July 14, 2026

Manuscript # essd-2026-267

Dear editor and reviewers:

Thanks for your comments and insightful advice that have helped me greatly in improving the manuscript. We have carefully considered your comments and revised the paper accordingly. Please find attached a point-by-point response to the concerns. For clarity, each referee comment is reproduced in italics, followed by our response (the replies are in blue); quotations of revised manuscript text are also given in italics.

We are looking forward to hearing from you.

Response to Referee 1

Thanks for your comments and insightful advice that have helped me greatly in improving the manuscript.

General comments

The quality of the figures (i.e., their resolution) is somewhat low; it would be appreciated if it could be improved.

Response. Thank you for this constructive suggestion. All figures have been regenerated at 600 dpi for the revised version.

The choice of colors in the figures sometimes makes them difficult to read for colorblind readers. I recommend using adapted color palettes (see for example https://jfly.uni-koeln.de/color/).

Response. Thanks for your comment. We have adopted a colorblind-safe palette (Wong, 2011; Okabe–Ito) for all multi-series figures.

The journal requires compliance with the International System of Units (SI). This standard requires a non-breaking space between the value and its unit, except when the unit is in degrees (e.g., 5°, but note that for compound units like 5 °C, the space is required). Also, the use of the "/" notation should be avoided; instead, use a space or a dot (e.g., m s^{-1} or m·s^{-1} instead of m/s).

Response. Thanks for your comment. The manuscript has been revised throughout for SI compliance: a non-breaking space now separates each value and its unit, and the solidus has been removed.

Introduction

Line 27: *What does "SVP" stand for?*

Response. Thanks for your comment. "SVP" is now spelled out at first use as "Surface Velocity Program (SVP)" in Lines 28-29 in the revision.

Line 31: *"to fully capture meso- and submesoscale air-sea processes over large regions" or something similar would be more appropriate. Indeed, Eulerian moorings can capture these phenomena, but only at fixed locations.*

Response. Thanks for your advice. The sentence now reads (Lines 32–33): " Conversely, moored buoys provide multi-variable time series but lack spatial mobility, limiting their ability to fully capture meso- and submesoscale air-sea processes over large regions."

Line 38: *"suppresses the vertical mixing": does it completely suppress it? Or would "reduces" be more appropriate?*

Response. Thanks for your advice. We have changed "suppresses the vertical mixing" to "reduces the vertical mixing" in Line 39 in the revision.

Line 50: *"sampling frequency increased to 5–30 minute intervals": how are these periods chosen, i.e., the periods during which the temporal resolution is increased? Are they selected arbitrarily? This may not be a major issue, but it should be clarified.*

Response. Thanks for your comment. We have added a clarification: the sampling interval was not selected arbitrarily. The buoys operate at hourly sampling by default; the interval was intensified to 5–30 min manually via satellite command when an approaching tropical cyclone was identified from forecasts. The revised text in Lines 50-53 reads:

> *"Under typical conditions, the buoys recorded stable hourly measurements; during severe TCs (Nivar, Nov.2020; Burevi, Nov. 2020; Four, Aug. 2022 and Asani, May 2022), the sampling frequency was manually increased to 5–30 minute intervals as needed, when an approaching tropical cyclone was identified from forecasts."*

Line 51: *"ultra-high-resolution" may be too strong in this context. While the dataset is high-resolution in oceanographic standards, this is not necessarily the case compared to other fields. I suggest removing "ultra".*

Response. Thanks for your advice. We have removed "ultra" in Line 53 in the revision.

Line 52: *"irreplaceable" is also somewhat too strong.*

Response. Thanks for your comment. To soften the wording, we replaced "an irreplaceable benchmark" with "a valuable benchmark." in Line 54 in the revision.

