Ocean satellite dies after 11-year mission (Update)

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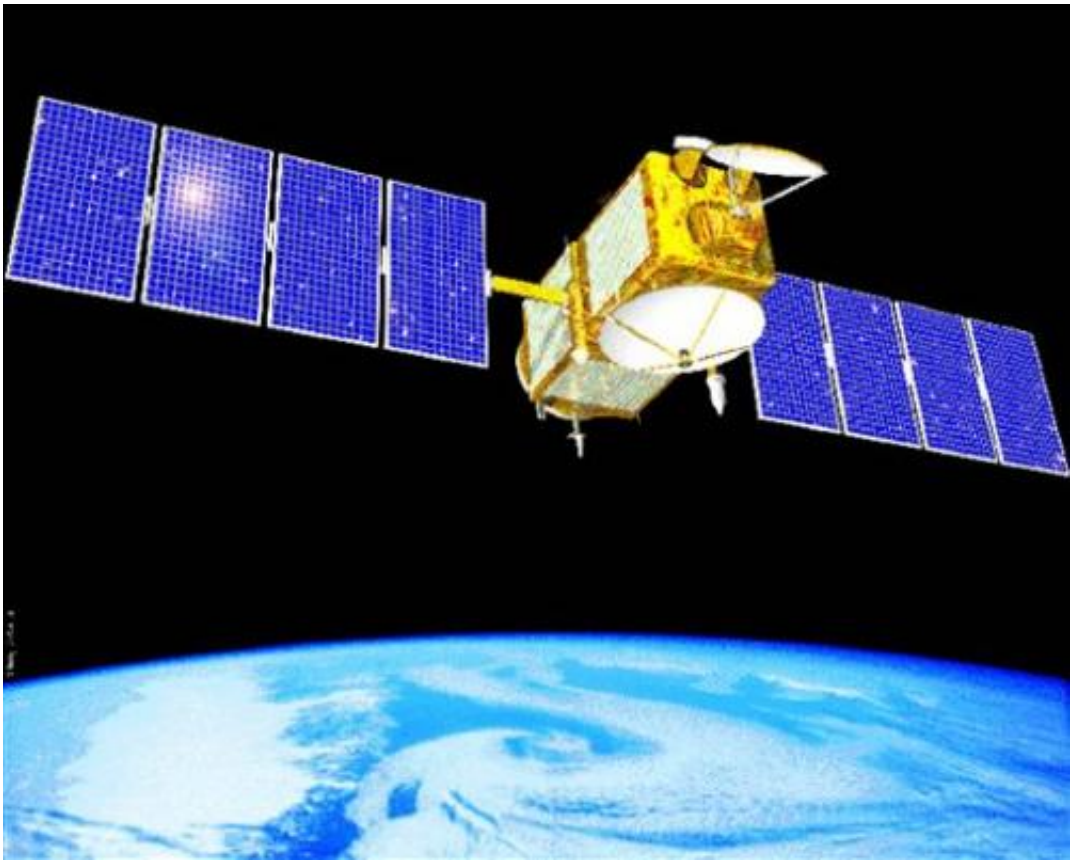

This undated artist's rendering shows the Jason-1 satellite. The U.S.-French science satellite that tracked rising sea levels for more than a decade and helped forecasters make better weather predictions worldwide has gone dark. NASA announced Wednesday July 3, 2013 that it has decommissioned Jason-1 after its last remaining transmitter failed. It will run out of battery power within 90 days but remain in a graveyard orbit for about 1,000 years before falling back to Earth. (AP Photos/NASA, Jet Propulsion Laboratories,File)

Jason-1, a satellite that for more than a decade precisely tracked rising sea levels across a vast sweep of ocean and helped forecasters make better weather and climate predictions, has ended its useful life after circling the globe more than 53,500 times, NASA announced Wednesday.

The joint U.S. and French satellite was decommissioned this week after its last remaining transmitter failed, according to a NASA statement.

Launched on Dec. 7, 2001, Jason-1 was designed to have a lifespan of three to five years but it lasted for 11 ½ years.

Every 10 days, its instruments scanned the ocean surface, mapping sea level, wind speed and wave height for more than 95 percent of the planet's ice-free ocean area. It was one of three oceanographic satellites that contributed to a 20-year record of sea-level changes, NASA said.

"Jason-1 has been a resounding scientific, technical and international success," said John Grunsfeld, associate administrator of NASA's Science Mission Directorate in Washington.

Since its launch, Jason-1 recorded a rise of nearly 1.6 inches in global sea levels that are "a critical measure of climate change and a direct result of global warming," Grunsfeld said in a statement. "The Jason satellite series provides the most accurate measure of this impact, which is felt all over the globe."

Last year, the 1,100-pound (500-kilogram) satellite was moved into a final "graveyard" orbit where, its extra fuel depleted, it was assigned to observe Earth's gravity field over the ocean, NASA said.

A 406-day scan completed on June 17 led to the discovery of many underwater seamounts and increased knowledge of the depth of the

ocean floor, researchers said.

"Even from its 'graveyard' orbit, Jason-1 continued to make unprecedented new observations of the Earth's gravity field, with precise measurements right till the end," said Jean-Yves Le Gall, president of France's Centre National d'Etudes Spatiales in Paris.

Contact with the satellite was lost on June 21 and efforts to re-establish it failed. On Monday, the satellite was ordered to turn off its attitude control systems. Jason-1 will slowly turn away from the sun and its solar-powered batteries will drain within the next 90 days, NASA said.

Jason-1 will remain in orbit for at least 1,000 years before it falls back into Earth's atmosphere, NASA said.

Jason-1 was one of three oceanographic satellites that carried a radar altimeter and bounced radio pulses off the Earth, enabling sea surface height to be determined to within a few centimeters.

Sea surface height changes with temperature so altimeter measurements are means to determine how much heat is stored in any given area of the ocean and how that changes.

From the data, scientists have improved their models of ocean circulation and monitored events such as El Nino, where large masses of warm water pool in the eastern Pacific Ocean.

"These Pacific Ocean climate cycles are responsible for major shifts in sea level, ocean temperatures and rainfall every two to five years, and can sometimes be so large that worldwide weather patterns are affected. Jason-1 data has been instrumental in monitoring and predicting these ever-changing cycles," said Lee-Lueng Fu, Jason-1 project scientist at NASA's Jet Propulsion Laboratory in Pasadena.

Jason-1 worked in tandem with and then replaced Topex-Poseidon, which was launched in 1992 and was decommissioned in 2006.

Jason-2 was launched in 2008 and is still operating. Another satellite, Jason-3, is scheduled for launch in March 2015.

The satellite data was combined with information from the European Space Agency's Envisat mission, which also measured sea level from space.