

## ***Interactive comment on* “Tracking the impacts of the Aru glacier collapses on downstream lakes” by Yanbin Lei et al.**

### **Anonymous Referee #2**

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General comments The manuscript “Tracking the impacts of the Aru glaciers collapses on downstream lakes” by Lei et al. study two lakes shore morphology and bathymetry, lake water level, and lake surface temperature (LST), based on 3-4 years observation of the two collapse glaciers and two lakes downstream in TP. This study provides detail results for the important parameters of glacier lakes responding to glaciers collapse and climate change. This work is useful for understanding the relationship between glacier collapse and lakes behavior. Consequently, it is significant of environment change after the two collapses by using field observation and multi-source satellite observation. The manuscript is generally well-organized and good written. ïAñ The purpose of the study is more like two downstream lakes observation after Aru glacier collapses events. Hence, I would suggest change the title as”How two downstream lakes responding to

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Aru glacier collapses and their changes based on in-situ and Remote sensing data ” or others. From the abstract, I got the information that the glacier collapses have two impacts on two lakes, that is, short-term (LST and lake level) and long-term impacts (Lake level and others). So, I would suggest authors refine the rules and results.

Specific comments Line 80 Aru co is ... here I would suggest add a sentence “ Memar co and Aru Co are lagoons” then, “Aru co is ...” Line 125 here, authors should give the methods how to get lake level changes and how to calculate the uncertainty of lake level changes. Line 130 The important feature of 2 degree decrease after collapse was success to be caught by using MODIS 8-days. And I also understood that it may be difficult to express the temperature field due to resolution (1km). But it is useful to compare between the records from AWS during Oct 2016 and Sep 2019 and LST. Line 145 here, Authors can mark where is norther basin, south basin and center part of Aru Co/Memar Co in figure 1. Line 175 did you want to express that the water level of Aru Co was controlled by climate change and the water level of Memar Co was controlled by climate change in summer and ground water in winter? Line 180 did you want to express that the Aru co has a hydraulic connection with Memar Co. And the time lag was about half an month? Line 191 Sentinel 2->sentinel 2 Line 208 section 4.3 this lake level and lake expansion are chaotic. It should be clear. Line 230 “In 2016” could be omitted. Line 261. I agree on your opinion that after collapse, the lake level increase in warm season rapidly. Did you have any evidence from glacier ablation observations? Line 270 the lake skin temperature? Water body temperature? Freeze up-?ice on is “Break up” melt on or melted?

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