

LUCY



Surveying
the Diversity
of Trojans

The NASA Lucy mission and its newest target

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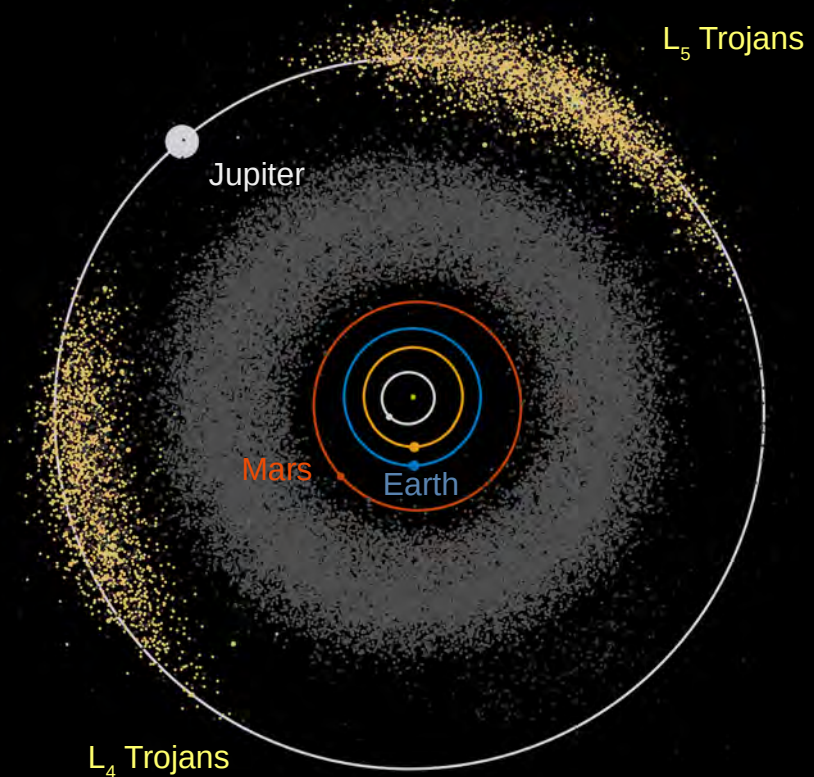


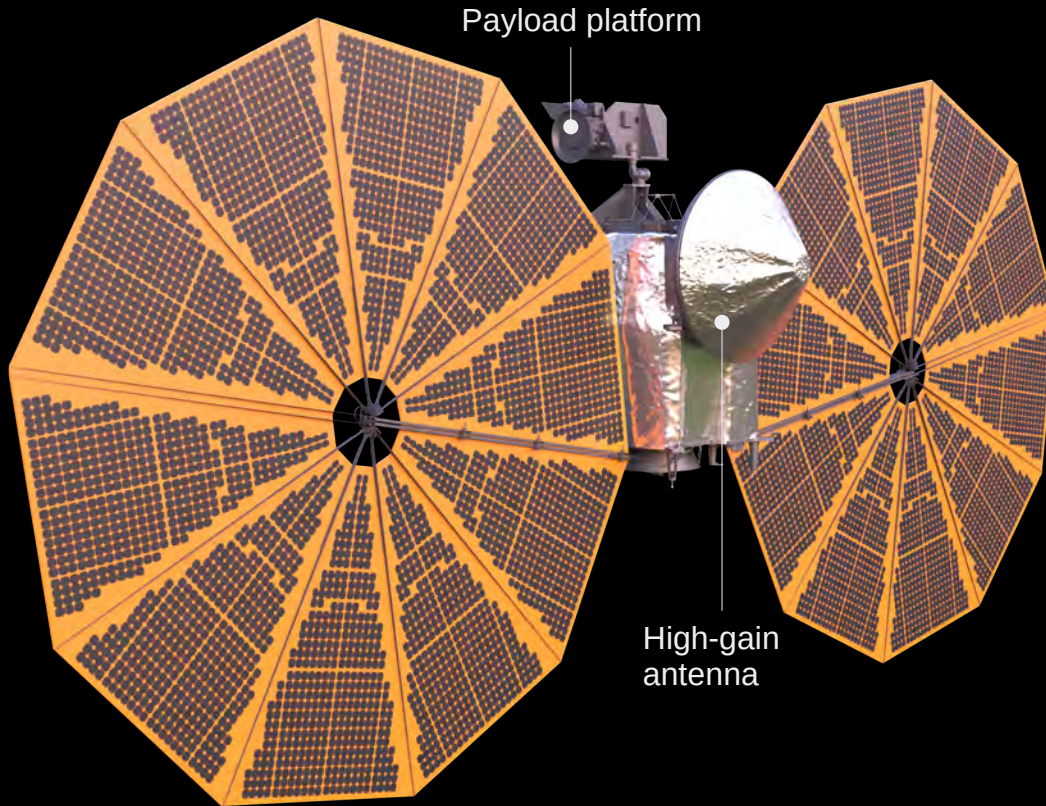
Lucy is the first mission to explore the Trojan asteroids!

