The authors made great efforts in improving the manuscript. Now the revised manuscript is good in science, logic and other details. It can be accepted after some minor revision. The detailed comments are below:

1. Line 21: Please change “which converts massive, dissolved CO2..” to “which convert massive CO2 …”

2. Line 163: Figure 3 should be Fig. 3

3. Please add units for the mean values in lines 168-169.

4. I still think Figures 3a and b, d and e are overlapped, and Figures 3b and e were not cited in the text. I suggest present the total FPN and three kinds of FPN in one panel, FPC in the same manner.

5. The legends are not clear for Figure 4b. There are four lines in this panel, but the authors did not explain the meaning of each line. In addition, Figure 4c was not cited in the text. In line 205, the authors said FPC/POC displayed inverse seasonal variation to POC fluxes based on Figure 4b, but according to Figure 4c, positive correlations between POC flux to FPN and FPC. To some extent, it seems contradictory.

6. In figure 6, the points are shown in different colors, please using color bar or other means to explain them. Also the dashed lines are in red and blue, which one denotes EAM and non-EAM?