Interactive comment on "Acidification-vulnerable carbonate system of the East Sea (Japan Sea)" *by* Taehee Na et al.

Taehee Na et al.

thna@snu.ac.kr

There are three major points in our manuscript. We examined how the mistake in our DO and DIC results in 2014 affects our three claims.

1. Characteristics of the East Sea carbonate system vulnerable to acidification: The small correction made for DIC results in 2014 does not affect this aspect.

2. Temporal variation in AOU, DIC, and pH: this aspect also is not affected by the correction in DIC results in 2014. As shown in the following figure 1, the main trends still hold strong. Slight increase in AOU and decrease in DIC makes better increasing trends. pH values in 2014 are measured values and therefore are not affected by correction in DIC.

Also, saturation horizons of calcite and aragonite were not affected significantly by the correction, and the temporal trend is still valid (shown in the following figure 2 which is virtually the same as the original plot).

3. Spatial variability: as described in our responses to the earlier comments, our correction made for DO and DIC removed the meridional difference between the Japan Basin and the Ulleung Basin. So this aspect should be thoroughly revised.

Now thanks to the keen examination of the DO and DIC data by the reviewers and Dr. Kosugi, the mistake in DO and DIC calibration has been corrected and the data are more sound. We believe that the first two points are important new findings and contribute to better understanding of the carbonate system in the East Sea and the oceans.
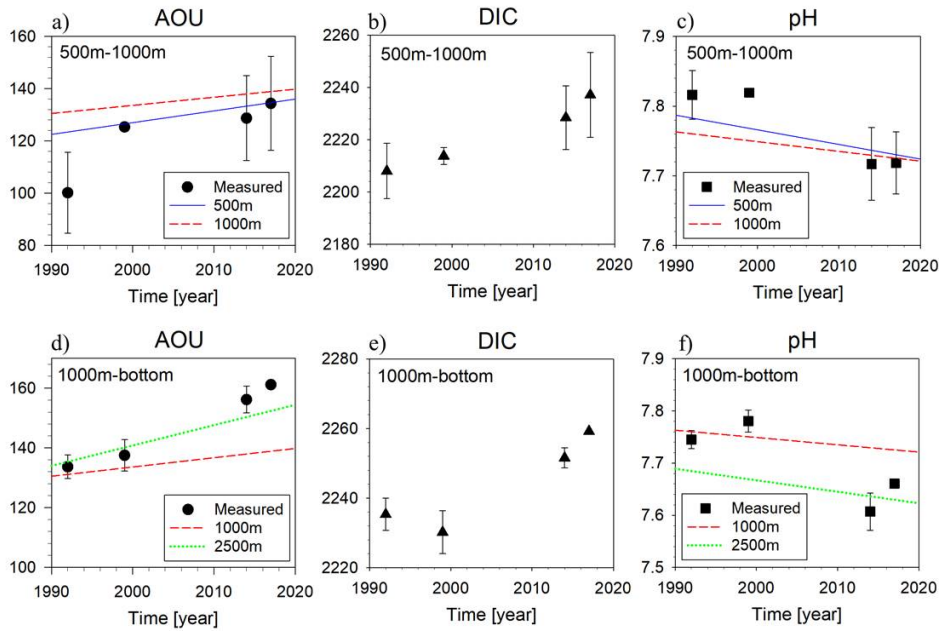
Fig. 1. Temporal variations of AOU in μmol kg-1 (a, d), DIC (b, e) in μmol kg-1, and pH on the total hydrogen scale (c, f)
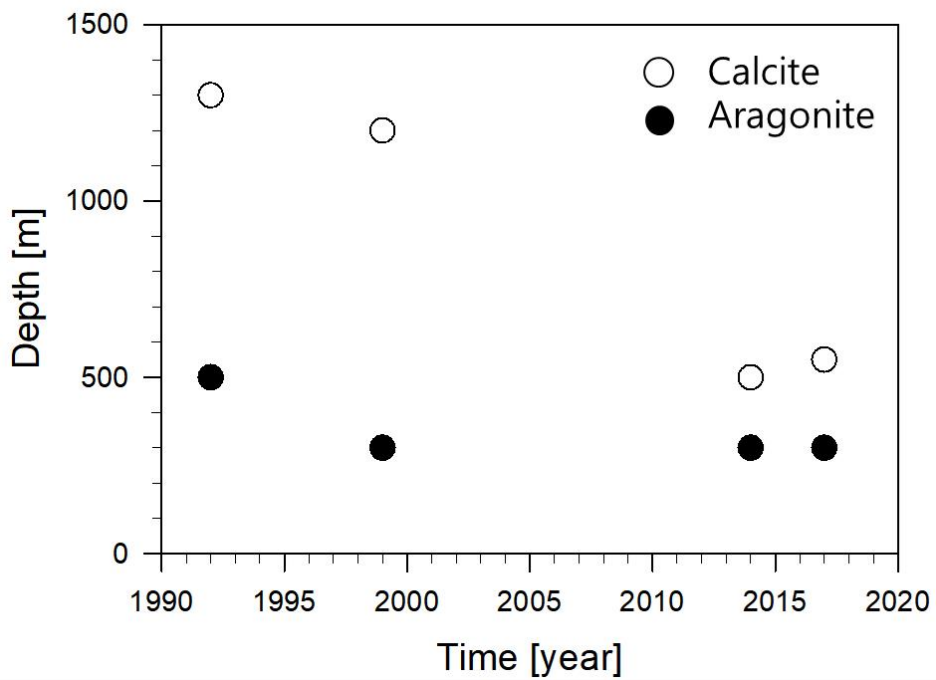
Fig. 2. Temporal variations of calcite (open symbols) and aragonite (filled symbols) saturation horizons in the Ulleung Basin