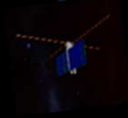


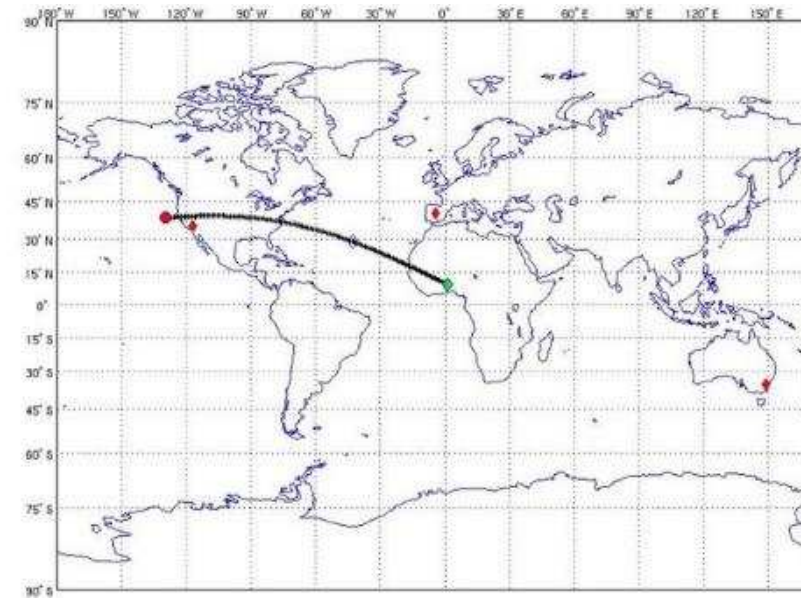
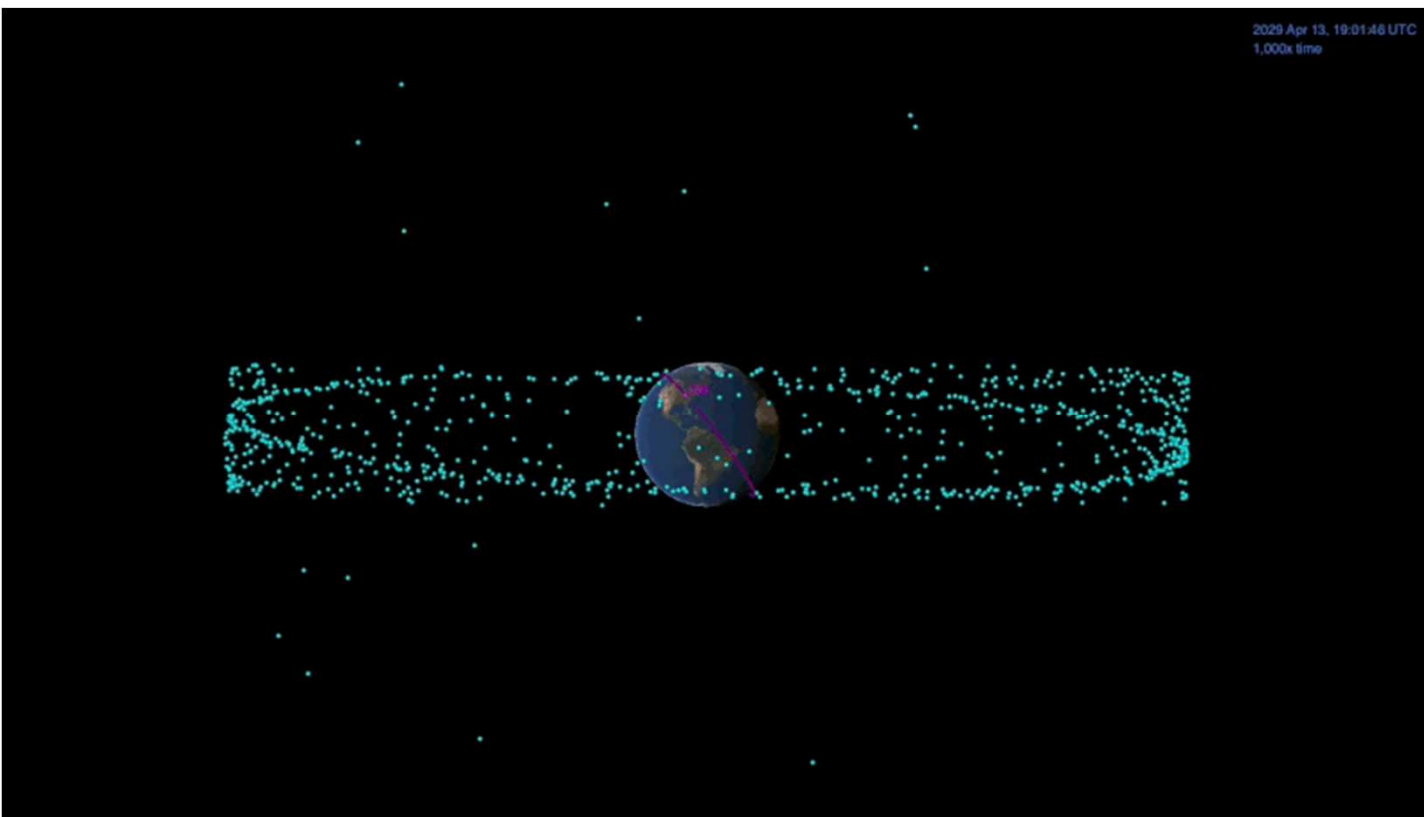
DROID