Trojans are not a homogeneous population:
different colors, albedos, sizes, evolution;

The Trojan asteroids present an opportunity to
constrain models of giant planet migration by
studying planetesimals that may have formed
in different parts of the protoplanetary disk;

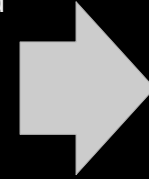
The large number of Trojans (7) to be studied
by Lucy allows for comparative investigations!





Payload:

1. L'LORRI:
High spatial resolution imager
2. L'Ralph:
Color visible imager and infrared spectrometer
3. L'TES:
Thermal emission spectrometer
4. T2Cam:
Visible imager for tracking
5. High-gain antenna:
Doppler measurements



Investigations:

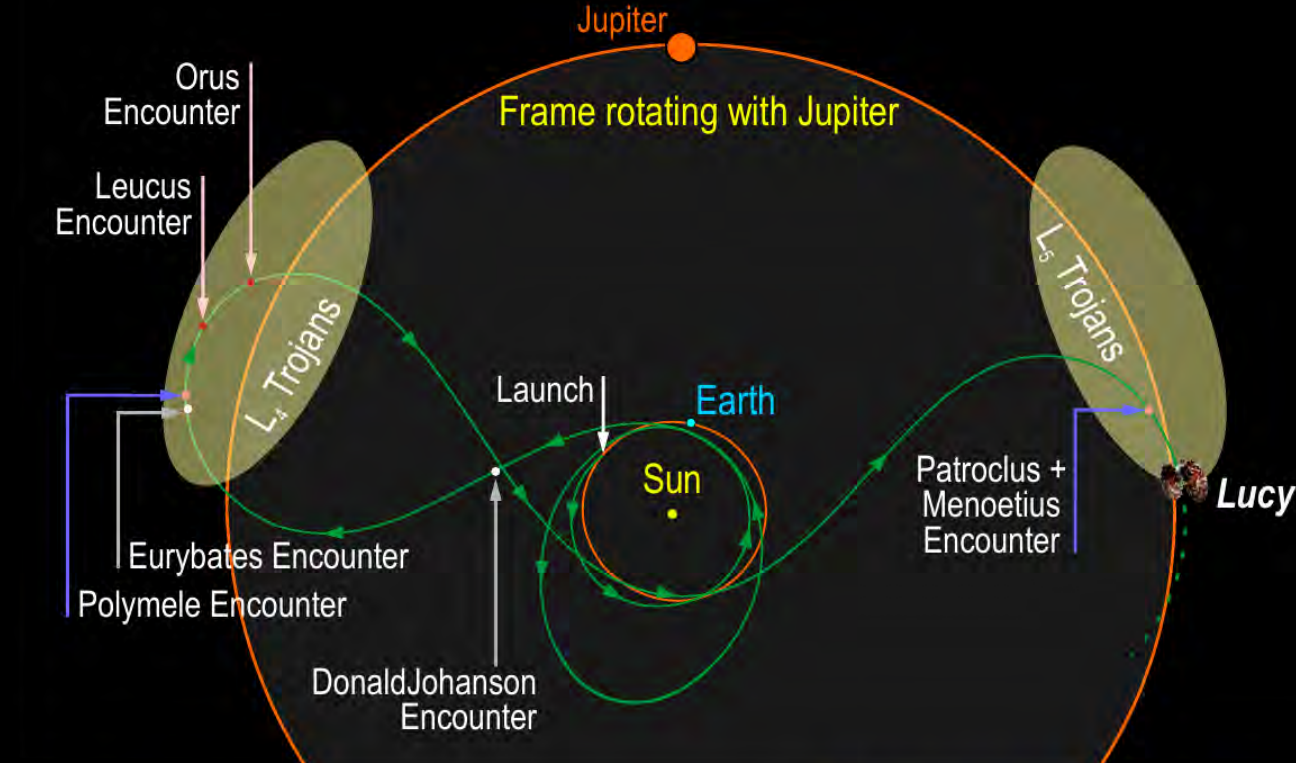
Surface Geology
(1,2,4)

