

LUCY



Surveying
the Diversity
of Trojans

Simone Marchi

Southwest Research Institute

Lucy Deputy Project Scientist



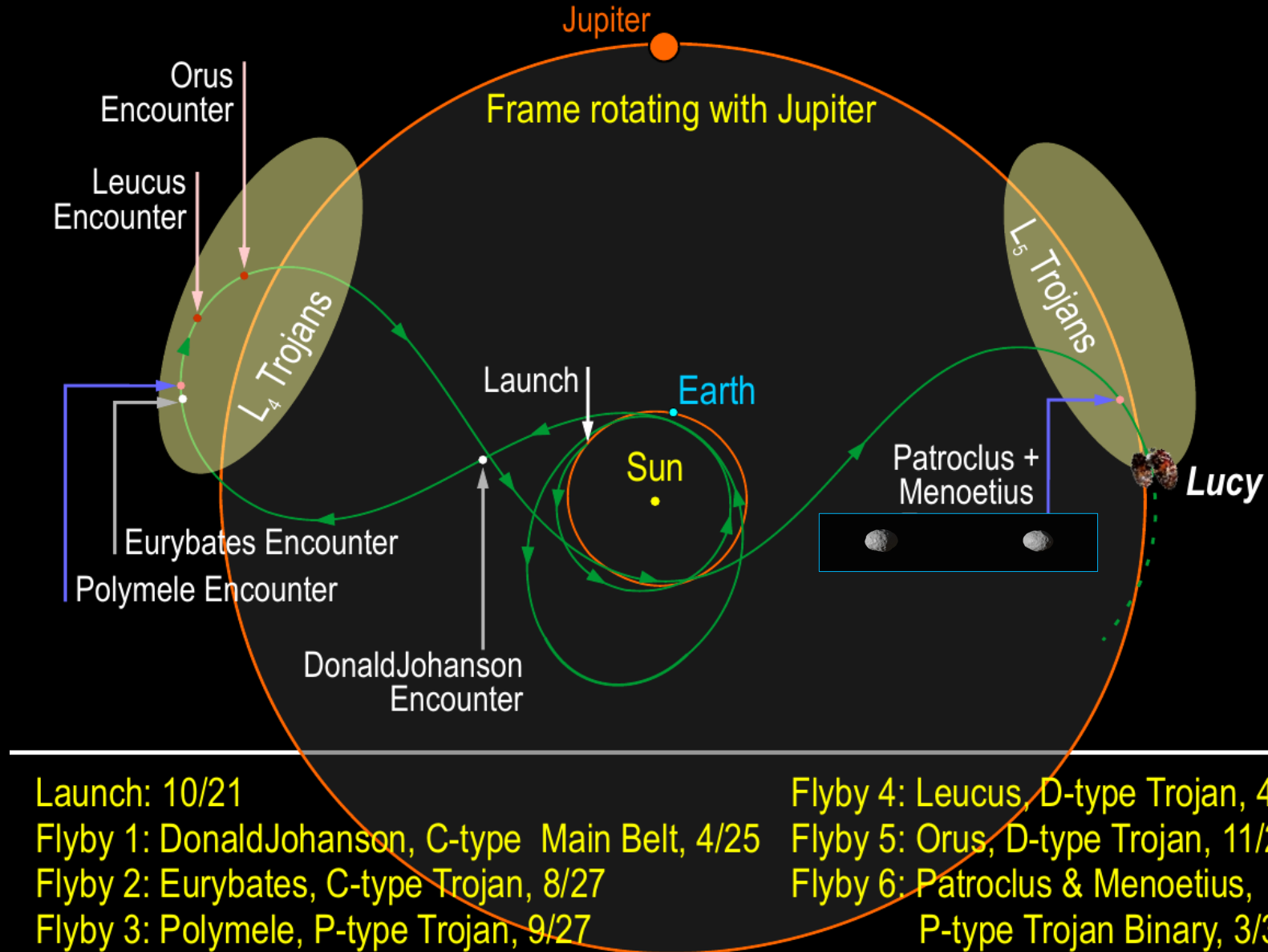
Goddard
SPACE FLIGHT CENTER

LOCKHEED MARTIN



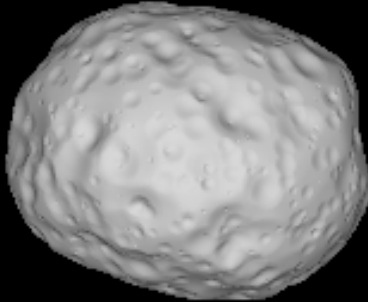
ASU







Eurybates
C-type



Polymele
P-type



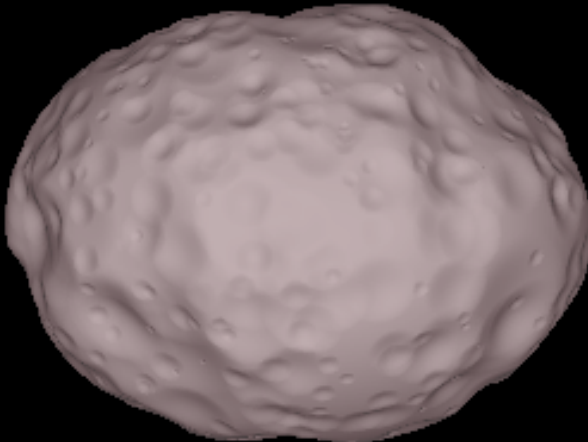
Leucus
D-type



Orus
D-type



Patroclus
Binary & P-type



Menoetius
Binary & P-type



Artist conception based on
Earth-based observations

All known spectral types — Both the L_4 and L_5 swarms — Disruptive collision remnant
A near-equal mass binary — Wide sample of masses



Eurybates
C-type

Polymele
P-type

Leucus
D-type

Orus
D-type

L₄:

Roughly
160:1 ratio
in mass

Patroclus
Binary & P-type

Menoetius
Binary & P-type

L₅:

Artist conception based on
Earth-based observations

All known spectral types — Both the L₄ and L₅ swarms — Disruptive collision remnant
A near-equal mass binary — Wide sample of masses





Eurybates
C-type

Polymele
P-type

Leucus
D-type

Orus
D-type

L₄:

Largest
remnant of
disruptive
collision

Fragment

Patroclus
Binary & P-type

Primordial
Objects

Menoetius
Binary & P-type

L₅:

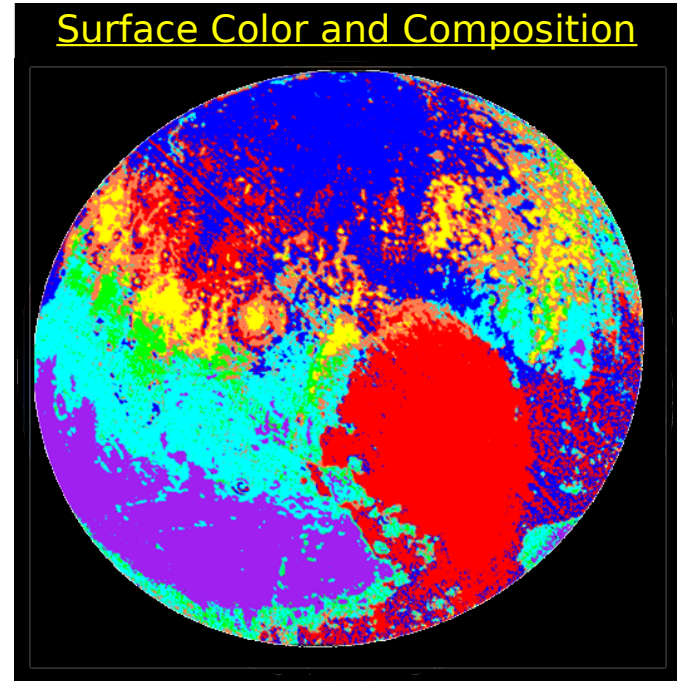
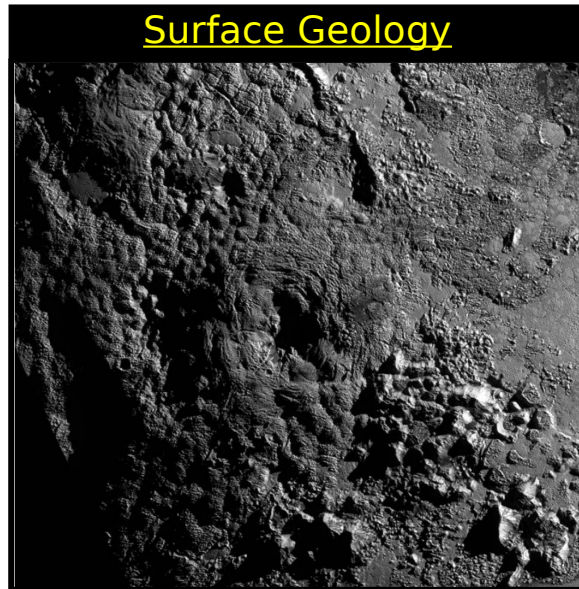
Artist conception based on
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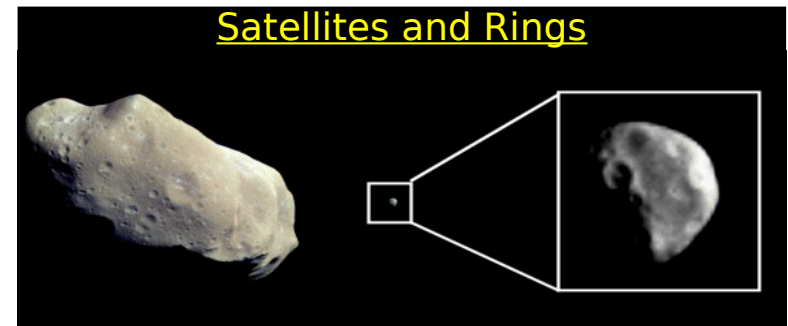
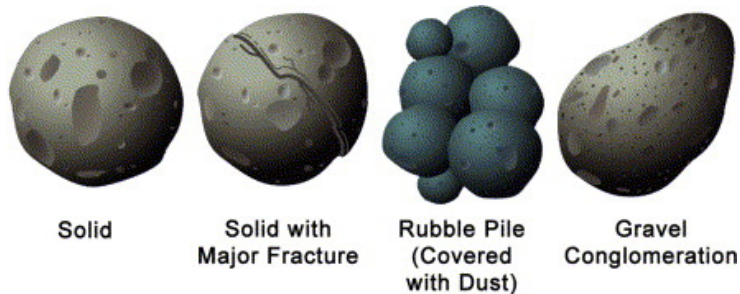




- Lucy is a flyby mission → remote sensing:



