

# ***Interactive comment on “Precipitation stable isotopic signatures of tropical cyclones in Metropolitan Manila, Philippines show significant negative isotopic excursions” by Dominik Jackisch et al.***

## **Anonymous Referee #2**

Received and published: 1 September 2020

### General Comments

In this paper, Jackisch et al. use shifts in  $\delta^{18}\text{O}$  values over a period of 19 months to look for tropical cyclone (TCs) signals in precipitation. This length of records may not be enough for a robust baseline, but still shows some interesting results which can be useful to better understand tropical cyclones in Southeast Asia.

Although the use of isotopes to reconstruct TC signals is not new, I believe that research studies like this help reinforce and learn more about patterns and the use of O

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isotopes in paleotempestology in different regions and at different latitudes. This study also strengthens the fact that we may still be a way from using O isotope depletion as a reliable (or individual) proxy for TCs.

I think there may be a slight disconnect between this study and the use of O isotopes in paleotempestology. The authors discuss paleo reconstructions using isotope depletion (eg. Miller et al., 2006; Frappier et al. 2007) but then conclude “Based on our findings we conclude that the location of sample collection needs to be chosen strategically.” When reconstructing paleo storms, researchers may not know or have geological evidence of precise movement and path of a TC. Making it potentially difficult to differentiate TCs from other precipitation events. See Oliva et al. (2017) for use of these proxies in paleotempestology.

#### Specific Comments

Line 43. Ensure this is still true, I believe it is widely accepted that there is likeliness in increase in intensity but not necessarily in frequency. See Woodruff et al. (2013) “At the end of the twenty-first century there will probably be fewer, but stronger, storms globally.” Also see IPCC.

Line 52-56 Same as above. Also a graph or figure could be helpful to visualize this.

Section 2.1. This section does not describe the sampling sites, it describes the Philippines. I am more interested about details of sample locations. Section 2.2 talks about sampling at 14.654° N, 121.068° E- Were there any obstructions? Any other potential sources of contamination? Was it on a roof or at ground level? Near other potential sources of water?

Line 205. Figure 2 shows that all nine typhoons left distinct, or at least depleted isotope signatures. Why are they not all in the results? The way it is written, it seems like Rammasun and Kalmaegi, along maybe with Hagupit are the only ones to leave such a signature. You hint at the reason at Line 336 but the values should still be presented

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objectively in the results.

Line 226. What were the values? ‘relatively isotopically enriched’ does not mean much.

Line 301. I do not think you can consider these outliers, there are more of these values than ones associated to TCs.

#### Technical Corrections

General comment. Author should review and ensure the use the units and symbols. For example, the authors use d°m’ at line 115 and dd.ddd° at line 132.

Line 35. A reference here would be helpful to support such a statement.

Line 40. “Nine TCs per year made landfall on [...] Philippine waters is 19.4 per year.” Consider revising wording, slightly confusing.

Line 123. add year of census to population.

Line 134-137. I suggest removing commercial URLs. It is enough to say the Brand and model.

Line 149; 158 URL should be in reference list, not in-text.

Lines 343 -347. I believe you mean r2 (not r), also should all be in presented the same way, not some in-text and some in parentheses.

Section 4.4, and in general. The discipline of using paleoarchives to reconstruct TC activity is called paleotempestology.

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