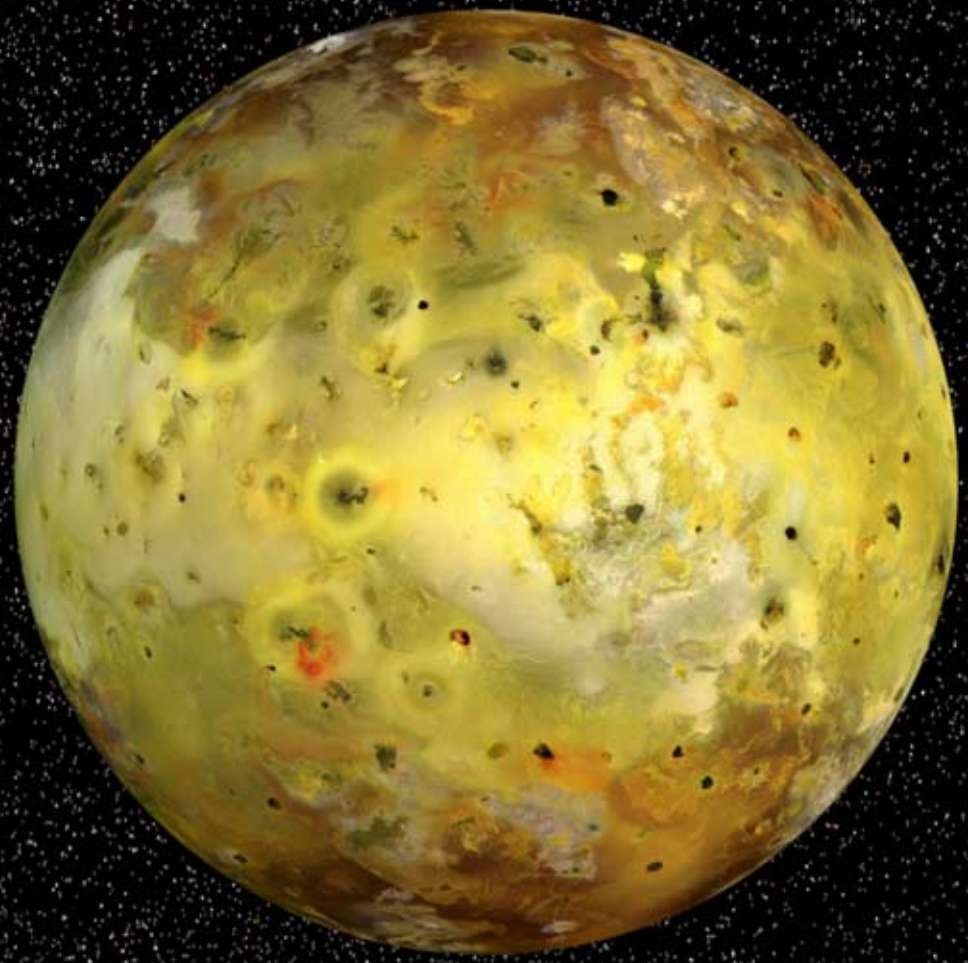
Galileo
Exploring Jupiter



Jim Erickson
December 6, 2000

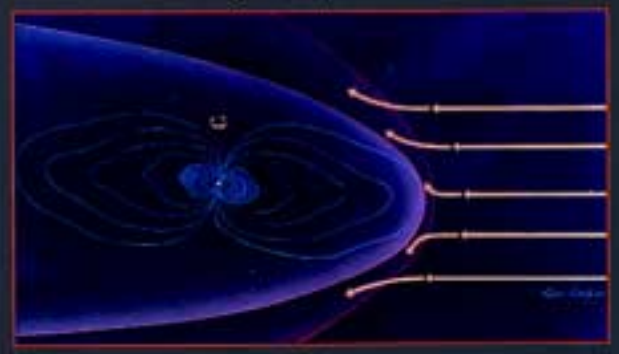
JPL

Mission Objectives

PROJECT GALILEO IS INVESTIGATING THE...

