**Response to comments (Referee 1)**

**Page 1**

line 18. Better “. . and higher storm surges causing severe damage on coastal structures . .”

We have fixed it.

**Page 2.**

Line 2. “TGs provide records . .” (omit “the”)

We have fixed it.

Line 14. Better “. . reduced-space . .”

We have fixed it.

Line 23. Better “. . past, reconstruction . . TGs was inaccurate . .”

We have fixed it.

Line 25. “gave” -> “give”.

We have fixed it.

**Page 3.**

Lines 10-11. Better “. . generally for any small region) from a globally reconstructed SLA has some problems. . .”

We have fixed it.

Line 18. “. . builds on Hamlington . .”

We have fixed it.

Line 25. Omit “a”

We have fixed it.

**Page 4.**

Line 4. “based on” -> “relative to” ?

We have changed the sentence.

Line 9. “Each dataset was trimmed . .”

We have fixed it.

Line 17. “. . until 1950. . .” (spelling)

We have fixed it.

Lines 22-23. “(greater than 7 mm/yr, likely owing to uncorrectable vertical land motions) being removed . .”

We have fixed it.

Lines 26-29 duplicate some of page 2 lines 14-18.

We have removed repeating sentences.

Line 29. Better “. . results. The Church and White (2000, 2011) dataset . .”

We have fixed it.

**Page 5.**

Line 6. “. . (2012a). Previous studies . .”

Line 7. Omit “they”.

We have fixed it.

**Page 6**

Line 6. Better “. . period d (called . .”

We have fixed it.

Line 15. Omit “following”

We have fixed it.

**Page 7.**

Line 3. “. . that each mode . .”

We have fixed it.

Line 11. “follows” (add “s”)

We have fixed it.

Equation (7). I think the superscript after PCT(subscript SST) should be “(i,n – ρ . .)” , i.e. “m” -> “i”.

We have fixed it.

Lines 15 and 17. “regression” (spelling, twice)

We have fixed it.

Lines 21-25. I think the order could be rationalised. “As a starting point, the AVISO was trimmed around the KP and the southeast sea of the Japanese islands was removed. GMSL and mean values were removed from AVISO at each grid point. Each SST dataset was trimmed to have the time span of 1891-2014 and cut into three regions: around the KP, the Northwest Pacific Ocean, and global (no trimming). In total, we made six different SST combinations (ERSST and COBESST2 for three regions). All grid points that were not continuous in time were removed for every dataset. Each data point was weighted by the square root of the cosine of latitude to consider the actual area of each grid.” [Here I have also added how there are six SST combinations].

We have changed the paragraph as you recommended us.

Line 27. “. . nested period, because . .” [i.e. this would be a natural place to answer the referee question about the choice of nested period and help the general reader].

We have added some explanation.

**Page 8.**

Lines 21-22. Better “. . while in other regions the linear trends were less than 1 mm/yr (Fig. 2). . .”

We have fixed it.

Line 30. “. . extreme trends and . .”

We have fixed it.

Lines 30-31. “. . The mean SLAs of the two regions agree well with each other . .”

We have fixed it.

**Page 9**

Lines 4-6. Better “. . In Fig. 4, 11 TG stations (square shapes) have an estimated linear trend at least 30% less than the AVISO, while 21 TG stations (diamond shapes) have an estimated trend exceeding AVISO by more than 30%. . .”

We have fixed it.

Line 17. “. . have a linear trend . .”

We have fixed it.

Line 29. “. . both of them through CSEOF (Hamlington”

We have fixed it.

Line 32. “. . comparison with our”

We have fixed it.

**Page 10.**

Line 15. “. . at each . .”

We have fixed it.

Lines 19, 21. “locations”

We have fixed it.

Line 24. “. . over the satellite era . .”

We have fixed it.

Line 30. “. . even using fewer predictors . .”

We have fixed it.