Drifting buoys

Line 65: *To obtain purely Lagrangian observations of atmospheric wind velocity, the buoy*

would need to drift with the atmospheric winds rather than ocean currents. I suggest adding something like "(from the ocean perspective)" after "Lagrangian".
Response. Thanks for your advice. We have added the qualifier: "…it provides continuous Lagrangian observations (from the ocean perspective) of key parameters…" in Line 69 in the revision.

Line 66: *"standard height" is too vague. A value or at least an order of magnitude should be provided (e.g., in parentheses).*
Response. Thanks for your comment. The atmospheric module is mounted at 2 m above the sea surface. We have added the specified height in Line 71.

Line 67: *Same comment as above: "below the waterline" should be complemented with an approximate depth.*
Response. Thanks for your comment. The temperature sensor is positioned just at 0.75 m below the waterline. We have added the specified depth in Line 71.

Lines 70–71: *Same comment as before. How are these sampling intervals selected? Arbitrarily? Based on a threshold? This should be clarified at least once in the manuscript.*
Response. Thanks for your comment. The sampling interval was not selected arbitrarily. The buoys operate at hourly sampling by default; the interval was intensified to 5–30 min manually via satellite command when an approaching tropical cyclone was identified from forecasts. The clarification has been added in Lines 50-53.

Table 1: *To simplify the table, "RH" could be removed from the relative humidity unit.*
Response. Thanks for your advice. In Table 1, the relative-humidity range is now given as "0 % to 100 %" (the "RH" suffix removed).

Line 81: *"two of these buoys drifted in close parallel for an extended period": it would be helpful to specify which ones for easier interpretation of the figure.*
Response. Thanks for your comment. Buoys 200D4 and 200DA drifted in close parallel for an extended period. We have added the buoys name in Line 85.

Line 81: *Are these data really "unique"? Or rather "rare" or "valuable"?*
Response. Thanks for your advice. We replaced " unique " with " rare" in Line 85 in the revision.
Line 83: *"up to 150 days": it is useful to provide the upper bound, but the lower bound should also be given.*
Response. Thanks for your comment. We revised to give the full range: the second batch operated for ~28 to ~150 days in Line 87 in the revision.

Figure 2: *"Elevation" in the colorbar title should be replaced by "Bathymetry".*
Response. Thanks for your advice. We have replaced " Bathymetry" with " Elevation " in Figure 1.

Table 2: *Is the "Synoptic Observations" column necessary? It does not seem to vary between*

buoys and is redundant with Table 1.
Response. Thanks for your comment. The "Synoptic Observations" column has been removed from Table 2.

Table 2: *Why specify "Tropical Cyclone" for Asani and not for the others? This does not seem necessary. Also, why are some names in grey?*
Response. Thanks for your comment. Table 2 has been standardized: the "Tropical Cyclone" prefix has been removed from the entries, all cyclone names are listed uniformly in the same (black) font, and the inconsistent grey shading has been corrected, which we previously used to distinguish different TCs. The TC column now simply lists the cyclone(s) encountered by each buoy.

Data Processing Method
Lines 101–102: *This is one of the most important points for me. I do not think replacing outliers with NaN is a good approach. These data should be preserved in the dataset, and a "QC flag" column should be provided (e.g., with codes for values outside instrument ranges, climatological bounds, or exceeding the 3σ criterion). This last criterion is arbitrary. This is not necessarily a problem, but what may appear as noise for some studies could be informative for others. For instance, wind exhibits turbulent dynamics, and SST behaves as a passive scalar of turbulence. In this context, intermittency (i.e., the presence of extremes across scales, especially small ones) is expected (e.g., Frisch, 1995; Schmitt & Huang, 2016; Robache et al., 2025). Removing spikes may therefore disrupt this intermittent structure without awareness. For this reason, I suggest flagging rather than removing them. These data do not necessarily need to be included in the figures, but they should be preserved in the dataset.*
Response. We fully agree and thank the reviewer for this important point. We have revised both the processing workflow and the released dataset: (i) Anomalous values are no longer removed. All original observations are retained, and a quality-control flag column is added, encoding the reason for each flag (e.g., 0 = passed; 1 = outside instrument range; 2 = outside climatological bounds; 3 = exceeds the 3σ criterion). (ii) The raw (unprocessed) with QC flags versions are now archived on Zenodo, allowing users to apply alternative QC procedures suited to their applications. The change has added in Lines 104-110 in the revision.

