CHANGE IS GUARANTEED. IT BRINGS SURPRISES, CHALLENGES & OPPORTUNITIES. OUR GOAL IS TO UNDERSTAND, LEARN & ADAPT.

Between the earth roiling underneath, and the atmosphere roaring overhead, our habitable sliver of this planet defines our existence and demands our protection.

The University of Miami Rosenstiel School of Marine & Atmospheric Science, and the Abess Center for Ecosystem Science & Policy invite you to support our mission, understand our changing planet, preserve our natural resources, and adapt to an awakening era that demands action in the face of change. Our innovative Exploration Science initiative provides you with the tools to help guide the way.

Join us.
Gradually, we are learning to identify the complex causes of earthquakes. In the ocean, earthquakes are the most common triggers of tsunamis. In tropical mountainous areas, like Haiti, though, hurricanes may play a role. Could these storms’ torrential rains dramatically exacerbate erosion and increase the risk of earthquakes? Might similar rains from Asian cyclones also increase the risk of temblors? We plan to study susceptible terrain in Haiti, Japan and Central America to explore similar hazardous connections between the geosphere and the atmosphere.

Elsewhere, using GPS and seismic observations, we have found that a major segment of California’s San Andreas Fault releases some of its energy through less dangerous earthquakes at depth. Continued study of these smaller movements along heavily populated fault lines can yield predictions that could help to forewarn and protect local residents.

WHAT SPARKS RUMBLES One day, we could have advanced warning.

SUPPORT SEISMIC STUDIES
• Participate in the deployment of sophisticated seismic equipment in earthquake-prone areas of the globe, or visit cities after quakes to collect data.
• Travel to areas along the San Andreas Fault with scientists to help document changes in the aftermath of a seismic event.
Malaria, dengue, West Nile virus and other vector-borne diseases afflict billions of lives, cost billions in lost productivity, and are spread by mosquitoes. By targeting their unrelenting hosts, we can quash these illnesses. So, we’re studying the impact of land use changes and urbanization, developing “attract and kill” tactics and products, and introducing integrated vector management strategies from Latin America to the Middle East.

On the other side of the planet, long-term field and experimental data is paired with genetic and genomic approaches to understand how populations of tropical birds diversify to create new species. In the Solomon Islands, this research ties into grass-roots conservation of unique lowland rainforests threatened by logging.
The world’s melting ice is flooding coastal areas, and causing land elsewhere to rise. With less glacial weight on the land holding them down, we have seen rocky shores around the Polar Regions rising at a faster rate over the past decade. The next step is to expand this research to detect seasonal changes in ice mass and predict what areas may be impacted the most.

The Florida peninsula is at the frontline of sea level rise. In these warmer climes, we’re monitoring coastal wetlands with satellites and radar. We have detected changes in surface flow and above-ground biomass over wide areas of the Florida Everglades that are too large to be seen from the ground. These observations help ecologists and water resource managers to better respond to potential impacts.

**RISING SEA LEVELS** The more we know, the better we can prepare.

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**STUDY SEA LEVEL RISE**

- Join scientists from South Florida to South America where studies are evaluating the impact of future sea level rise in the region.
- Explore the Everglades and help to collect water samples and ground-truth satellite images of dramatically changing water levels.
Using satellites in space, we’re monitoring millimeter-scale changes on the Earth’s surface. Galapagos Islands volcanoes rank among the most active in the world. Combining satellite data with ground-truthing missions, we’re measuring how the archipelago is evolving in response to its underlying magma movement. By monitoring minute deformations on volcanoes, we can try to forecast whether another eruption is likely. Indonesia’s West Sunda arc is another area in which studies using remotely-sensed imagery can help us study inflation as warning of future volcanic eruptions.

Elsewhere around the world, major cities are slowly sinking, at significant cost to their citizens and municipal governments. Venice, Mexico City, Jakarta and New Orleans are all coping with flooding and groundwater intrusion caused by human and natural forces. Using cutting-edge GPS and radar observations from space, we can precisely monitor these large metropolitan centers to support their long-term urban planning.

**UPLIFTING ACTIVITIES**
- Travel on horseback and over rugged terrain on Isabela Island to reach volcanoes and deploy GPS equipment with world-renowned scientists.
- Visit cities around the world to help study the impact of subsidence on structures and quality of life in urban metropolises.
As more people and infrastructure concentrate along the world’s shores, amplified by increasing extremes in weather, we need new structural systems and design practices to withstand coastal hazards. The University of Miami’s new SUSTAIN (SUrge-STructure-Atmosphere INteraction) research facility promotes collaboration between engineers, architects and ocean scientists who will design and build safer coastal buildings. This will be the first facility in the world with a wind-wave-storm surge simulator capable of generating Category 5 hurricane force winds in a 3-D test environment. Sustainable materials in the early stages of development may also be tested for durability during these storms, and in the ensuing weeks of clean up.

**BUILDING FOR A STORMIER FUTURE** Mightier materials for land-based structures.

**NEW FRONTIERS IN COASTAL CONSTRUCTION**
- Tour our state-of-the-art facility and assist scientists in studies on the next generation of sustainable building materials.
- Work shoulder-to-shoulder with scientists to test the latest oceanographic equipment in a one-of-a-kind 28,000 gallon seawater tank.
- Roll up your sleeves and help engineers perform “Shake Out” tests that will make coastal construction sturdier.
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