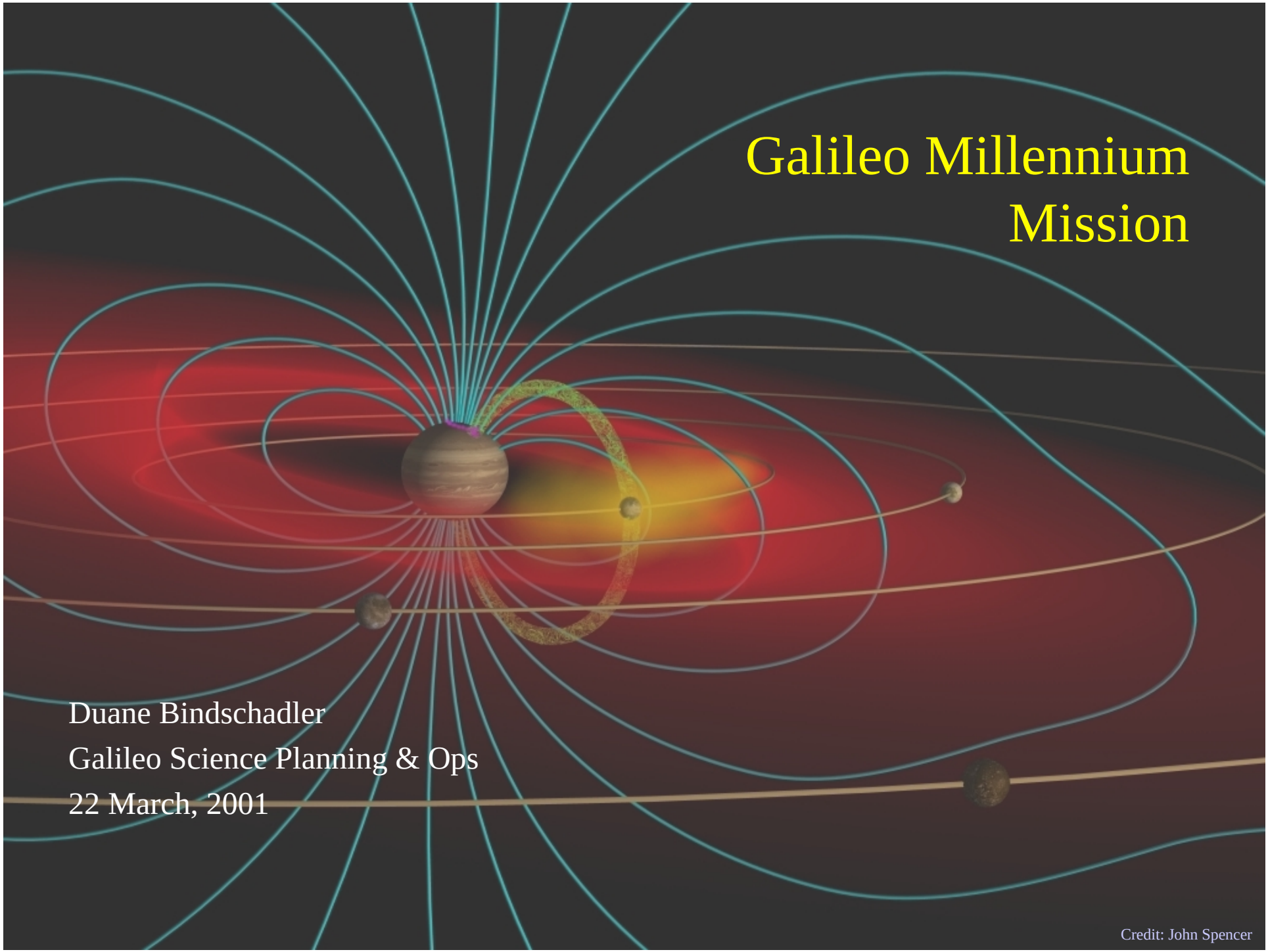


Galileo Millennium Mission

Duane Bindschadler
Galileo Science Planning & Ops
22 March, 2001

Credit: John Spencer

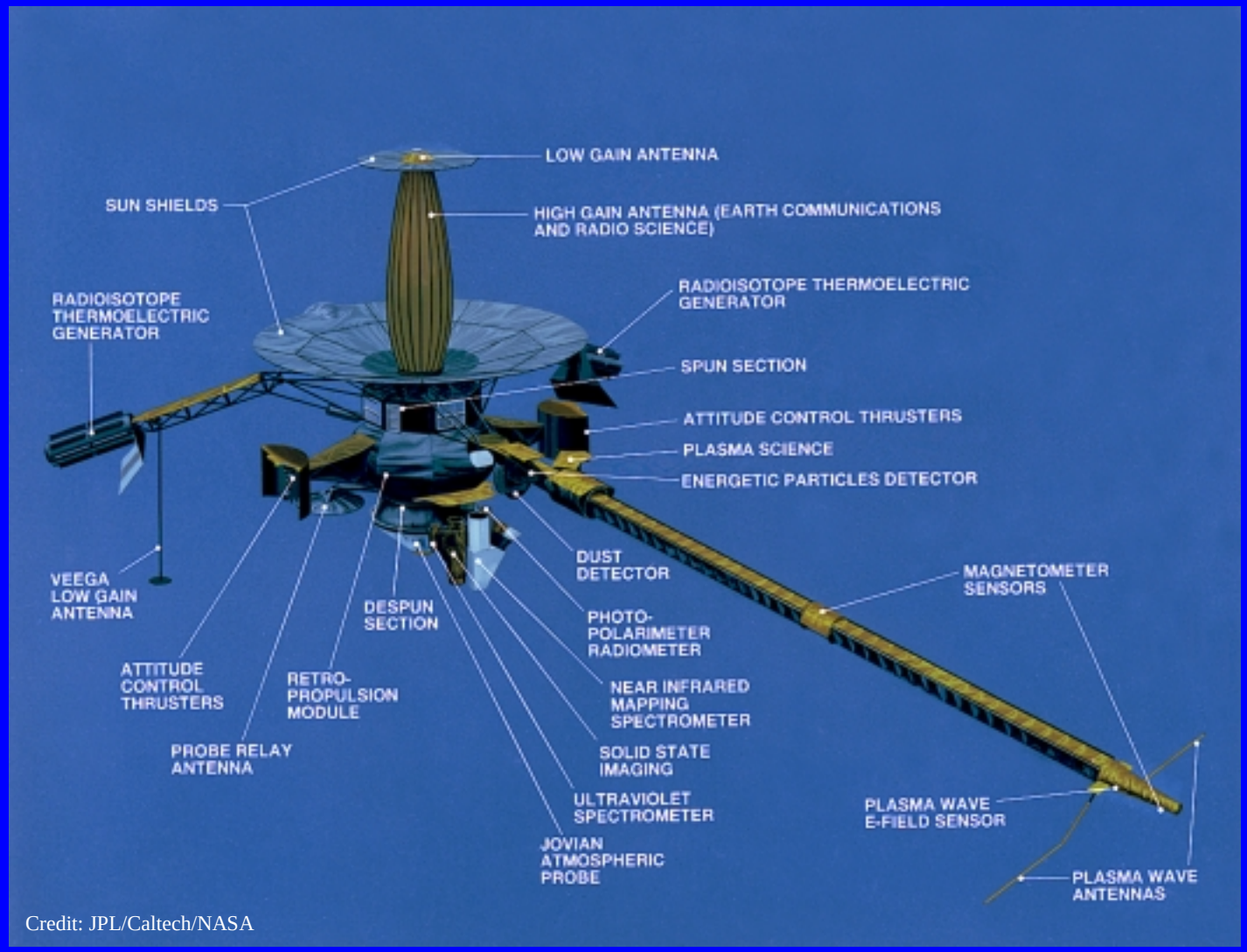
Jupiter: King of Planets

QuickTime™ and a
Motion JPEG A decompressor
are needed to see this picture.

Credit: Cassini ISS (JPL/Caltech/NASA and Univ. Arizona)

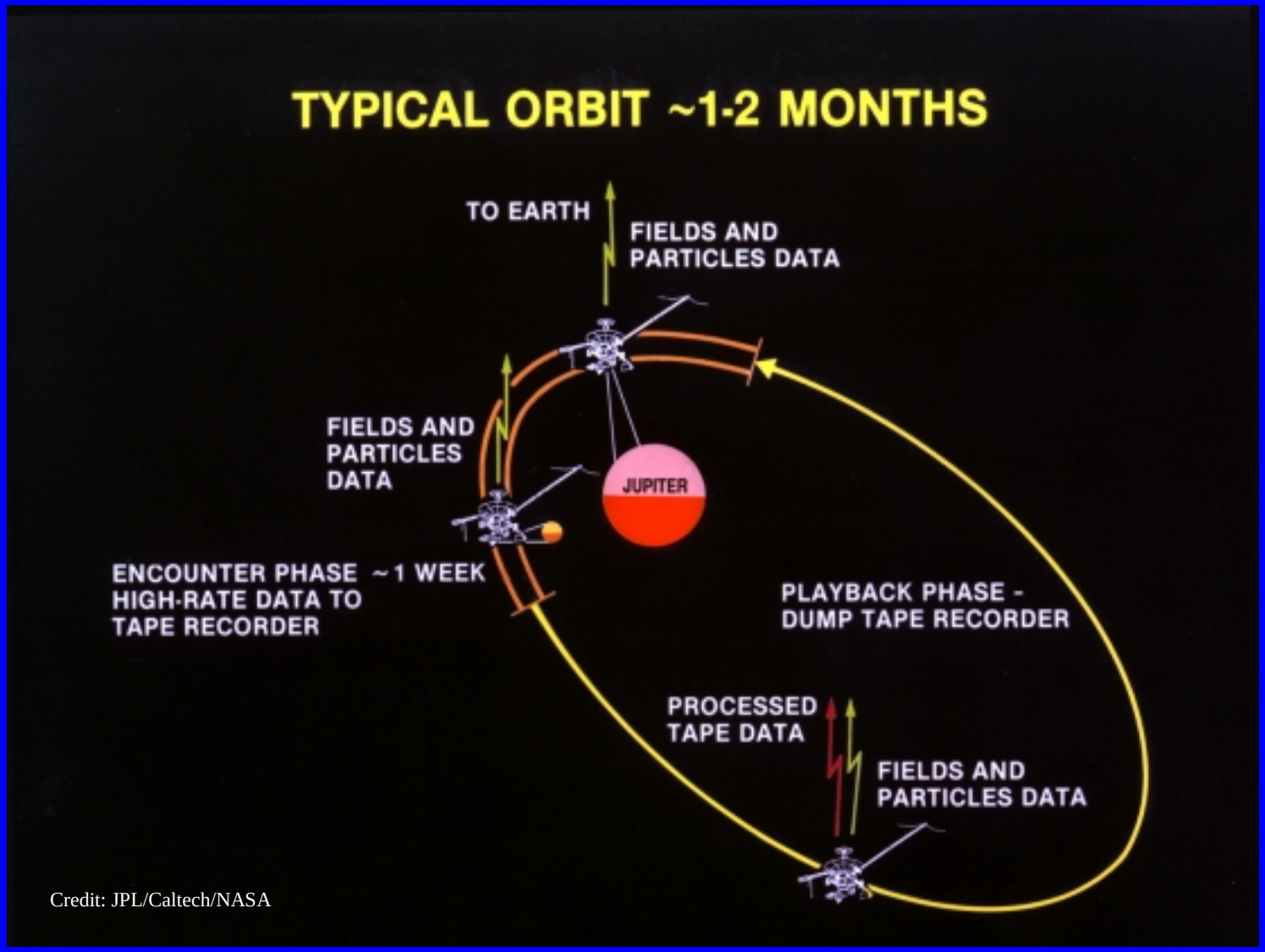
Credit: Cassini ISS (JPL/Caltech/NASA and Univ. Arizona)

