

## ***Interactive comment on “Field Investigations of Coastal Sea Surface Temperature Drop after Typhoon Passages” by Dong-Jiing Doong et al.***

**Anonymous Referee #1**

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Field observations of sea surface temperature (SST) drops are discussed after the passage of several typhoons off Taiwan. Whereas temperature drops have been observed and discussed at offshore locations, this manuscript focuses on a near shore measurement station, where currents and river discharge complicate the physical processes. The authors state that the purpose of their research is to study the sea surface temperature drops with the specific intent to understand the possible mechanisms (see line 6 in the abstract). The data analysis presented in the manuscript, however, is superficial and inconclusive. There is no effort to perform a detailed analysis with e.g. standard regression techniques that can underpin correlation between the SST drops and other environmental conditions. In my view, the authors only speculate on possible mechanisms without presenting robust and sufficiently clear evidence to explain mech-

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anisms responsible for the observed sea surface temperature anomalies. Overall, I do not think this manuscript is suitable for publication.

Specific comments:

1. In the abstract, the authors states that an extensive data analysis is presented. However, this extensive analysis is not supported by any of the figures in the manuscript.
2. The authors collected a huge and comprehensive data set of sea surface temperature, wave parameters, atmospheric conditions, etc. . . and yet there is no attempt to correlate the sea surface temperature with any other environmental variables.
3. ADCP's seem to collect sea surface temperature too as shown in figure 2. However, measuring SST is not mentioned as a capability of the ADCP in section 2.2.3.
4. Satellite images were collected for this study, but it seems they were analysed.
5. Section 2.3 on quality control is potentially interesting. However, the description of quality check is too general. What data did the authors remove? Why? What were the criteria or thresholds for quality control? Much more details are required for the reader to understand the procedure.
6. Figure 2 shows the comparison of SST time series at different instrumentations and it is used to claim that the drops are a consistent feature. However, I do not see how figure 2 can fit the quality check section.
7. There is an unnecessary repetition of data being archived on pangaea.
8. Section 4 on statistics of SST drops is quite misleading. About 2/3 of the section is not related to statistical properties. The remaining part (section 4.3) is just a simplistic description of average values, and it is far from being a rigorous statistical analysis
9. Section 5 is too general and inconclusive. There is an attempt to correlate SST drops with typhoon characteristics such as intensity, but this is done in relation to typhoon categories only. It would be much more meaningful to present scatter plots

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of SST drops against environmental parameters, such as wind speed, wave height, pressure, etc.. and then perform machine learning or regression analysis to find correlations, trends etc. The same comments apply for sections 5.1.1, 5.1.2 and 5.1.3. In the present form, these subsections are supported by inconclusive figures that only allow authors to speculate on possible causes, without suggesting a feasible and well supported explanation for SST drops.

10. Another example of speculative discussion is the one in section 5.2. The authors analyse the influence of ocean current on the SST drops, but the only supporting figures are figure 7 and 8. How can a reader infer a correlation between the observed SST drops and current from a plot of bathymetry with overlaid arrows or current directions?

11. Overall, I feel the manuscript misses the extensive data analysis promised in the abstract, making the discussion speculative and the manuscript inconclusive.

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