

OBSERVATION GEOMETRY FOR PLANETARY SCIENCE

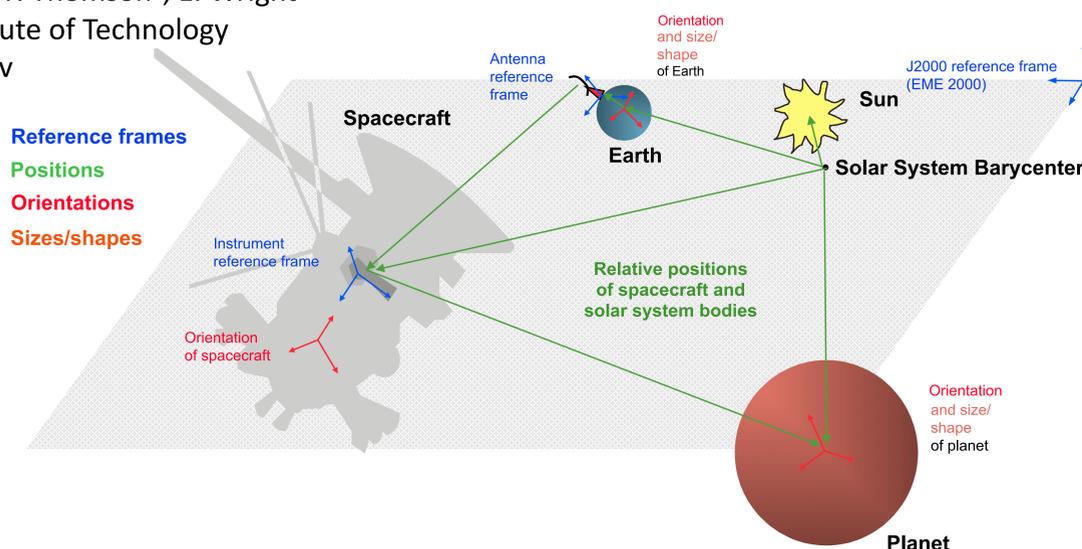
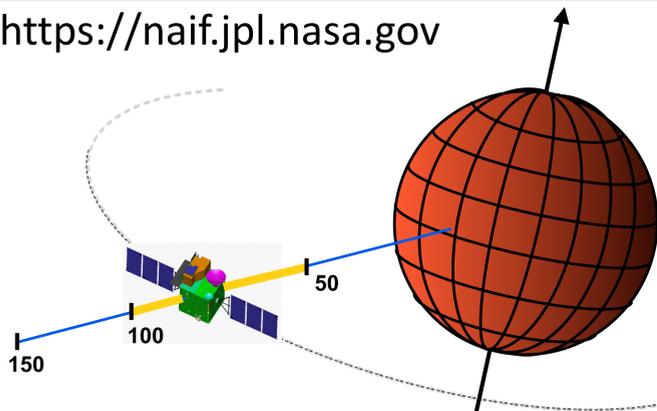
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Background

“SPICE” is NASA’s de facto standard for computing instrument viewing geometry. SPICE components are used by scientists for planning and analyzing observations taken by robotic spacecraft. Here we highlight some of the newer SPICE capabilities.

<https://naif.jpl.nasa.gov>



Geometry finder computations

Traditional SPICE calculations compute a quantity at a given time: “Find the spacecraft altitude at time T.” The geometry finder subsystem allows one to ask the inverse sort of question, such as: “Find the time intervals when the spacecraft altitude is between 50 and 100 kilometers.”

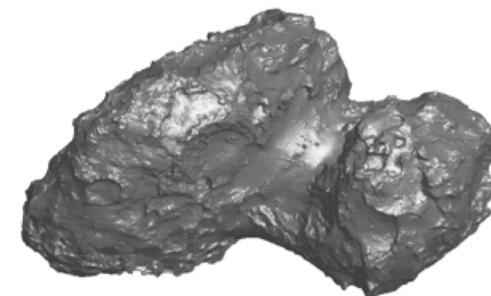
Digital Shape Kernel

The “digital shape kernel” capability provides precise shape modeling using either a tessellated plate model or a digital elevation model. Many SPICE-based geometric parameters, such as lighting angles, altitude and LAT/LON coordinates may be computed using such a high fidelity model.



You can compute:

- Phase
- Incidence
- Emission
- Altitude
- LAT/LON
- etc.



on complex shapes.

Mission Visualization

A picture—or better yet, an animation—is worth a thousand words. We offer the Cosmographia 3D mission visualization tool, providing high-fidelity rendering of most kinds of mission and observation geometry.

<https://naif.jpl.nasa.gov/naif/cosmographia.html>

Graphical User Interface

The WebGeocalc tool allows you to make many kinds of geometry computations using just your browser and typical GUI controls... no programming necessary! A programmatic interface is also available.

<https://wgc.jpl.nasa.gov:8443/webgeocalc>

