

Antarctic science documentary is also a teaching tool for aspiring film students

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An inflatable boat is shown in the waters off the Antarctic Peninsula. Credit: Cameron Rutt/Rutgers University

An unusual Rutgers University program that involves undergraduates in making documentary films about science has released a three-minute trailer for a project that was filmed in the ice and beneath the frigid waters of the Antarctic Peninsula. The film project was supported by a National Science Foundation (NSF) grant.

The Rutgers Film Bureau, the university's professional documentary office within the university's Mason Gross School of the Arts, recently released the trailer for the planned feature-length, non-fiction narrative.

The trailer features footage and interviews with NSF-funded researchers at work in the field aboard inflatable boats and a polar research vessel, and focuses on NSF's [Long Term Ecological Research](#) (LTER) Project at Palmer Station, on the West [Antarctic Peninsula](#). Palmer is one of the three year-round Antarctic research stations managed by the U.S. Antarctic Program (USAP).

NSF's Division of Polar Programs manages the USAP, through which it coordinates all U.S. science on the southernmost continent and aboard ships in the Southern Ocean as well as providing the necessary logistical support to carry out that science.

The trailer is available on the project's website [Antarctica: Beyond the Ice](#), which also includes a blog written by film students, in which they discuss their work on various segments of the documentary-in-progress.

"Working on [Antarctica: Beyond The Ice](#) has provided me with an opportunity to challenge myself as a storyteller," writes Rutgers film student Kyra Willans. "I've learned a lot about marine science and biology and I'm now faced with the task of relaying this material to a wide audience."

Willans is one of 12 Rutgers students who are taking film-production classes and working with the Film Bureau to learn about Antarctic science and storytelling for the screen. They will earn professional production credits as co-editors and assistant producers and some of their work appears in the trailer.

The full-length feature will be aimed at a broad segment of the television audience.

The Rutgers video project was supported through a grant from NSF's Education and Human Resources Directorate's (EHR) Division of

Research on Learning in Formal and Informal Settings. Working cooperatively with EHR, the Antarctic Program provided logistical support for the project.

"Fostering interest and understanding of science is a challenge that the nation must meet to improve overall science literacy," said Valentine Kass, program director in EHR's Division of Research on Learning in Formal and Informal Settings. "This project will bring the excitement of current research to the public and, at the same time, teach valuable skills to, and broaden the educational horizons of, undergraduates."

The Antarctica: Beyond the Ice trailer includes footage of researchers studying the complex marine ecosystem along the Peninsula—which supports the gamut of life from phytoplankton to seals, penguins and humpback whales—and investigating ecological changes caused by a well-documented warming of the Peninsula region in recent decades. As are all of NSF's 26 LTER projects, the Palmer LTER is interdisciplinary in nature, incorporating such diverse disciplines as physics, chemistry, biology and ecology.

The feature film will focus both on the scientific and exploratory aspects of the science supported by the Antarctic Program. "There are not many places on this planet that are truly untamed and unexplored," notes oceanographer Oscar Schofield in the trailer. "The ocean is one. And, in terms, of landmass, Antarctica is another."

The filmmakers also intend to highlight innovative new technologies revolutionizing research methods, such as underwater gliders, as well as the importance of interdisciplinary collaboration necessary to understand complex scientific and environmental problems.

Dena Seidel, the director of the Rutgers Center for Digital Filmmaking and a co-principal investigator on the NSF grant, said that Antarctica:

Beyond the Ice is only one of many "science-in-action" documentaries undertaken by the Rutgers Film Bureau that provides engaging new ways of learning through the art of film making.

"We're always looking for ways to connect our film students with important science," she said. "There are a lot of students in our program who used to be in the sciences. Many come to our film center because they are looking for innovative and dynamic ways to learn science—but also seek creative ways to use their knowledge to advance scientific literacy."

The Rutgers Center for Digital Filmmaking is producing Antarctica: Beyond the Ice in partnership with Schofield, who is at the Rutgers Institute for Marine and Coastal Sciences and is the principal investigator on the EHR grant. Seidel points out that researchers with the LTER are working cooperatively with the students. Schofield, an expert on phytoplankton, for example, "has come to our film center four times this past semester to teach students about the West Antarctic ecosystem."

"We have to make sure that all the Antarctica: Beyond the Ice film students are learning about climate change and climate science from the best researchers available," she added.

Seidel said that students are tasked to work with the more than 400 hours of raw footage from the Antarctic expedition; the footage will eventually be boiled down to a program of less than an hour in length. A total of 40 segments have been storyboarded, of which a handful have been completed.

Film students are also conducting supplemental interviews with scientists such as Hugh Ducklow of the Lamont-Doherty Earth Observatory at Columbia University, the lead principal investigator for the Palmer LTER.

Richard Ludescher, dean of academic programs from the Rutgers School of Environmental and Biological Sciences, says he supports this interdisciplinary project "because it creates novel ways for undergraduates to collaborate across disciplines and cross-pollinate the best of our arts" with new ways of teaching.

Antarctica: Beyond the Ice is much more than a film production, Seidel says; it is part of a larger undergraduate filmmaking curriculum. She expects that the finished film will be ready to be marketed to television in the summer of 2014.

"It's certainly a slower process than if we were just a production company," she said. "On the other hand, I'm certain we're going to have a more dynamic film in the end because we are including the students' youthful energy and unique perspectives. And we will have trained a new generation of artistic science communicators in the process."

Provided by National Science Foundation

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