

Second round comments on “Effects of ^{238}U variability and physical transport on the water column ^{234}Th downward fluxes in the coastal upwelling system off Peru” by Xie et al.

Anonymous reviewer #2

I am very happy to see this version of the manuscript which I read with more fun than their first version. Most of my concerns has been answered in the new version. There are not too many studies trying to discuss the impact of physical transport on the downward ^{234}Th flux in the open ocean. This study is therefore welcome to the community.

Before the acceptance of this paper, I only have one question that I am not satisfied. The authors attributed the abnormal uranium activity to the flooding from the coasts, and they also indicated a high activity of particulate ^{234}Th in those flooding waters. Therefore, the dissolved ^{234}Th in those water should be lowered by the sinking of those riverine particles. Once the water was transferred to the region of sampling, it should represent an integrated signal mostly derived from flooding particle export not just the local marine particle export. Then even we have carefully estimated the horizontal and vertical transport of ^{234}Th , the final ^{234}Th flux is still not induced by the local export. I do not know for this case ^{234}Th is still a good tracer or not?