Line 110: *An order of magnitude for the underestimation would be useful (e.g., "underestimates by up to XX %").*
Response. Thanks for your advice. We provided the magnitude for the underestimation in Lines 118-120 in the revision. For buoy 20098 during TCs Nivar and Burevi, ERA5 underestimates the observed peak sensible heat flux by up to ~44–67 % and the peak latent heat flux by ~12–25 %.

Figure 3: *"Buoy measurements were adjusted to a 10 m reference height": please explain how.*
Response. Thanks for your comment. We agree that our previous statement, *"Buoy measurements were adjusted to a 10 m reference height,"* was misleading and not technically accurate. After carefully rechecking our data processing procedure, we have corrected it to:

"The 10 m wind speed was calculated from the 2 m wind observations with the COARE

3.0 algorithm via Monin–Obukhov similarity theory (Fairall et al., 2003), and the buoy measurements were averaged to hourly intervals for temporal synchronization with ERA5."

We have revised the corresponding description in Section 3.3 (Lines 159-165) and added the same clarification to the caption of Figure 3 (Lines 123-125) to ensure that the processing procedure is accurately described.

Figure 3: *"u- and v-component wind speeds" → "u- and v- wind speed components"?*
Response: Thank you for your suggestion. We have changed "u- and v-component wind speeds" to "u- and v- wind speed components" for greater accuracy.

Lines 118–125: *These data are not used or shown later in the manuscript. Why?*
Response. Thanks for your comment. We have added the derived surface-current speed to Figure 5a and 5b, so that the quantity described in Sect. 3.2 is now presented. We have also added a citation to the corresponding figure in the discussion of the TC-induced increase in current speed (Lines 195-197).

Lines 135–138: *For each term in the equation, the units should be specified. In addition, it should be clearly stated which variables are directly computed from the observations (with the corresponding formulas) and which are prescribed constants or parameterized quantities (with their values and references).*
Response: Thank you for your valuable suggestion. We have added a table defining every symbol in Eqs. (3) – (4), its SI unit, and whether it is observed, diagnosed from observations, or prescribed/parameterized (with value and reference) in Lines 150 to 161 in the revision.

Line 139: *"2.0 m" → "2 m".*
Response: Thank you for your suggestion. We have replaced "2.0 m" with "2 m".

Line 140: *"empirical profile formulas" is vague: which ones?*
Response. Thanks for your comment. We agree that our previous statement, *" Since COARE 3.0 requires inputs standardized to specific heights, we adjusted our 2.0 m meteorological observations to the standard 10 m reference height using empirical profile formulas prior to calculation. "* was misleading and not technically accurate. After carefully rechecking our data processing procedure, we have corrected it to: "*The COARE 3.0 algorithm accepts the 2 m observations directly as inputs with their measurement heights specified, and outputs the 10 m wind speed via Monin–Obukhov similarity theory (Fairall et al., 2003); the latter is used for comparison with ERA5 10 m wind in Fig. 3 and is provided in the released dataset (variable WSPD10) alongside the original observations at 2 m.*" We have revised the corresponding description in Section 3.3 (Lines 159-165) and added the same clarification to the caption of Figure 3 (Lines 123-125) to ensure that the processing procedure is accurately described.

Data overview
Line 144: *Are there references or data supporting this cyclonic circulation?*
Response. Thanks for your comment. We have added supporting evidence: "*...and recording*

highly variable air-sea conditions. Driven by cyclonic circulation (Shetye et al., 1996; Shankar et al., 2002)…" in Line 171 in the revision. The two references demonstrate the cyclonic basin-scale circulation characteristic of the northeast-monsoon season.

