The altimetric data is widely used to explore the oceanic gravity field, but most on gravity anomaly. This paper presented a method to construct marine gravity gradient tensors from altimetric deflections of the vertical, and given a global model CUGB2023GRAD.

Some revisions are required:

(1) All over the paper, “deflection of the vertical” should be “deflections of the vertical”, including both north-south and west-east components.

(2) Line 9, in the abstract, “They are derived from double differentiation of the geoid (or disturbing potential)”. Its not clear. Gravity gradients are the second second derivative of disturbing potential. The geoid should be connected with disturbing potential by Bruns formula.

(3) Line 37, altimetric gravity anomaly is widely used to predict bathymetry, too few references are given. Many paper from Smith, Sandwell and Anderson should be referenced.

(4) Line51-52, “Deflection of the vertical and gravity anomaly are its first derivatives in the horizontal and vertical directions, respectively. ”, Again, you should make it clear, geoid and disturbing potential are different.

(5) Line 130，the first formula in eq.(7), there should be a “-”.

(6) In order to validate the gravity gradients results, the coherence between CUGB2023GRAD and GEBCO_2021 were computed. In order to avoid circular validation problems, I recommend adopting multi-beam bathymetry grid from JAMSTEC or NCEI to replace GEBCO_2021 model.