Concern # 1: The authors might dedicate a distinct section to non-geospatial models and traditional geospatial models and provide more literature references pertaining to these models. This will enhance the comprehensiveness of the background information on the topic.

Author response: We would like to thank the reviewer for this valuable comment. In the introduction, we have added a distinct section 1.2.1 to further compare and analyze the characteristics of non-geospatial models, traditional geospatial models, and geospatial analysis models. We emphasize that geospatial analysis models exhibit higher model complexity and integration challenges due to the extensive geographic data processing and complex computations involved. One core challenge is how to address model heterogeneity to facilitate model combination and capability integration. Moreover, we provide additional references as supporting evidence to enhance the comprehensiveness of the background information on the topic.

Author action: We have updated the manuscript by adding a new section 1.2.1 to further compare and analyze the characteristics of non-geospatial models, traditional geospatial models, and geospatial analysis models. We have also included additional references to enhance the background information on the topic matter.

Concern # 2: To enhance the clarity of the introduction, it is advised to appropriately move and address Section 2.1 inside the introduction.

Author response: We would like to thank the reviewer for this valuable comment. We have restructured and refined the introduction section, condensing the original section 2.1 and moving it to the current section 1.2.2. In the introduction, we have discussed relevant content, starting with an exploration of the characteristics of geospatial analysis models. We then introduced the research advancements in geospatial analysis models, and finally highlighted the challenges and issues faced in integrating geospatial analysis models.

Author action: We have updated the manuscript by moving and modifying the original section 2.1 to the current section 1.2.2. We have also reorganized the introduction to improve the readability of the background content.

Concern # 3: Include more references that are pertinent to the subject in the section on the heterogeneity of geospatial analysis models.

Author response: We would like to thank the reviewer for this valuable comment. In section 1.2.3 of the introduction, we have restructured the discussion on the heterogeneity challenges faced in integrating geospatial analysis models. This includes addressing aspects such as structural heterogeneity, dependency heterogeneity, and execution mode heterogeneity of the models. We have supported our points by referencing more references, further elucidating the issues that need to be addressed in the research subject of the manuscript.

Author action: We have updated the manuscript by reorganizing section 1.2.3 and incorporating more relevant references on the subject.

Concern # 4: The study's purpose should be more clearly defined and specified in relation to the primary concerns discussed in the preceding paragraphs of the introduction (points 1/, 2/, and 3), in order to highlight the level of originality that sets apart the proposed study.

Author response: We would like to thank the reviewer for this valuable comment. We have reorganized the introduction section to provide a clearer exposition of the research objectives and the originality of the proposed study.

Firstly, in section 1.1, we elucidate the research background by highlighting the significant role that geospatial analysis models have played in various areas such as urban planning, environmental protection, and natural disaster risk assessment over the past few decades. However, traditional standalone models face limitations when dealing with large-scale geospatial analysis tasks involving multiple factors and dimensions. In such cases, the integration of geospatial analysis models can effectively leverage the strengths of different models to collaboratively address complex geographical problems.

Secondly, in section 1.2, we provide a detailed explanation of the issues and challenges. Specifically, in section 1.2.1, we compare geospatial models with non-geospatial models and traditional geospatial models to analyze the characteristics of geospatial analysis models. In section 1.2.2, we outline the structure and integration methods of geospatial analysis models, summarizing the research advancements in this field. In section 1.2.3, we further analyze the heterogeneity characteristics of models and highlight the problems and challenges in integrating geospatial analysis models.

Finally, in section 1.3, we combine the heterogeneity characteristics of geospatial analysis models to clarify the research objectives of this paper and the novelty of the proposed study. Specifically, we aim to address the rapid integration and publication challenges of large-scale heterogeneous geospatial analysis models by introducing the containerized and service-oriented GeoCSIF framework. This will be achieved through innovative design of service-oriented model encapsulation, prioritized model orchestration, adaptive model publishing components, and their corresponding methodologies.

Author action: We have updated the manuscript by reorganizing the introduction section to provide a clearer exposition of the research objectives and the originality of the proposed study.

Concern # 5: The introduction should explicitly point out the inclusion of the experimental section.

Author response: We would like to thank the reviewer for this valuable comment. In section 1.3 of the introduction, we not only clarify the research objectives of this paper and the novelty of the proposed study but also validate the effectiveness and progressiveness of GeoCSIF framework by introducing case studies and conclusions from the experimental section.

Author action: We have updated the manuscript by modifying section 1.3 to introduce case studies and conclusions from the experimental section.

Concern # 6: At the end of the section of the introduction, it might be beneficial to provide an overview of the paper's structure by summarizing the sections that will be discussed.

Author response: We would like to thank the reviewer for this valuable comment. In section 1.4 of the introduction, we provide an overview of the paper's structure to enhance the readability of the manuscript. We summarize the content that will be discussed in each section, thereby improving the overall clarity and coherence of the manuscript.

Author action: We have updated the manuscript by adding section 1.4 to provide an overview of the paper's structure to enhance the readability of the manuscript.

Concern # 7: Adding remarks pertaining to the results of the experimental section to the final conclusions would enhance the significance of the proposed framework.

Author response: We would like to thank the reviewer for this valuable comment. In Section 6, "Conclusions and Future Work," we comment on the experimental results and further define the direction and key aspects of future optimization, providing guidance for future research endeavors.

Author action: We have updated the manuscript by modifying Section 6 to comment on the experimental results to enhance the significance the proposed framework.
