Jet Propulsion Laboratory
California Institute of Technology

Mars Exploration Program

Fuk Li

Jet Propulsion Laboratory,

California Institute of Technology

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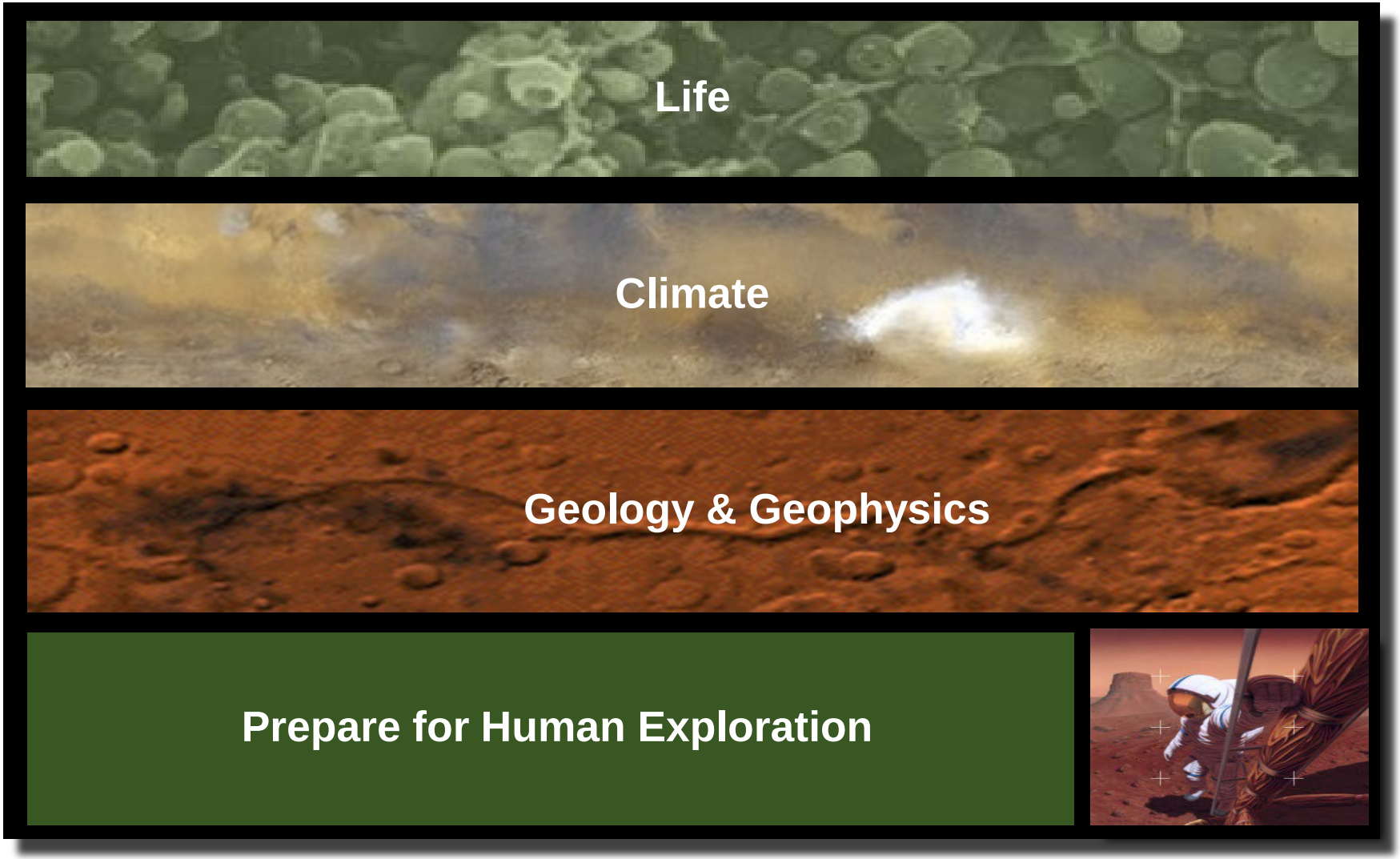
Mars Exploration Program Science Goals



