

# **Mars Cube One (MarCO)**

*The First Planetary CubeSat Mission*

**Sami Asmar**  
Principal Investigator

**Steve Matousek**  
Capture Lead

Jet Propulsion Laboratory  
California Institute of Technology

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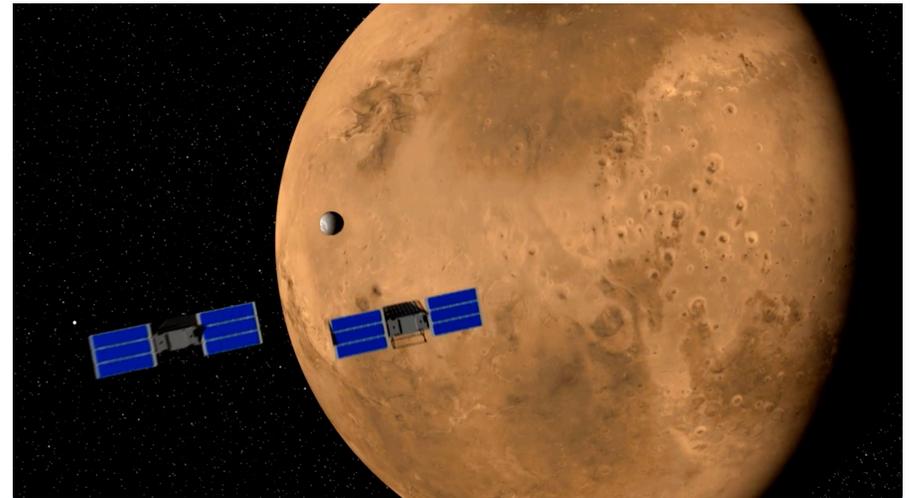
**DARE  
MIGHTY  
THINGS**

**DARE  
SMALL  
THINGS  
TOO!**



# Mission Motivation

- ✧ InSight has no direct-to-Earth link during critical landing
  - MRO to relay EDL data hours later
- ✧ MarCO provides real-time data relay
- ✧ A technical demonstration that can prove valuable to future missions
- ✧ Strategic advantages: NASA leadership role
  - Pave path to future small spacecraft
  - Reduce risk to future landed missions
  - Innovation & exploration
  - Public & University engagement
  - Open a window for new science opportunities



# Why Launch in March 2016

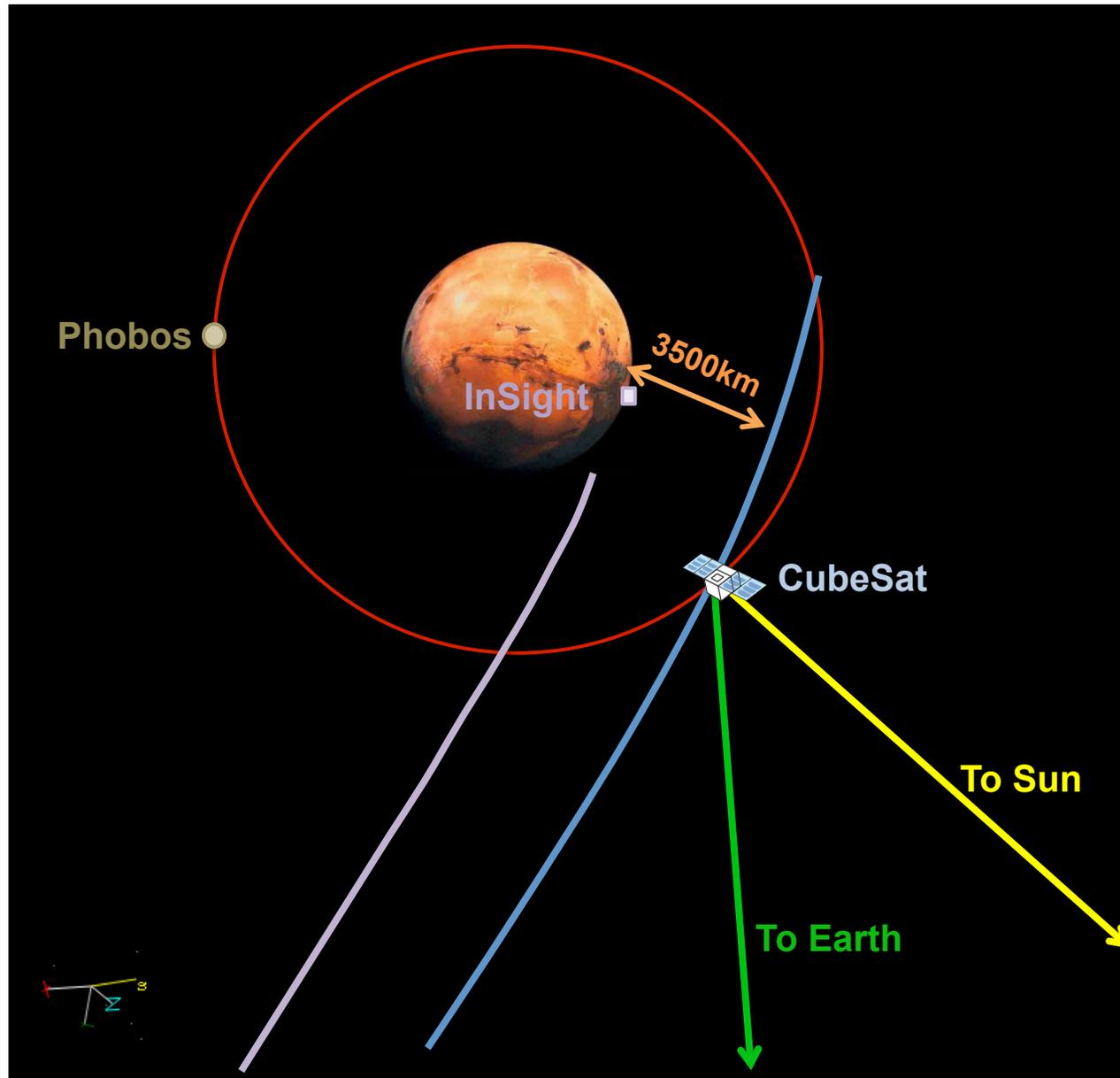
- ✧ Mars at 1.07 AU in 2016
- ✧ Sufficient mass margin on launcher
- ✧ No negative impact on InSight

