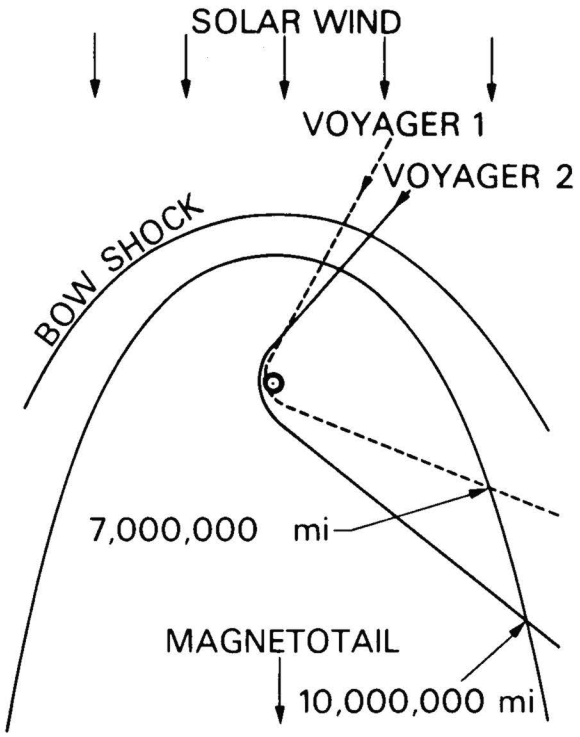
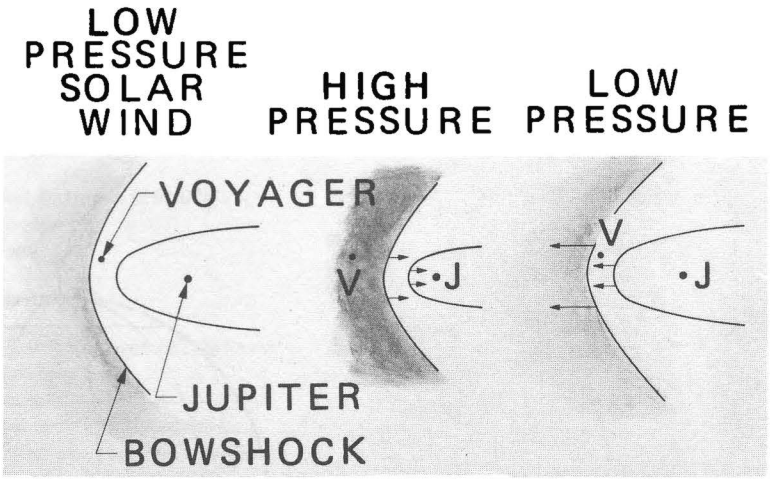
Voyager Bulletin

MISSION STATUS REPORT NO. 45 JULY 5, 1979



MAGNETOTAIL PASSAGE — Voyager 2 will spend a longer period taking measurements in Jupiter's magnetosphere, perhaps as long as 30 days, in comparison to nearly 13 days for Voyager 1. On its outbound journey, Voyager 2 may cross the magnetopause as far as 10 million miles from Jupiter.



BOW SHOCK CROSSINGS — Voyager 2's first crossing of Jupiter's bow shock came July 2 at a distance of about 7 million km (4.4 million mi) from the planet. At least eleven crossings have been noted by the plasma instrument, magnetometers, and plasma wave instrument as of noon on July 5, as the solar pressure ebbed and flowed, sometimes causing the bow shock to overtake the spacecraft again. The bow shock is a surface separating the essentially undisturbed supersonic solar wind from the deflected subsonic solar wind outside the magnetosphere where particles are trapped by the planet's magnetic field.

