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GEO WATCH THE UNDERSEA WORLD OF DAWN WRIGHT

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Summary: "Deepsea Dawn," a professor, explorer and specialist in geographic information services, is driven by the scientist's need to know everything about the water that covers 71 percent of the Earth. Her earliest dreams were of voyages into space as an astronaut. But at the more mature age of 8, the barefoot schoolgirl wading along Hawaiian beaches swiveled her sights toward voyages into the Earth's oceans.

Three decades later, Dawn Wright's early course correction in career goals -- inspired by Jacques Cousteau's TV shows -- is paying off. Her long-held dream of exploring the ocean depths is a reality.

Putting a professional label on Wright is nearly as complex as the oceans she studies. She's a marine geologist and geographer, a computer specialist and an educator. Her specialty is geographic information systems, or GIS, which she uses to map and analyze the planet's vast ocean floors.

An associate professor in Oregon State University's geosciences department, Wright is also a crusader for her science, eager for the public to be as enthusiastic about ocean exploration as it has been for space exploration.

"We need to know as much about our own planet as possible," Wright says. "Only about 5 percent of the ocean floor, which covers 71 percent of the Earth's surface, has been mapped in detail. We still have a lot of exploration to do in the ocean. We need to know what's there, what places need protecting, what places might be useful for energy extraction or for meeting other needs."

Wright is gaining attention on several fronts:

* She's one of 15 researchers featured in the recently published book "Portraits of Great American Scientists," co-edited by Nobel laureate Leon Lederman. Other articles discuss the work of such scientists as Nobel-winning chemist F. Sherwood Rowland, naturalist E.O. Wilson, dinosaur hunter Paul Sereno and astronaut Sally Ride.

* She recently received a three-year \$498,000 grant from the National Science Foundation for a project to

develop an "Oregon Coastal Atlas." The atlas would provide information for researchers, land managers, government officials and other experts to use in addressing coastal issues such as erosion and salmon restoration. It might cover an area from as far west as the Juan de Fuca Ridge, about 200 miles from the coast, to as far inland as the Coast Range.

* She was editor of a new book, "Undersea with GIS," which will be released in February. The book comes with a CD-ROM that can be used by teachers from kindergarten through high school, and features three-dimensional "underwater fly-throughs" across the ocean floor. She recently was co-editor of another book, "Marine and Coastal Geographic Information Systems."

* She is featured on a couple of Internet sites, including one financed by the National Science Foundation titled "Women Exploring the Oceans," which is at <http://wexo.whoi.edu>.

As a marine geologist, Wright -- nicknamed "Deepsea Dawn" -- is primarily interested in fissures that form along midocean volcanic ridges such as the Juan de Fuca Ridge off the Northwest coast. She has participated in three dives in the submersible Alvin to examine ridges, twice to the Juan de Fuca Ridge and once to the East Pacific Rise near Easter Island in the southeast Pacific.

"Diving on Alvin to look at a portion of the East Pacific Rise in 1991 opened up everything for me, scientifically," said Wright, who was studying a section of the ridge while working on her doctorate at the University of California at Santa Barbara. "I had been working on that area for my thesis, which included a part about the influence of cracks on the hydrothermal vent communities on the seafloor. I had seen a lot of videos and photographs of the area, but when I saw it with my own eyes, it helped me understand it a lot better.

"It was eye-opening and fun. It was like being locked up in a space capsule and being sent off into outer space."

As a leading ocean GIS expert, Wright takes data from sonar surveys of the seafloor and uses computer systems to produce three-dimensional images and maps that researchers can use in their study of geological features and processes. She has participated in several GIS projects, including helping map the Tonga Trench between Fiji and Samoa in 1996.

Wright returned this month from a yearlong sabbatical during which she helped map the Fagatele Bay National Marine Sanctuary in American Samoa. The underwater sanctuary is a coral reef ecosystem within an eroded volcanic crater on the island of Tutuila.