## Other Features:

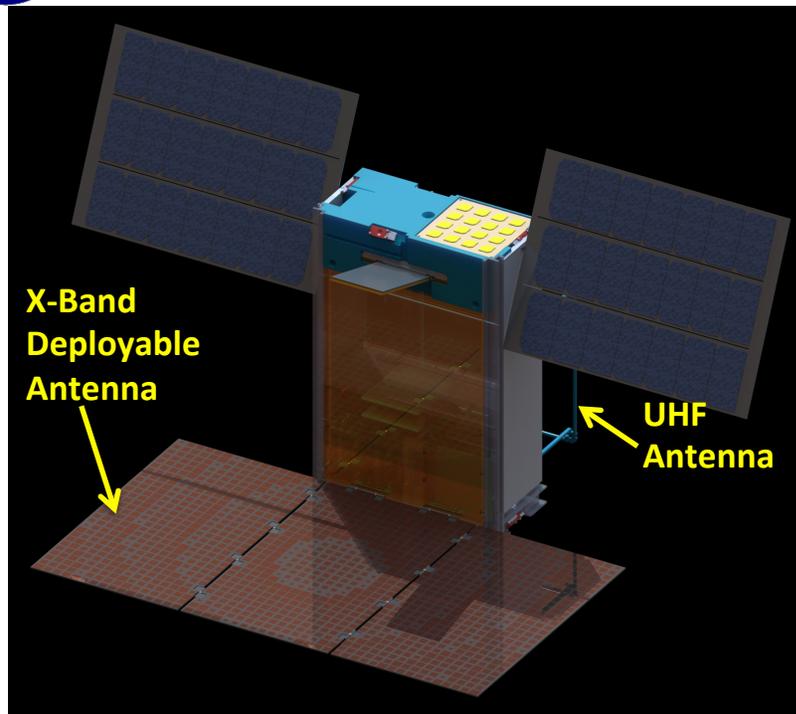
- ✧ Can fly on their own to Mars
  - Trajectory Correction Maneuvers
- ✧ Slow flyby of Mars



# Arrival in September 2016



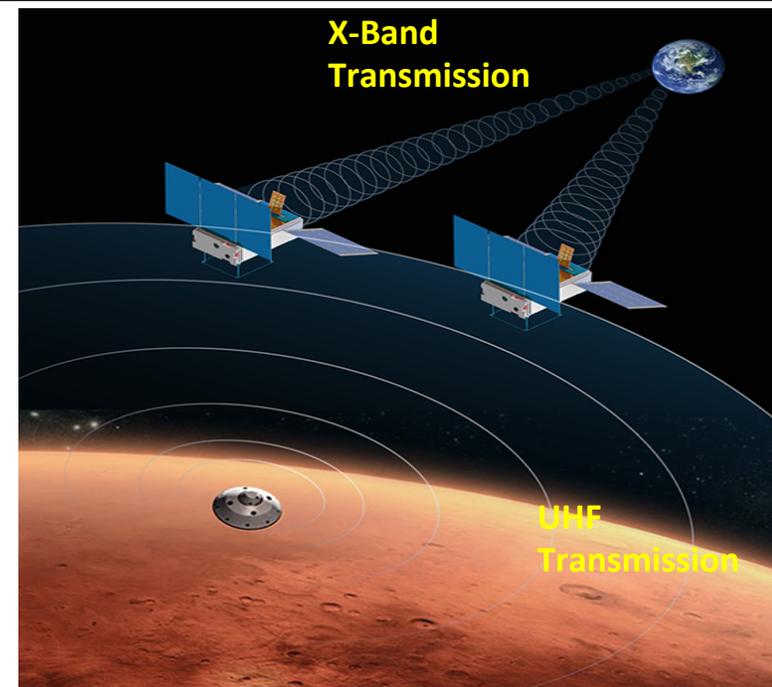
# *Mars Cube One* First Planetary CubeSat Mission