A JOINT JPL – CNES MISSION TO APOPHIS



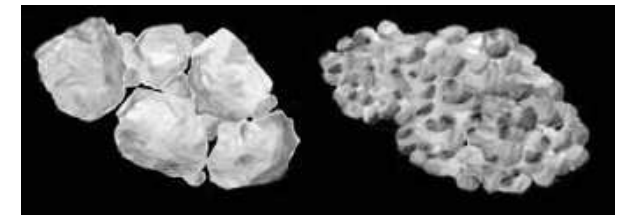
Pierre Bousquet – SMPAG 2024/01/31

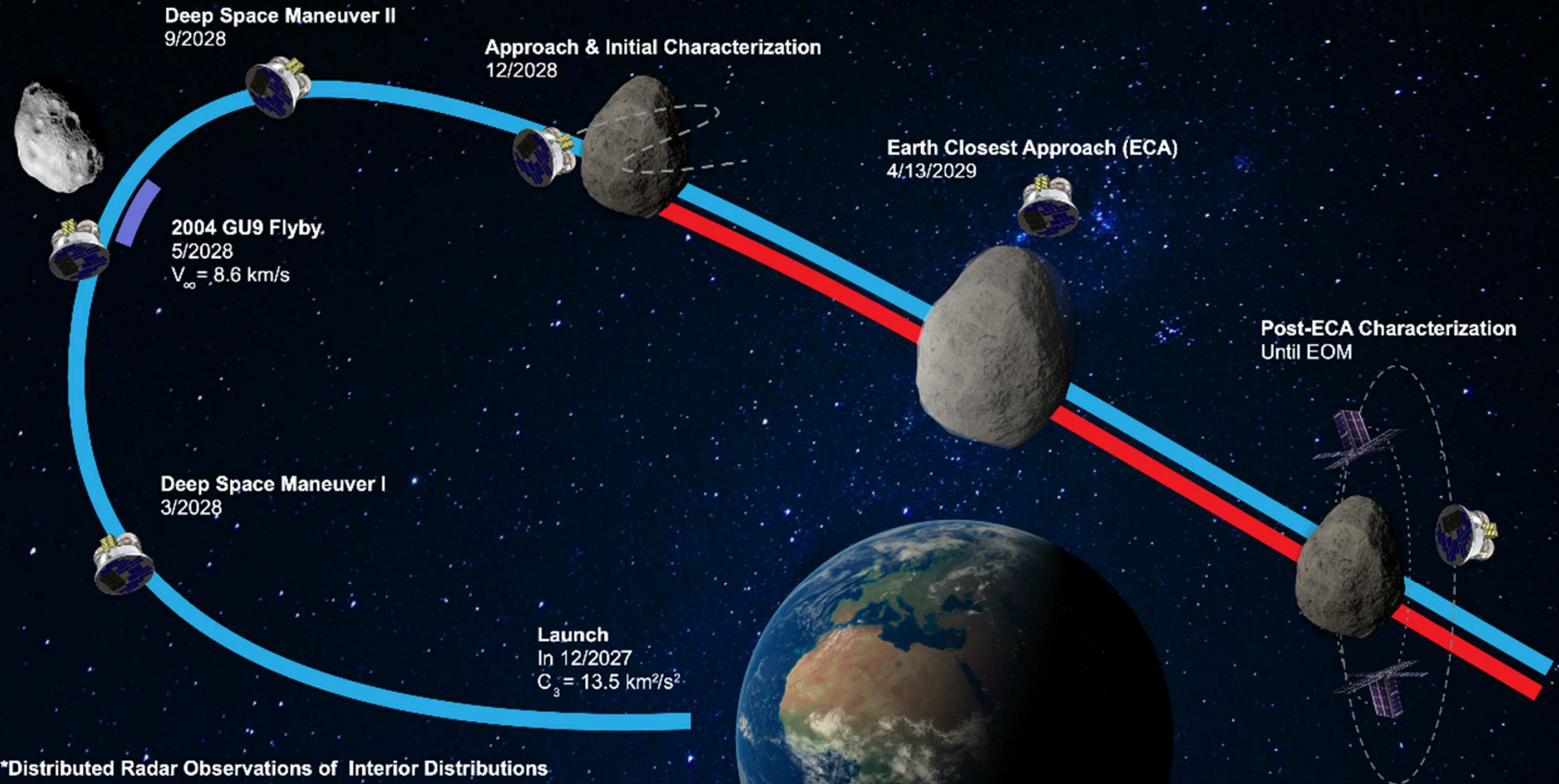
April 13th 2029, 20h30 – 23h50 UTC APOPHIS Earth Close Encounter



