

AC: We thank the Community Comments#1 for taking time to review this manuscript. Your insightful remarks have helped us to identify parts in the manuscript which needed clarification and certainly allowed us to improve the quality of this paper.

Reviewer#1

This paper showcases the latest progress of the HUST team in the field of gravity field modeling. HUST-Grace 2026s successfully integrates 23 years of GRACE and GRACE-FO observation data spanning from 2002 to 2025. Both the accuracy and reliability of the model have been significantly enhanced. Incorporating LRI1B data into the static field determination framework is a major highlight of this study, providing a valuable reference for the establishment of cross generational satellite gravity benchmarks.

There may still be room for further exploration regarding the analysis of the LRI contribution. Utilizing the resolution matrix is an effective way to understand the relative contribution of each observation component within the entire solution system. According to the results in Fig. 11, GRACE KBR plays a more dominant role compared to GRACE-FO KBR/LRI for the HUST-Grace 2026s model. This is likely due to the fact that the GRACE KBR data spans 15 years while the GRACE-FO data covers only about 6 years within the timeframe. However, this could easily lead readers to the misconception that the data of GRACE KBR is superior to that of GRACE-FO KBR/LRI. I believe this point needs to be clarified in the text to distinguish between data quantity and data quality. Additionally, I am curious to know what the relative contributions of GRACE-FO KBR and LRI to the static field would be if the calculation timeframe were restricted to the GRACE-FO mission period alone, for example, from January 2019 to June 2023.

AC: Thank you for your insightful comments. We have evaluated the orbital altitude variation for the GRACE and GRACE-FO missions. **The limited contribution on static gravity field for GRACE-FO mission, in our opinion, can be attributed by the current orbital altitude of GRACE-FO observation.** In other words, as the GRACE-FO mission operating, the orbital altitude will surely be lower and the contribution for GRACE-FO mission on static gravity field will be higher.

Actually, we also do some experiment on the combined solution for GRACE-FO KBR and GRACE-FO LRI, but this result isn't shown in this manuscript. As you state in your comments, the contribution of GRACE-FO LRI observation data has a strong relationship with the observation time period. If the observation time is restricted to the GRACE-FO, the contribution of GRACE-FO LRI is higher than GRACE-FO KBR, as shown in the following Figure, especially on the Zonal Coefficients.

