

# On Alighting Daintily at Jupiter

## Using the “Cloudtops” Arrival to Dramatically Reduce the $\Delta V$ Cost

**Benefit to NASA:** The “Cloudtops” retrograde arrival would save **500 to 700 m/s** in the capture sequence for spacecraft heading to Europa, Ganymede, and Callisto.

### Why “Cloudtops”?

The JOI burn is performed just above the clouds of Jupiter, just like Juno.

The retrograde approach provides a **free ride** from the Sun at apoapsis in the leading, sunward quadrant.

Jupiter Orbit Insertion



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Standard Prograde Arrival

“Cloudtops” Retrograde Arrival

↑ Sun  
direction

Sun-Jupiter rotating frame

