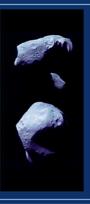
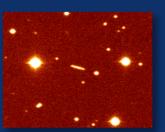
### Summary Information Sheet

## **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 longexposure photos

Jupiter

"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 x 10<sup>21</sup>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)



Trojans

Mars

Asteroid Gaspra (NASA Galileo 1991)



Earth

Asteroid Ida with moon Dactyl (Galileo 1993)



Asteroid Eros (NASA NEAR 1999)

#### **Physical Data**

# Property Distance from the Sun Rotation period Dimensions Mass Density

Ceres	
414 mio km	
9.074 hrs	
960 x 933 km	
9.4 x 10 <sup>20</sup> kg	
2050 kg/m <sup>3</sup>	
atod	

#### For comparison

Gaspra
332 mio km
3.29 years
19 x 12 x 11 km
?
?

Deimos
1.26 days
15 x 12 x 11 km
1.8 x 10 <sup>15</sup> kg
1700 kg/m <sup>3</sup>

Concent: Bernhard Mackowia