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Pasadena, California

Voyager 2: Jupiter Minus 4 Days

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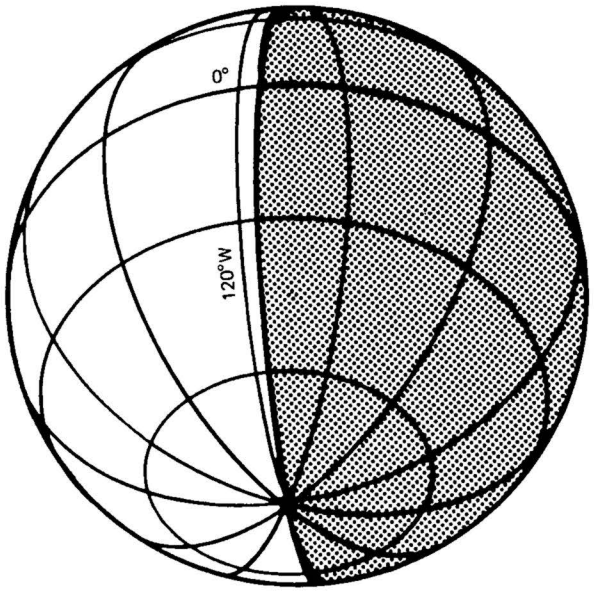
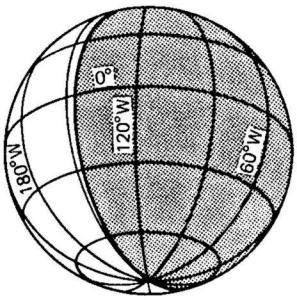
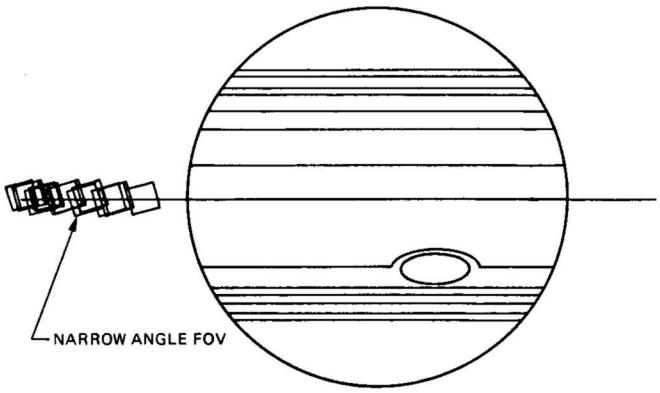


GANYMEDE
CLOSEST APPROACH J-15.5 hr
FROM 63,000 km



EUROPA
CLOSEST APPROACH J-4.5 hr
FROM 207,000 km

OPPOSITE FACES – These computer-generated plots show Voyager 2's view of Europa and Ganymede at the times of closest approach. Flying over 500 thousand kilometers closer to Europa than Voyager 1 did, Voyager 2 will learn more about the linear features seen on the Moon-sized satellite in March.

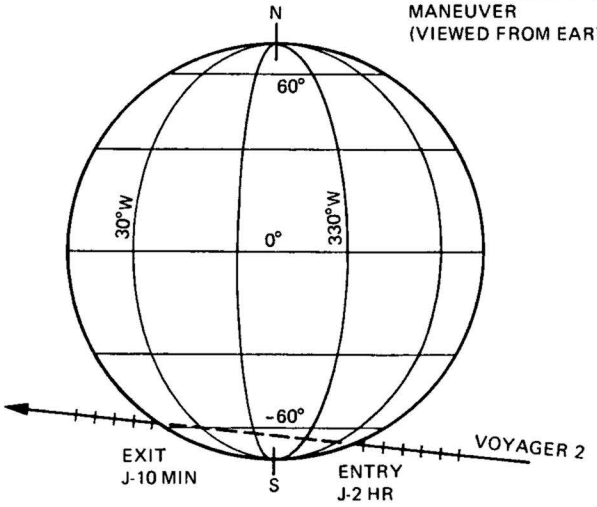


INBOUND RING PLANE CROSSING
JULY 8 5:03 pm PDT

RING CROSSING – Voyager 2 will cross the plane of Jupiter's thin ring twice, once inbound and once outbound. Both wide- and narrow-angle frames, some through color filters, will be taken to learn more about the thickness and composition.