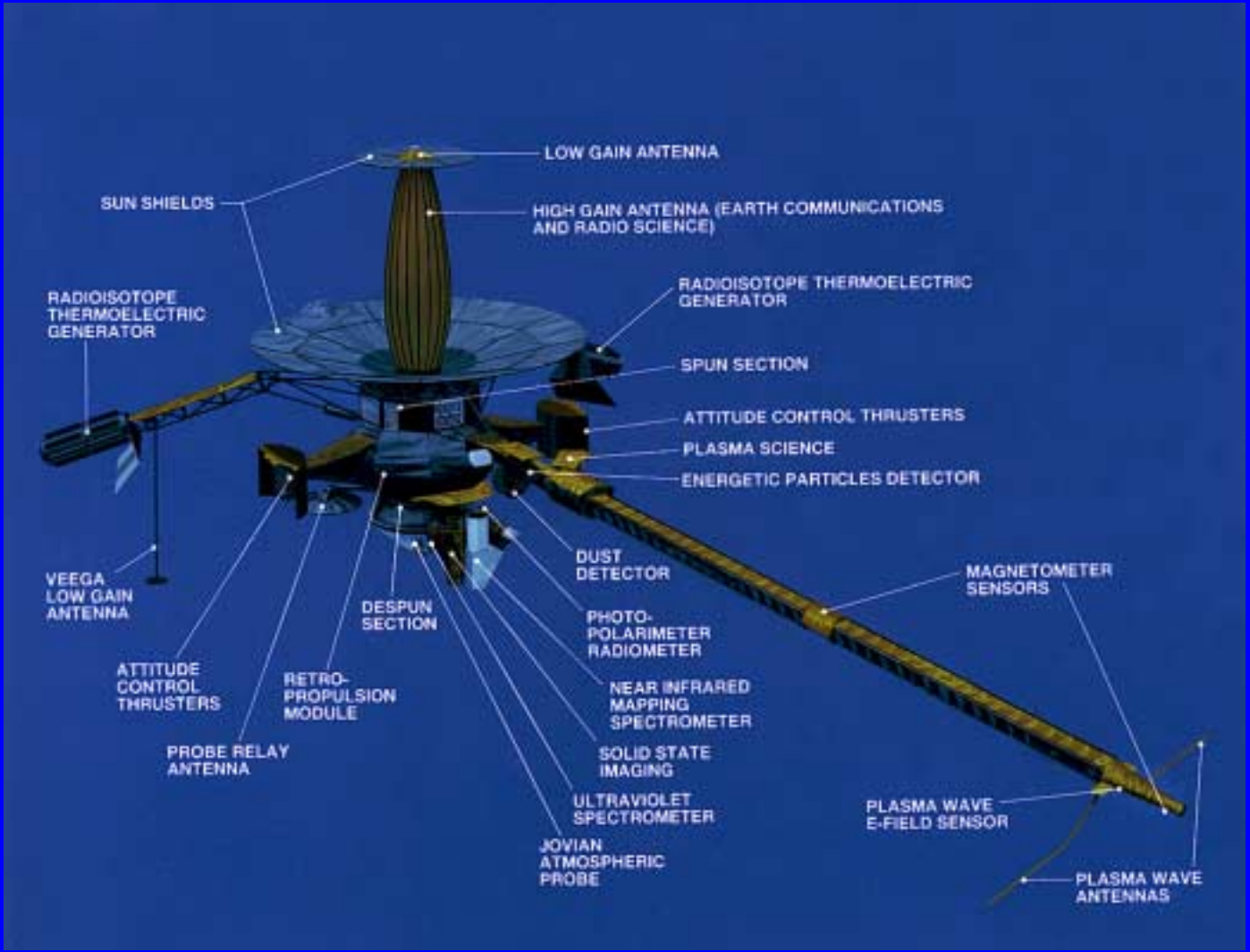
Chemical composition and physical state of Jupiter's atmosphere