Galileo Spacecraft

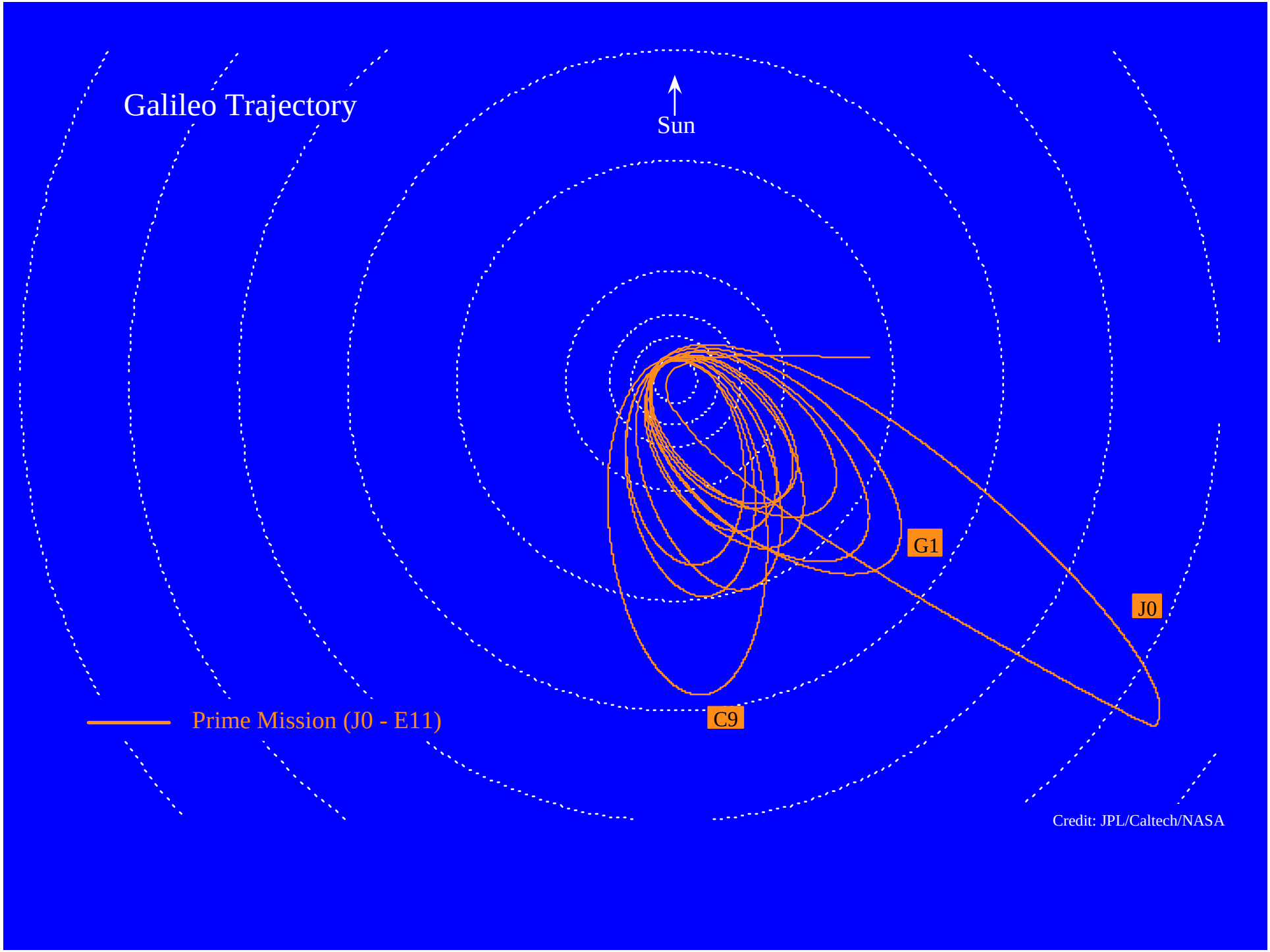


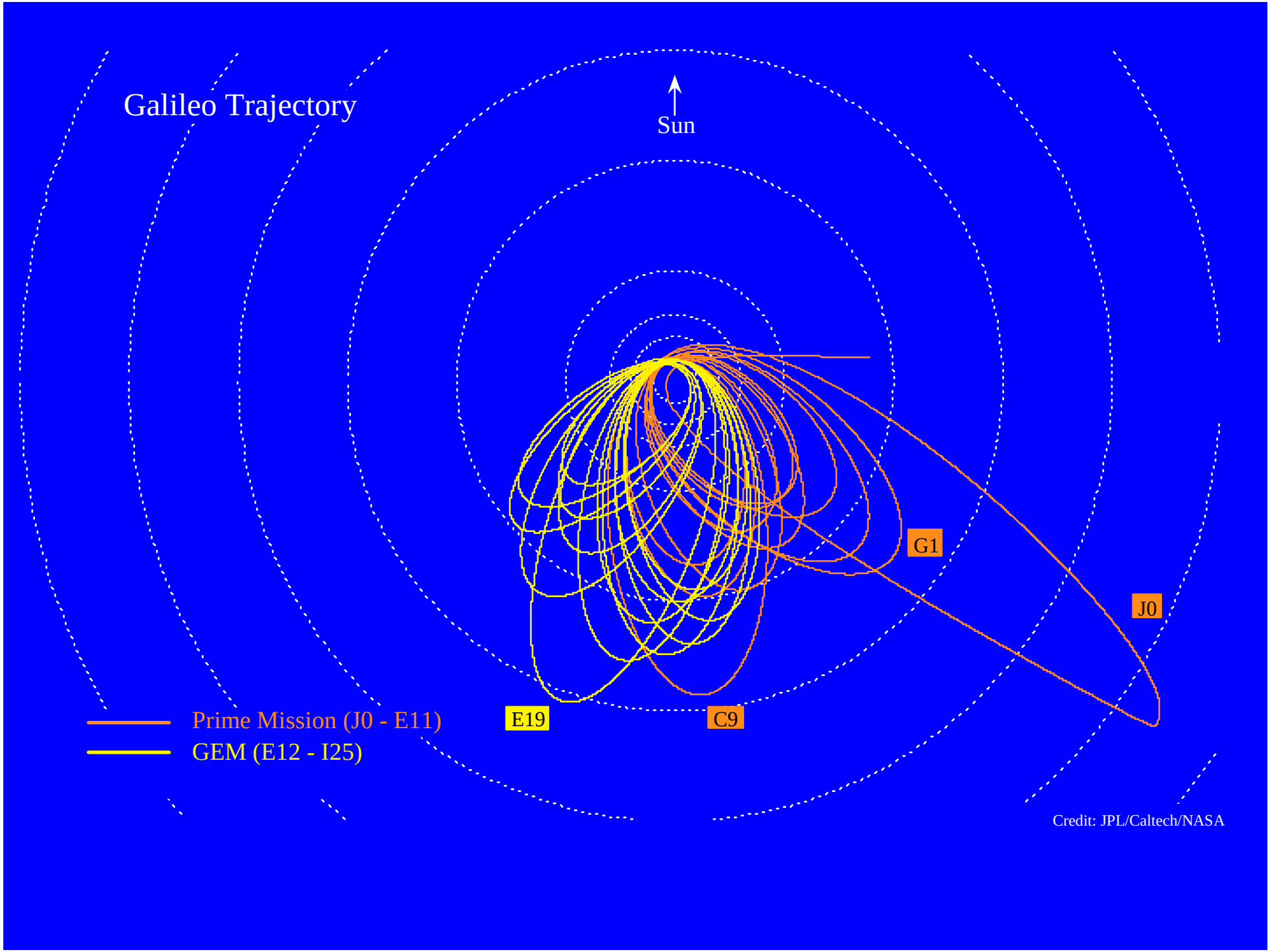
Credit: JPL/Caltech/NASA

Galileo Operations

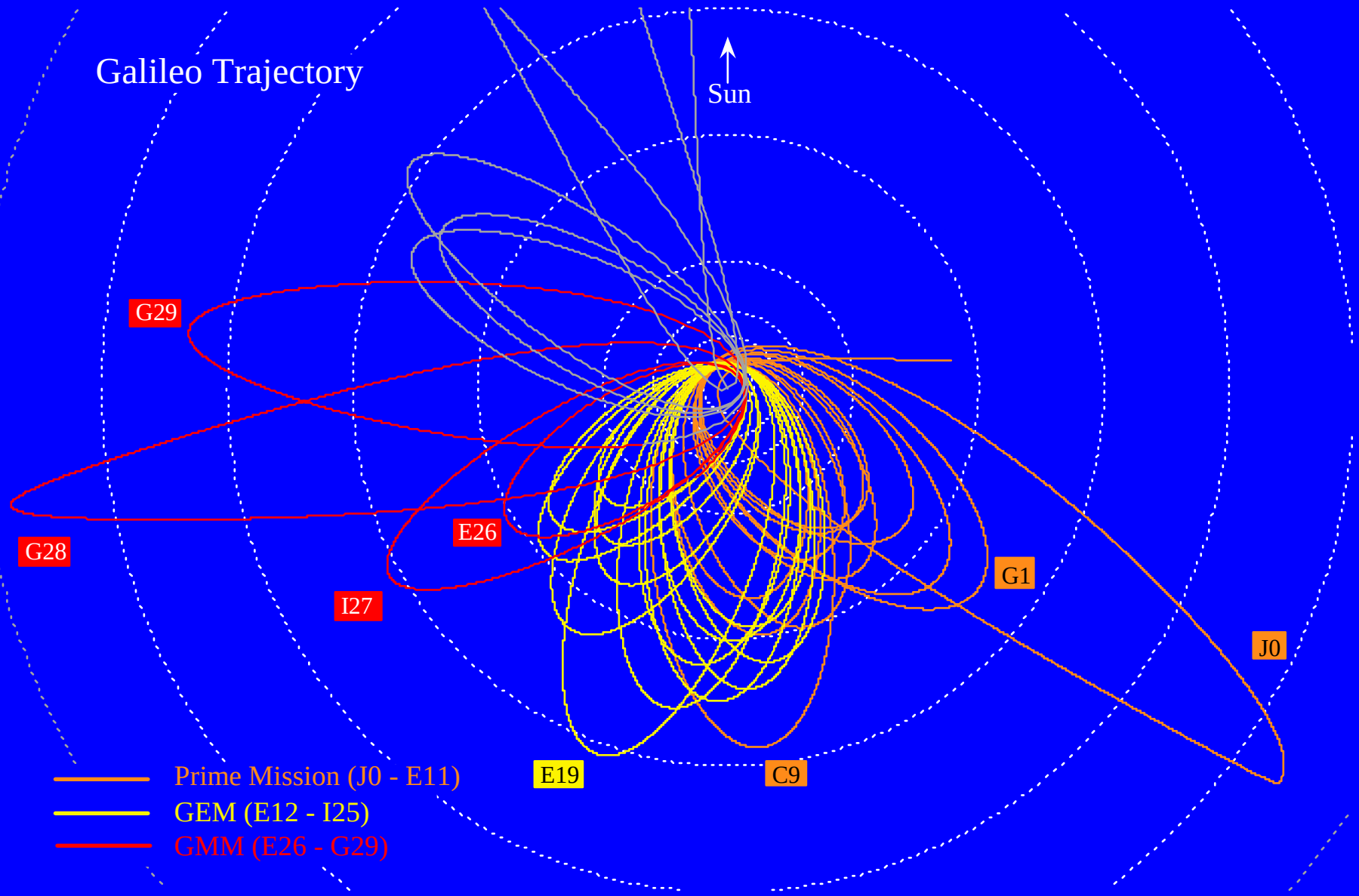


Credit: JPL/Caltech/NASA

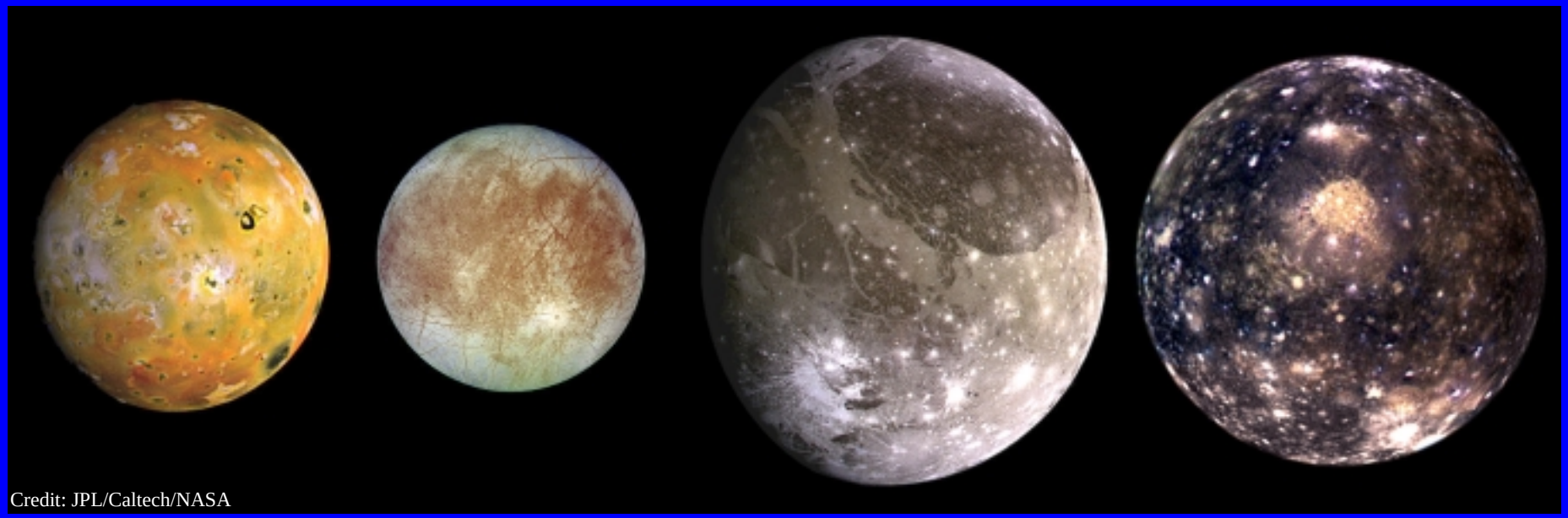

Galileo Trajectory
Sun
G1
J0
C9
Prime Mission (J0 - E11)
Credit: JPL/Caltech/NASA


