

Asteroid Analysis

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Asteroid #1

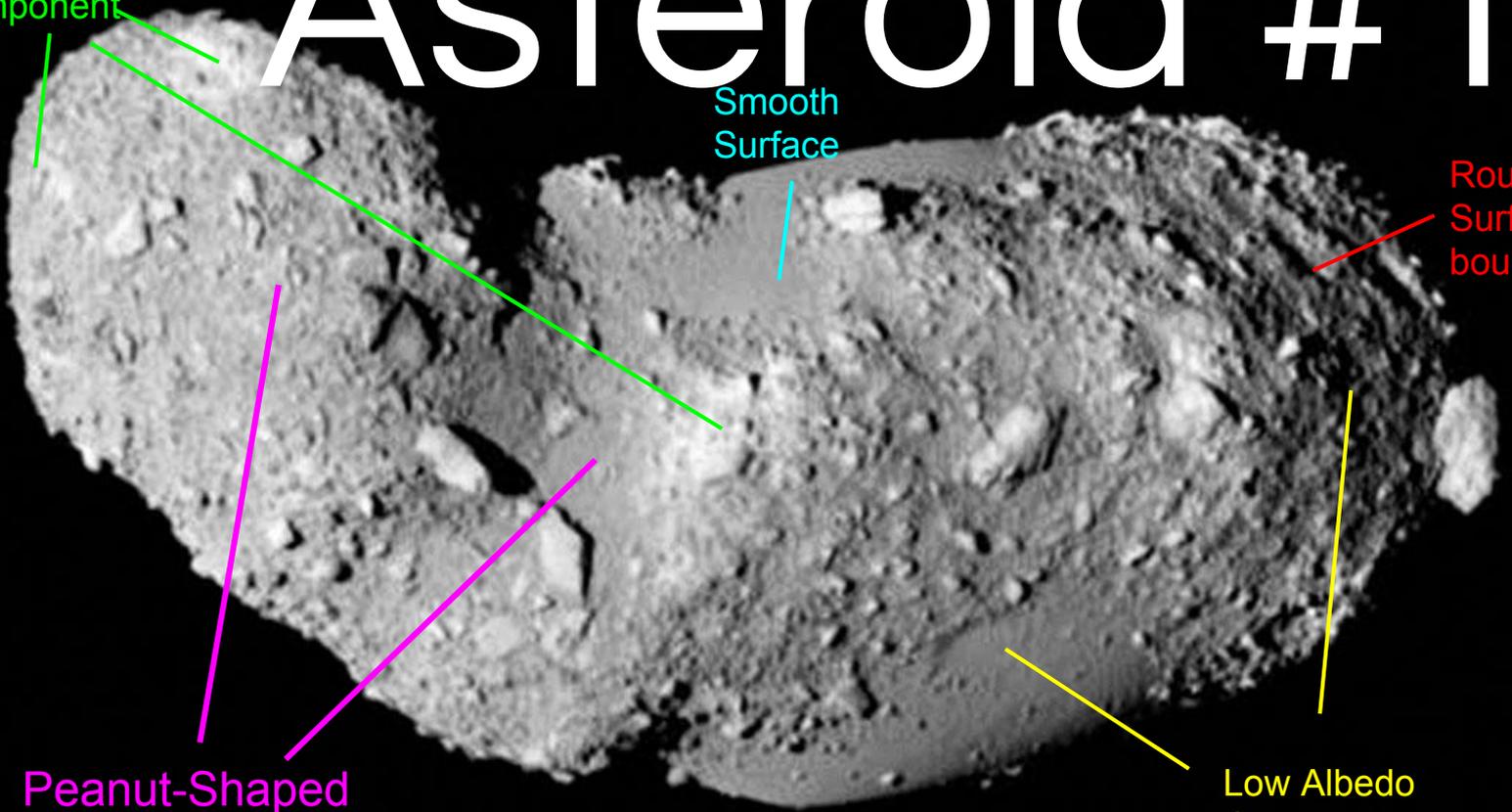
High Albedo
Metallic
component

Smooth
Surface

Rough
Surface with
boulders

Peanut-Shaped

Low Albedo
Carbonaceous
/ silicate
component



Asteroid #1

This asteroid is peanut shaped, and it appears that two asteroids have been pushed together. This might be caused by the Brazil Nut Effect and/or asteroid collision.

Appears to also have many jagged pieces of other asteroids stuck to it (abundance of large boulders, lack of cratering). This was caused by reaccumulation of small asteroid fragments.

Asteroid has a few smooth areas on its surface, caused by space weathering.

Variety of components throughout surface because of different albedo (Higher albedo (brighter part) is likely composed of metallic elements, and Lower albedo (darker gray part) is likely composed of carbonaceous elements)

Size of this asteroid is relatively small, because of its irregular shape (large asteroids tend to have spherical shapes)

Age of this asteroid is relatively young, because of its small size and little amount of craters.

