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Sustainability Seminar Series

Sustainability Seminar Series, 2017

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Oct 17th, 4:00 PM - 5:00 PM

## Morphodynamics of Atolls, Reef Flats, and the Islands Atop Them

Andrew Ashton  
*Woods Hole Oceanographic Institution*

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The MSU Sustainability Seminar Series Presents:  
**Morphodynamics of atolls, reef flats, and the  
islands atop them**

WHEN: October 17, 4:00 pm

WHERE: CELS 120 lecture hall

**Dr. Andrew Ashton**  
**Woods Hole Oceanographic Institution**



Andrew Ashton is a coastal geomorphologist who studies the processes and feedbacks that shape active coastal environments, including sandy coastlines, coastal barriers, river deltas, rocky coasts, continental shelves, and carbonate reefs and atolls. He studies how coastal features are created and change due to waves, currents, and sea-level rise, while also including the influence of terrestrial inputs (rivers), biologic processes, and anthropogenic alteration, often with a focus on large-scale coastal behavior.

The atolls that dot the tropical oceans of (primarily) the Pacific and Indian Oceans contain shallow and emergent coastal environments that often comprise the only subaerial, inhabitable land of many island chains and island nations. Created foremost by calcifying organisms, and composed of both biogenic rocky substrate and detrital sediment, these shallow environments are shaped by waves, currents, and tides. The low-lying, geomorphically active reef islands sitting atop of atolls face considerable hazards from climate change. I will present a series of recent and ongoing research projects addressing the formation mechanisms and potential climate change response of coastal atoll environments, including the “spurs and grooves” on the offshore fore-reef, the shallow reef flat itself, and the islands that can be found up on top.