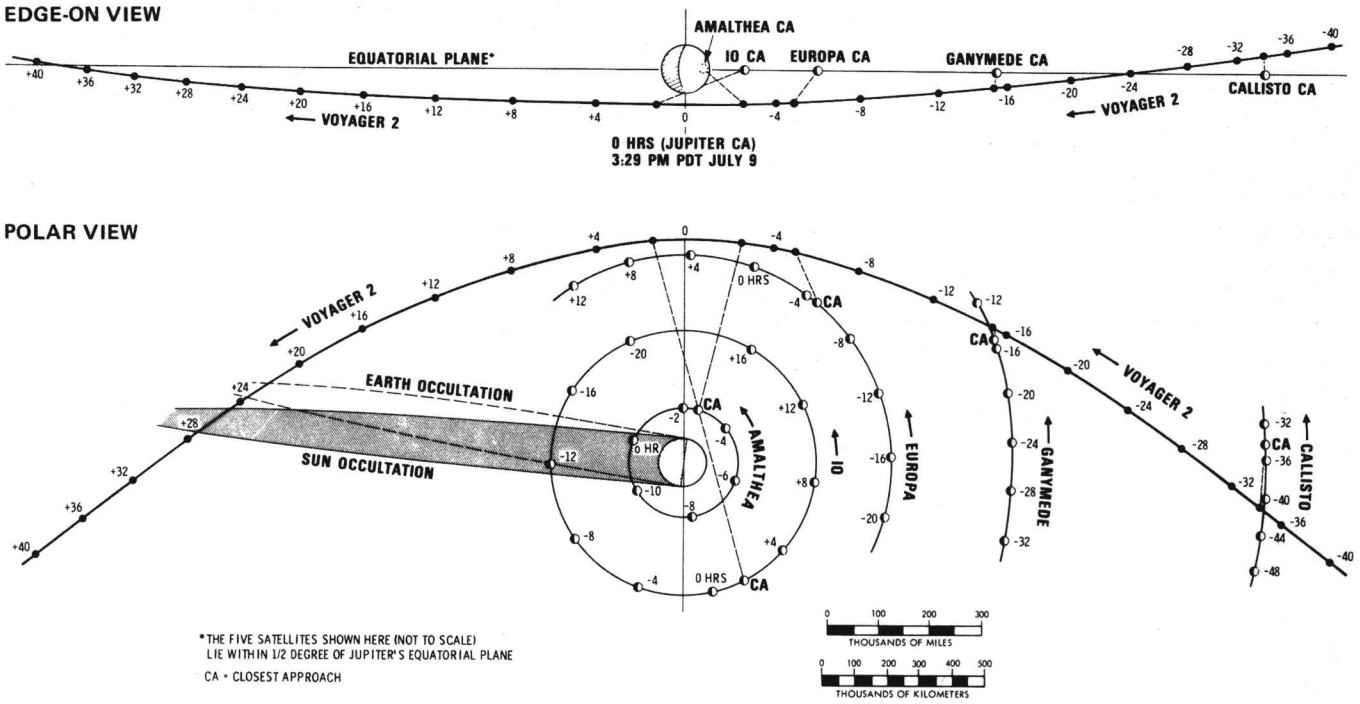
RADIO OCCULTATION – Voyager 2 will pass nearer the south pole of Jupiter, in contrast to Voyager 1's nearly equatorial pass. Only three hours after Jupiter closest approach in March, Voyager 1 moved into the planet's shadow, all radio signals blocked by the planet for nearly two hours. All data during this period, including the closest approach to Io, had to be tape recorded for later playback. Voyager 2 will enter earth occultation nearly 22 hours after its closest approach to Jupiter.

RADIO SCIENCE
EARTH OCCULTATION
MANEUVER
(VIEWED FROM EARTH)



TICKS ARE AT 10-MIN INTERVALS

VOYAGER 2 FLYBY OF JUPITER July 7-11, 1979



Sampling of Voyager 2 Encounter Activities

(Continuous observations by radio science, magnetometers, low-energy charged particle, plasma, and cosmic ray investigations, as well as mapping by imaging cameras, photopolarimeter, ultraviolet and infrared spectrometers.)

