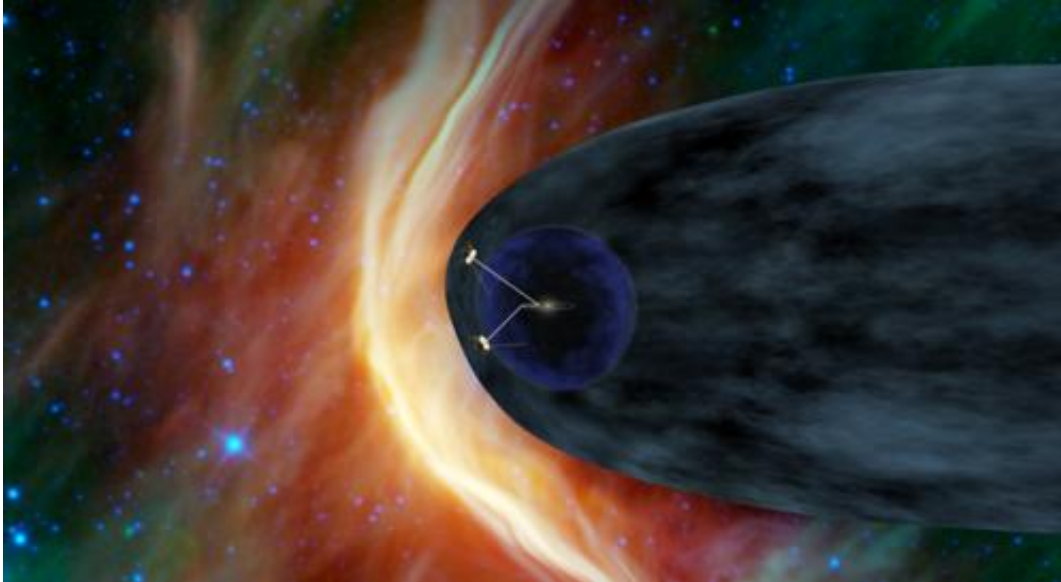


Voyager 2 to switch to backup thruster set

November 7 2011



This artist's concept shows NASA's two Voyager spacecraft exploring a turbulent region of space known as the heliosheath, the outer shell of the bubble of charged particles around our sun. Image credit: NASA/JPL-Caltech

(PhysOrg.com) -- NASA's Deep Space Network personnel sent commands to the Voyager 2 spacecraft Nov. 4 to switch to the backup set of thrusters that controls the roll of the spacecraft. Confirmation was received today that the spacecraft accepted the commands. The change will allow the 34-year-old spacecraft to reduce the amount of power it requires to operate and use previously unused thrusters as it continues its journey toward interstellar space, beyond our solar system.

Launched in 1977, Voyager 1 and Voyager 2 are each equipped with six sets, or pairs, of [thrusters](#) to control their movement. These include three pairs of primary thrusters and three backup, or redundant, pairs. Voyager 2 is currently using the two pairs of backup thrusters that control the pitch and yaw motion of the spacecraft. Switching to the backup thruster pair that controls roll motion will allow engineers to turn off the heater that keeps the fuel line to the primary thruster warm. This will save about 12 watts of power. The spacecraft's power supply now provides about 270 watts of electricity. By reducing its power usage, the spacecraft can continue to operate for another decade even as its available power continues to decline.

The thrusters involved in this switch have fired more than 318,000 times. The backup pair has not been used in flight. Voyager 1 changed to the backup for this same component after 353,000 pulses in 2004 and is now using all three sets of its backup thrusters.

Voyager 2 will relay the results of the switch back to Earth on Nov. 13. The signal will arrive on Earth on Nov. 14. Voyager 2 is currently located about 9 billion miles (14 billion kilometers) from Earth in the "[heliosheath](#)" -- the outermost layer of the heliosphere where the solar wind, which streams out from the sun, is slowed by the pressure of [interstellar gas](#).

Provided by JPL/NASA

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