Structure and physical dynamics of the Jovian magnetosphere

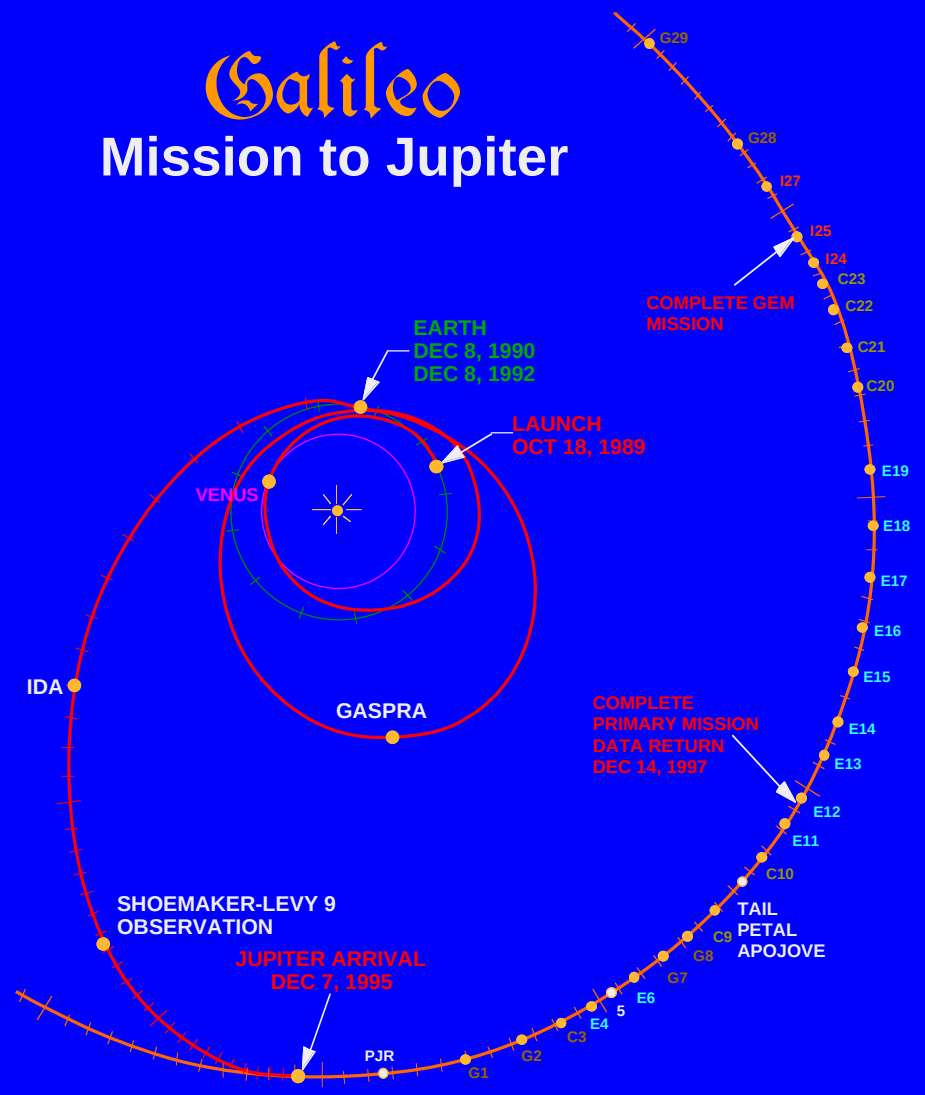


Chemical composition and physical