Line 147: *"mesoscale eddies": are you sure that their displacement is only due to mesoscale processes? Some studies have shown that these scales are not always sufficient to explain Lagrangian buoy divergence (e.g., Ma et al., 2024).*
Response. Thanks for your comment. We have softened this statement and acknowledge that buoy dispersion is not governed by mesoscale processes alone. The text now reads " *the winter 2020 buoys (20097, 20098) followed complex spiral trajectories in the central BoB, capturing the signatures of mesoscale eddies, the southward-flowing western boundary current, and TCs Nivar and Burevi."* In Line 172 in the revision.

Figure 4: *The choice of colors is problematic for colorblind readers (especially green and red).*
Response. Thanks for your valuable comment. We have adopted a colorblind-safe palette (Wong, 2011; Okabe–Ito) for all multi-series figures.

Figure 4: *Are storm names given in chronological order from left to right? If so, this should be specified.*
Response. Thanks for your valuable comment. Yes. The captions of Figs. 4 and 5 now state that cyclones are shown in chronological order (Nivar then Burevi in the left column; Asani then Four in the right column). We clarified in the figure caption. For consistency, the in-text first mention (Line 51) has also been reordered to chronological order: **Nivar, Burevi, Asani, and Four**.

Figure 4: *Some curves appear to extend beyond the panel boundaries (e.g., panel c on the far right). Is this normal?*
Response. Thanks for your comment. This was a plotting artifact. We have corrected the axis limits and clipping in the regenerated figures so that all series are fully contained within the panels.

Lines 159–160: *The wording is somewhat repetitive. It could be changed, for instance: "Time series of ... are shown in Figure 4."*
Response: Thank you for your suggestion. We have reworded the wording to: "*Time series of the observed meteorological and oceanic parameters are shown in Figure 4.*" in Line 186

Line 161: *"clear diurnal cycle": was a method used to estimate the frequency of these peaks?*
Response. Thanks for your comment. We performed a power-spectral / harmonic analysis (Figure A1) confirming a dominant ~24 h peak in air temperature and SST. Accordingly, we have added a corresponding clarification in Line 188.