Galileo Trajectory
Sun
G1
J0
E19
C9
Prime Mission (J0 - E11)
GEM (E12 - I25)
Credit: JPL/Caltech/NASA

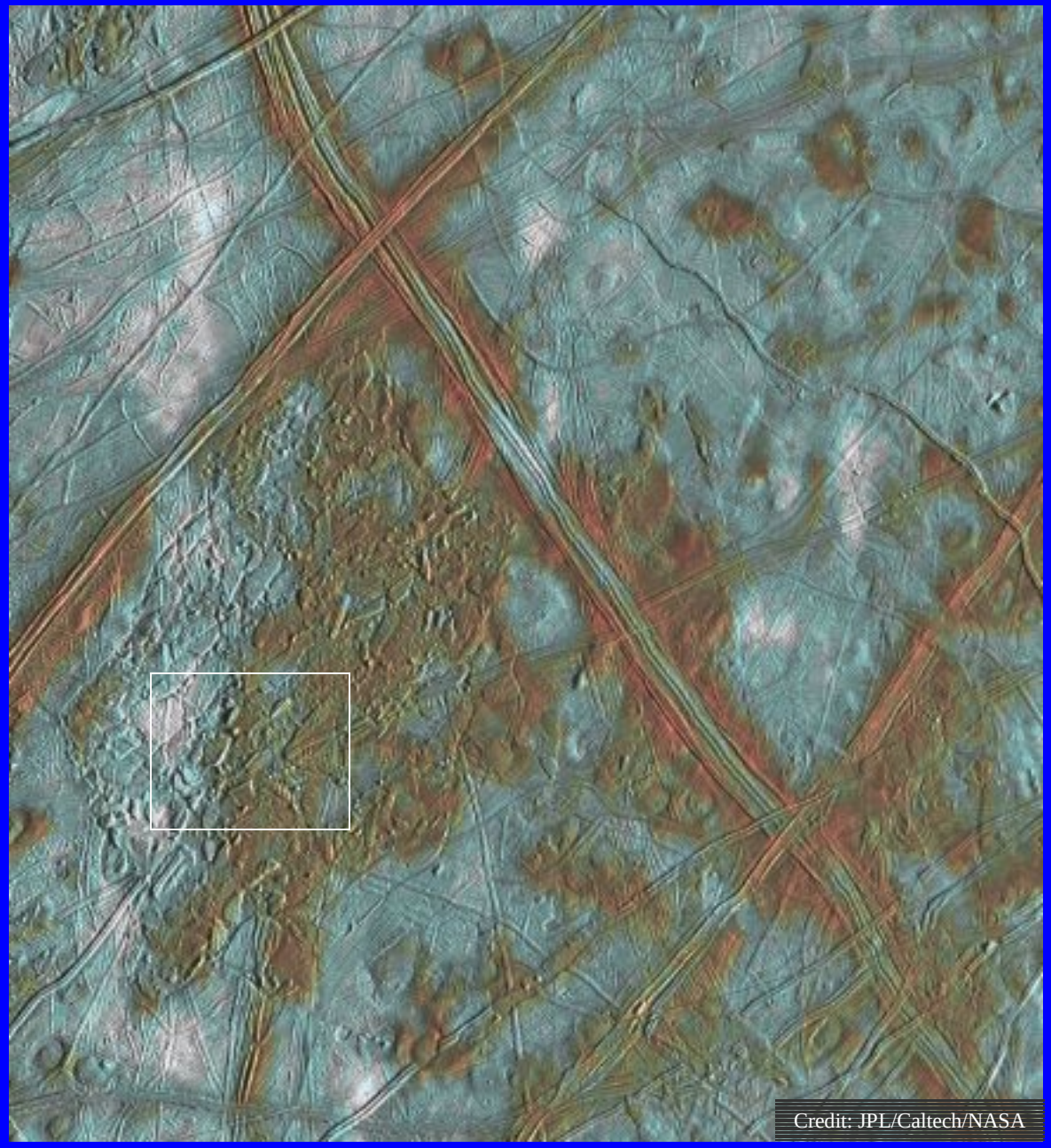
Galileo Trajectory



Galilean Satellites:
Io, Europa, Ganymede, Callisto


Credit: JPL/Caltech/NASA

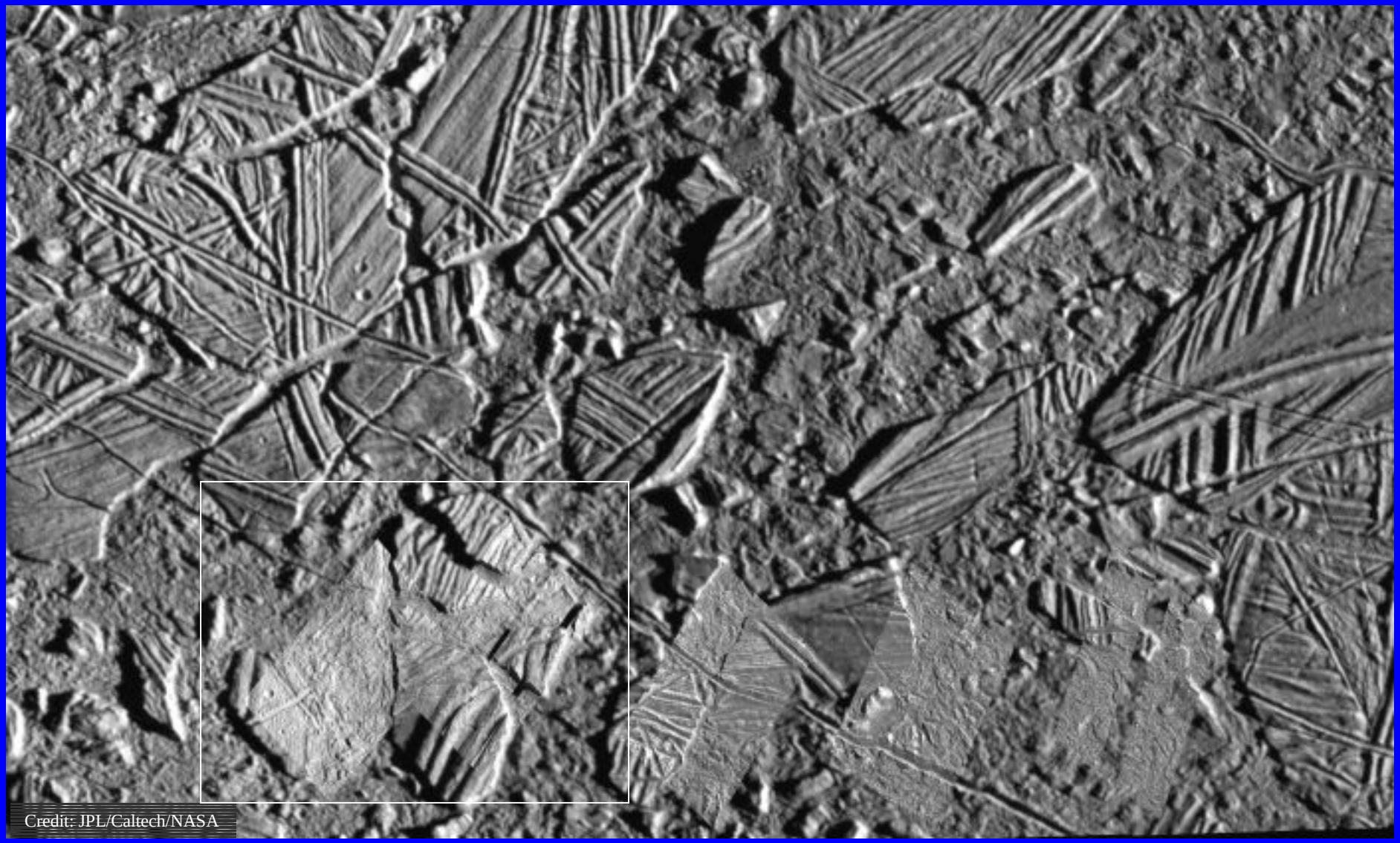
- Include 4 large Galilean satellites and 28 minor moons.
- Form a diverse “miniature solar system.”



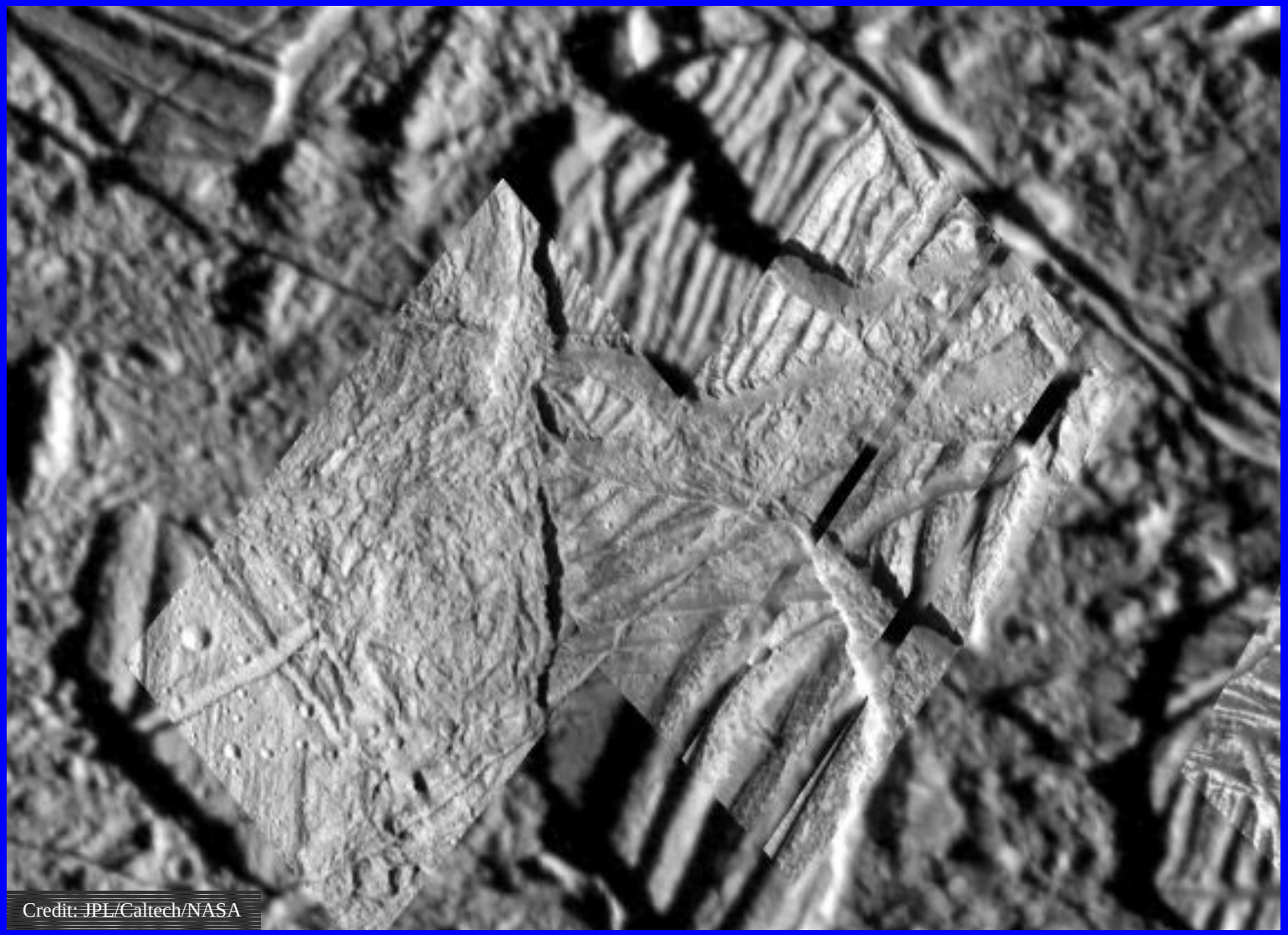
Conamara Chaos

- One of the largest such regions.
- Individual blocks are clearly preserved.
- Both throughgoing and remnant structures are present
- Brownish areas are where significant amounts of non-ice materials (salts?) are present.

