

## MISSION STATUS BULLETIN

# VOYAGER

March 24, 1978



No. 17

### IT'S MOVING!

#### VOYAGER 1

##### Scan Platform

Operating in low gear to obtain the most torque, Voyager 1's science scan platform has been successfully maneuvered in two separate tests. The platform, which slowed to a standstill during an azimuth slew on February 23, was successfully moved on March 17 and again on March 23. Project officials are expressing cautious optimism that planned platform operation at Jupiter encounter will be achievable.

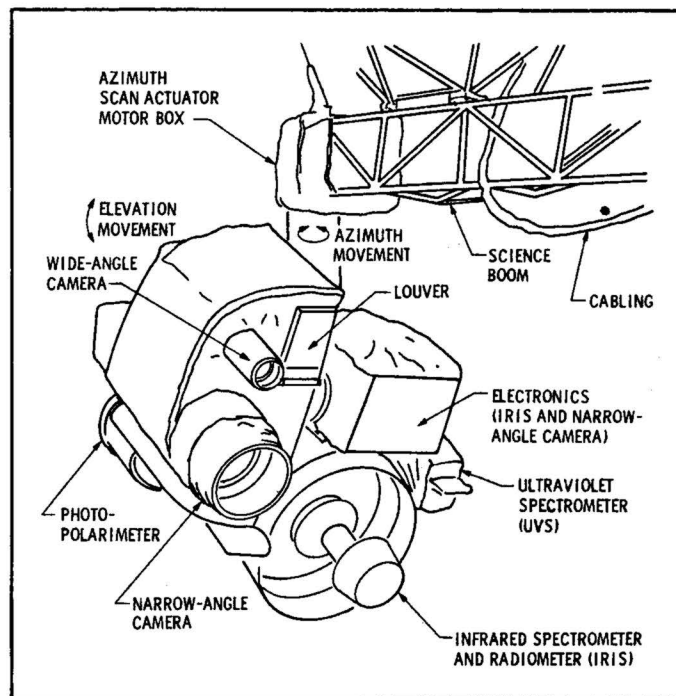
Moving at a slow speed of 0.0052 degrees per second, the platform was commanded on March 17 to back off a mere -1.5 degrees in azimuth from its stuck position, but data indicate this slew stopped short of its target and showed some unexplained characteristics. In the same test, two later slews at +9.0 degrees azimuth and +3.0 degrees elevation were also commanded and successfully completed.

On March 23, a five-hour sequence of four slews moved the platform through several positions away from the area where it had stalled, ending at the position most favorable to remain in should the platform fail to respond at a later date.

The platform can be moved (slewed) in one direction at a time, either azimuth or elevation, at one of four pre-selected rates: 0.0052, 0.0833, 0.333, or 1.000 degree per second. The lowest speed is required by the ultraviolet spectrometer experiment and also provides the most torque.

At the rate of 0.0052 degrees per second, a full 360-degree turn about an axis would take 20 hours to complete. At the fastest rate, 1 degree per second, a full turn would take 6 minutes. The platform cannot turn a continuous full circle about either of its two axes, however, because of mechanical limitations (for example, twisting of the cables). The azimuth range is 360 degrees and the elevation range is 210 degrees (including overtravel).

(contd)



**SCAN PLATFORM.** The science scan platform can be rotated about two axes to provide precision pointing for its four optical instruments.

### SUMMARY

Both spacecraft are now closer to Jupiter than to Earth, in straight line distances. Six months after launch, Voyager 1 is about 426 million kilometers (265 million miles) from Earth and 366 million kilometers (227 million miles) from Jupiter. Due to the arc of the flight path, however, the craft will continue to chase the giant planet through space before closing in to begin Jupiter observations at a distance of about 80 million kilometers in January 1979, less than 10 months from now.

Voyager 2 is about 412 million kilometers (256 million miles) from Earth and 380 million kilometers (236 million miles) from Jupiter. Its journey will continue more than a year before Jupiter observations begin in April 1979.

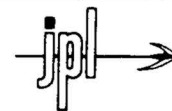
**NASA**

National Aeronautics and  
Space Administration

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Status Bulletin Editor (213) 354-4438



Jet Propulsion Laboratory  
4800 Oak Grove Drive  
Pasadena California 91103  
AC 213 354 4321

The 103-kilogram (226-pound) platform, located at the end of the 2.3-meter (7.5-foot) boom, provides precision pointing about two axes for four instruments: the ultraviolet spectrometer (UVS), infrared spectrometer and radiometer (IRIS), photopolarimeter (PPS), and a two-camera imaging system (ISS).

#### Photopolarimeter

Voyager 1's photopolarimeter instrument was turned on again on March 15 and is operating normally.

