numbers are unclear, such as in Figure 2. Please ensure consistency in formatting figures/tables within the context, such as the font in Figure 3.  
  
Figure 4 requires correction; some information inside has overlapped, which does not meet publishing standards. Additionally, please check and rectify similar problems in all other figures.

Author Response: Noted; we have edited where possible.

5. If applicable, are the interpretation of results and study conclusions supported by the data?  
  
Please provide suggestions (if needed) to the author(s) on how to improve, tone down, or expand the study interpretations/conclusions. Please number each suggestion so that the author(s) can more easily respond.

Reviewer #2: Mark as appropriate with an X:  
Yes [] No [] N/A [X]  
Provide further comments here:  
A more profound discussion should be provided to support the algorithm.

Author Response: Thank you. We have included this discussion in the introduction section

6. Have the authors clearly emphasized the strengths of their study/theory/methods/argument?  
  
Please provide suggestions to the author(s) on how to better emphasize the strengths of their study. Please number each suggestion so that the author(s) can more easily respond.

Reviewer #2: No. The introduction part begins with human activities, which is too broad. It is suggested to concentrate on CCUS from the outset.

Author Response: Thank you. We have removed the first paragraph of the introduction.

7. Have the authors clearly stated the limitations of their study/theory/methods/argument?  
  
Please list the limitations that the author(s) need to add or emphasize. Please number each limitation so that author(s) can more easily respond.

Reviewer #2: Deeper discussion is necessary rather than applying a machine learning method to CCUS.

Author Response: Thank you. We have highlighted its uses in the introduction.

8. Does the manuscript structure, flow or writing need improving (e.g., the addition of subheadings, shortening of text, reorganization of sections, or moving details from one section to another)?  
  
Please provide suggestions to the author(s) on how to improve the manuscript structure and flow. Please number each suggestion so that author(s) can more easily respond.

Reviewer #2: The literature review has been separated from the introduction. However, these two parts lack correlation, and it is recommended to transition between them more smoothly.

Author Response: We thank the reviewer and have tried to synergize the section better.

9. Could the manuscript benefit from language editing?

Reviewer #2: Yes

Author Response: We thank the reviewer; however, we do not know what changes the reviewer is recommending. This reviewer is also alone in this recommendation, as the remining 3 reviewers have not singled this out.