MarCO
CubeSats to Mars in 2016

Jet Propulsion Laboratory
California Institute of Technology
Mission Objective:
- Provide an 8kbps real-time relay for InSight’s Entry, Descent and Landing at Mars
MarCO Overview:
- Technical Demonstration Mission (Not required for InSight Success)
- First interplanetary CubeSats
- Smallest spacecraft to ever independently fly by Mars
- Low-Cost, commercial-off-the-shelf parts

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Technical Specifications:
- Volume: 2 x Cereal Boxes
- Mass: Approximately 30 lbs each
- Journey to Mars: 6.5 months
- Propulsion: Cold Gas Fire Extinguishant
- Primary Processor: Often Used in Toasters
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Mechanical Fit Check

- Includes all external flight-like hardware
- Pre-validate NLAS-II Canister fit

Thermal Blanket

Thermal Radiator (JPL)

Tyvak NLAS-II Canister (with MarCO)  Vacco Thrusters  Blue Canyon Technologies ADCS
Flight Deployment Check
- Post Environmental Testing
- Ready for Flight!

Flight Model 1: Post-Vibe Testing

Internal Electronics
Mechanical Model

Flight Model 2
(Access Panels Open)

Flight Model 1
(Deployed)
MarCO-A

MarCO-B

X-Band 8 kbps
To Earth

3,500 km

UHF Relay

DSN 70m Reception

157,077,764 km

InSight Entry, Descent, and Landing
November, 2018
CubeSats at Mars
(Now) Arriving 2018