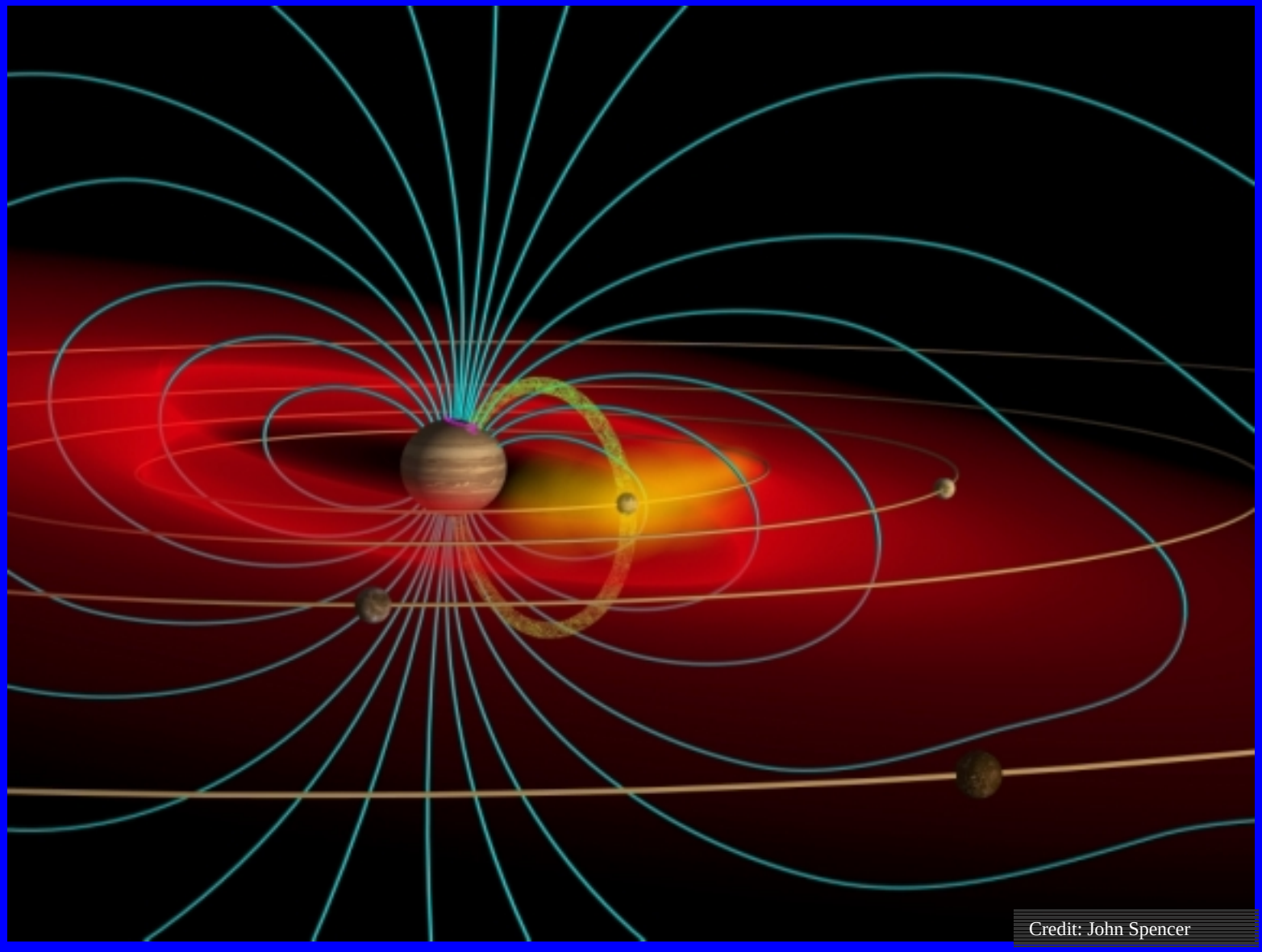
Conamara Chaos on Europa



Conamara Chaos on Europa



Jupiter's Magnetic Field & Europa

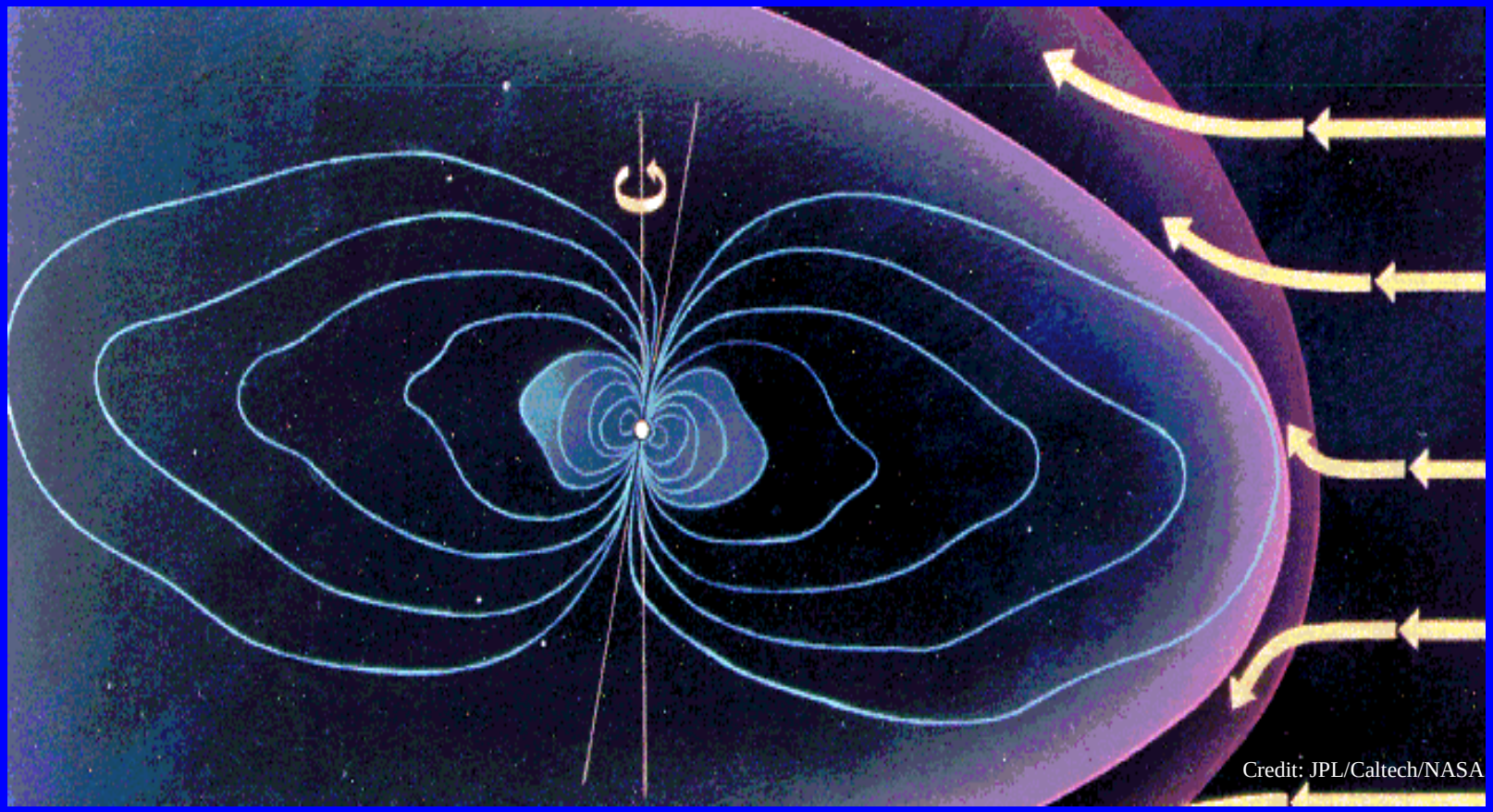


Europa's Induced Magnetic Field

QuickTime™ and a
Motion JPEG A decompressor
are needed to see this picture.