Interiors



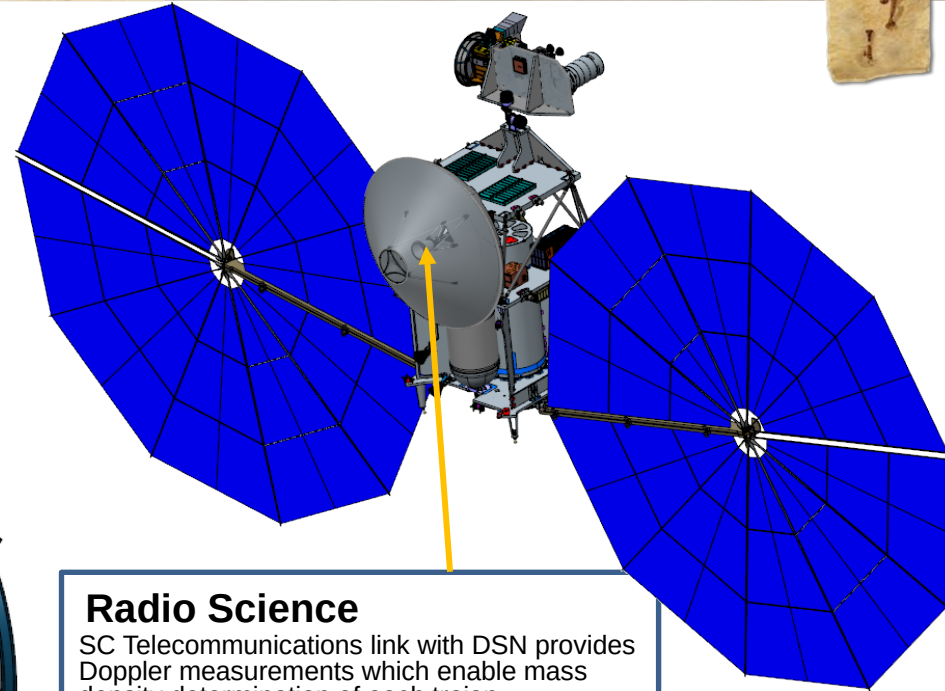
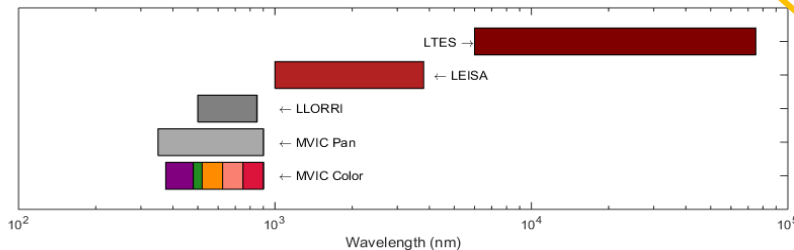
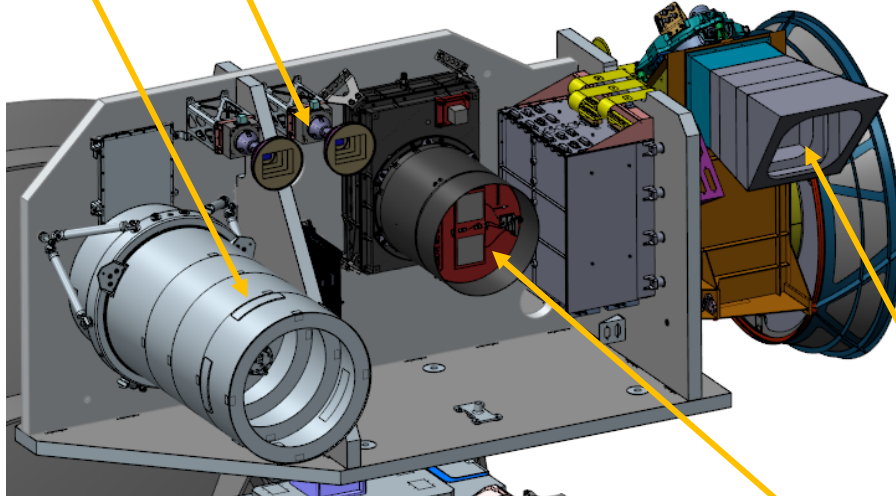


L'LORRI

Long Range Reconnaissance Imager (LORRI)
High spatial resolution visible imager
Heritage: NH

TTCam

Terminal Tracking Camera (TTCam)
Visible imager used for target centroiding
Supplier: Malin Space Systems



Radio Science

SC Telecommunications link with DSN provides
Doppler measurements which enable mass
density determination of each trojan
Heritage: MAVEN/OREx/InSight