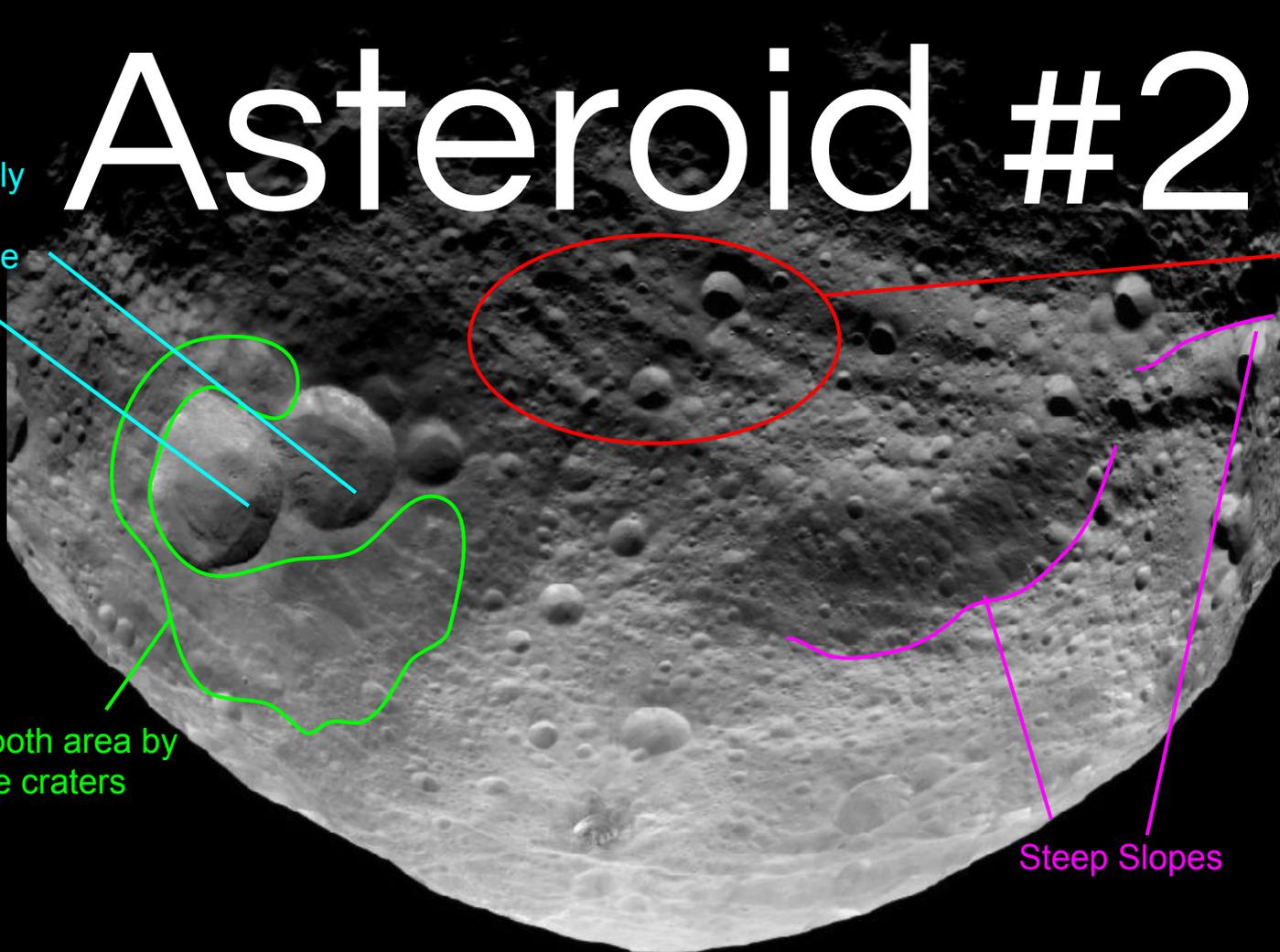
Asteroid #2

Two extremely large craters on the surface

High-density craters with lots of overlaps

Smooth area by large craters

Steep Slopes



Asteroid #2

High density and different sizes of craters littered all over its surface. Craters were saturated and even overlapped in many places. This is likely due to impact of asteroid and celestial bodies.

Lots of steep slopes on surface of this asteroid, and this is likely caused by huge impacts of smaller body.

Smooth areas can be spotted by large craters. Huge impact of those two large craters might wiped out the entire history of cratering in the vicinity.