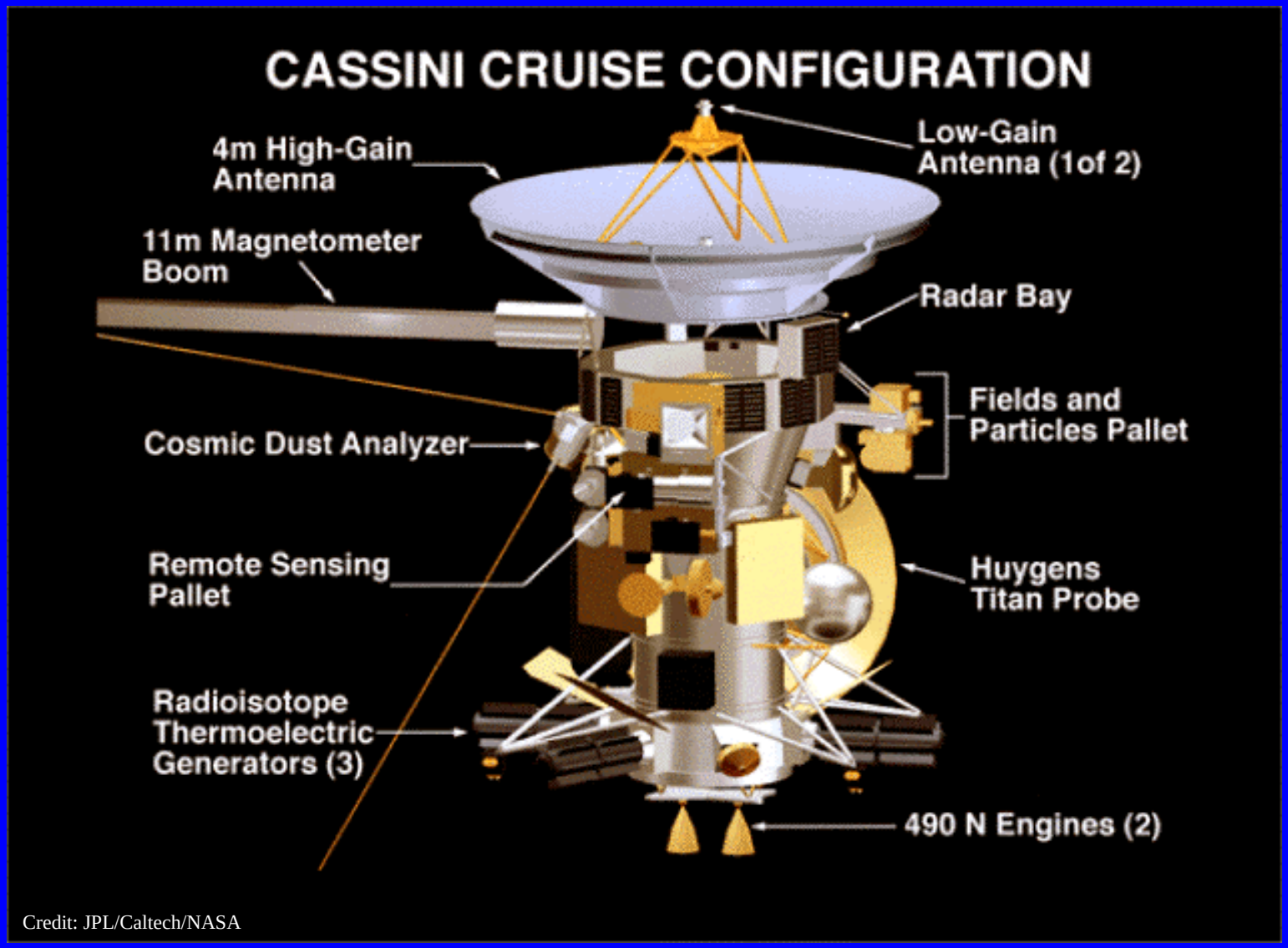
Credit: JPL/Caltech/NASA

Jupiter's Magnetosphere



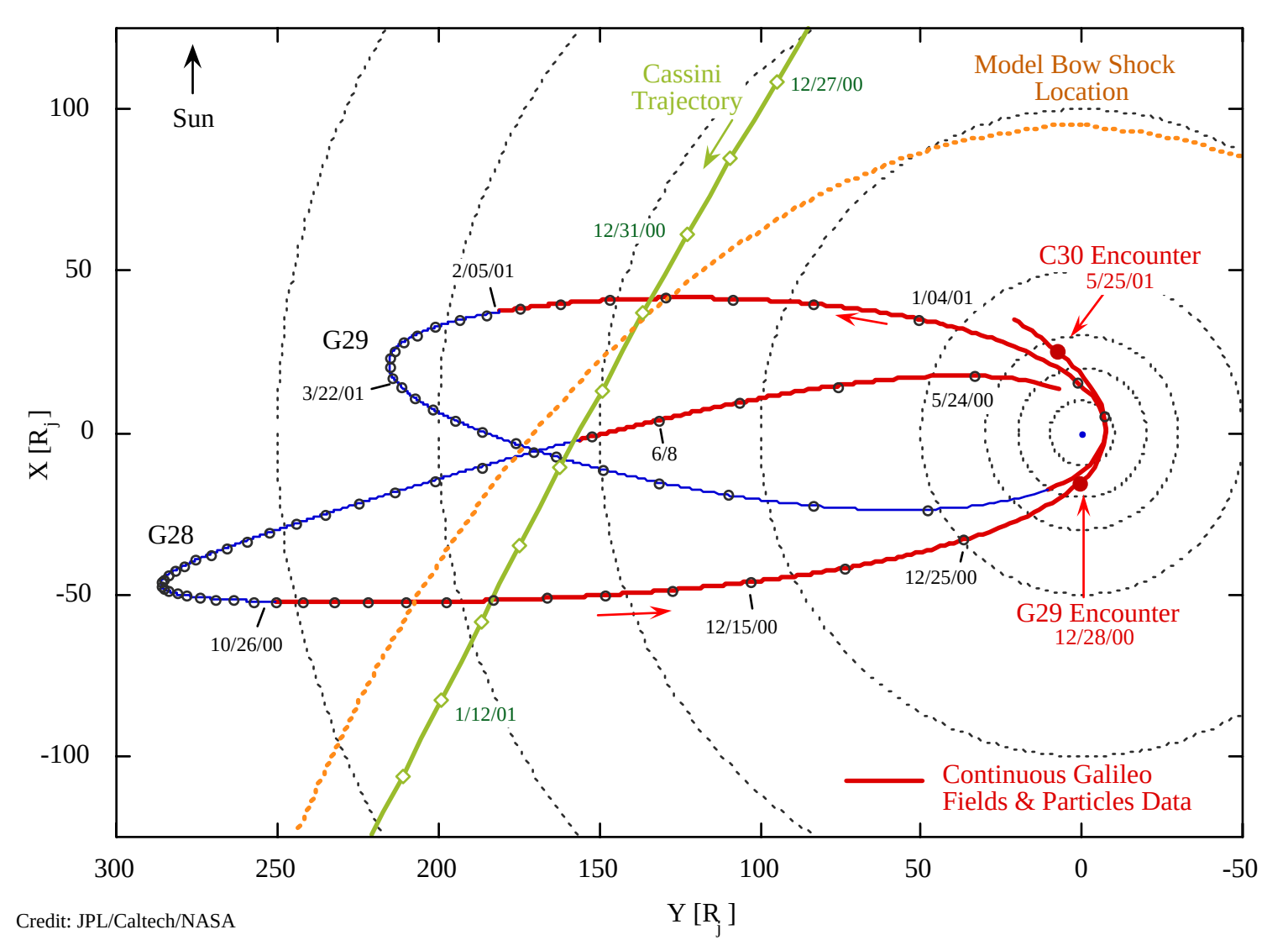
Is controlled by a mostly dipolar field, which deflects the solar wind.