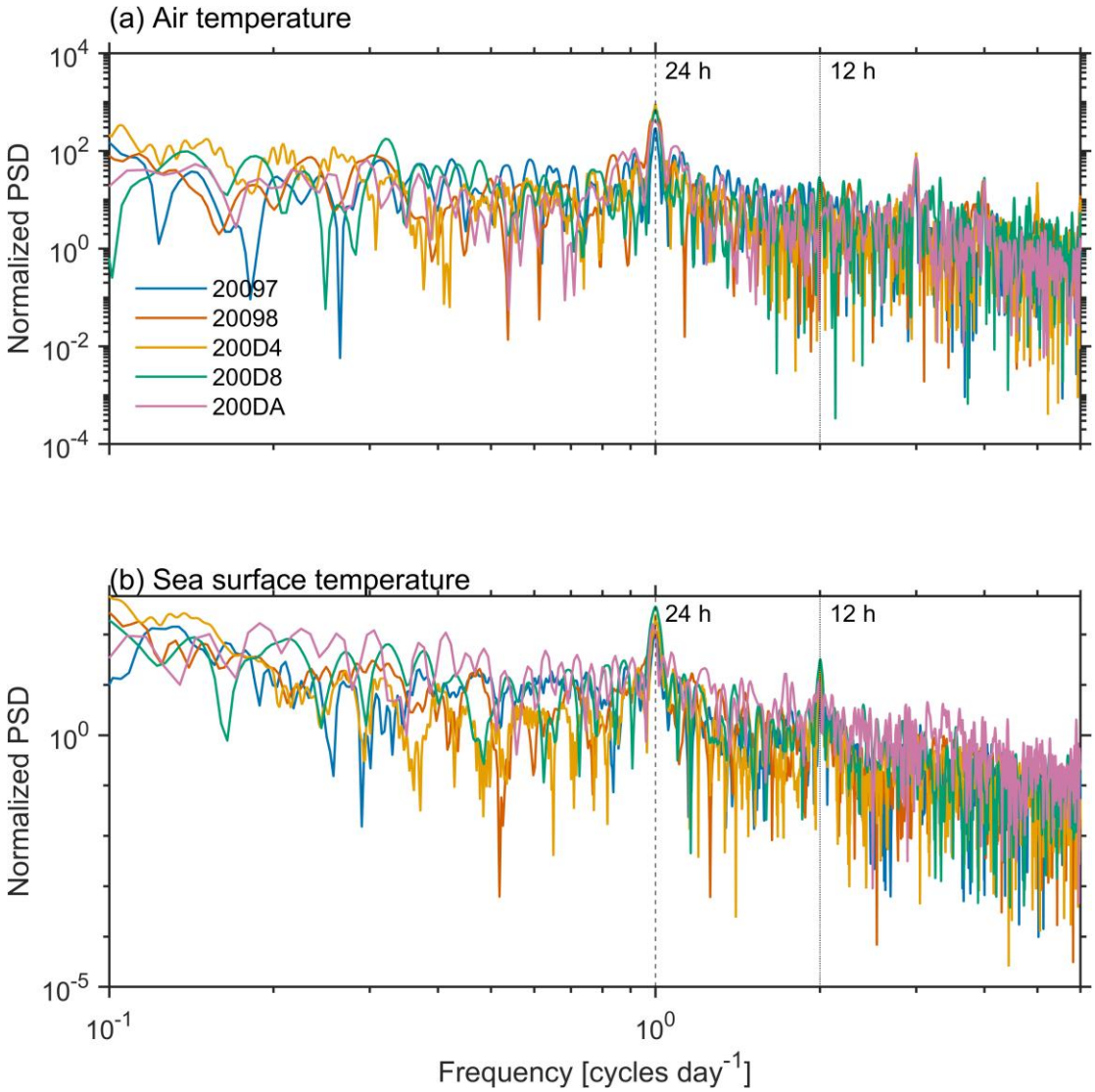

Figure A1. Lomb–Scargle periodograms of quality-controlled (a) air temperature and (b) SST from the five buoys (colors as in Fig. 4 in the revision). Spectra are computed on the irregularly sampled series without interpolation, after removal of the mean and linear trend. Dashed and dotted lines mark the diurnal (24 h) and semidiurnal (12 h) frequencies. A pronounced diurnal peak, exceeding the 99 % false-alarm level for all buoys and both variables, confirms the diurnal cycle noted in Sect. 4; the steeper high-frequency roll-off of SST reflects the ocean's larger thermal inertia.

Line 162: *"high-frequency amplitude of SST": what is meant by "high-frequency"? Also, is the amplitude really smaller, or is it a visual effect due to axis scaling? Orders of magnitude should be provided.*

Response. Thanks for your comment. The "high-frequency" we refer to the sub-daily (diurnal-band) variability. The diurnal amplitude of SST (~0.3–0.5°C) is indeed smaller than that of air temperature (~2.4–2.9 °C) across all five buoys; The diurnal (sub-daily) variability of SST is weaker than that of air temperature — evident in the steeper high-frequency spectral roll-off (Fig. A1b). We also added a clarification in Lines 188-190 in the revision.

Lines 163–164: *"Wind speeds typically ranged from 0 to 10 m/s…": this is not clearly supported by the figures. Values above 10 m s^{-1} appear outside TC periods. How was this threshold chosen? Were TC and non-TC periods analyzed separately?*

Response. Thanks for your comment. We have rephrased and separated the analysis. We no longer impose a sharp 10 m s^{-1} threshold; instead, we report, "*Outside TC periods, wind speeds were moderate with 90 % of values below 6.5 m s^{-1} and 99 % below 8.2 m s^{-1} but sharply increased during TC encounters.*" in Lines 190-192. The "0–10 m s^{-1}" wording has been removed. Sorry for the mistake.

