

Comment on **essd-2022-20**

Edward Anthony (Referee)

Referee comment on "Wave attenuation potential, sediment properties and mangrove growth dynamics data over Guyana's intertidal mudflats: assessing the potential of mangrove restoration works" by Üwe S. N. Best et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2022-20-RC1>, 2022

The article proposed by Best et al. is appropriate to support the publication of a data set aimed at assessing the potential of mangrove restoration works in Guyana, where large-scale removal has been followed by a mangrove restoration project. This dataset is diversified and multi-faceted with complimentary items and corresponds to a state-of-the-art acquisition and treatment of information on waves and their attenuation across muddy substrates and mangroves, the associated sediment properties of the substrate, as well as mangrove characteristics and vegetation density. The dataset proposes some common standards for comparison and the establishment of interesting new norms of determining mangrove vegetation density. The dataset is significant, unique, and useful. There are no inconsistencies in the dataset and the supporting article and the dataset itself are of good quality, especially in the light of the difficult muddy environment of the Guianas.

My comments are minor and essentially concern better referencing with due attention to previous works that have been forerunners on the theme developed within the dataset:

Line 55-58: the significant removal of mangroves on the Guyana coastline and the potential deleterious effects on coastal risks and stability were treated by Anthony and Gratiot (2012)* who noted in particular the potential difficulties and pitfalls of mangrove restoration following removal. In a similar vein, the large-scale removal of mangroves in French Guiana, which lies on the mud-bank belt updrift of Guyana, has been shown to result in a considerable reduction in the capacity of mud banks to become attached to the coast (Brunier et al., 2019)*, a process important in attenuation of wave energy, thus further strengthening the rationale for this dataset paper.

*Anthony, E.J., Gratiot, N., 2012. Coastal engineering and large-scale mangrove destruction in Guyana, South America: Averting an environmental catastrophe in the making. *Ecological Engineering*, 47, 268-273.

<https://doi.org/10.1016/j.ecoleng.2012.07.005>

*Brunier, G., Anthony, E.J., Gratiot, N., Gardel, A., 2019. Exceptional rates and mechanisms of muddy shoreline retreat following mangrove removal. *earth Surface Processes & Landforms*, 44, 1559-1571. <https://doi.org/10.1002/esp.4593>

Other minor points:

Line 173: Satellite coverage is not the only alternative remotes-sensing method for monitoring bed level elevation within mangroves in the Guianas. Proisy et al. (2009)* used dense clouds of data points generated by LiDAR to monitor bed topography under mangroves in neighbouring French Guiana.

*Proisy, C., Gratiot, N., Anthony, E.J., Gardel, A., Fromard, F., Heuret, P., 2009. Mud bank colonization by opportunistic mangroves: a case study from French Guiana using lidar data. *Continental Shelf Research*, 29, 632-641. <https://doi.org/10.1016/j.csr.2008.09.017>

Lines 181, Lines 303-310: Sediment samples (instead of soil samples, and mud substrate instead of soil). The study does not have a pedological objective.