

Voyager spacecraft mark 40th anniversary

Voyagers 1 and 2 were launched in 1977 to take advantage of a favourable alignment of Jupiter, Saturn, Uranus and Neptune, and are now exploring interstellar space

Lifespan: Both spacecraft have enough power left to last until 2025, after which communication will be lost

Magnetometer: Detects change in direction of magnetic field at edge of solar system

Voyager 2: Launched Aug 20, 1977

Voyager 1: Launched Sep 5, 1977

MILKY WAY GALAXY

80,000 light years away

SCUTUM-CENTAURUS ARM 70,000
60,000
50,000
40,000
30,000
20,000
10,000

SAGITTARIUS ARM
ORION ARM
PERSEUS ARM
OUTER ARM

Milky Way Galaxy Diameter:

100,000 light years

Speed of light:

300,000km per second

One light year:

9,461 billion km

Bow shock:

Solar wind pushes against interstellar wind, forming shock wave in front of heliosphere

Heliosheath:

Region between termination shock and heliopause where solar wind slows and compresses as it interacts with interstellar medium

HELIOSPHERE

20.73bn km from Earth*

Solar System

Termination shock:

Point where solar wind drops sharply upon meeting interstellar winds

Heliotail:

As heliosphere travels through interstellar space it leaves long tail in its wake, similar to boat through water

INTERSTELLAR SPACE

Heliopause:

Solar wind halted as not strong enough to push back against interstellar wind

17.07bn km from Earth*

Mar 5, 1979: Voyager 1 flies by Jupiter. Confirms **Great Red Spot** moves anticlockwise

Nov 12, 1980: Voyager 1 slingshots around Saturn and begins voyage out of solar system

Jan 24, 1986: Voyager 2 has first-ever encounter with Uranus

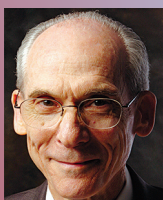
Aug 25, 1989: Voyager 2 visits Neptune before exiting Solar System

Aug 25, 1981: Voyager 2 flies by Saturn

Jul 9, 1979: Voyager 2 passes Jupiter

PRIMARY MISSION

Led by astrophysicist **Ed Stone** (r), Voyager's main mission was completed in 1989 after Voyager 2 made close flyby of **Neptune** on way out of solar system



Programme extended to interstellar mission. Has mapped shape and reach of **heliosphere** to edge of solar system

SOLAR SYSTEM

50,000km
31,069 miles

Sun
Mercury
Venus
Earth
Mars

Jupiter

Great Red Spot

Saturn

Uranus

Neptune

Note: Sun and planet sizes to scale, distances between are not

*Distances from Earth as of 0900GMT, July 19, 2017

Sources: NASA, JPL, Caltech

Pictures: NASA/JPL-Caltech/Space Science Institute, NASA

Note: Pluto not shown following demotion to dwarf planet in 2006

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