

Thank you for your kind help and arrangement for reviewing our manuscript. Point-by-point replies to the comments are addressed as below.

**Reviewer #1:**

Yan et al. provide comprehensive investigations on Gross Primary Production (GPP) under El Niño-Southern Oscillation (ENSO) and Indian Ocean Dipole (IOD) conditions in China. Seasonal differences in GPP responses to ENSO and IOD are especially well summarized. I believe this research can be used not only to support the carbon sink component in the carbon neutrality goal but also to support agricultural productivity in China. I only have several technical corrections before accepting this manuscript.

1. L32, L33: nIOD, pIOD introduced in Abstract. I can understand the meaning for (p for positive and n for negative), but I think it would be hard to understand from readers.

Reply: Thanks for your suggestion, I have corrected this expression by correcting pIOD to “positive IOD” and nIOD to “negative IOD”. (L32-33)

2. Similarly, pIOD already used in L85 but it is lately introduced at L88. (positive IOD)

Reply: Thanks for your suggestion, I have introduced the pIOD at L85 to “positive IOD”.

3. L112: ERA5 needs its full name.

Reply: Thanks for your suggestion, I have corrected this expression. (L112)

4. L172, L173: ~ indicates approximately in English. It is not used to express range in English. Please replace it with –.

Reply: Thanks for your suggestion, I have corrected this expression. (L172, L173)

5. Table 1: I wondered why pIOD has just one year and nIOD has only three years. Does this mean IOD without ENSO? Then, you need to clarify.

Reply: In table1, we give the year of occurrence of 3 types of events: ENSO alone (El

Niño or La Niña), IOD alone (pIOD or nIOD), and both events simultaneously. And neither ENSO nor IOD events of positive and negative phases is completely symmetric, therefore, it is normal for pIOD event to occur only once and nIOD to occur three times.

6. L620: REA5 -> ERA5

Reply: Thanks for your suggestion, I have corrected this expression. (L620)