

DESTINY+ Mission Overview

- ★ Joint mission of technology demonstration & science observation.
- ★ International collaboration with JAXA and DLR.

Engineering Goals

- Expand the range of applications for electric propulsion
- Acquire advanced flyby exploration technologies

Science Goals

- Characterize cosmic dust delivered to the Earth

- Understand geology of asteroid Phaethon, Geminids parent

<u><i>Science objectives</i></u>	
	- Determine mass, speed, arrival direction, chemical composition of IDPs 1 au to constrain their origin: asteroidal or cometary.
	- Determine chemical composition of interstellar dust around 1 au.
	- Determine chemical composition of dust from Phaethon.
	- Constrain dust ejection mechanism from active asteroid.
	- Understand global surface material distribution.

Science Instruments

Phaethon imaging

★ Developed by PERC, Chiba Inst of Technology

3D shape

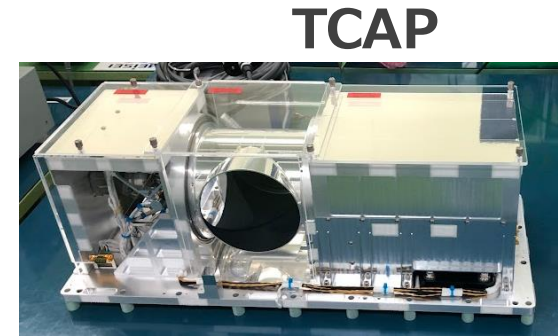
Surface geology <10 m/pix

VIS-NIR spectral variation
<100 m/pix

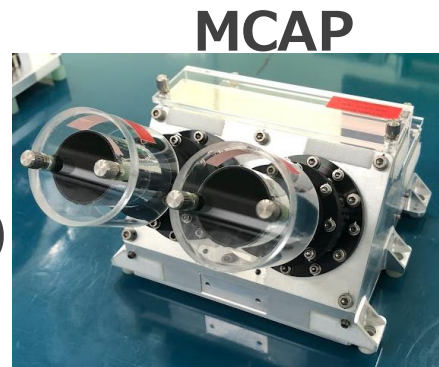
**Telescopic CAmera
for Phaethon (TCAP)**
with a tracking mirror

**Multiband CAmera
for Phaethon (MCAP)**

with compound eyes and four bands (425/550/700/850 nm)



TCAP



MCAP

Dust analyses

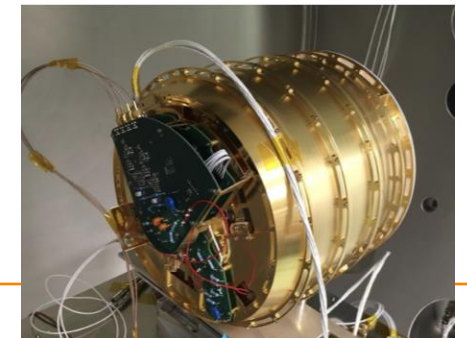
Physical & Chemical properties of
IDPs and interstellar dust

Physical & chemical properties of
nearby Phaethon & dust trails

★ Developed by Univ. of Stuttgart

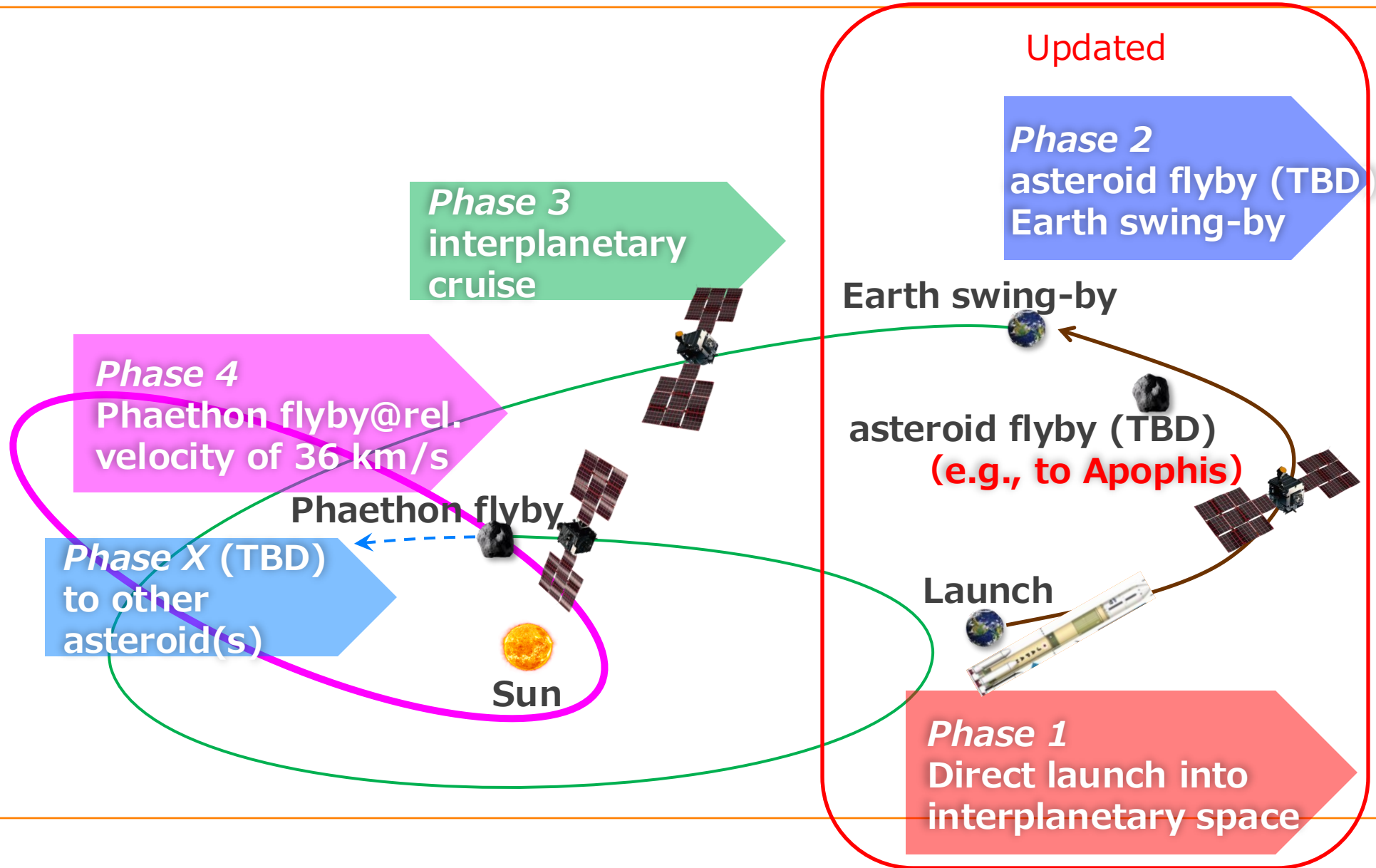
**DESTINY+ Dust
Analyzer (DDA)**

Integrated impact-ionization
trajectory sensor with TOF mass



DDA

Mission Profile



Flyby imaging sequence

