

Reply to anonymous referee #1

The favorable review of the anonymous referee is very much appreciated. The manuscript has been edited accordingly and the revisions are listed below:

- The typo in the caption of Fig. 3 was corrected.
- Only steady-state (SS) and non-steady-state (NSS) calculations of scavenging and removal fluxes of ^{210}Po are shown in Fig. 8. Fluxes of ^{210}Pb were not shown in the figure.
- Fig. 8a and b present the results of scavenging (J flux) and removal (F flux) fluxes of ^{210}Po calculated by SS and NSS at 1000m and 2000m. Although indirectly correlated, these fluxes do not show systematic relationship with either partitioning coefficient (K_d) or suspended matter concentration (TSM).
- The discrepancy between measured and modeled ^{210}Po fluxes was attributed to episodic event of particle sinking, which may be missed by the limited sediment trap sampling. The process of different time scale that can be observed by the two methodologies, i.e., sediment trap and disequilibria, was mentioned in the revised manuscript.