She is passing her GIS expertise on to students from a variety of fields in three classes she teaches on the subject. Wright's teaching skills earned her an Outstanding Professor Award at OSU in 1999, four years after she arrived at the university to help build its GIS program.

Wright credits "being in the right place at the right time" for getting into GIS as the technology was emerging in the field of oceanography. She was deciding on her next step after receiving her undergraduate degree in geology from Wheaton College in Illinois and her master's degree in oceanography at Texas A&M University.

"My mother saw this clipping in the Chronicle of Higher Education about this new National Center for Geographic Information and Analysis that the National Science Foundation was putting a lot of money into," Wright said. "It mentioned GIS, but neither of us knew exactly what that was. But I applied to UCSB and got a fellowship. It turned out to be one of the best things I ever did professionally."

From 1986 to 1989, Wright worked aboard the drilling ship Joides Resolution, a research vessel used in the international Ocean Drilling Program that is exploring the seafloor. The work took her to research sites throughout the world, including Antarctica, the Japan Sea, the Philippine Sea, Australia and the Indian Ocean.

After receiving her doctorate in 1994, she worked at the Hatfield Marine Science Center in Newport with Christopher G. Fox, a marine geophysicist with the National Oceanic and Atmospheric Administration's Pacific

Marine Environmental Laboratory. She was a GIS specialist and participated in two Alvin dives during research cruises to examine the 1993 eruption site of the Coaxial Volcano on the Juan de Fuca Ridge about 270 miles west of Astoria.

"Dawn's a bright young woman who helped us set up our GIS system here," Fox said. "She's loaded with energy, pure energy."

The 40-year-old scientist was born in Maryland but grew up in Hawaii, primarily on Maui. Her mother, Jeanne Wright, taught speech communications at the University of Hawaii and set up the speech communications program at Maui Community College. Her father coached high school basketball and other sports.

Jacques Cousteau's TV shows spurred Wright's interest in the oceans, but she initially set her sights on being an underwater photographer, rather than a scientist. She credits her fourth-grade teacher, Sue Okada, for inspiring her to read. With assists from the watery tales of such novelists as Jules Verne and Herman Melville and a growing interest in science, Wright soon chose oceanography as her career path.

She says her mother gives her "an incredible amount of support and encouragement . . . she's been a big cheerleader for me along the way."

Ocean science isn't Wright's only interest. An avid Legos builder, she's decorated her OSU office with various complex models, including a pirate ship and Star Wars spacecraft. Interspersed among the models are memorabilia from the "Peanuts" comic strip.

The focal point in the office, however, is her 85-pound dog, Lydia. Wright says Lydia is the "official departmental dog," and devotes a section of her Web site to the 6-year-old pet.

Wright also enjoys mountain-bike riding, an activity spawned when she was on the bike-racing team at UC Santa Barbara that took third place in the 1993 NCAA Collegiate Road Nationals.

An active church member, Wright is an evangelical Christian who doesn't view science and religion as necessarily being in conflict. "My viewpoint is that God created the Earth and loves the Earth and brought all of these processes to be," she said. "But how in the world are we going to understand those processes without science? Science provides us with the details."

As one of the few African American women in oceanography, Wright delights in serving as a role model, encouraging girls and minority students to think about pursuing a career in ocean science.

She tells youngsters that once they decide on what career path they want to follow, "pursue it with passion. This will tide you over during discouraging, difficult and tedious times. Find a hero or heroine to inspire you and follow their work and accomplishments."

She's grateful for the support she's received. "I feel really blessed for the opportunities I've had, because there were a lot of people who paved the way for many of us," Wright said. "When my mother applied for college, there were many colleges that she wasn't allowed to apply to because she was a person of color. But that was never a problem for me.

"I guess my life is proof that dreams can come true -- and indeed beyond my wildest dreams."
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Sidebar text -- DAWN WRIGHT ON THE WEB

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