

Sea-Level Rise Researcher to Lead Center for Climate Change Impacts and Adaptation

Mark Merrifield to coordinate Scripps Oceanography's effort to provide real-world response strategies to increasing climate instability

Mark Merrifield, who has spent the past two decades studying global and regional sea-level change, will lead a new research center at Scripps Institution of Oceanography at the University of California San Diego tasked with understanding impacts and facilitating adaptation to projected changes in climate.

A Scripps alumnus, Merrifield returns to campus from a 20-year stint as director of the University of Hawaii Sea Level Center. He will be the inaugural holder of the UC San Diego Presidential Endowed Chair in Climate Change Impacts and Adaptation (CCCIA). In that

capacity, he will serve as director of the Center for Climate Change Impacts and Adaptation, which was created in 2015 with a [\\$5 million gift](#) from longtime Scripps supporters Richard and Carol Hertzberg.



Mark Merrifield

The goal of the center is to draw on the expertise of climate scientists like Merrifield as well as experts ranging from economists, sociologists, and engineers to urban planners and political scientists to document climate change impacts on the environment, ecosystems, and humans and to devise practical solutions to climate change effects widely regarded as inevitable.

Besides sea-level rise, those effects range from coastal erosion and flooding to the spread of human health impacts and the increased incidence of drought and extreme weather events.

“Mark Merrifield is an ideal candidate for this position considering that one of UC San Diego’s fundamental objectives is to understand and protect our planet,” said UC San Diego Chancellor Pradeep K. Khosla. “He has an impressive track record of applying science to real-world societal problems and bringing people together to create partnerships across industries and governmental units to inspire smart, strategic decisions and actions that inform policymakers.”

Scripps Director Margaret Leinen added that while the center will have a strong focus on San Diego region and state issues, it will operate nationally and globally as well because solutions it develops will be exportable.

“One of the things that both Mark and I have recognized is that we are very well situated to address climate change impacts because of Scripps Oceanography’s long history of climate change research, UC San Diego’s interdisciplinary nature, and because California understands the importance of adaptation much better than most other state and national governments,” said Leinen. “We share the goal of making this center the preeminent authority on global climate change and the challenges it poses locally and regionally.”

Merrifield is an internationally recognized researcher in the areas of sea-level rise and climate variability, coastal oceanography, and nearshore processes. He received his PhD in Oceanography from Scripps in 1989, was a postdoctoral researcher at the University of New South Wales in Sydney, Australia from 1989 to 1991, followed by a return to Scripps as a project scientist and researcher. In 1994, he joined the faculty at the University of Hawaii at Manoa in the Ocean Engineering department, subsequently moving to the Oceanography department from 1997-2017. He has a longstanding interest in linking basic and applied research outcomes to practical solutions for societal benefit.

Merrifield has had experience working with partners in academia, industry, government, and non-government organizations as the chair of the Global Sea Level Observing System, as the lead investigator of the Waves and Water Level component of the Pacific Integrated Ocean Observing System (PacIOOS), and as a lead author of the Sea Level Change chapter of the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. At the University of Hawaii, he has served as the director of the Joint Institute for Marine and Atmospheric Research for the past six years and recently as the director of the Center for Coastal and Climate Science and Resilience. He has worked for many years on sea-level related programs with line offices within NOAA, with the Army Corps of Engineers, the U.S. Geological Survey, the Office of Naval Research, NASA, and with international organizations such as the Intergovernmental Oceanographic Commission and the Joint Technical Commission for Oceanographic and Marine Meteorology.

Merrifield has led field experiments throughout the Pacific island region to investigate the risk of coastal flooding in relation to sea-level rise. Study sites include the Republic of the Marshall Islands, Guam, Hawaii, and Saipan. He has also developed global sea-level reconstructions for the late 20th century using tide gauge and satellite altimetry data, with a focus on the faster rate of sea-level rise in the southern hemisphere over recent decades.

The center will join and collaborate with other centers at Scripps that aid policymakers and resource managers in the arena of climate change by providing access to and interpreting data and forecast information. These include the [Coastal Data Information Program](#), the [Center for Western Water and Weather Extremes](#), and the [California-Nevada Applications Program](#).

“With at least one-third of the population living in zones that could be heavily impacted by sea-level rise, it is not difficult to imagine the types of problems that will occur in the future due to disease vectors or due to damage to infrastructure,” said Richard Hertzberg in announcing the gift in 2015. “Hopefully this center will be able to focus the intellect and enthusiasm of scientists, engineers, and economists to provide for peaceful and acceptable methods of adapting to the change that’s before us.”

As the new CCCIA director, Merrifield will pursue research that advances the understanding of climate impacts and provides meaningful projections, and develop a focused curriculum that prepares the next generation of scientists, engineers, and policymakers in risk assessment and adaptation strategies. A component of the center’s focus will be the development and implementation of new technologies and observing capabilities to document climate change impacts and to improve model predictions in support of adaptation strategies.

“I’m excited to join the center and to help connect the discovery and innovation taking place at Scripps and across UC San Diego to opportunities that directly impact people and the environment,” Merrifield said.

According to Merrifield, adaptation to sea-level rise will be an initial focus of the center, with an emphasis on the Pacific Rim. Merrifield also sees the center branching out into climate-related issues associated with droughts and water supply, energy production, and marine ecosystems given the broad expertise available on campus. He intends to engage with local communities and state and federal stakeholders to establish a collaborative, problem-solving approach to building resilience to sea-level rise and climate change.

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