

Readme for: Data presented in the paper “Maintaining Tropical Beaches with Seagrass and Algae: A Promising Alternative to Engineering Solutions”

Tab: ShearVelocity

##General: These measurements were measured *in situ* at Galion Bay, St Martin, Caribbean, at > 0.5 m depth, and represent the critical shear velocity of the sediment within different vegetation patches.

##Column headings:

#vegetation: The types of vegetation patches studied, Sparse Thalassia (~50% *T. testudinum* cover), Bare (unvegetated), Dense Thalassia (100% *T. testudinum* cover), Algae (patches with only *Halimeda* spp. present).

#Threshold shear velocity\_m s-1: The velocity (meters per second) that sediment begins to move under a uni-directional flow produced by a portable field flume.

Tab: Stained sediment

##General: Stained sediment was placed in different vegetation patches across different water motion regimes, and monitored regularly. The length of time that the sediment could still be detected within the original placement area is recorded as the residence time.

##Column headings:

#site: the water motion regime where sediment was placed

#vegetation type: the vegetation type in which the sediment was placed (see above in ShearVelocity for details)

#residence\_time\_h: the time (hours) in which the stained sediment was still detected

Tab: Sediment grain size

##General: The grain size distribution of the sediment collected within the different vegetation patches studied

##Column headings:

#Vegetation: as above

#Total weight: weight of total sediment sample, to calculate the % distribution

#<1mm weight: weight of sediment grains less than 1mm

#>1mm weight: weight of sediment grains greater than 1mm

#SCOARSE%\_2 (%): percent of grains 500-1000  $\mu\text{m}$  in size

#SD(0.1)\_2 ( $\mu\text{m}$ ): 10% of grains are smaller than this ( $\mu\text{m}$ )

#SD(0.9)\_2 ( $\mu\text{m}$ ): 90% grains are bigger than this ( $\mu\text{m}$ )

#SD50MUM\_2 ( $\mu\text{m}$ ): Median grain size ( $\mu\text{m}$ )

#SD50PHIM\_2 (phi): median grain size (phi)

#SFINES%\_2 (%): percent of grains 125-250  $\mu\text{m}$  in size

#SMEDIUM%\_2 (%): percent of grains 250-500  $\mu\text{m}$  in size

#SMODE\_2 ( $\mu\text{m}$ ): Modus grain size ( $\mu\text{m}$ )

#SSILT63\_2 (%): percent of grains less than 63  $\mu\text{m}$  in size

#SVFINES%\_2 (%): percent of grains 62.5-125  $\mu\text{m}$  in size

Tab: Cancun profiles-Transect 1 and Cancun profiles-Transect 2

##The regular beach profiles of transect 1 and transect 2 taken of Cancun Beach, Mexico from June 2008 to March 2012

##Column headings: Detail the date with columns marked as x being the distance from beach in meters, and y being the elevation in meters

Tab: PuertoM profiles-Transect 1 and PuertoM profiles-Transect 2

##The regular beach profiles of transect 1 and transect 2 taken of Puerto Morelos Beach,

Mexico from June 2008 to March 2012

##Column headings: Detail the date with columns marked as x being the distance from beach in meters, and y being the elevation in meters