[JJ] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-CG Complex & General

[A-CG43]Coastal Ecosystems - 2. Coral reefs, seagrass and macroalgal beds, and mangroves

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Thu. May 24, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
Coastal marine ecosystems are complex open system interacting with surrounding watersheds, outer ocean, and the atmosphere, providing a wealth of various ecosystem services to human life. Simultaneously, they are also influenced strongly and often negatively by human activities. This session, together with a companion session dedicated for the water cycle and land-ocean interactions [A-CG##], aims to provide a platform for interdisciplinary discussion covering various aspects of frontiers in coastal ecosystem sciences. This session particularly focuses shallow-water benthic communities ranging from temperate to tropical regions, such as coral reefs, seagrass and macroalgal beds, tidal wetlands, and mangroves. All these communities are characterized by intrinsically high primary production, active material cycling, and biodiversity hot spots. However, increasing human demand for coastal marine resources and industrial development concentrating on coastal regions incur the risk of rapid degradation and diminishment. Comprehensive assessment and monitoring of ecosystem functions and development of effective means for conservation and restoration are urgently needed for such communities. This session is dedicated to organizing and promoting such research and management activities by sharing state-of-the-art science and technology among ecologists, geologists, geochemists, biogeographers, etc. Field-based observational, experimental, and modeling studies concerning the following topics are especially welcome: ecosystem functions; elemental cycling; community connectivity; environmental changes such as global warming, ocean acidification, and sea-level rise; ecosystem services such as carbon sequestration, nutrient regulation, and fisheries production; regional- or global-scale comparison; long-term ecological researches.

[ACG43-P03]Evaluation of the function of seagrass to stabilize sediments

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Seagrass rhizome and root systems trap organic matter, thereby stabilizing the sediments. Research on the strength of seagrass body against external forces in the laboratory has been carried out so far. However, the measurement *in situ* have not been conducted to the best of our knowledge. This study compared the resistance *in situ* against pulling up forces among four seagrass species, *Halophila ovalis, Cymodocea rotundata, Thalassia hemprichii* and *Enhalus acoroides*. Experiments were conducted at Tantangon Island, Busuanga, the Philippines from 13 to 14 September 2017. Dual steel wires (diameter,

1.5mm) were inserted below the rhizome and connected to Digital hanging scale by polyethylene line. After setting the wire the scale was pulled up and force (kg) for the rhizomes to be lifted up or broken were recorded. The largest species, *Enhalus acoroides*, showed the highest resistance with the values diminishing as plant size decreased. The results have some significant implications to the plants’ ability to stabilize sediments, store blue carbon and resist the impacts of strong waves brought about by climate change. Additional survey to evaluate the relationship between the resistance of each species and sediment grain size are scheduled. The biomass and reached depth of below ground part of each species would be also measured.