Cassini Spacecraft



Credit: JPL/Caltech/NASA

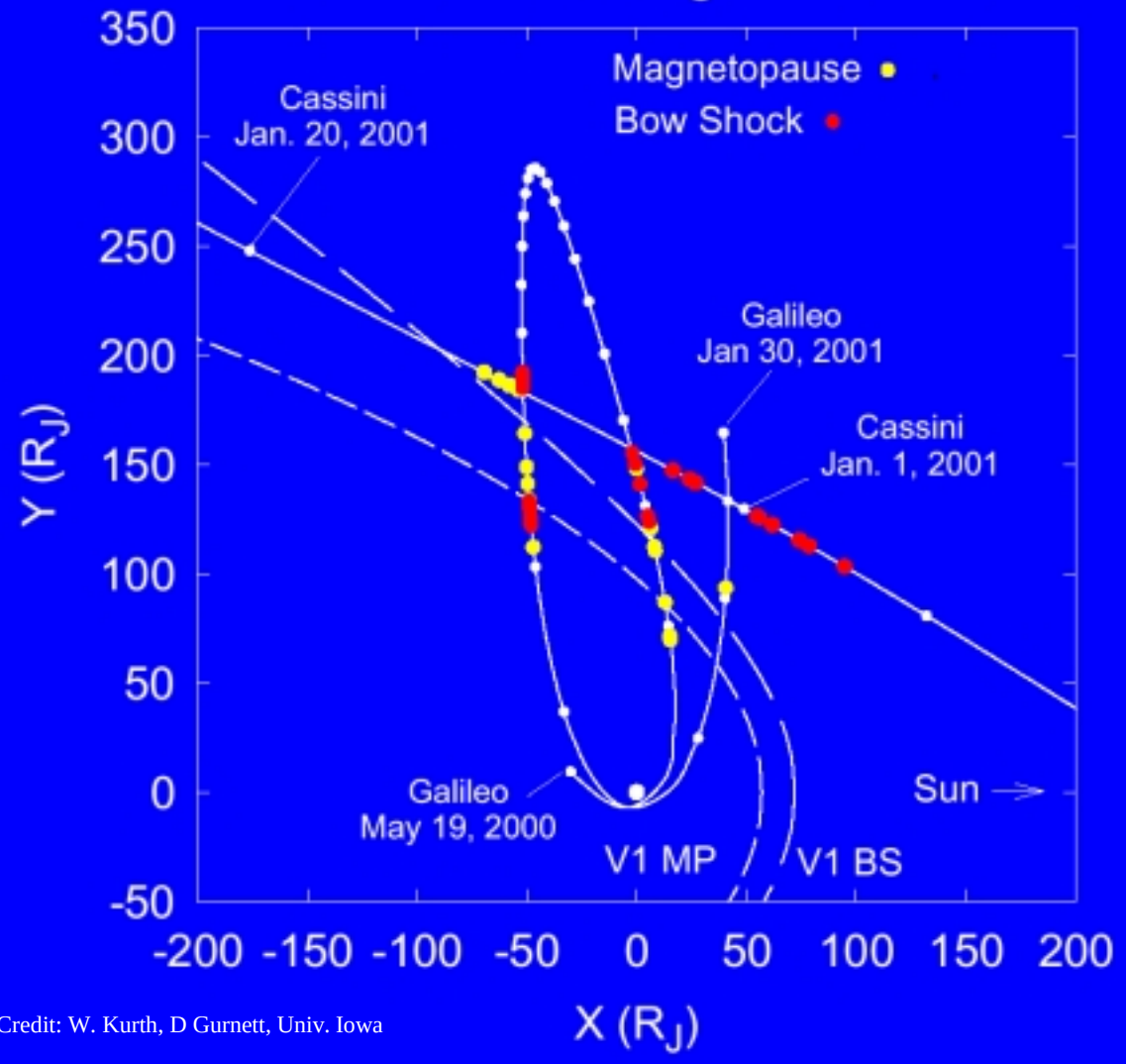
Galileo/Cassini Magnetospheric Study



Credit: JPL/Caltech/NASA

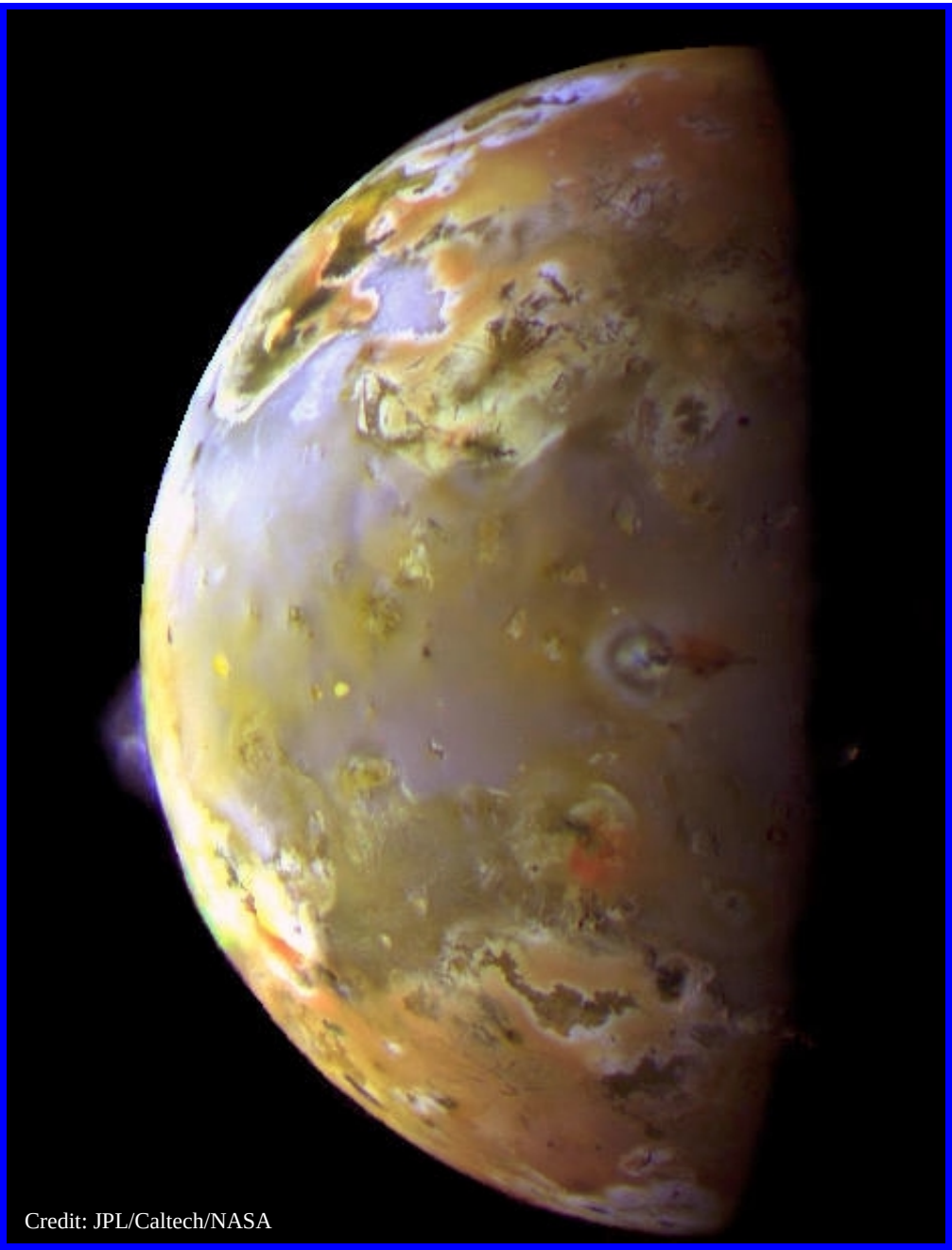
A-G01-16

Cassini and Galileo Magnetopause and Bow Shock Crossings

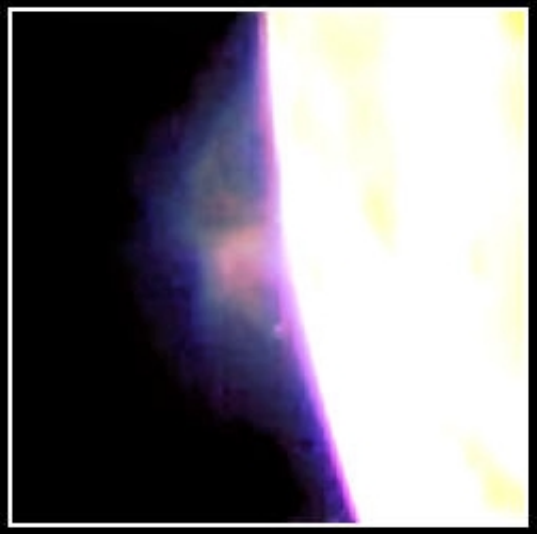


Credit: W. Kurth, D Gurnett, Univ. Iowa

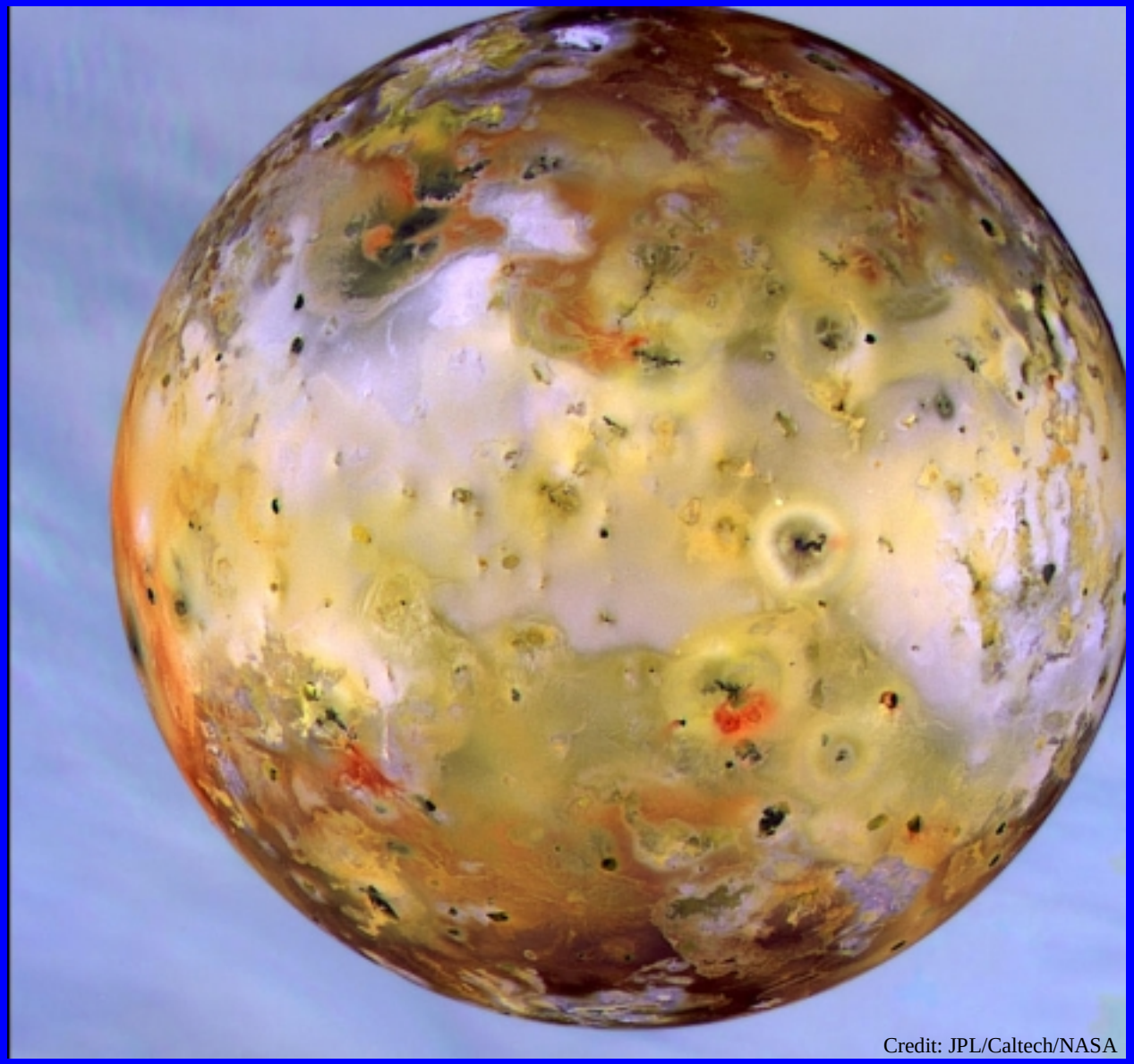
Prometheus Unbound?