states of the Jovian satellites

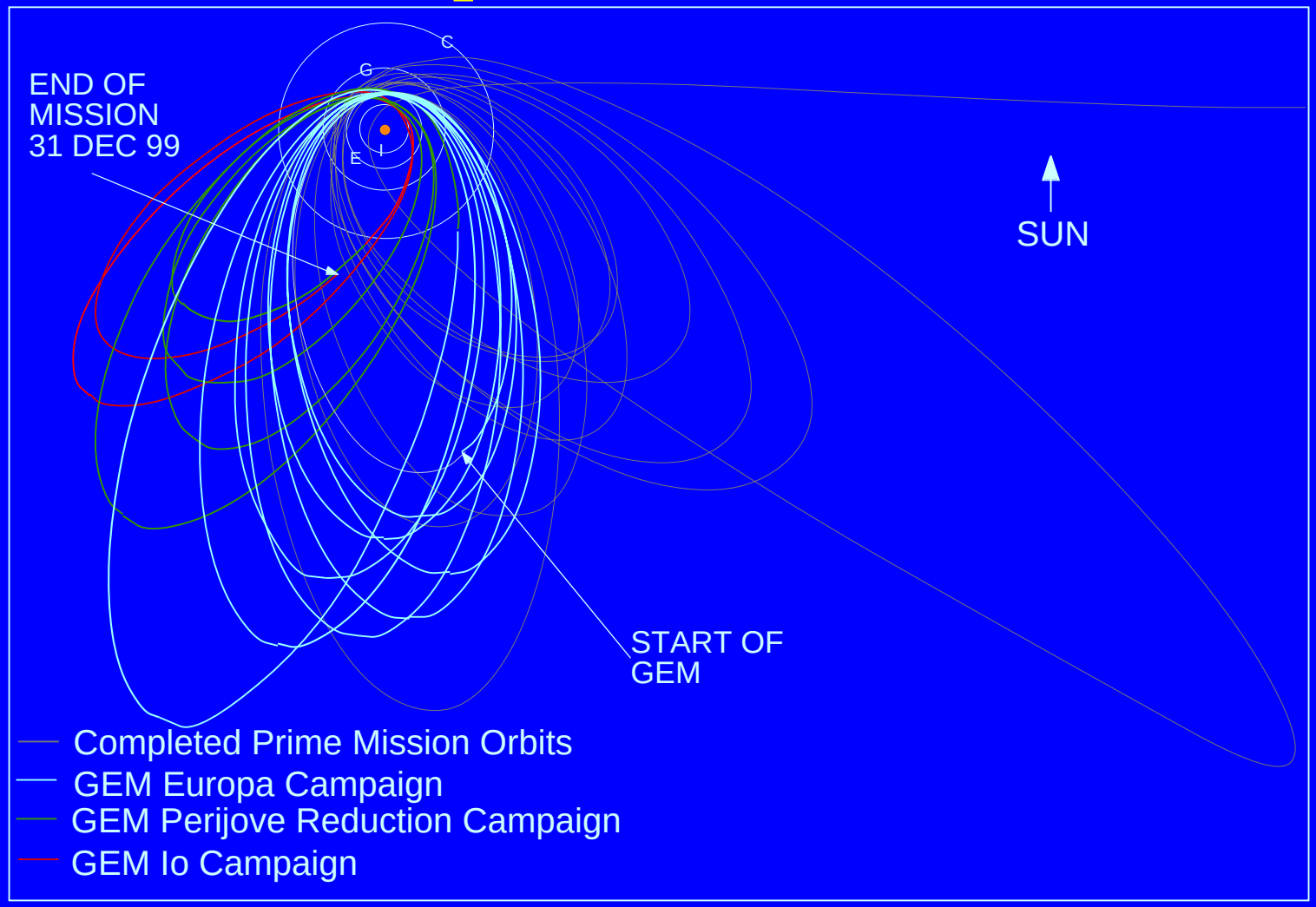
Spacecraft Components



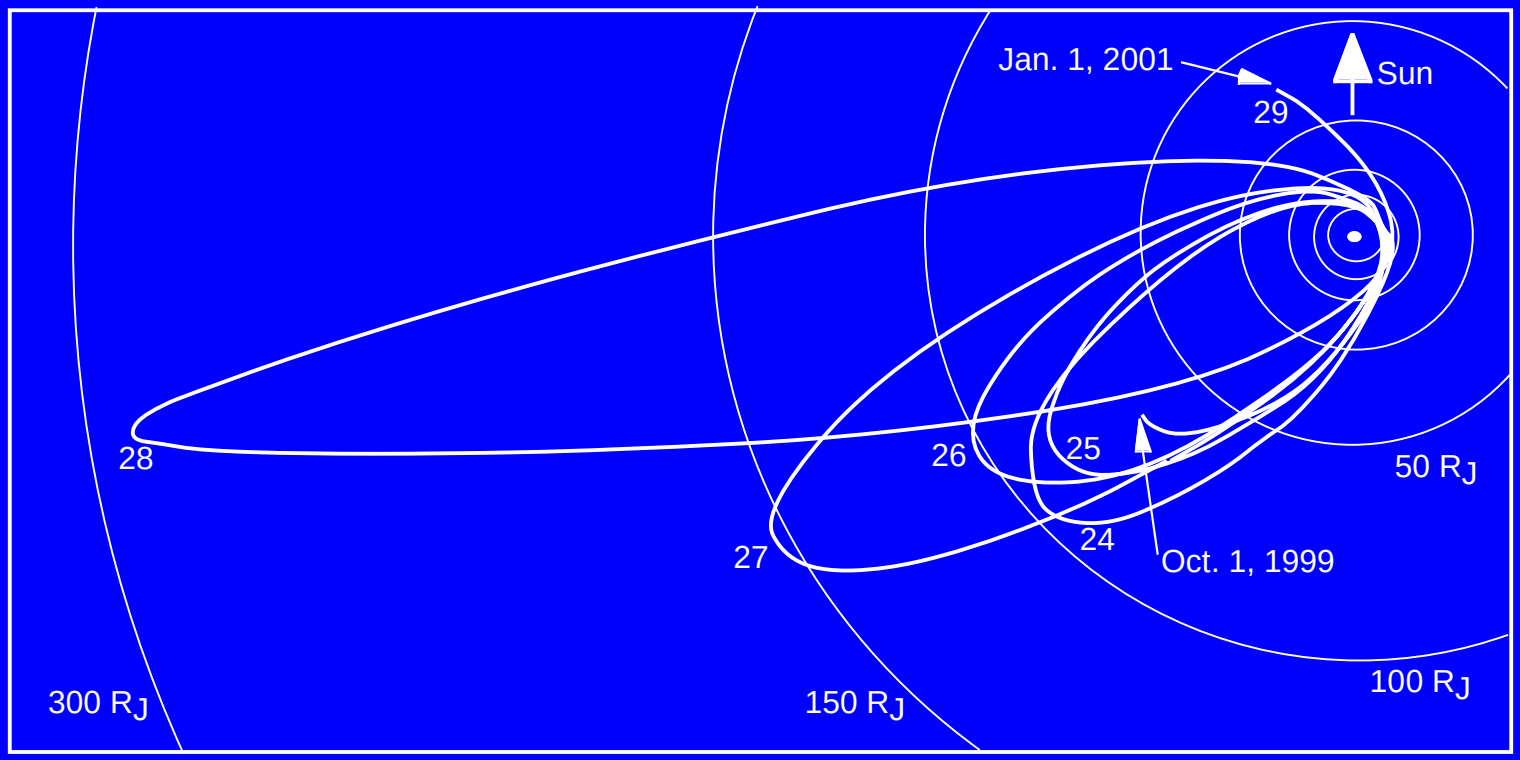
