

- **RC1:** ['Comment on amt-2023-120'](#), Anonymous Referee #1, 13 Sep 2023 [reply](#)

The paper is based on the in-situ, high temporal resolution (1-min) observations of the typhoon Sinlaku over the South China Sea from July 24 to August 2, 2020, with a solar-powered, mobile ocean weather observation system, abbreviated as MWO for Marine Weather Observer and developed by China Institute of Atmospheric Physics (IAP). The data has been analyzed and compared with the observations made by 7 buoys, which are close to the MWO. The results from the study, especially on the variation features of meteorological parameters when Sinlaku passed over the MWO, are clearly presented by the paper and shows that the observation system is technically fine and the data obtained are useful for ocean study. It is hoped that the paper can be published after proper modification.

Specific comments and suggestions

1. Lines 34-36 and 398-400: “The air temperature measured from MWO are generally lower than those from the buoys, which may be related to the mounting height of the sensor”. And “the sensor on the mooring buoy can reach up to 10m, on the drifting buoy it may be about 1.5m, and on MWO it is close to 1.2m. The closer the sensor is to the water's surface, the more obvious the impact on the marine environment” as shown Lines 372-374, Does it imply that the “lower” is because of the marine water temperature is cooler than air? Otherwise, the air temperature measured by MWO should be higher than those from the buoys because the normal air temperature gradient. Please consider this further and supply a detailed analysis.

Reply: Thanks for your comments. We did check the air temperature and SST measured by MWO. As shown Fig.1 here, the diurnal variation of air temperature were significant before typhoon is coming, especially much lower than SST at night. In Fig.5a, similar lower value at night was found for drifting buoys measurements. We also checked more about drifting buoys. As mentioned in Cao et al. (2019) that the air temperature sensor is installed above the 40 cm buoys ball as shown in Fig.2, which means that it may be located about 1 m above the sea surface, close to the mounted height of the sensor on MWO. Therefore, the air temperature obtained from MWO and drifting buoys displayed similar diurnal variations as shown in Fig.5a, and both were lower than SST, which is consistent with the normal air temperature gradient.

We have corrected the description regarding this point as “**This may be related to the installation height and sensitivity of the sensor. Usually, the**

sensor on the mooring buoy can reach up to 10m, on the drifting buoy and MWO it may be about 1.0m (Cao et al., 2019). The closer the sensor is to the surface, the more pronounced the impact of near-surface environmental changes.” in line 373-376. We also changed the related descriptions in the paper.

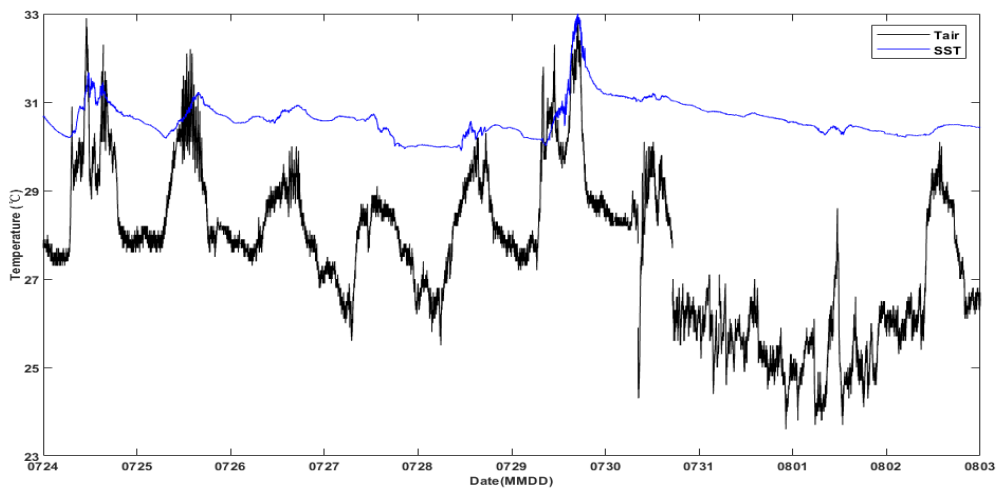


Fig.1 The time series of air temperature and SST measured from MWO from July 24 to August 02, 2020.

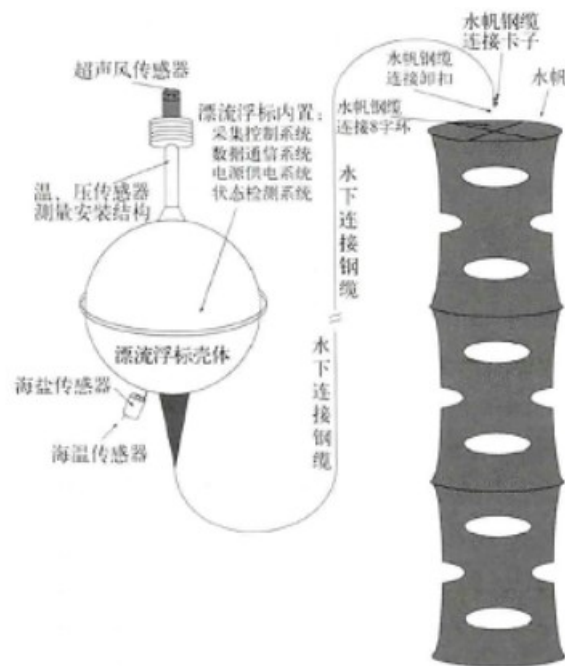


Fig.2 Schematic diagram of drifting buoy (cited from Cao et al., 2019, Typhoon observation and analysis of domestic marine meteorological drift buoy experiment,

Meteor Mon, 45(10):1457-143(in Chinese))

2. Please consider if the paragraphs in Section 4 can be concentrated and inserted into Section 3 and

Reply: Thank you for your suggestion. Considering the overall structure of the paper as well as the different emphasis in the two sections, we had better retain them in order to better understand the relevant results.

3. line 142: The position for“LST”in the caption for Fig. 2 should be adjusted.

Reply: Thank you. We removed the LST in the caption for Fig.2 and Fig.4, and added “**It should note that the time used in the following is local time (shorted for LT), also known as Beijing time.**” In line 125-126.

4. Lines 148-149: The date should be included in addition to the time “1200LST”.

Reply: Yes, we changed “1200LST” into “**1200 LT on Aug.1**” in line 151.

5. Lines 227-229: The subgraph Fig.4c is not mentioned in the caption for Fig.4.

Reply: Thank you. We changed it as “**Fig.4. Time series of (a) air pressure and (b) wind speed (c) distance for the seven buoys (2 drifting and 5 mooring, legend begin with D and M, respectively) and MWO from July 24 to August 02, 2020. The dashed red line is on July 30 to separate the first and second stages.**” in line 229-231.

6. Please consider the difference between Drifted buoys and drifting buoys.

Reply: Thank you. All “drifted” words are changed into “drifting”.