#### Plasma Instrument

The plasma instrument performance continues to degrade, and is being closely monitored. The sensitivity of the instrument's main detector dropped significantly on February 17. In early March, further change was observed, and it now appears that the Jupiter encounter objectives will be affected, as well as the cruise measurements. The instrument's side-detector continues to operate well.

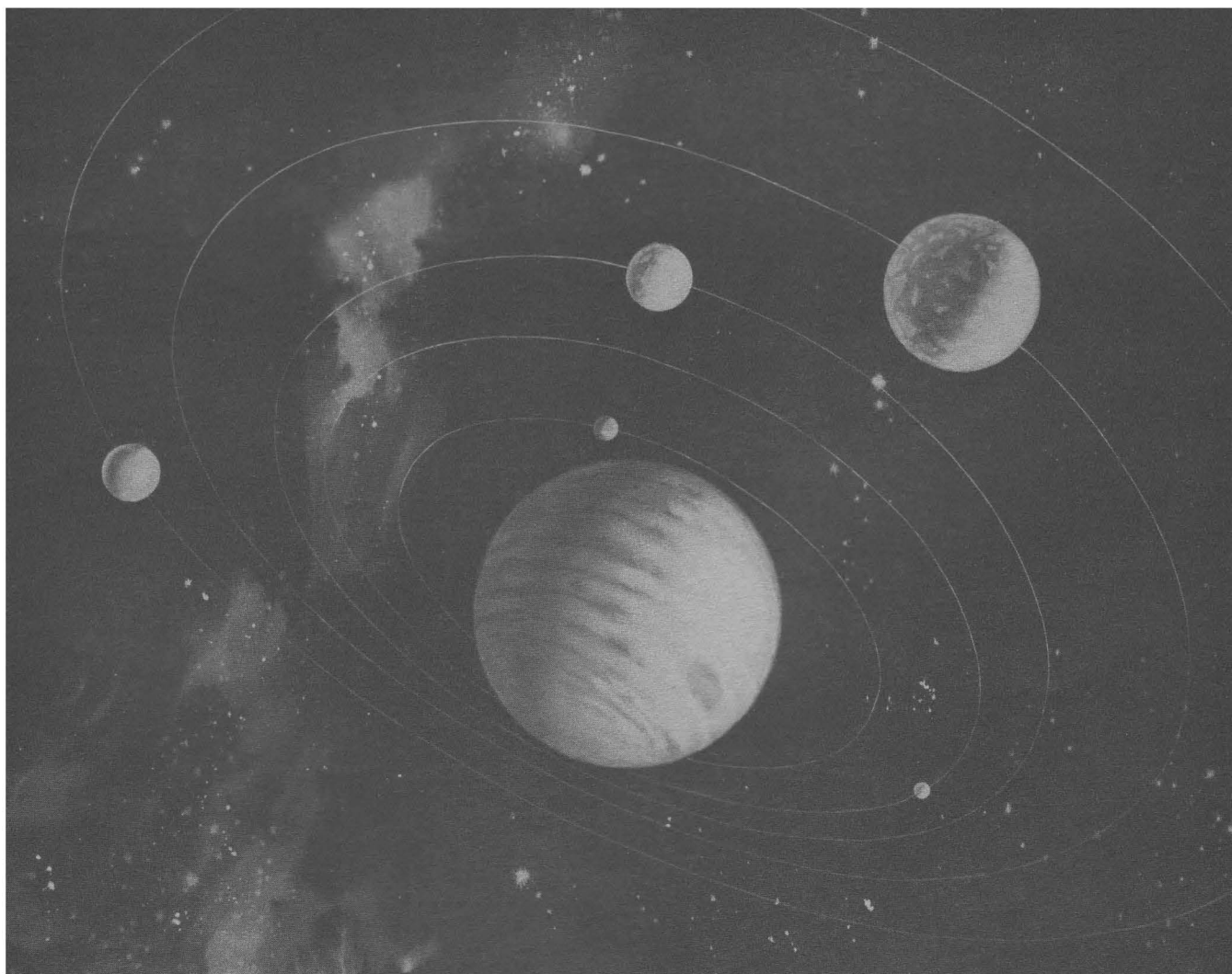
#### High Gain Antenna Solid State Amplifier

Some possible degradation in the high gain antenna's solid state amplifier has been detected. Because of a similar problem on Voyager 2 which resulted in switching to the backup travelling wave tube amplifier, the situation on Voyager 1 will be monitored closely.

#### VOYAGER 2

Voyager 2 is cruising quietly, performing routine instrument calibrations. A target maneuver was successfully completed on March 7 to calibrate the scan platform instruments.

The photopolarimeter was turned on again on March 14 and is operating normally. Although the troublesome analyzer wheel is apparently unstuck and operable, it is not being stepped currently.



Jupiter and five of its moons: (ranging outward from the planet) Amalthea, Io, Europa, Ganymede, and Callisto.