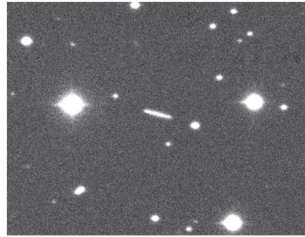




# Summary Information Sheet

## Asteroids

Asteroids – also known as “minor planets” – are small rocky bodies that orbit the Sun along with the major planets. The first asteroid, Ceres, was found in 1801 and, as most of the others, moves in the “main belt” between the orbits of Mars and Jupiter. With ~950 km diameter, it is also the largest asteroid known there.



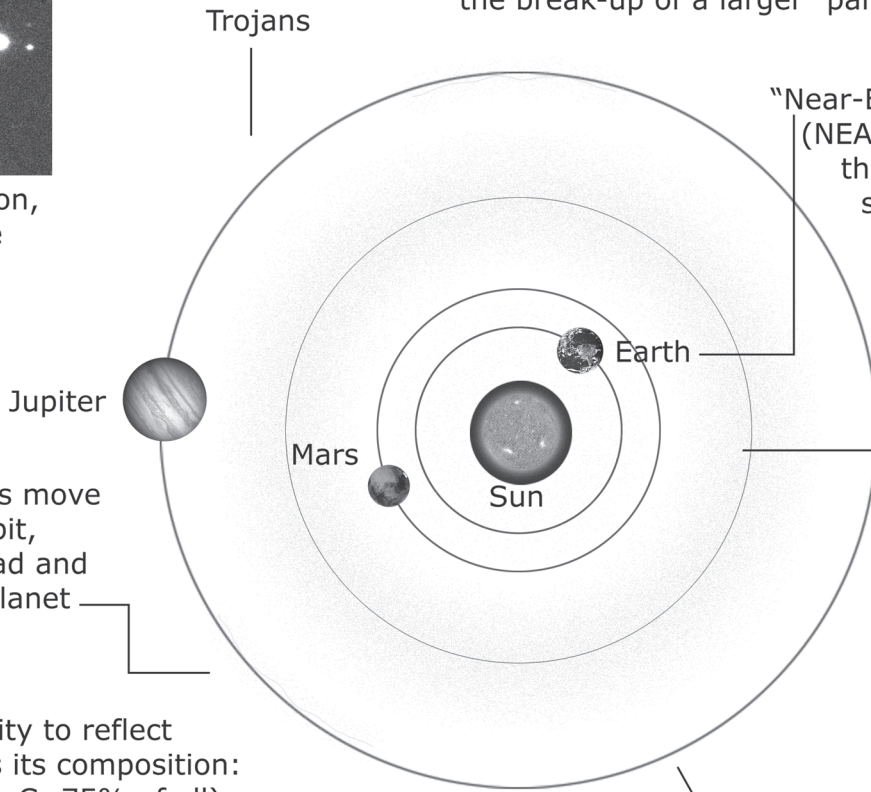
Due to their motion, asteroids produce “trails” on long-exposure photos

“Trojan” asteroids move near Jupiter’s orbit, approx. 60° ahead and 60° behind the planet

An asteroid’s ability to reflect sunlight indicates its composition:

- \* Very dark (Type C; 75% of all) - solar composition (without H, He)
- \* Bright (Type S; 17%) - metallic Ni-Fe with Fe- and Mg-silicates
- \* Very bright (Type M; ~8%) - pure Ni-Fe

Many asteroids move in similar orbits and belong to “families”. Each family probably represents the break-up of a larger “parent” body



“Near-Earth-Asteroids” (NEAs) approach (“cross”) the Earth’s orbit and may sometime collide with our planet. The extinction of the Dinosaurs, 65 mio yrs. ago, may be due to one or more such events

More than 100.000 asteroids are known to move in the “main belt”

The total mass of all asteroids in the inner Solar System is about  $3 \times 10^{21}$ kg, or just 1/25 of that of the Earth’s Moon

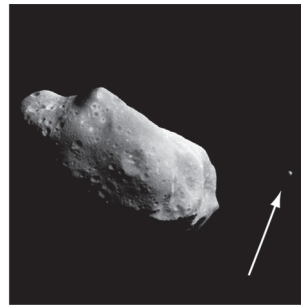
Groups of mostly icy minor bodies (Centaurs, Trans-Neptunian Objects) are found in the outer realms of the Solar System



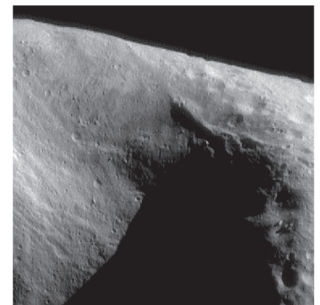
Asteroid Ceres (ground-based photo)



Asteroid Gaspra (NASA Galileo 1991)



Asteroid Ida with moon Dactyl (Galileo 1993)



Asteroid Eros (NASA NEAR 1999)

### Physical Data

### For comparison

Property	Ceres	Gaspra	Deimos
Distance from the Sun	414 mio km	332 mio km	-
Rotation period	9.074 hrs	3.29 years	1.26 days
Dimensions	960 x 933 km	19 x 12 x 11 km	15 x 12 x 11 km
Mass	$9.4 \times 10^{20}$ kg	?	$1.8 \times 10^{15}$ kg
Density	2050 kg/m <sup>3</sup>	?	1700 kg/m <sup>3</sup>

Images from ESO, ESA or NASA except otherwise stated

Concept: Bernhard Mackowiak