Comments on the manuscript "First GPS TEC maps of ionospheric disturbances induced by reflected tsunami waves: The Tohoku case study" by Long Tang et al.

This manuscript presents a clear depiction of the signatures generated by the Tohoku tsunami in GPS TEC. Accumulating observational evidences of tsunami-induced atmospheric gravity waves is important for better understanding the coupling mechanisms between the ocean and the atmosphere. In this study, the reflected tsunami signatures are observed both in ionosphere and at sea level, suggesting the results are reliable. The paper is worth of publication after appropriate revisions.

1. Page 3, line 3. Undoubtedly, the Eq. (1) is right. However, the unit for the constant 40.3 should also be indicated, which is m^3/s^2. Then, the unit is consistent (TECU or m^{-2}) for both sides of the Eq. (1).

2. Page 3, line 7-9. Some references that describe the single-layer model and ionospheric delay estimation should be included. For example: Li, X., M. Ge, H. Zhang, and J. Wickert (2013), A method for improving uncalibrated phase delay estimation and ambiguity-fixing in real-time precise point positioning, J. Geod., 87(5), 405-416, doi:10.1007/s00190-013-0611-x.

3. Page 5, line 21. "…tsunami is not a point but a line (the Emperor seamounts)". The location for the Emperor seamounts is illustrated in Figure 1, but should also be indicated in text. In the introduction, you should mention a little bit about earthquake/tsunami monitoring and early warning using GNSS coseismic displacements, e.g., doi:10.1002/grl.50138, and doi: 10.1093/gji/ggt249

4. Page 5, line 22-23. Although the reference is provided, the authors need to simply explain the method how to estimate the TID propagation characteristics.

5. Page 7, line 2. "…we firstly analyze the tsunami measurements…", "firstly" should be "first".

6. In the conclusion section, please also discuss and provide some outlook about multi-GNSS, which is the future of GNSS development. FYI,
   Li, X., M. Ge, X. Dai, X. Ren, M. Fritsche, J. Wickert, and H. Schuh (2015), Accuracy and reliability of multi-GNSS real-time precise positioning: GPS, GLONASS, BeiDou, and Galileo, J Geod., 89, 607–635, doi: 10.1007/s00190-015-0802-8.
   Li, X., F. Zus, C. Lu, G. Dick, T. Ning, M. Ge, J. Wickert, and H. Schuh (2015), Retrieving of atmospheric parameters from multi-GNSS in real time: Validation with water vapor radiometer and numerical weather model. J. Geophys. Res. Atmos., 120, 7189–7204. doi: 10.1002/2015JD023454.

7. Please try your best to cite peer-reviewed journal papers and to avoid conference papers or reports.

Best regards,