

## **Bruce Murray, Former JPL Director, Dies at 81**

Sue Manning, Associated Press



LOS ANGELES (AP) — Former Jet Propulsion Laboratory director Bruce C. Murray, who battled Washington and NASA over money, projects and policy, has died. He was 81.

Murray died at his home in Oceanside at 4:57 a.m. August 29, 2013, from complications of Alzheimer's disease, said Charlene Anderson, a longtime friend and former colleague at The Planetary Society.

Murray founded the space advocacy group in 1980 with the late astronomer Carl Sagan and astronautics engineer Louis Friedman as part of the quest to save JPL and the planetary exploration program.

"Bruce was an extremely strong personality, but brilliant," Anderson said.

Murray took over JPL in 1976 when the Viking program was putting landers on Mars, Voyager was touring the solar system and the Apollo program was winding down.

According to JPL, Murray disagreed with NASA's focus on the search for life during the Viking missions to Mars. He said it was premature because the craft's biological instruments would not provide adequate results. As it turned out, that was right and probably helped him get the job at JPL when William Pickering retired.

Before becoming director, Murray took a sabbatical from the California Institute of Technology, which manages JPL, to read up on management and came back convinced that to survive, the laboratory would have to embrace change, said colleague John Casani, who is now retired, but was the project manager on the Voyager, Galileo and Cassini missions, and later chief engineer at JPL.

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Murray ran into a lot of internal opposition because of that thinking, Casani said.

"Bruce Murray was a pioneer and undisputed leader in unmanned space exploration," said Dave Stevenson, a Caltech professor of planetary science.

In fact, Stevenson said, Murray was named Caltech's first planetary science professor in 1963.

As NASA focused on the space shuttle program and low-Earth-orbit missions, it cut back on the planetary program. Murray was able to start a solar energy research project for the U.S. Energy Department, a study that was abruptly ended in 1981.

Murray stepped down as director in 1982, returning to the department he started at Caltech.

JPL said Murray was able to salvage the Galileo mission to Jupiter, but lost the American half of the two-satellite International Solar Polar Mission, which was ultimately launched with JPL instruments as the European Space Agency's Ulysses by space shuttle Discovery. A proposed mission to Halley's comet was also dropped.

Murray was able to obtain the American portion of the joint U.S.-Netherlands-United Kingdom infrared astronomy satellite to JPL, and Caltech gained the project's science data center.

"Bruce Murray was one of the most agile members of an agile generation. Under his leadership, the Jet Propulsion Lab's skilled teams extended humanity's reach and vision to distant worlds," said science fiction writer and futurist David Brin.

Casani, who worked with Murray on the Mariner missions to Mars in the 1960s, said Murray was somewhat confrontational, but "never argumentative and never hostile."

"People at JPL either loved or hated him. He was always shaking cages," he said.

At Caltech, Murray would throw out a challenge and students would attack or defend it. But the give-and-take needed for that kind of relationship didn't work that well at JPL, Casani said.

"He would throw out a crazy idea just to get reaction that never happened," he said. "The next Tuesday, there would be 30 people working on that crazy idea."

Murray earned his Ph.D. at the Massachusetts Institute of Technology, served in the Air Force and worked for Standard Oil before joining Caltech and JPL.

He supported equipping spacecraft with cameras to take dazzling pictures of other worlds — a view that other scientists rejected as a stunt. These days, camera-toting spacecraft are routine.

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"I lost a very good friend today," said Urrie van der Woude, who was the image coordinator at JPL.

He said he met Murray in 1963 and they became the best of friends.

"When you do things for the first time in the history of our species, you can't describe it. Bruce was the driving force behind our group," van der Woude said.

Shortly after he got to JPL, Murray set up an advisory council for women because there were hardly any women engineers, Casani said. He chose a group of 12 women to help him get the word out and recruit, changing the women on the board each year.

More women today are employed at JPL, in all positions, than any other NASA center, Casani said.

Murray is survived by his wife, Suzanne, and five children.

He was also very close to his cousin, former House Speaker Tom Foley, who is in hospice care in Washington, D.C., Anderson said.

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