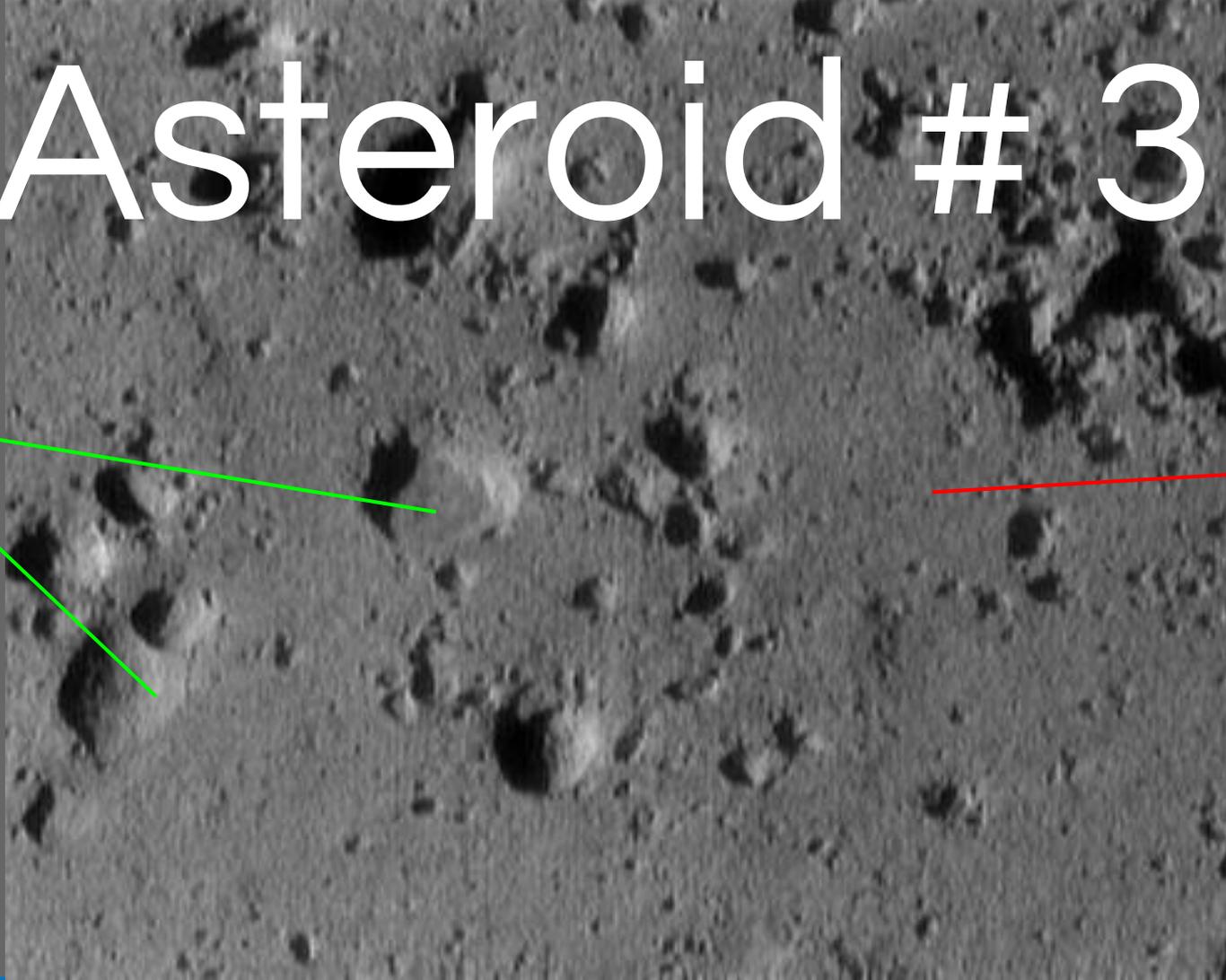
This asteroid is spherical-shaped, which indicated that it's likely to have a large mass. Relative sizes of crater can also help as interpret asteroid's mass.

Age of this asteroid is oldest, because it has extremely dense craters and largest mass.

Asteroid # 3

Chondrite-like, small-sized rock

Smooth dust surface



Asteroid #3

This asteroid has boulders all over its surface, though they seem to be uniformly small in size. These boulders(stones) probably were originally fragments of nearby asteroid(s) which eventually attracted to surface of this asteroid.

Smooth layer of dust on the top caused by space weathering

Color and albedo of dusts and stones on its surface looks like chondrite, which indicates this is a silicate-enriched S-type asteroid.

lack of crater on the surface indicates it's a relatively young asteroid which suffered less impact and/or seismic shaking during small impact cause the regolith to move and erase small crater features.

This is a middle-aged asteroid, because it is relatively medium sized(17km diameter according *Formation and Physical Properties of Asteroids*) and also because it's a S-type asteroid, which is less primitive.