(All times are earth-received event start times, Pacific Daylight Time)

June 25	First targeted Callisto images
June 30	First targeted Ganymede images
July 2-3	Expected bowshock crossing
July 3	First targeted Europa images
July 7	First Callisto mosaic First targeted Io images
July 8	
2:39 a to 2:51 a	Ring observations
6:13 a	Callisto — closest approach (214,886 km)
7:32 a	Final Callisto mosaic
5:04 p to 5:29 p	Ring observations
5:32 p	First Ganymede mosaic
July 9	
1:06 a	Ganymede — closest approach (62,297 km)
1:12 a	Final Ganymede mosaic
10:02 a	Final Europa mosaic
11:45 a	Europa — closest approach (205,848 km)
1:53 p	Amalthea — closest approach (558,565 km)
4:21 p	Jupiter — closest approach (721,750 km)
4:34 p	Begin 10-hour Io "volcano watch"
5:09 p	Io — closest approach (1,129,850 km)
July 10	
2:30 a	Conclude Io "volcano watch"
2:21 p to 4:08 p	Earth occultation
5:10 p to 7:48 p	Sun occultation
6:48 p to 7:11 p	Ring observations
July 11	
8:43 a to 9:27 a	Ring observations

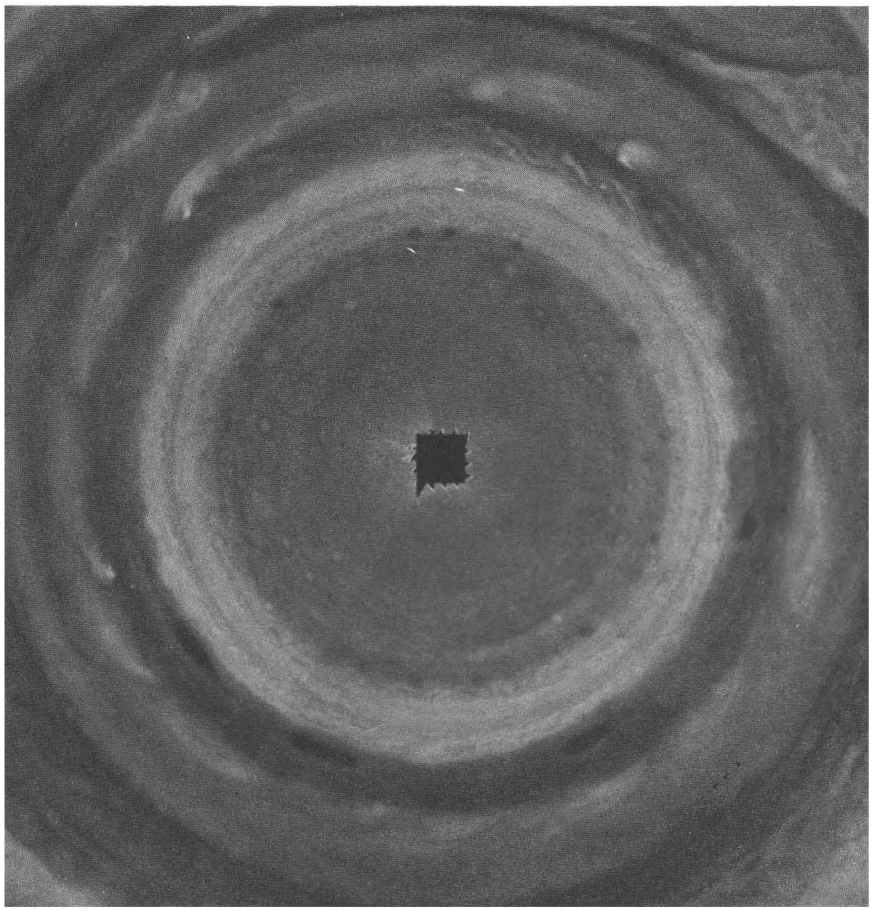
CLOSE ENCOUNTERS — Voyager 2 will make its closest approaches to Callisto, Ganymede, Europa, and Amalthea before its nearest pass to Jupiter on July 9. Steering clear of Jupiter's intense radiation, Voyager 2 will not repeat Voyager 1's close flyby of Io, instead flying outside the orbit of Europa.