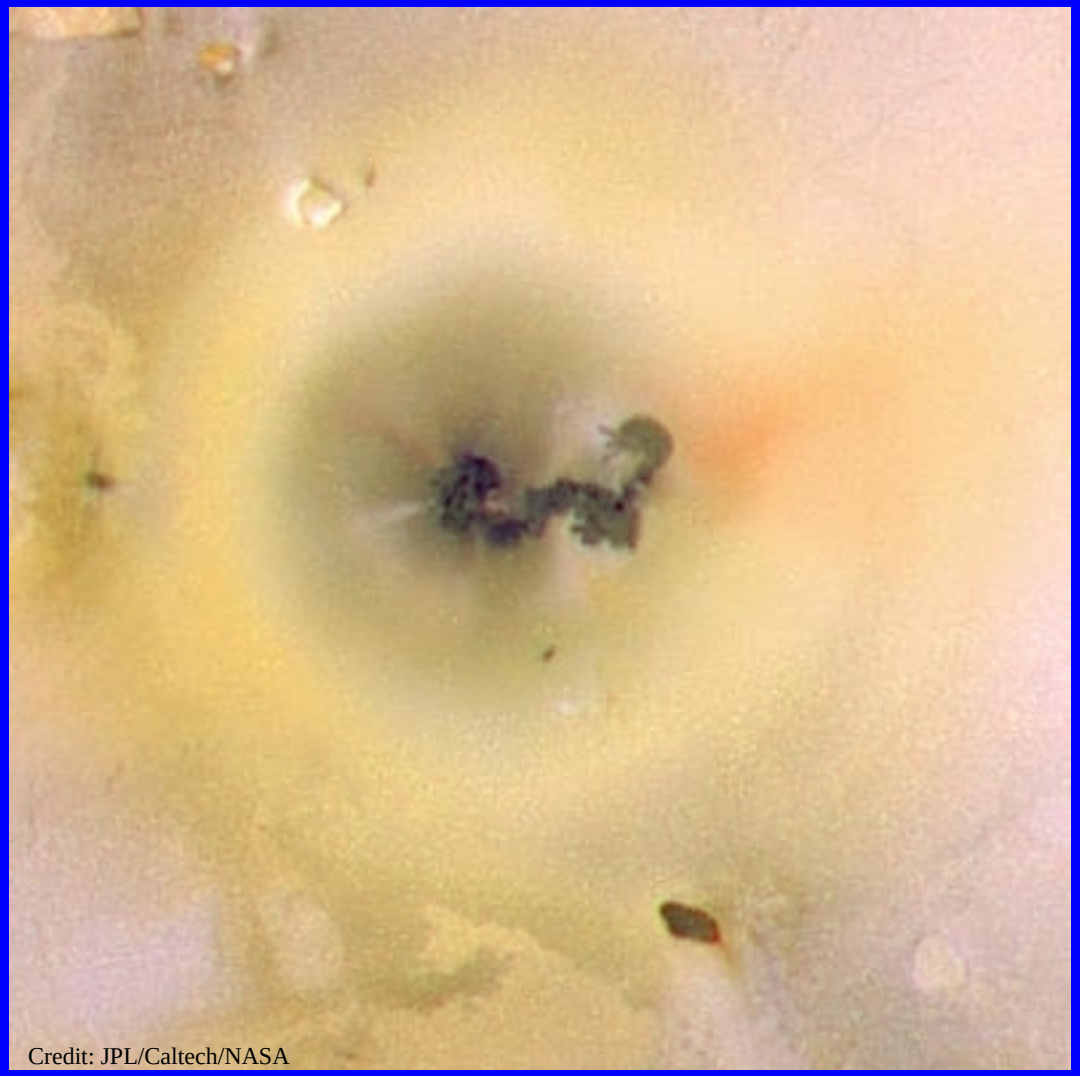
Credit: JPL/Caltech/NASA



Prometheus Hemisphere of Io



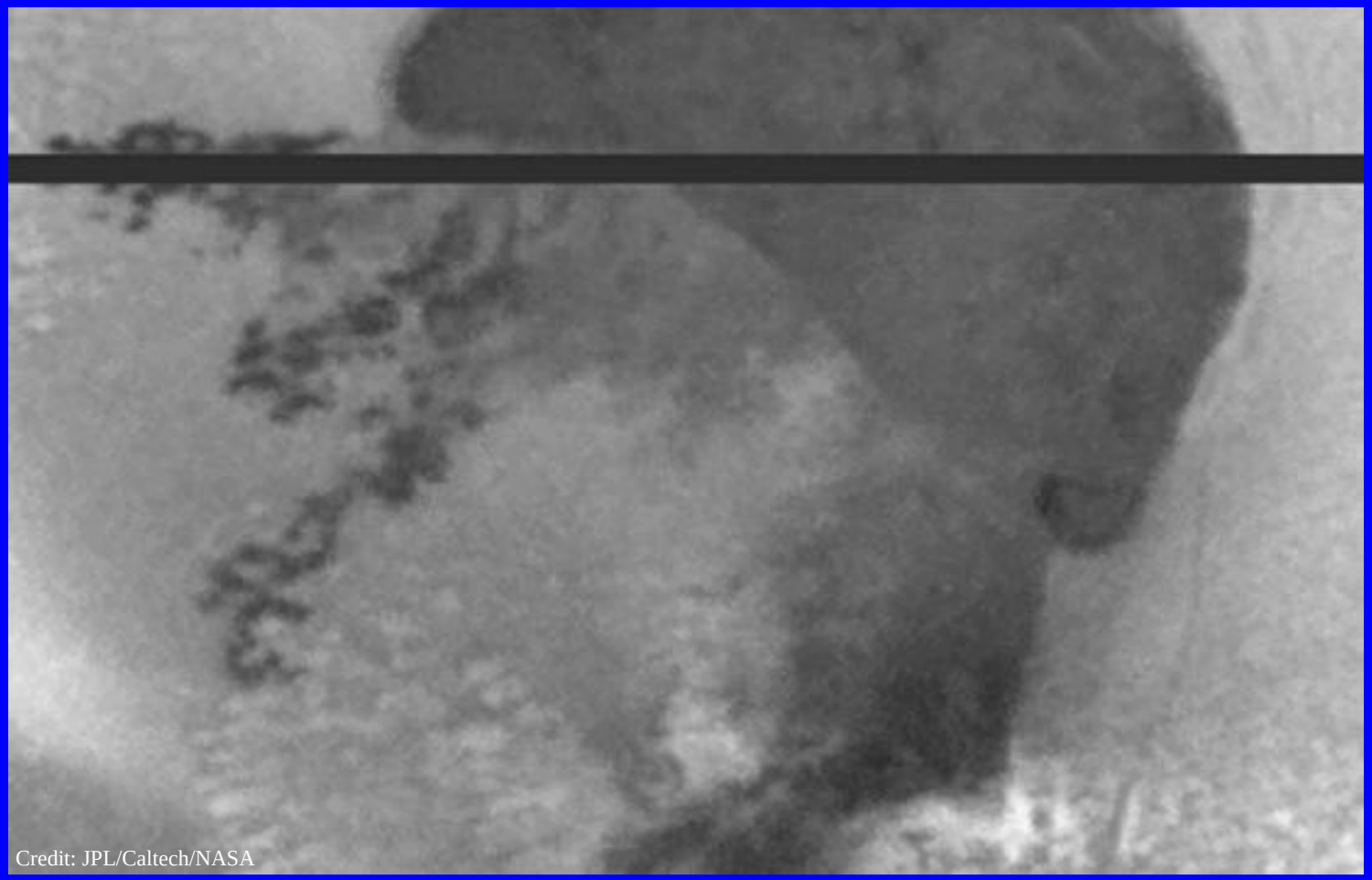
A Closer Look at Prometheus


Credit: JPL/Caltech/NASA

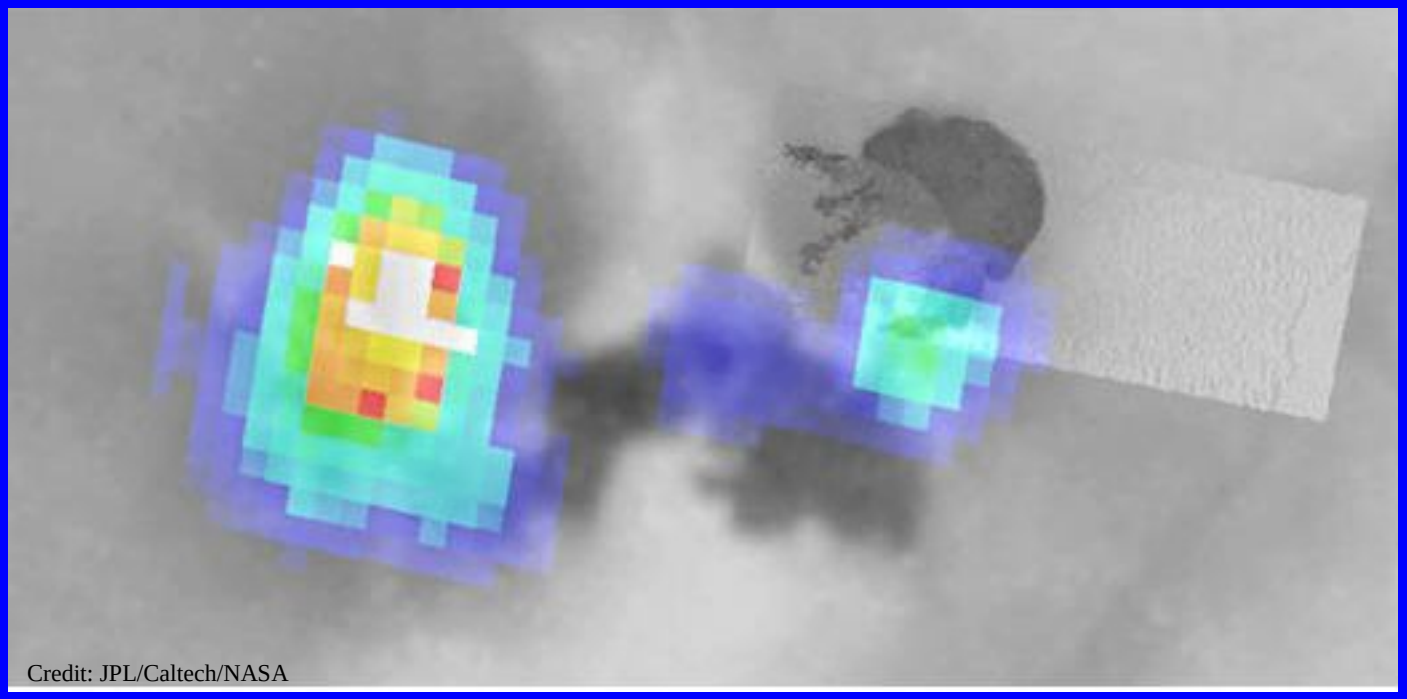
- Observation from Summer 1999.
- Voyager-era plume source was at the east (right-hand) end of the dark sinuous feature.
- Newer source region is at the western end – note radial streaks.
- Most of dark feature post-dates Voyager images.

Prometheus' Unexpected Caldera

Prometheus' Unexpected Caldera

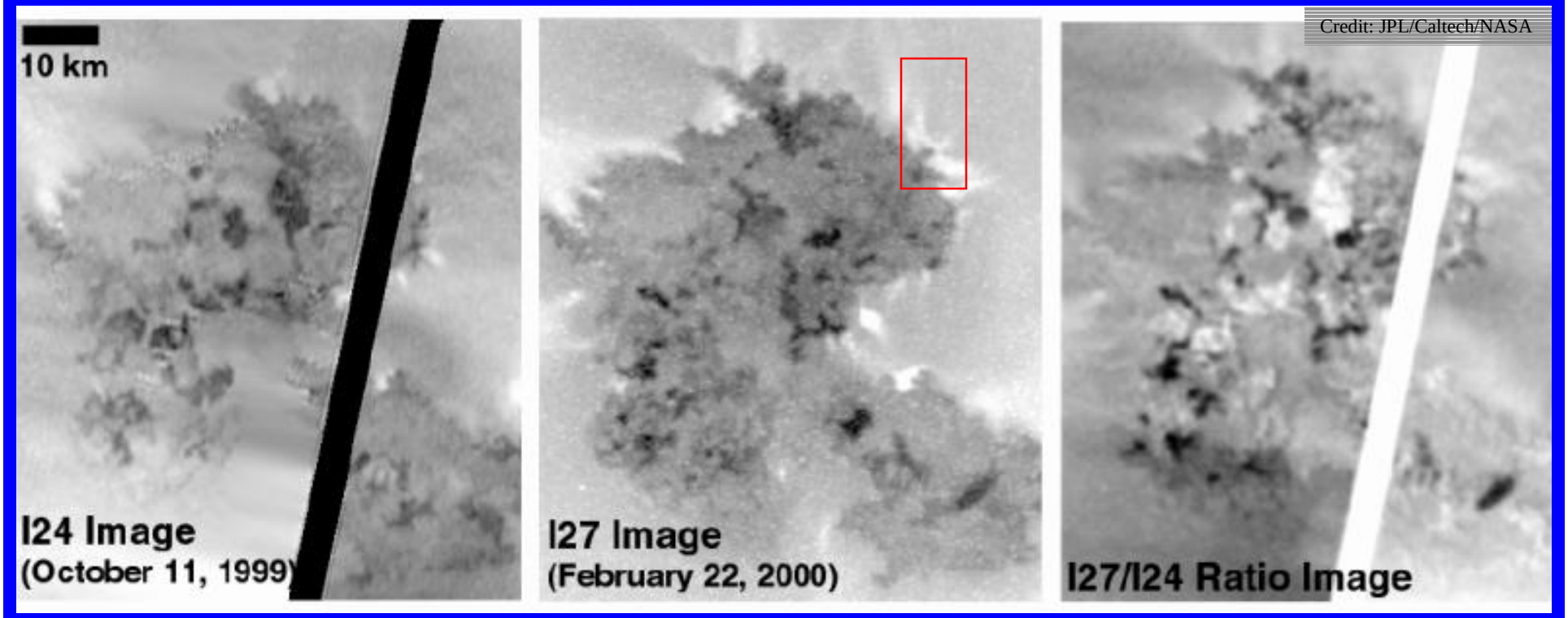


Prometheus Temperatures from NIMS



- Eastern hot region is south of caldera (source of lava).
- Western region is centered on currently-active lava flow field (source of the plume).

Prometheus Plume Source - Active Lava Flows



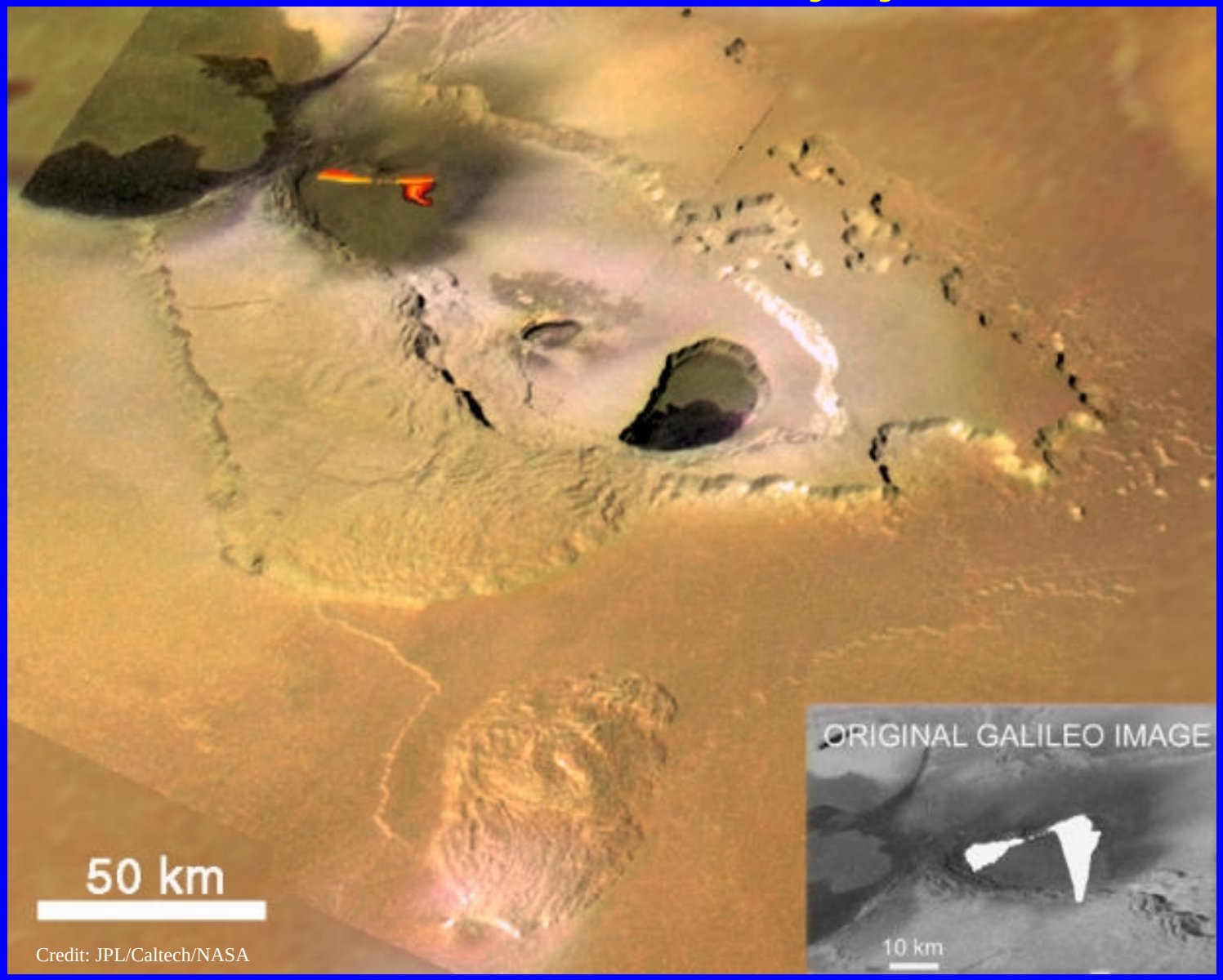
Credit: JPL/Caltech/NASA

Credit: JPL/Caltech/NASA

Lava on Sulfurous Snow

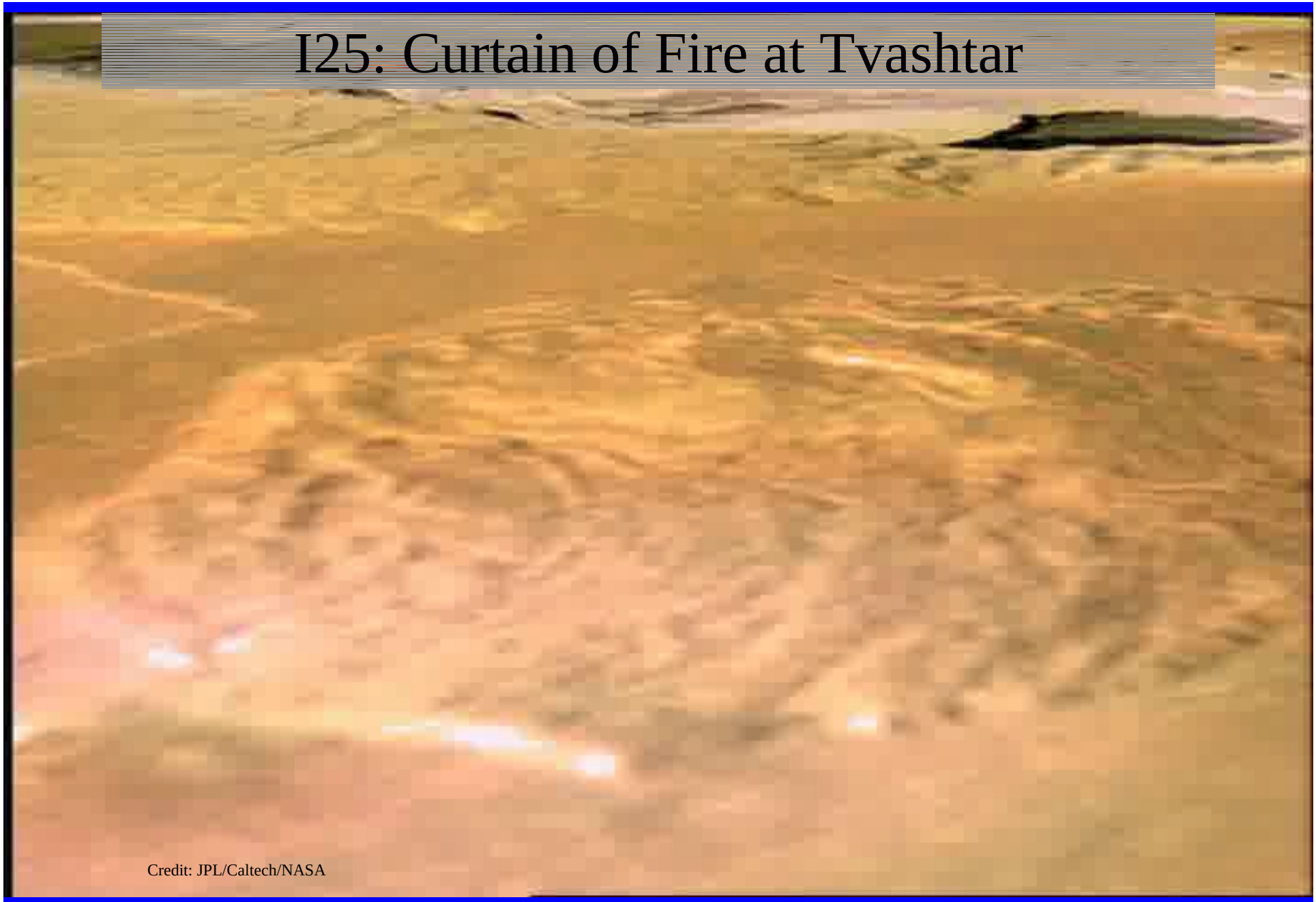
- Dark regions are recent flows
- Ridged plains to north and east are SO2 “snow.” Ridges origins not known (dunes?).
- Streaks are fresh SO2.