Interplanetary Trajectory



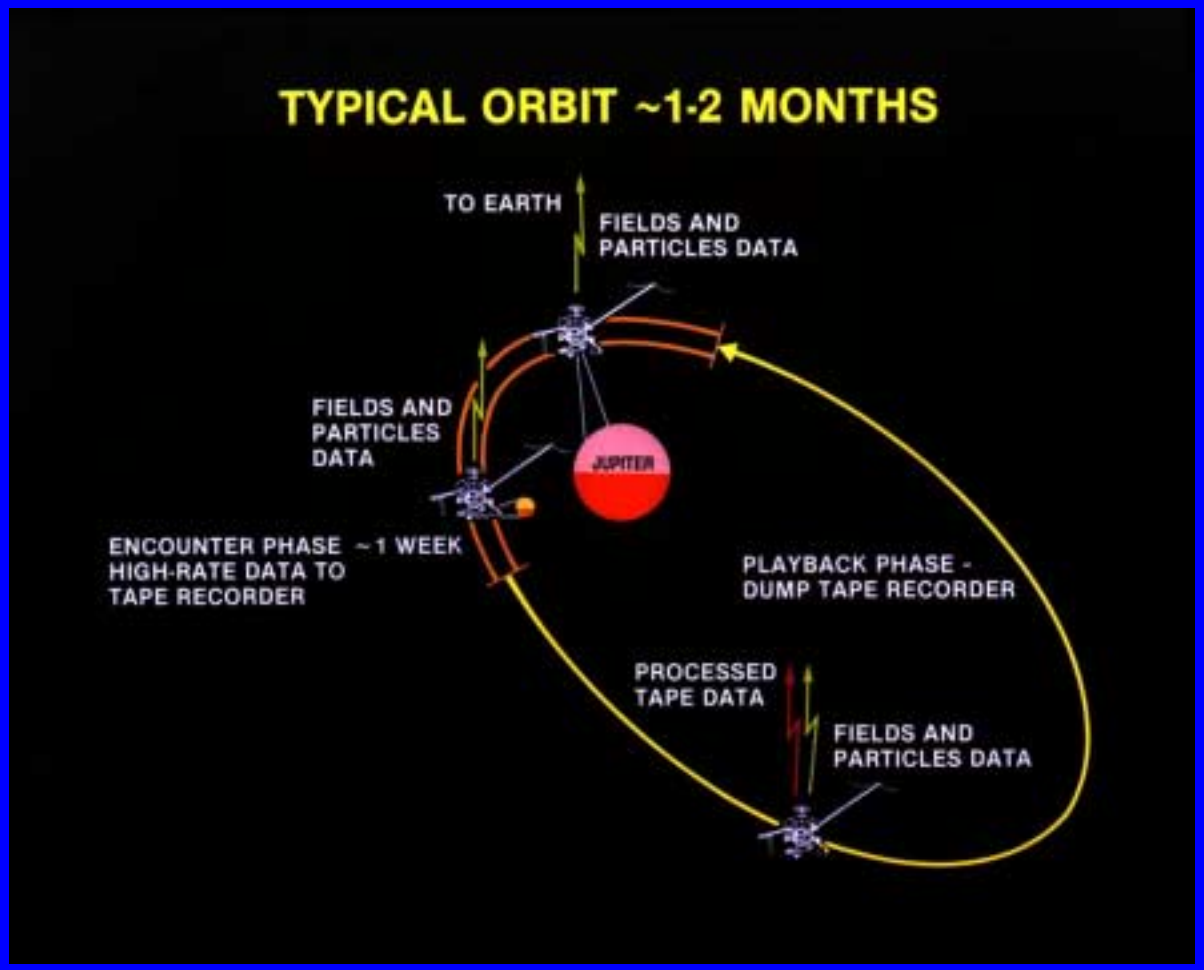
Galileo Prime Mission and Galileo Europa Mission Tour