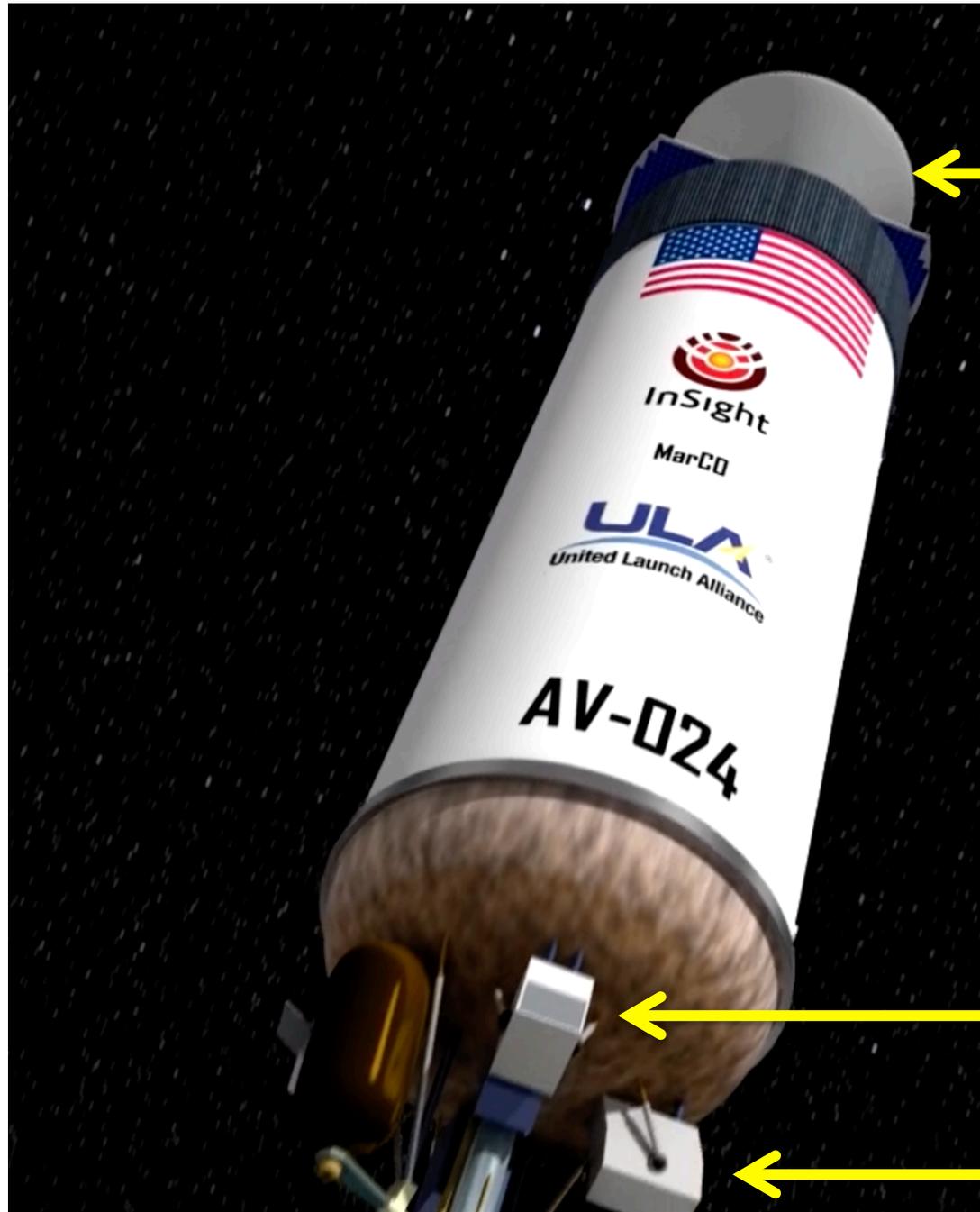


A Technology Demonstration of communications relay system for mission-critical events such as the 2016 InSight entry, descent, & landing.

*Interplanetary Travel*  
*Fly-by Mars*

- Two redundant 6U CubeSat form factor
- Launch: Mar. 2016; Arrival: Sep. 2016
- Real-time relay of InSight EDL data
  - 8 kbps UHF link: InSight to MarCO
  - 8 kbps X-band link: MarCO to DSN





**InSight  
Released  
First**

**MarCO  
Released  
After  
Maneuver**