Line 166: *Figure 4b should not be cited here, since Asani only concerns the right panels. Also, other relevant panels are not referenced (for SST, air temperature, wind speed…).*

Response. Thanks for your comment. The citation has been corrected. For the Asani example we now cite the right-column panels (Figs. 4h, 4l, 4j, etc.) and reference the relevant SST/air-temperature/wind-speed panels in Lines 193-195.

Line 167: *Figure 5c and 5d (right)? Still referring to Asani? If so, avoid breaking the paragraph.*

Response. Thanks for your comment. We have corrected in Lines 195-197 to cite Figs. 5c–5d (right column) for the Asani-related flux surge, and the paragraph break has been removed so the discussion of the same event is contiguous.

Line 168: *"far exceeding normal baseline levels": provide an order of magnitude (e.g., mean value).*

Response. Thanks for your suggestion. We have added the instantaneous LH peak of 843.9 W m^{-2} is far exceeding the non-TC baseline mean of 111. W m^{-2} in Lines 197-198 in the revision.

Lines 171–175: *I recommend moving this paragraph ("In summary…") to the conclusion section.*

Response. Thanks for your suggestion. The "In summary…" paragraph has been moved to the Discussion and conclusion section in Lines 237-241.

Data availability

According to journal standards, this section should appear later. I also recommend including the dataset DOI in the abstract.

Response. Thanks for your valuable suggestion. The Data availability section has been moved to the position required by ESSD, and the dataset DOI (https://doi.org/10.5281/zenodo.21294873) has been added to the abstract. In addition, the *Acknowledgements* section has been moved to follow the *Data availability* section in accordance with the journal's formatting requirements for ESSD.

It would also be useful to provide the source of the bathymetry data used in Figure 2 if possible.

Response. Thanks for your valuable suggestion. We have provided the source of the bathymetry data used in Figure 2 in the Data availability section. The background bathymetry data (water depth) used for Figure 2 was derived from the ETOPO2 (2-minute resolution) global

relief model (National Geophysical Data Center, 2006), provided by the National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information (NCEI).

Discussion and conclusion

It may be useful to cite studies demonstrating the importance of high-frequency data for estimating ocean–atmosphere heat flux budgets.

Response. Thanks for your valuable suggestion. The Discussion is now referenced throughout. In particular, we added a passage on why high-frequency flux-related observations matter for heat-flux budgets in Lines 218-227:

> *"Direct flux-related measurements at sea remain sparse, and the resulting uncertainties in bulk-derived flux products are a leading obstacle to closing the ocean-surface energy budget (Yu, 2019); observing strategies therefore call for flux-related measurements at sub-daily — ideally hourly — resolution (Bourassa et al., 2013; Cronin et al., 2019). High-frequency sampling matters quantitatively: neglecting diurnal SST variability alone biases climatological air-sea heat fluxes by several W m^{-2} regionally (Clayson and Bogdanoff, 2013), and the diurnal warm layers of the post-monsoon BoB make such variability locally pronounced (Weller et al., 2016). By resolving the diurnal cycle and sub-hourly transients (Sect. 4), these records provide scarce in-situ data for investigating fine-scale boundary layer dynamics and rapid air-sea flux responses."*

Lines 203–205: *I do not understand what the issue is here, or what the authors are trying to convey. Indeed, a Lagrangian approach does not allow for Eulerian time-series analysis. However, does this type of approach not have its own relevance (e.g., this is how passive particles such as phytoplankton would experience heat fluxes)?*

Response. Thanks for your valuable comment. We apologize that our original wording was unclear and potentially ambiguous. We have revised this paragraph in Lines 231-236 as follows:

> *"Despite the rigorous quality control applied, we must acknowledge the inherent limitations of the data. Under extreme sea states, severe wave breaking and sea spray may occasionally introduce transient noise into the measurements—for example, through wave breaking and sea spray wetting the atmospheric sensors, or sensor motion and tilt, which can produce short-lived spurious spikes. Nevertheless, our systematic processing workflow effectively identifies these anomalies, maximizing the rigor and reliability of this published dataset."*

Line 206: *What is meant by "noise"? It would also be helpful to explain how these processes affect measurements.*

Response. Thanks for your valuable comment. we have clarified this point in Lines 232-235. The text read:

> *"Under extreme sea states, severe wave breaking and sea spray may occasionally introduce transient noise into the measurements — e.g., wave breaking and sea spray wetting the atmospheric sensors, and sensor motion/tilt, which can produce short-lived spurious spikes."*

Appendix A

For start and end times, do the last numbers correspond to hours? If so, "h" should be added.
Response. Thanks for your valuable comment. The trailing two digits are the hour (UTC). Table A1 now formats times as, e.g., "2020-11-22 21h"

Is "Niviar" a typo (instead of "Nivar")?
Response. Thanks for your valuable comment. The word "Niviar" has been corrected to "Nivar".

Response to Referee 2

Thank you for the positive assessment of our study and for the constructive suggestions, which have helped us strengthen the manuscript. We respond to the three comments in turn below.

Line 12: *Change "atmosphere" to "atmospheric".*
Response. Thanks for your suggestion. We have corrected "atmosphere" to "atmospheric" in Line 12 in the revision.

Line 50 ("TCs (Nivar, Burevi, Four and Asani)"): *While the timeline of these Tropical Cyclones (TCs) is detailed in Appendix A, I suggest providing the date/year information upon their first mention in the main text for immediate context (e.g., Nivar, Nov. 2020).*
Response. Thanks for your suggestion. We have provided the date/year information upon their first mention in Line 51. The text reads:

> *"Under typical conditions, the buoys recorded stable hourly measurements; during severe TCs (Nivar, Nov.2020; Burevi, Nov. 2020; Asani, May 2022 Four and Asani, Aug. 2022), the sampling frequency was manually increased to 5–30 minute intervals as needed, when an approaching tropical cyclone was identified from forecasts."*

Figure 1: *Please increase the resolution of panel (a) to at least 300 dpi to improve visual quality. In panel (a), please include key structural dimensions directly in the schematic (e.g., the distance between the atmospheric sensor array and the main controller). Additionally, it would be beneficial to add clear labels/annotations identifying each component in both panels (a) and (b).*
Response. Thanks for your valuable suggestion. All the Figures have been regenerated at 600 dpi. Panel (a) now includes key structural dimensions—atmospheric sensor at **2 m** above the surface and SST sensor at 0.75 m below the waterline. Both panels (a) and (b) are now fully annotated with component labels (such as atmospheric sensor array and main controller, etc.).

Lines 65–67: *It is unfortunate that wave parameters are omitted. If available, I highly encourage the authors to include and share wave information (e.g., significant wave height) with the community.*
Response. Thanks for your suggestion. The present buoys were not equipped with wave

sensors, so wave parameters are unavailable. We note this explicitly and flag it as a planned upgrade for future deployments.

Table 1: *Change the column header "Resolution" to "Storage precision" if that more accurately reflects the values shown.*
Response. Thanks for your suggestion. The column header in Table 1 has been changed from "Resolution" to "Storage precision".