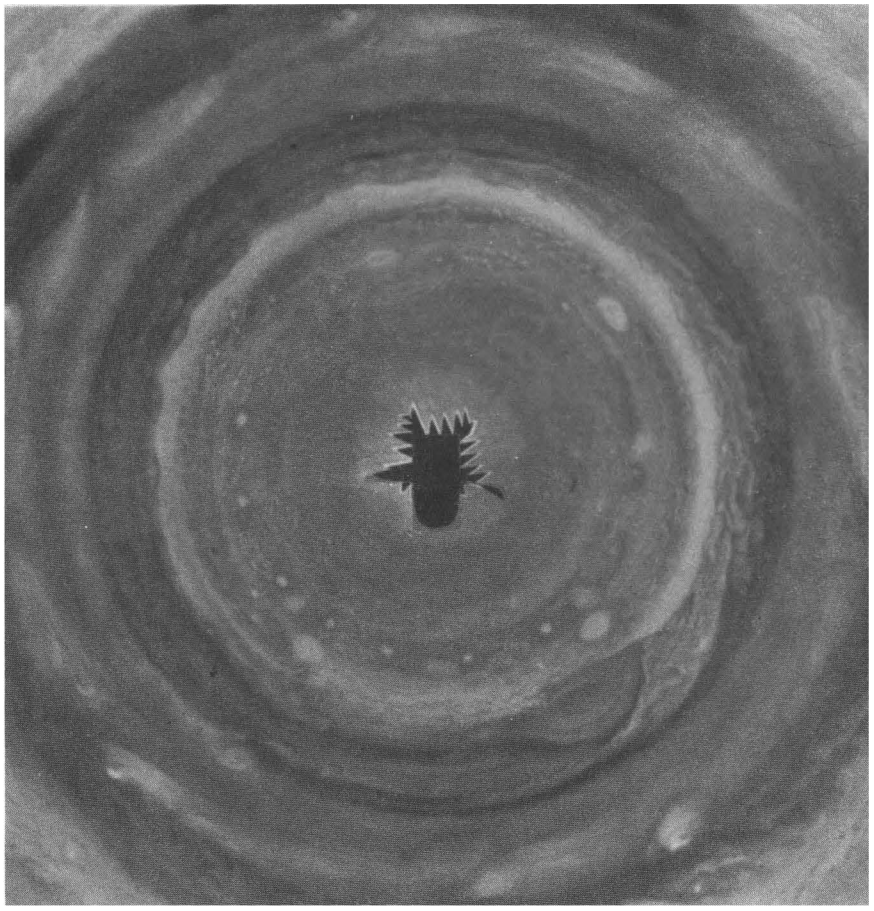
Summary of Voyager Close Approaches

	Voyager 1		Voyager 2
Body	Distance	Best Imaging Resolution (km)	Distance
Jupiter	280,000 km (174,000 mi)	6	721,750 km (448,470 mi)
Amalthea	417,100 km (259,173 mi)	7.8	558,600 km (347,100 mi)
Io	20,500 km (12,738 mi)	1*	1,129,850 km (702,056 mi)
Europa	733,800 km (454,962 mi)	33**	205,850 km (127,900 mi)
Ganymede	114,600 km (71,209 mi)	2	62,300 km (38,700 mi)
Callisto	126,100 km (78,355 mi)	2.3	214,900 km (136,500 mi)

*Best Io resolution was limited by image smear due to timing offset caused by radiation levels, not distance of closest approach.

**Final Europa images were obtained at a range of 18 million km, well before closest approach to the satellite.





POLAR PROJECTIONS—Jupiter's northern and southern hemispheres as they might be seen from directly above the poles are shown in these polar stereographic projections constructed by JPL's Image Processing Lab from Voyager 1 photos. The resolution is 600 kilometers (375 miles). The dark objects in the centers are areas where no pictures were available at that resolution.

In the northern hemisphere, the northward extent of the belt-zone structure is clearly shown to at least 50 degrees north latitude. At the northern edge of the equatorial region, the plumes are evenly spaced around the planet. Positions of the active cloud plumes, marked by bright nuclei, are not symmetrical. At about 32 degrees north, dark cloud vortices that move in westerly currents at about 30 meters per second (67 miles an hour) can be seen. The spacings of those features vary, and cloud systems have been seen to roll over one another in the region. The broad white region is divided by the North Temperate Belt's high-speed jet, seen as a thin brown line.

The southern hemisphere image shows three white ovals and a large region of the same zone without any discrete feature. Smaller scale spots, almost equally spaced, cover almost 270 degrees of longitude, while the disturbances trailing from the Great Red Spot extend about 180 degrees in longitude.