After a long journey across the South Atlantic ocean, the Rutgers “Challenger” glider was recovered last week by an international team anchored by oceanographers from Rutgers, University of Las Palmas de Gran Canaria, University of Sao Paulo, University of Cape Town, and the South African Council for Scientific and Industrial Research. This ends an amazing 282 days at sea adventure by the Rutgers glider completing the first in history circumnavigation of an ocean basin by an autonomous underwater robot. The Challenger glider was first deployed January 2013 from Cape Town, South Africa, was recovered, rebatteried and redeployed off of Ascension Island in November of that year, and then recovered off of Brazil in May 2014 before the most recent trek back to South Africa. The Challenger mission, a challenge issued by Dr. Rick Spinrad (NOAA), is an educational and science mission to conduct a global robotic survey throughout the world’s ocean. Rutgers undergraduates have been active collaborators in the mission helping with mission planning, piloting, and using glider data to improve global ocean numerical models. Pictures above show the international team, the recovery of the glider, and the full mission (bright colors off South Africa show shipping traffic which was particularly scary!). This mission has benefitted with support from many beyond the University partners. We acknowledge support by Teledyne Webb Research, the Vetelsen Fundation, Iridium, CLS America, the Explorers Club, NOAA IOOS, ONR Global, British Antarctic Survey, the Royal Air Force, and the Challenger Society. The glider will be cleaned up, studied and then the next leg is planned from Australia up to Indonesia and onto Sri Lanka!
Congrats to a successful expedition by Tina Dura studying earthquakes and tsunamis off Chile

Dr Tina Dura (pictured) recently completed fieldwork for her NSF RAPID grant to document the geomorphic impacts of the 2015 Illapel earthquake and tsunami along the Chilean coast. The Sea Level Research team visited three coastal wetland sites that preserved evidence of the 2015 tsunami. They mapped the tsunami deposit (thickness, structure, buried vegetation, inland run-up, etc) at the three sites, and collected samples along coast-parallel and coast-perpendicular transects in order to characterize the sedimentology and microfossil content of the deposit. The data will shed light on how tsunami deposits are preserved in coastal sedimentary sequences and how we can better identify them in the fossil record. The run-up measurements of the tsunami will also be used to calibrate model simulations of the 2015 tsunami in order to improve prehistoric tsunami model solutions. The team was also successful in finding possible paleotsunami evidence in the same coastal wetlands where they mapped the 2015 deposit. They discovered up to three additional sand beds interbedded within coastal marsh peats. This is an exciting find in north central Chile, where no paleotsunami evidence has ever been described.

Ocean Observations guide improvements to hurricane intensity forecasts: Studies of hurricane Irene

Hurricane and typhoon track predictions have improved over two decades, however, improvements for tropical cyclone intensity remain elusive. Rutgers and China scientists published a paper in Nature Communications (listed in publications section in this issue) that will help improve intensity forecasts of hurricanes and typhoons nearing landfall. Forecasts of these final hours before landfall drive storm surge impact models, marking when the model accuracy is most critical for human populations who are planning appropriate responses. Rutgers University Center for Ocean Observing Leadership (COOL) investigated the rapid de-intensification of Hurricane Irene as the storm made its final landfall in the heavily populated Mid-Atlantic. Tropical cyclone intensity depends on interactions with the ocean, where intensity is increased by warmer and decreased by cooler ocean waters. Scientists discovered that the two-layer coastal circulation forced by the strong winds on the leading edge of Irene enhanced mixing and cooling ahead of Irene’s eye. Atmospheric model sensitivities confirmed ahead-of-eye cooling of the ocean was the missing contribution required to match the observed rapid decay in Irene's intensity. The 30-year NOAA buoy record was then used to confirm enhanced ahead-of-eye cooling in the 11
hurricanes that crossed the Mid-Atlantic's stratified coastal ocean in summer. Chinese colleagues identified similar ahead-of-eye cooling and rapid de-intensification in Super Typhoon Muifa as it crossed the highly stratified Yellow Sea in summer. This demonstrates the value of observations by remote-autonomous systems that provide spatial coverage and can operate in tropical cyclones.

**Congratulations to Rich Lutz, named Diver of the Year for Science by Beneath the Sea**

Richard Lutz is to be awarded a medal of excellence and named Science Diver of the Year by Beneath the Sea. Beneath the Sea recognized his deep-sea research using the Alvin submersible and his efforts as Science Director of the IMAX film Volcanoes of the Deep Sea, which included footage and research from his numerous expeditions to study an active deep-sea caldera on the East Pacific Rise, at depths of 2500 meters. Congratulations to Rich!!!

**Jennifer Francis wins the School of Environmental and Biological Sciences Excellence Award for Research**

Congratulations to Jennifer Francis who is being recognized for research excellence by Rutgers. The award recognizes her studies of how the changing Arctic might alter the weather in the northern hemisphere. Specifically she is exploring how the amount of Arctic sea ice affects the dynamics in the atmospheric jet stream, which is critical given declining Arctic sea ice. She discovered that during years with relatively little Arctic sea ice versus years with more, the poleward temperature gradient was weaker. The poleward temperature gradient is the main driver for the westerly winds in the polar jet stream and the implications of jet stream weakening are huge. There is increasing evidence this Arctic amplification is affecting weather patterns and increasing the likelihood of extreme weather.

**Rutgers Joins Celebrations on International Women's Day**

March is the month of International Women's Day and what better way to celebrate than to participate in public outreach and encourage the future young women of STEM research. On 12th March 2016, Tina Dura, Ane García-Artola and Jennifer Clear represented the Department of Marine and Coastal Sciences at the 4th Girls in Science and Engineering Day held at The Intrepid, Sea, Air and Space Museum in New York City. Tina, Ane, and Jennifer ran interactive mini-activities that demonstrated the ongoing research of Rutgers Sea Level Lab. Girls age 5-18 were able to identify and distinguish between microfossils (foraminifera, diatoms and pollen) and gained a basic understanding on how these proxies can be used for past environmental reconstructions of sea-level and environmental change. Over 1000 keen future scientists were present to take part in these activities and left with a new understanding and insight into women in STEM research.
GET YOUR RU OCEAN SWAG!!!!

Rutgers Oceanography tee-shirts are here. Proudly wear the Rutgers Oceanography tee-shirts - funds are raised to host science socials for the undergraduate and graduate students. Tee-shirts go for $15 and will make you look athletic, smart, and dashing. Such a great deal for a great cause. Contact Sarah Kasule if interested (kasule@marine.rutgers.edu). To see the quality people your contribution would support check out our featured graduate students at http://marine.rutgers.edu/main/Featured-Student/.

New Publications


Above graduate student Brittany Schiel-er at sea recovering a CTD rosette

Please help us enable Rutgers oceanogra-phy to support the next generation!

Rutgers oceanography needs your support to meet the environmental and educational challenges facing the world today. Your support is critical to enabling high risk and high reward research, developing students to be the leaders of tomorrow and bringing the public with our scientists into the ocean. Your private gifts will create new laboratories, student fellowships, endowments and feed ambitious new programs. Come join us! Even the smallest gifts have huge impacts by getting students out on the water or getting a student to a professional meeting. So please join us explore the world. Go RU!