GMM Tour

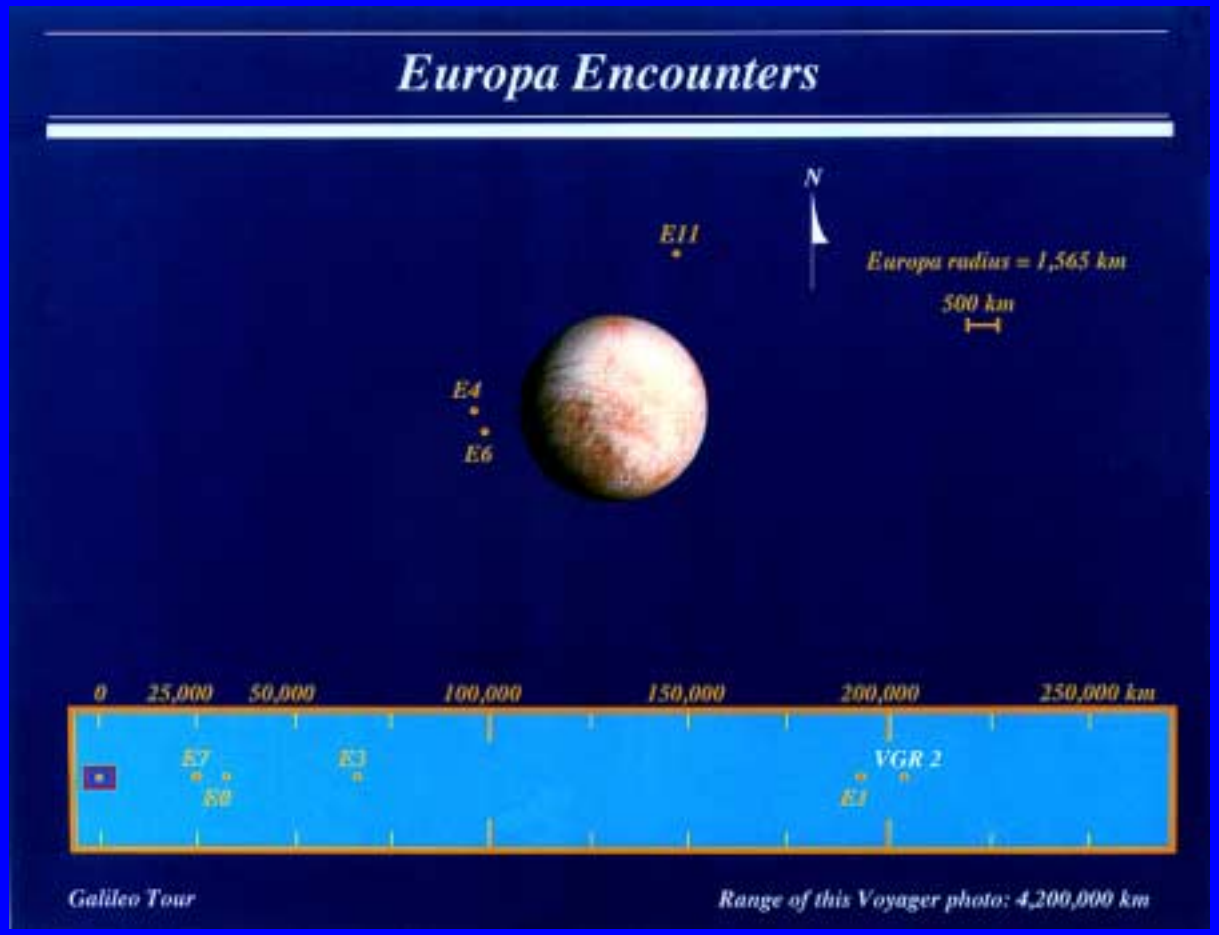

Jan. 1, 2001
Sun
29
28
26
25
24
27
Oct. 1, 1999
50 RJ
100 RJ
150 RJ
300 RJ

Operation Scenario



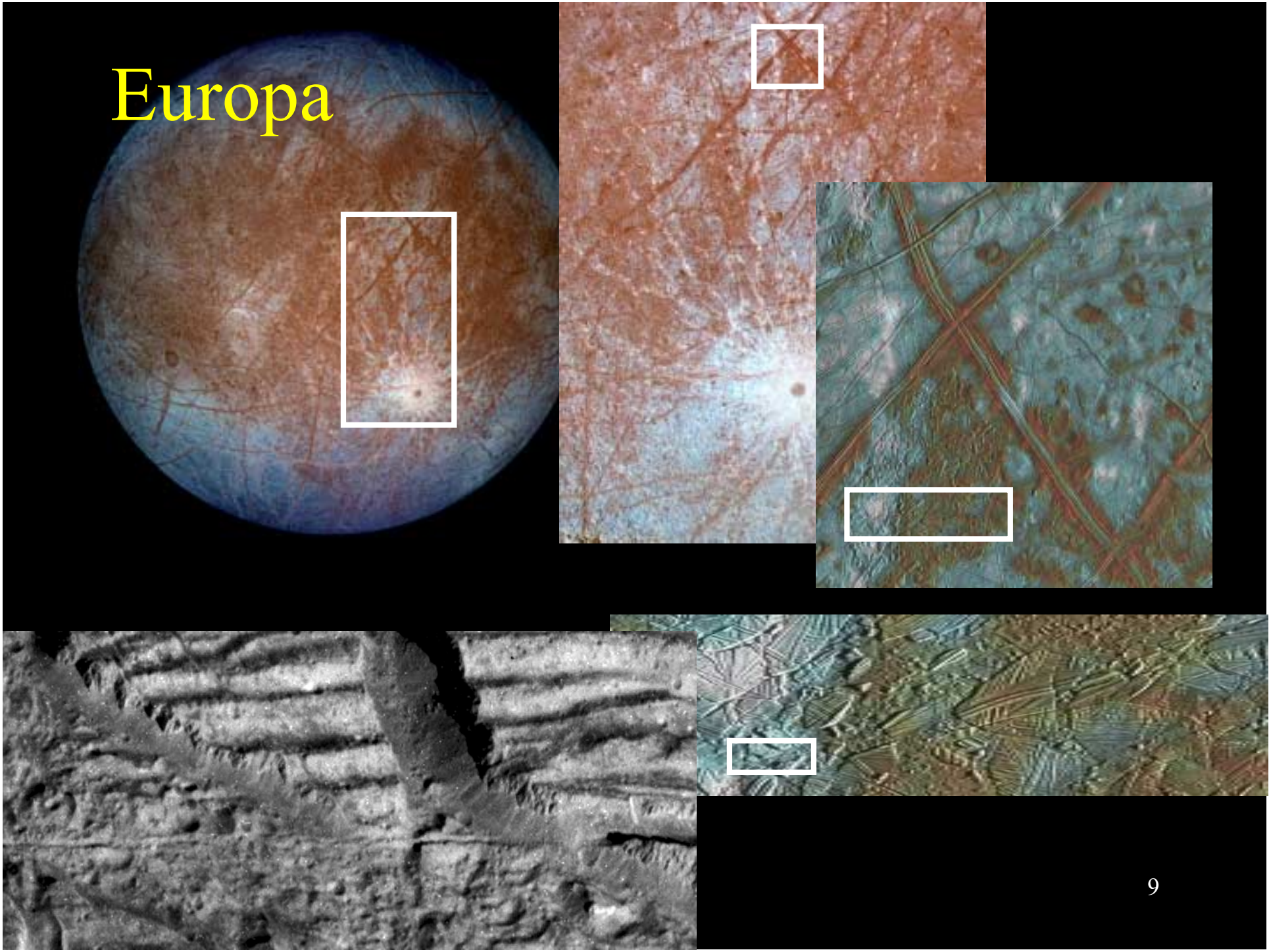
- Typically 2-4 days (originally one week in prime mission) of intense data recording during each encounter
- Followed by 2 to 5 months of playback time