Surface Color & Composition
(2,3)

Interiors
(1,2,4,5)

Satellites & Rings
(1,2,4)





Launch: 10/21

Flyby 1: Donald Johanson, C-type Main Belt, 4/25

Flyby 2: Eurybates, C-type Trojan, 8/27

Flyby 3: Polymele, P-type Trojan, 9/27

Flyby 4: Leucus, D-type Trojan, 4/28

Flyby 5: Orus, D-type Trojan, 11/28

Flyby 6: Patroclus & Menoetius,

P-type Trojan Binary, 3/33





Eurybates
C-type



Polymele
P-type



Leucus
D-type



Orus
D-type

L₄ Trojans



Patroclus
Binary & P-type

Artist conception based on
Earth-based observations



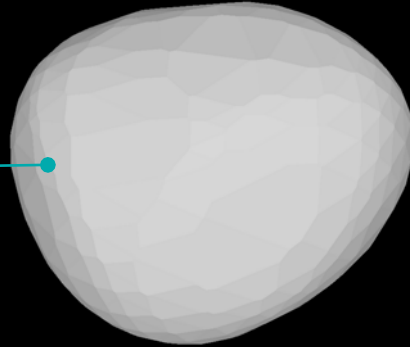
Menoetius
Binary & P-type

L₅ Trojans





Eurybates' shape model based on available photometric data; Average diameter ~ 64 km

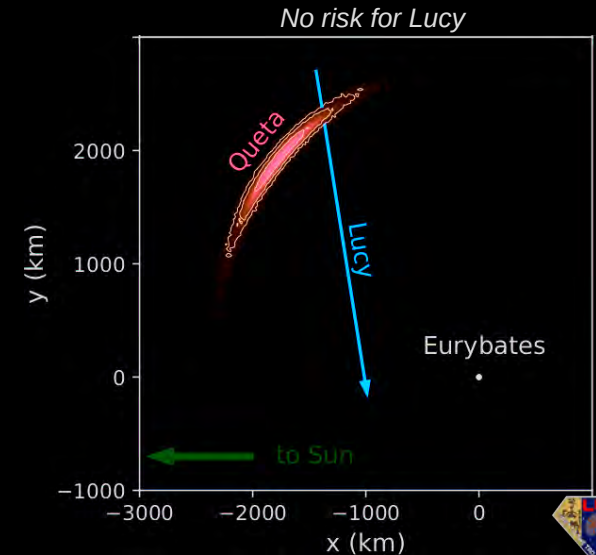
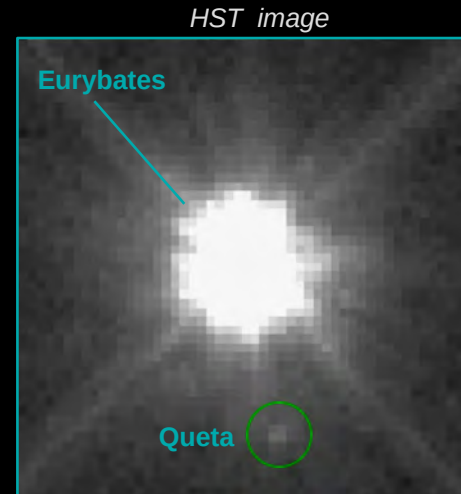


What do we know about Lucy's target Eurybates?

- It is the parent body of an asteroid family, formed in an ancient large catastrophic collision;
- It belongs to an uncommon spectral type among Trojan asteroids.

What's new?

- The Lucy Science Team used HST to discovered a small satellite, named Queta, about 1 km in size;
- Semi-major axis: ~2300 km, eccentricity: 0.09, orbital period: ~83 days;
- Queta is a target of opportunity, Lucy will observe it as possible.





In early October Lucy was encapsulated in the Atlas V 401 fairing!

All is on track for a October 16 launch.

When Lucy will leave the fairing, it will be space-born headed for its 12-years, 4 billion miles journey...



Lucy

Safe Travels, Lucy!



Questions?

