

Geochemistry Gives Clues to Gold Treasure's Origins

Welcoming Women into the Geosciences

The Seismic Reach of Injection Wells

WHAT IS THE FATE OF

ARCTIC METHANE?



Postal Service Honors First American Woman in Space

early 35 years after space shuttle Challenger mission STS-7 launched on 18 June 1983 with astronaut Sally Ride as a mission specialist, the U.S. Postal Service (USPS) has honored her, America's first woman in space, with a Forever stamp launched on 23 May. The first-day-of-issue dedication ceremony for the stamp took place at the University of California, San Diego (UCSD), where Ride served as a physics professor after retiring from NASA.

The stamp, featuring a beaming portrait of Ride next to a portrayal of the liftoff of Challenger, would have "put a big smile on her face," said Tam O'Shaughnessy, Ride's widow and the executive director of Sally Ride Science at UCSD. O'Shaughnessy and several other colleagues cofounded the organization with Ride to motivate students, particularly girls and minorities, to stick with STEM (science, technology, engineering, and mathematics) education. Ride, who would have turned 67 on 26 May, just a few days after the stamp's release, died of pancreatic cancer in 2012.

"Because she loved stamps and collected them, I just think that would be fun for her," being featured on a stamp, O'Shaughnessy told Eos. She said that Ride began collecting stamps at age nine and particularly liked collecting sports and space stamps. "But at a deeper level, I just think she would be very proud of how she lived her life and what she accomplished. And I think the stamp would kind of put a stamp on that."

Selecting Who Gets Featured on Stamps

Bill Gicker, manager and creative director of stamp development at USPS, said that the postal service receives about 40,000 suggestions for stamps every year. "What we're looking to do is represent the best of the United States," he told Eos. He said that Ride was "a natural" for a stamp. "She is one of our national assets."

Gicker said that stamps with space topics "always are very popular" with the American public. "But to be able to be doing the first female astronaut, that was pretty exciting."

Criteria for determining the eligibility of subjects on U.S. stamps state that "the Postal Service will honor extraordinary and enduring contributions to American society, history, culture or environment." Ride contributed to



The Sally Ride stamp issued in May by the U.S. Postal Service. Credit: ©2018 USPS

all four areas, said O'Shaughnessy. "Certainly history. Certainly our culture and showing that girls and women can do anything they want to do; and society, because they're kind of related," she said. Regarding the environment, O'Shaughnessy said that many of the books that Ride and she coauthored "are focused on Earth and protecting the Earth and taking climate change seriously, as 99.9% of scientists around the world do."

Sally Ride's Legacy

Another big fan of Ride is Ellen Ochoa, the first Hispanic woman in space and the newly named vice-chair of the U.S. National Science Board, who retired in May as director of NASA's Johnson Space Center in Houston, Texas. "I admired Sally for her intellect that she applied as a scientist, her focus and passion for STEM education, and her astounding competence in so many areas, including her critical contributions to NASA and the nation," Ochoa told Eos. She participated in the stamp dedication ceremony and in a women in leadership event at the university that evening.

"As much in demand as she was, she always made time to meet with young women who dreamed of becoming astronauts," Ochoa said. "I am thrilled to be part of the Sally Ride Forever stamp dedication,



Sally Ride floats in the space shuttle Challenger flight deck during the shuttle's STS-7 mission in 1983. Credit: NASA

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Drama in the Stamp

Paul Salmon, an award-winning illustrator who painted the images of Ride and the space shuttle that appear on the stamp, was a NASA artist in the 1980s and observed the landing of one of the shuttles on which Ride flew. The landing "was very exciting, and I remember feeling an extremely patriotic feeling. It almost brought me to tears," Salmon recollected to Eos.

Salmon, working with USPS stamp designer Ethel Kessler, started the stamp project by making a series of small blackand-white charcoal sketches that he drew from a NASA photo of Ride with the entire STS-7 shuttle mission crew. Those sketches then progressed into a comprehensive color design before being digitized and further refined. "I was trying to get drama into it. I was trying to get light and shade," he said of the stamp. "I wanted the drama of the liftoff and just the idea of this brave woman putting her life on the line."

Squeezing Art onto a Postage Stamp

All of that drama needed to squeeze into the size of a postage stamp, Gicker noted. "It's a very small space, and we have a lot to convey. That's why in this instance it was important to us to have both the image of Sally and the shuttle flight so that people immediately make the connection between the two and it starts to tell the story."

"Of course, we can't tell long, involved stories on stamps," he added. "But we hope that it's sort of the tip of the spear [and] that people will wonder about it and look up the information and find out more."

By **Randy Showstack** (@RandyShowstack), Staff Writer

Former AGU Executive Director A. F. "Fred" Spilhaus Jr. Has Died

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A. F. "Fred" Spilhaus Jr. Credit: AGU

ormer AGU executive director A. F.
"Fred" Spilhaus Jr. died on 30 April at
the age of 79. Spilhaus was executive
director from 1970 to 2009.

Under his leadership, AGU experienced enormous growth and achieved numerous significant accomplishments. During his tenure, membership grew from 7,000 to more than 56,000, and the staff size increased from

about 20 to 180. In addition, the organization's net worth went from a negative number in 1970 to approximately \$60 million by the end of 2007.

Spilhaus oversaw such new publica-

tions as Geophysical Research Letters, which was launched in 1974; the addition of new discipline sections; the 1975 initiation of small, single-topic meetings called Chapman Conferences; establishment of a fully electronic publication system; and tremendous growth of the annual AGU Fall Meeting, which in recent years has typically drawn more than 20,000 attendees. In addition, he collaborated with other scientific societies worldwide.

Spilhaus, who also served as editor in chief of Eos, joined AGU in 1967 as assistant executive director under the organization's first executive director, Waldo E. Smith. At the time, Spilhaus was only a few years out of graduate school, having received his Ph.D. in physical oceanography in 1965 from the Massachusetts Institute of Technology.

In 1996, Spilhaus was elected as an AGU Honorary Fellow in recognition of his lifetime of achievement on behalf of AGU; he is one of just a few people ever to have received that recognition. In 2010, after his retirement, Spilhaus received the Waldo E. Smith Medal for "extraordinary service to geophysics."

The citation for the medal noted, in part, "For most of the past 40 years, Fred Spilhaus led AGU with dedication, creativity, and leadership, making AGU a

model union and a strong integrating force and professional home for Earth and space scientists across the globe. That AGU is held in such high regard stems mainly from Fred's insistence that the Union be inclusive of all Earth and space scientists and that scientific quality and integrity hold the highest priority. Fred also bequeathed to AGU long-term financial stability."

In response to the citation, Spilhaus wrote, "The principles Waldo lived by, and which I tried to emulate, were (1) our scientific mission always comes first and (2) the members are AGU. AGU wel-

comes members of the scientific community worldwide. (3) By watching the pennies, we build the resources needed to serve in the future." Spilhaus added that he "had the best job in the world from 1967 to 2009."

Donations in Spilhaus's memory may be made to the Woods Hole Oceanographic Institution in Woods Hole, Mass.

By **Randy Showstack** (@RandyShowstack), Staff Writer

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