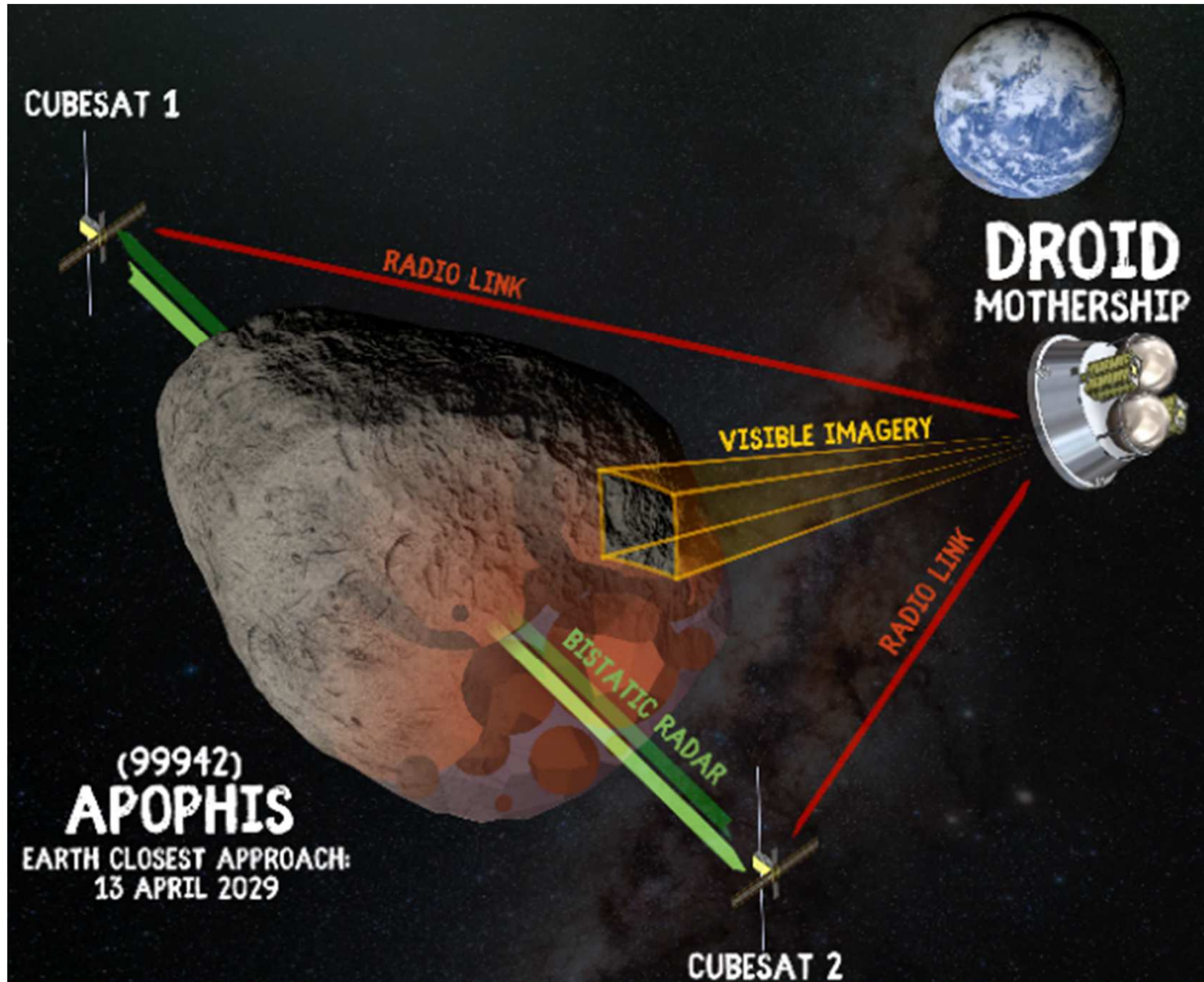
DROID will:

- characterize the surface pre and post ECO
- Study the internal structure with a bi-static radar





Observation d'éventuelles déformations par effet de marée
Tomographie structure interne par radar bi-statique



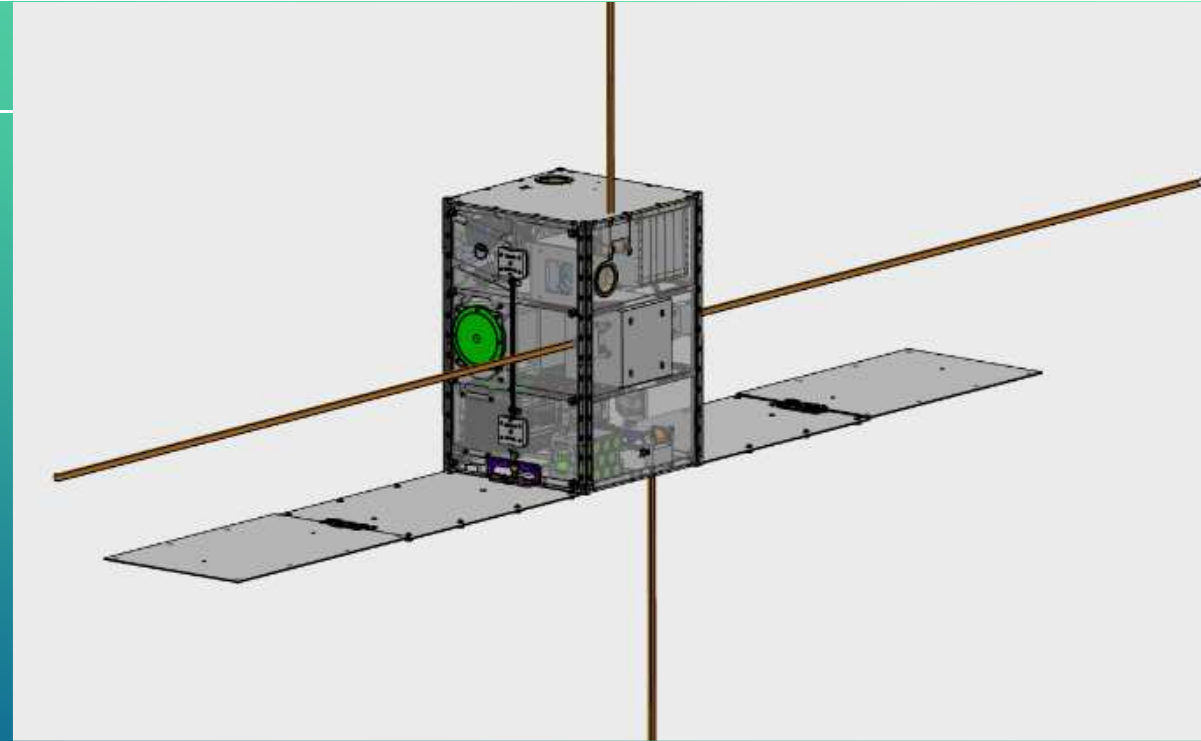
JPL in charge of system, mothership, associated ops and launcher

Feasibility of cubesat has been demonstrated

12 U format

Main challenges:

- Deep Space GNC
- Semi-autonomous navigation
- ~ns clock synchronisation via ISL
- Low MIB propulsion
- High power need (radar, ISL @ 1.1UA)
- Robustness to radiations



Apophis 2029 ECO is a once in a millenium opportunity.

Characterization by DROID would be a great demonstration for Planetary Defense.

Clock is ticking, decision needs to be taken this year.