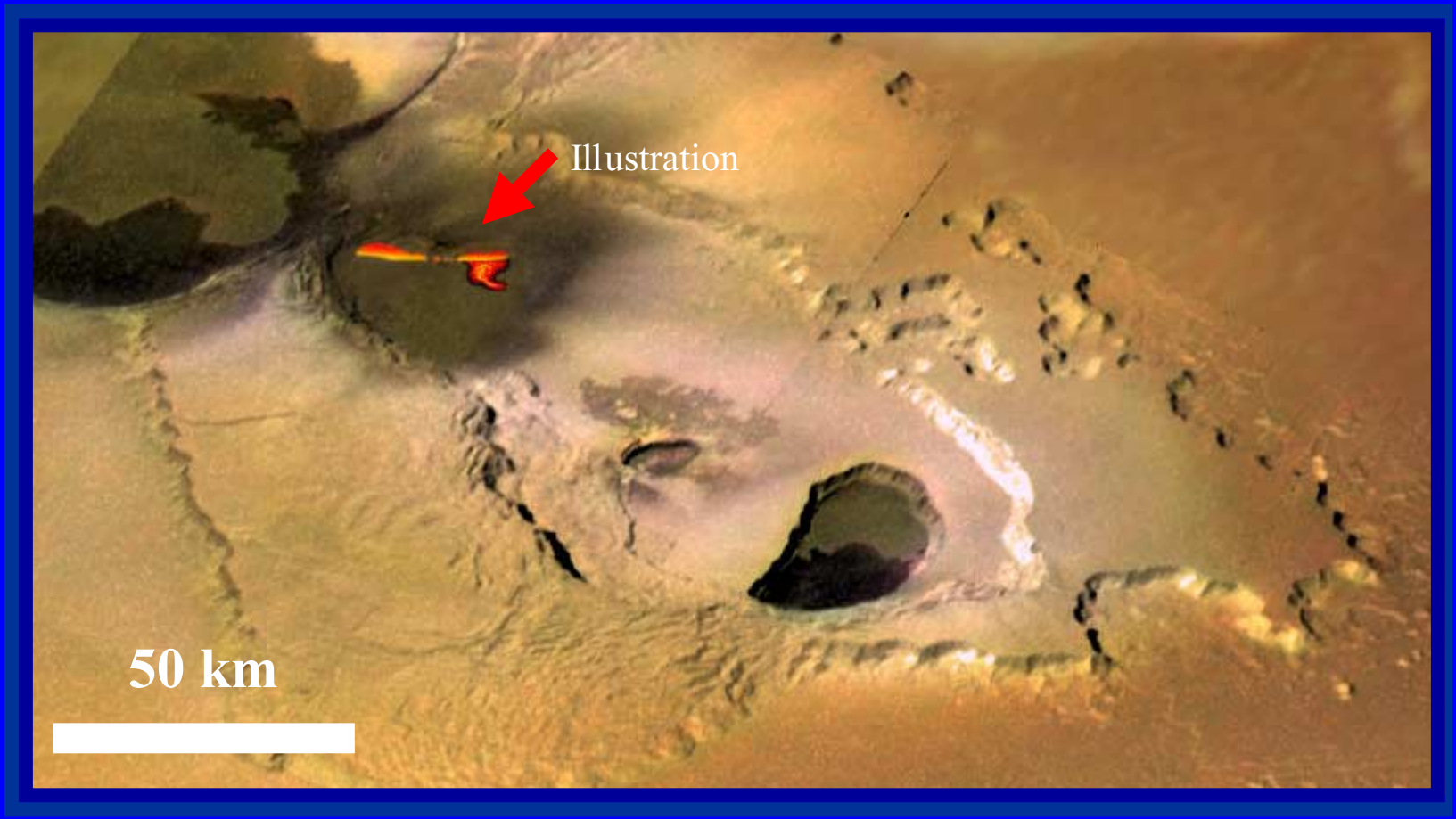
Distance of Flybys



- Voyager typically had encounters in the range of hundreds of thousands of km
- Galileo has flyby distances in the hundreds of km, with a closest encounter of 196 km