L'Ralph

Multi-spectral Visible Imaging Camera (MVIC)
Linear Etalon Imaging Spectral Array (LEISA)
Color visible imager (MVIC) and
infrared imaging spectrometer (LEISA)
Heritage: NH, O'REX

L'TES

Thermal Emission Spectrometer (TES)
Point FTIR spectrometer
Heritage: O'REX, MGS



- 3+ day review at end of September 2018
- Culmination of >20 subsystem reviews



**ASU Instrument Incubator:**

- 88 STEM majors for semester (~60% Engineering Students)

National Virtual Academy (NVA):

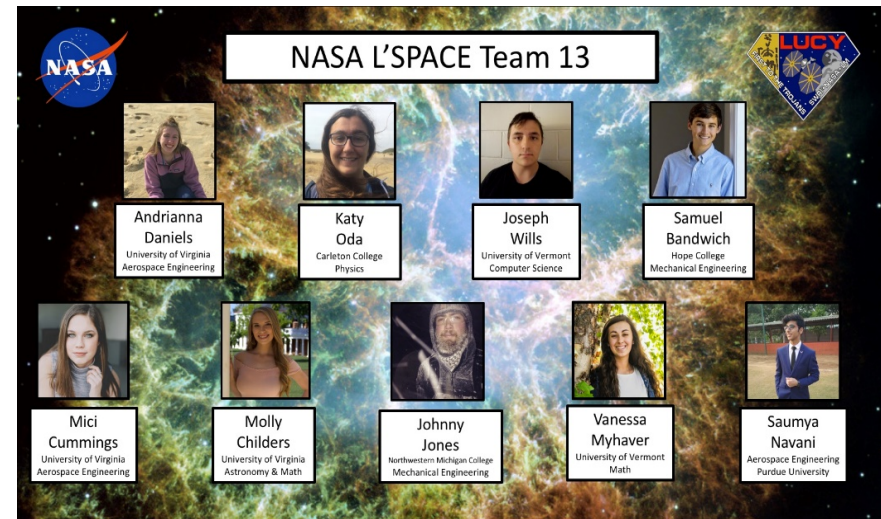
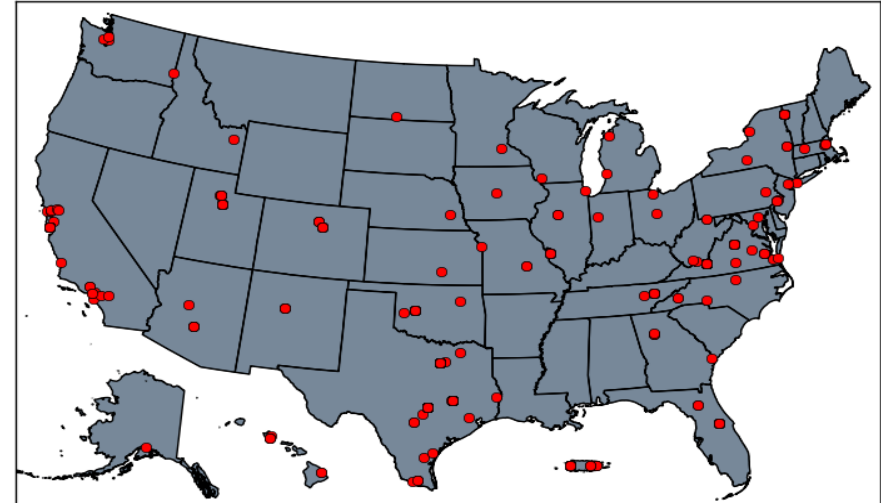
- Fall semester:
 - 385 STEM Majors (~2/3 Engineering)
 - 102 Colleges and Universities
 - 34 states + Puerto Rico
- Spring semester:
 - 685 new students for the spring.

