Geophysical Research Abstracts Vol. 21, EGU2019-392, 2019 EGU General Assembly 2019 © Author(s) 2018. CC Attribution 4.0 license.



Sediment yield simulation using SWAT in the Verde Island Passage, Philippines

Adonis Gallentes, Peter Jeffrey Maloles, and Cesar Villanoy

University of the Philippines, Marine Science Institute, Physical Oceanography, Philippines (agallentes@msi.upd.edu.ph)

On a global scale, coral bleaching and ocean acidification resulting from climate change have become the main threats to coral reefs. On regional to local scales where humans can have a more direct environmental control, terrestrial pollution (especially heavy sedimentation) has become the main threat to inshore corals. Here, a decade-long sediment yield simulation (2008-2018) was done for the Verde Island Passage (VIP), a marine corridor declared as the world's center of the center of marine biodiversity. Trends in the hydrologic characteristics of the watersheds draining into the VIP are discussed. SWAT model results indicate that relative maxima of sediment yield coincide with precipitation maxima, and that consecutive rainfall events which start around midyear results to higher erodibility and thus, higher peaks in sediment yield during the second half of each year. Dependence of sediment yield on slope class/angle and land use was also observed, identifying Mindoro island in the southern side of the VIP as a critical source of land surface erosion. Qualitative validation shows that there is reasonable agreement between monthly-averaged sediment yields from the model and satellite images in the area. Outputs of this study can be used as science-based reference in crafting laws and ordinances for proper land use and Marine Protected Area (MPA) management plans.