November 1999: I25 Flyby of Io

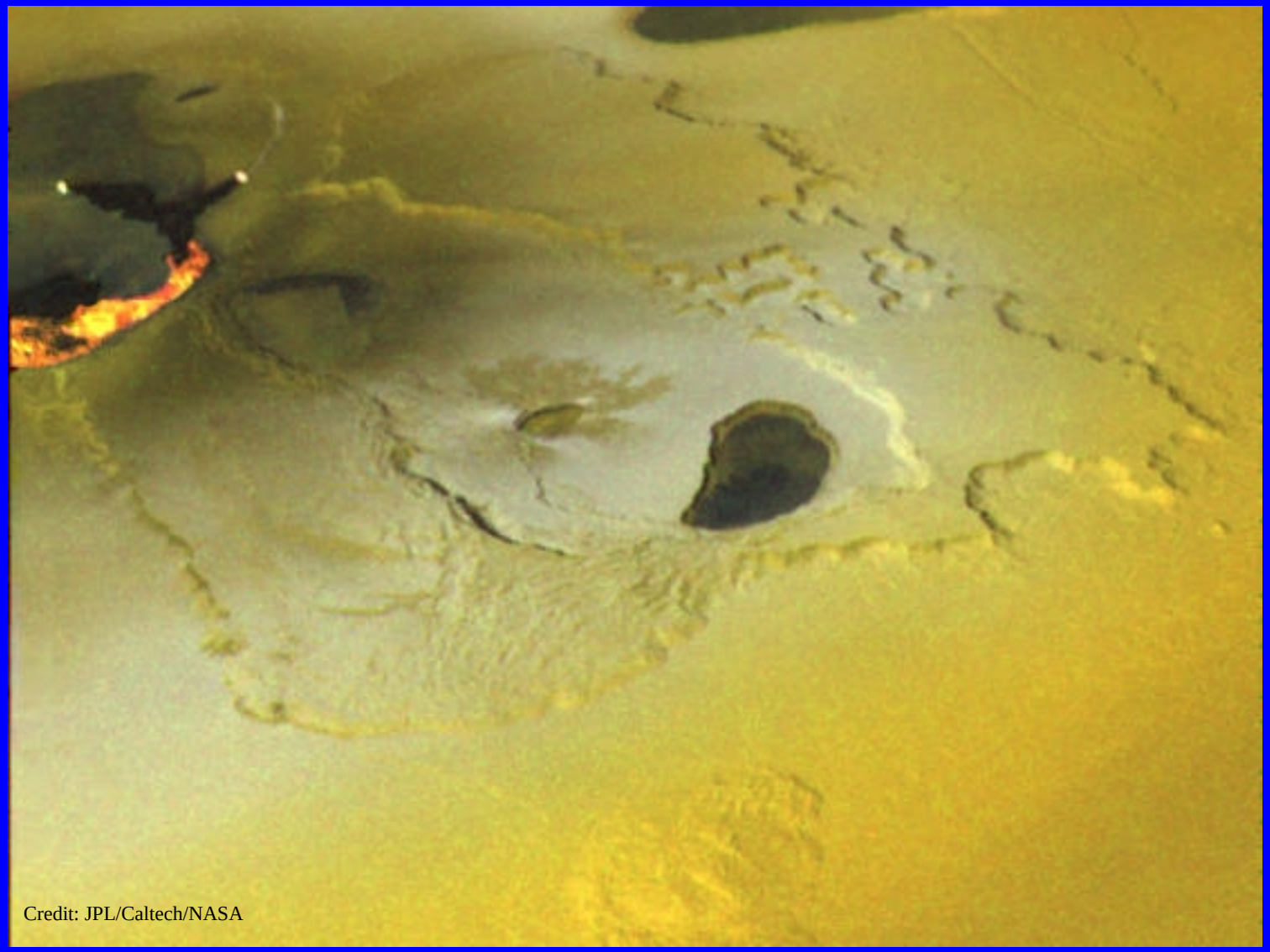


Credit: JPL/Caltech/NASA

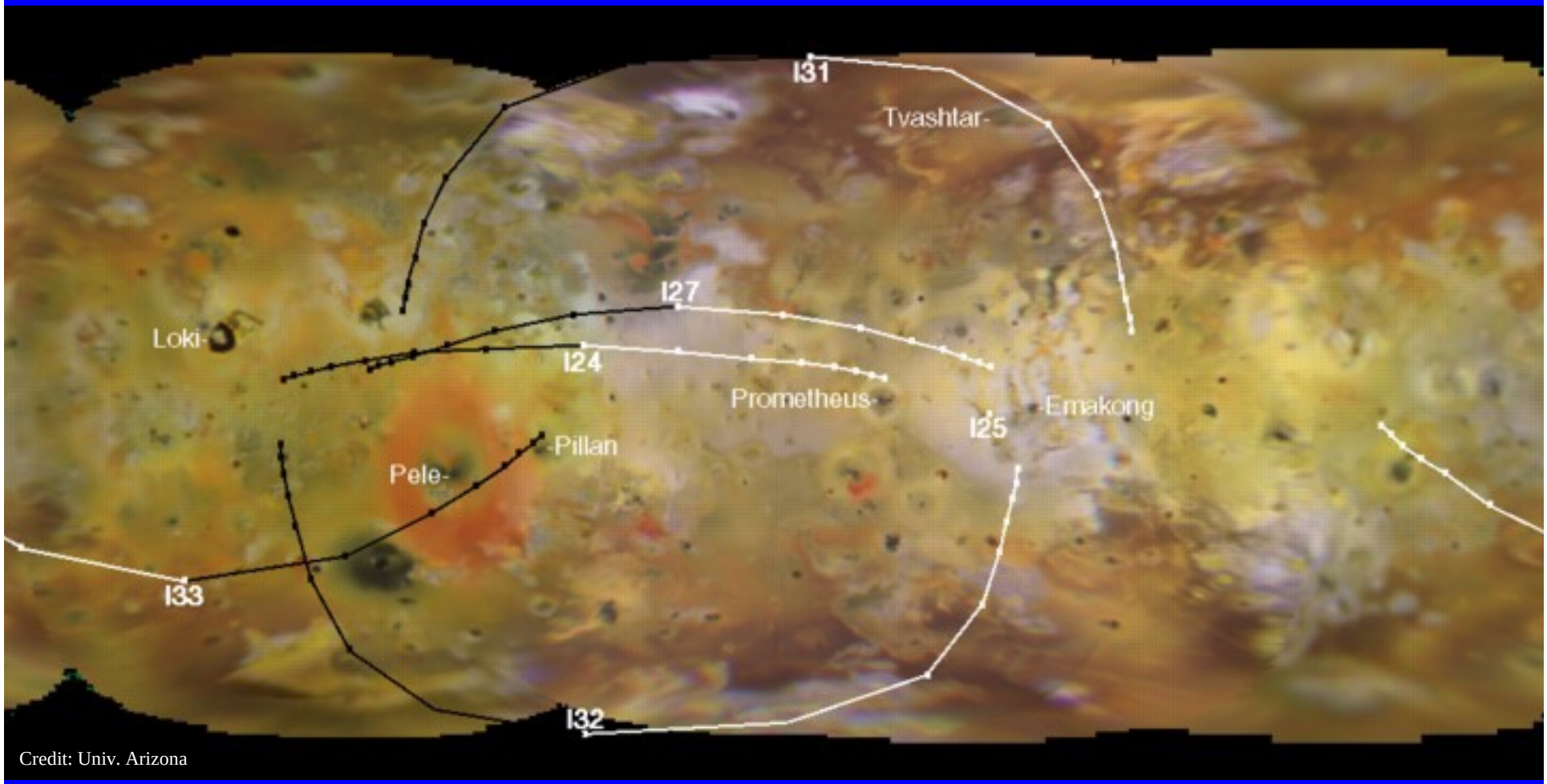
I25: Curtain of Fire at Tvashtar



I27: 60 km Lava Flow

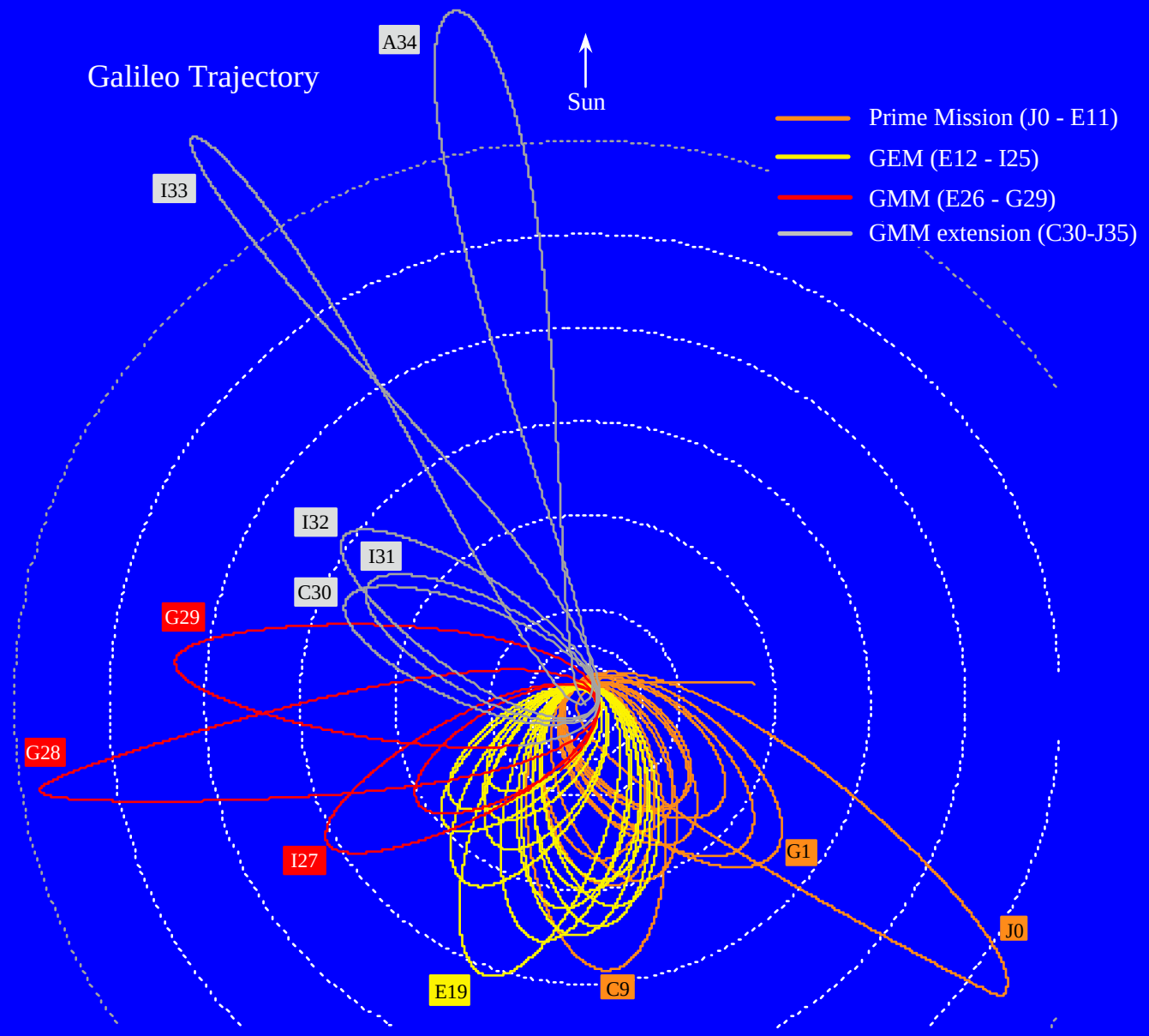


Future Io Flybys



Credit: Univ. Arizona

Future GMM Orbits



Caltech/NASA