Lines 101–102: *Please provide the approximate percentage, ratio, or total count of data points identified as outliers during quality control.*
Response. Thanks for your valuable suggestion. We have provided the the percentage of data points identified as outliers during quality control in Lines 104-109 in the revision. The Text reads:

> *"Next, we applied a three-sigma (3σ) criterion based on a 24-point moving window to filter any remaining anomalies: values deviating from the mean by more than three standard deviations were flagged as outliers and encoded the reason for each flag (e.g., 0 = passed; 1 = outside instrument range; 2 = outside climatological bounds; 3 = exceeds the 3σ criterion). Per buoy, the flagged fractions are 0.08% (20097), 0.19% (20098), 0.20% (200D4), 0.38% (200D8), and 0.77% (200DA)."*

Lines 122–124: *Please assign numbers to all equations and remove the bold formatting from the variables. Ensure that the notation for time bounds (t_0 and t_1) is consistent throughout. Additionally, please clarify whether the time interval ($\Delta t = t_1 - t_0$) matches the sampling interval of the raw data.*
Response. Thanks for your valuable suggestion. The current-velocity equations are now numbered (Eqs. 1–2) with non-bold italic variables and a single consistent time notation (t_0, t_1 for two consecutive observations) — correcting the previous inconsistency where the "where" clause used (t_1, t_2) while the equations used (t_0, t_1). We have also clarified that $\Delta t = t_1 - t_0$ is the interval between consecutive position fixes in Line 137, i.e., equal to the raw sampling interval at that time (hourly by default, or the intensified interval during TCs).

Lines 133–136: *Please assign numbers to these equations and remove the bold formatting from the variables. Furthermore, please provide a precise physical definition of "near-surface" by stating the exact measurement height above the sea surface.*
Response. Thanks for your valuable suggestion. The flux equations are now numbered (Eqs. 3–4) with non-bold italic variables. "Near-surface" is now defined precisely: atmospheric variables are measured at 2 m. We have adopted a clearer description in Lines 153-156. The text reads:

> *"U is the near-surface wind speed (m s^{-1}), observed at 2 m; SST is the sea surface temperature (°C), observed at 0.75 m depth and treated as the bulk temperature with the cool-skin correction of COARE 3.0; T_a is the air temperature (°C), observed at 2 m;"*

Line 140: *Please provide the explicit mathematical form of the empirical profile formulas used to convert wind speed from U_2 to U_{10}.*

Response. Thanks for your valuable comment. We agree that our previous statement, *" Since COARE 3.0 requires inputs standardized to specific heights, we adjusted our 2.0 m meteorological observations to the standard 10 m reference height using empirical profile formulas prior to calculation. "* was misleading and not technically accurate. After carefully rechecking our data processing procedure, we have corrected it to: "*The COARE 3.0 algorithm accepts the 2 m observations directly as inputs with their measurement heights specified, and outputs the 10 m wind speed via Monin–Obukhov similarity theory (Fairall et al., 2003); the latter is used for comparison with ERA5 10 m wind in Fig. 3 and is provided in the released dataset (variable WSPD10) alongside the original 2 m observations.*" We have revised the corresponding description in Section 3.3 (Lines 159-165) and added the same clarification to the caption of Figure 3 (Lines 123-125) to ensure that the processing procedure is accurately described.

Figures 3, 4, and 5: *The image quality is currently too low. Please provide high-resolution figures (minimum 300 dpi) for the final version.*
Response. Thanks for your valuable suggestion. All the Figures have been regenerated at 600 dpi.

I strongly encourage the authors to make the raw (unprocessed) dataset publicly available alongside the quality-controlled version. This allows other researchers to apply alternative quality control procedures tailored to different applications.
Response. We fully agree and thank the reviewer for this important point. We have revised both the processing workflow and the released dataset: (i) Anomalous values are no longer removed. All original observations are retained, and a quality-control flag column is added, encoding the reason for each flag (e.g., 0 = passed; 1 = outside instrument range; 2 = outside climatological bounds; 3 = exceeds the 3σ criterion). (ii) The raw (unprocessed) with QC flags versions are now archived on Zenodo, allowing users to apply alternative QC procedures suited to their applications. The change has added in Lines 104-110 in the revision.