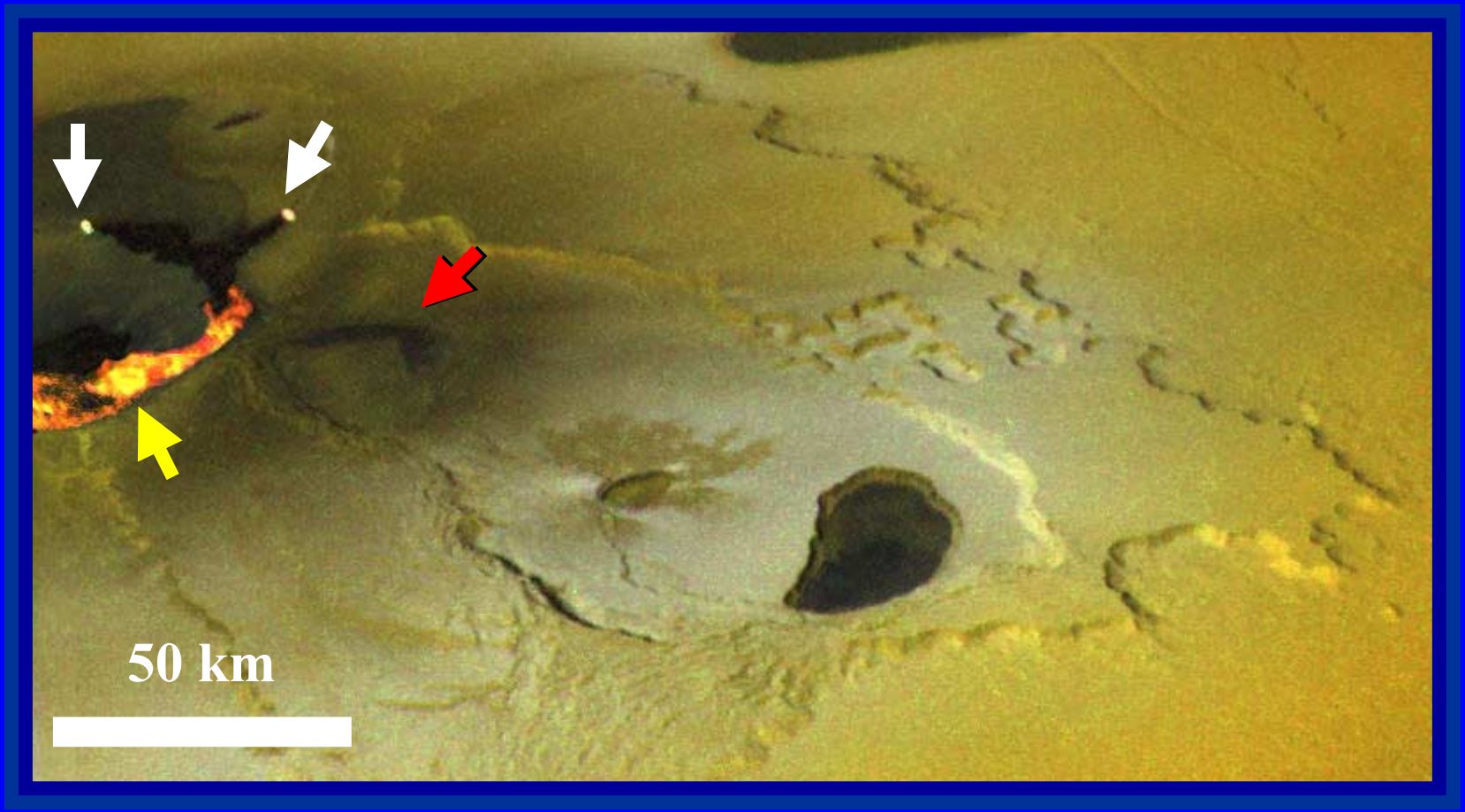
Europa





Tvashtar Catena, Io 25 November, 1999

- "Curtain of fire" eruption in progress, over 20 km long, ~ 1km high



Tvashtar Catena, Io 22 February, 2000

- November, 1999 eruption ended
- New eruption on floor of caldera to West
- High Temperature lava (~2000K) at flow fronts

Jupiter and Earth Size Comparison

- Jupiter's diameter is 11 times Earth's
- Jupiter's volume is 1,300 times Earth's
- Jupiter's mass is 320 times Earth's
- The Great Red Spot is three Earths long

Satellite Size Comparison