National Summer Intern Program:

- Must complete Virtual Academy
- 169 applications for this year

Lucy Asteroid Ambassador Program:

For students who have completed NVA.





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L'SPACE Virtual Academy Applications for Summer Now Open!

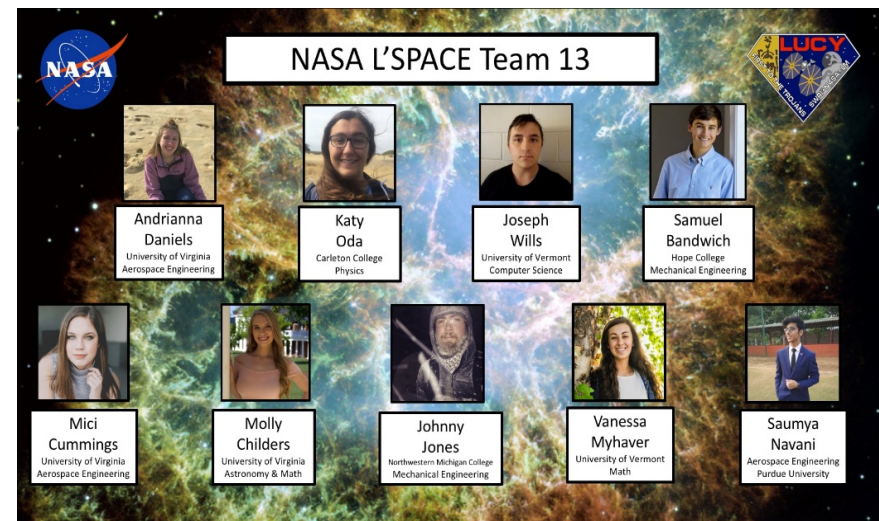
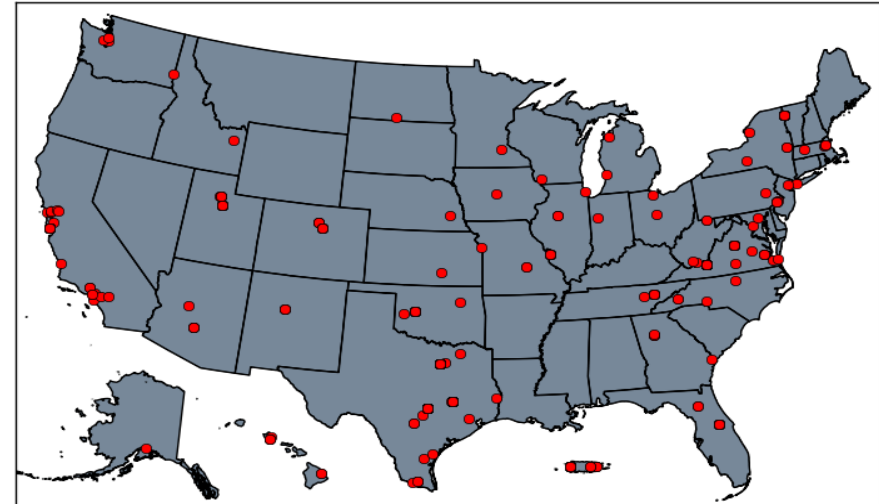
LSPACE.asu.edu

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The Lucy team is actively involved with observational campaigns of stellar occultation events:

- Check lucy.swri.edu/occultations.html for details
- Leucus occultation in 2018-11-14



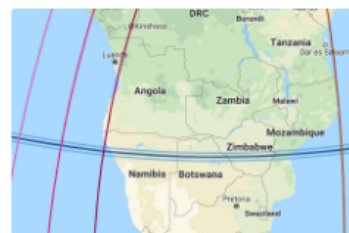
Upcoming Events



Patroclus Occultation 2019-03-18



Donaldjohanson Occultation 2019-03-19



Donaldjohanson Occultation 2019-04-13



Patroclus Occultation 2019-05-26



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