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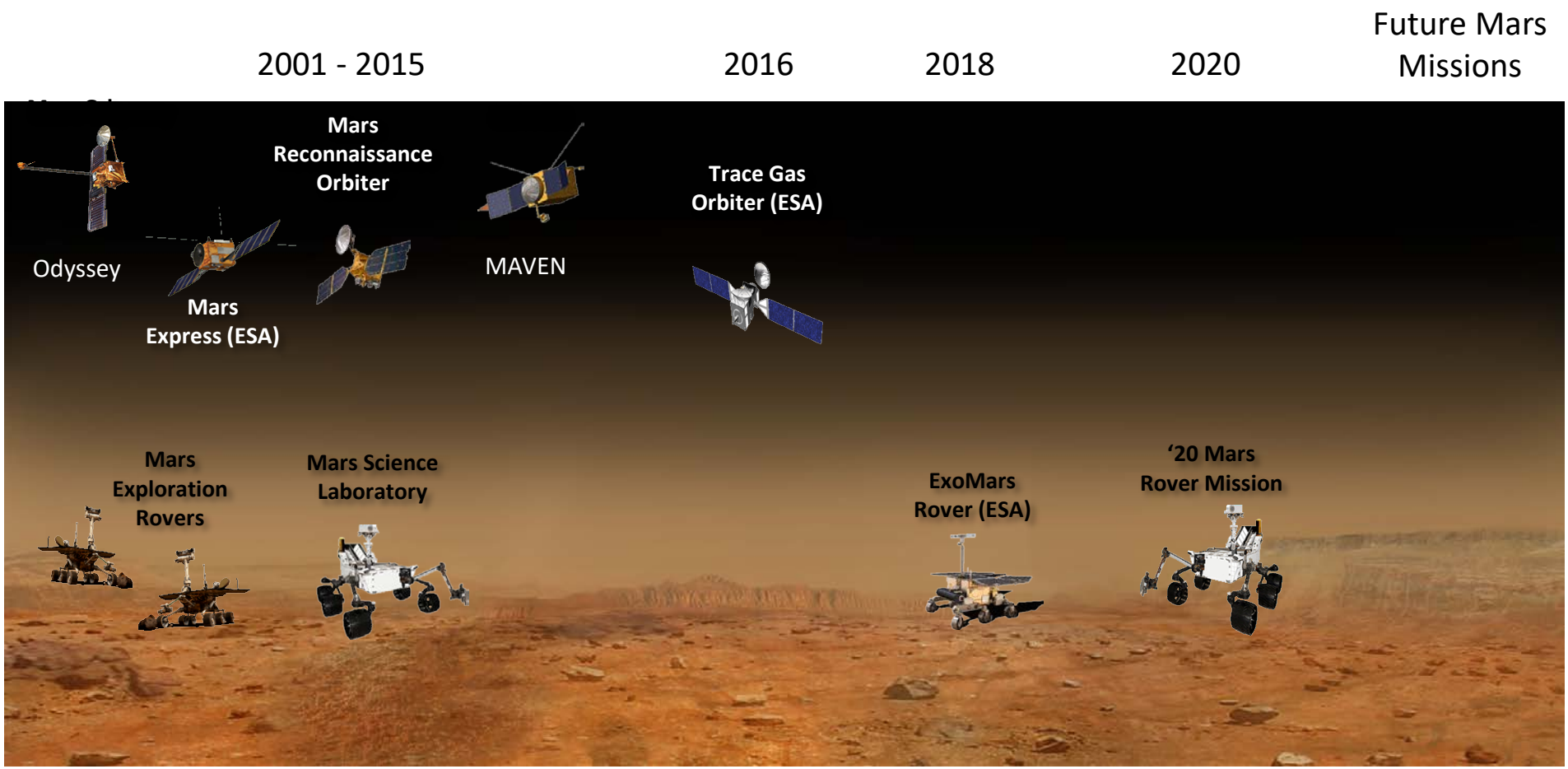
Mars Exploration Program Missions

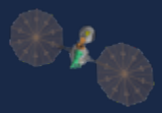


Integrated Campaign for Mars in the 2020's

Mars 2020

- ISRU Prototype
- EDL Instruments
- Sample Acquisition
- In Situ Science
- Habitable Conditions
- Ancient Life

Mars Orbiter 2022



- Resource Survey
- Landing Site Selection
- Optical Comm/Relay
- SEP
- Rendezvous
- Remote Sensing Instruments

Round-Trip Surface to Surface

- Dust Toxicity
- EDL Evolution/ Instruments
- Mars Ascent
- Surface Navigation
- Returned Sample Analysis

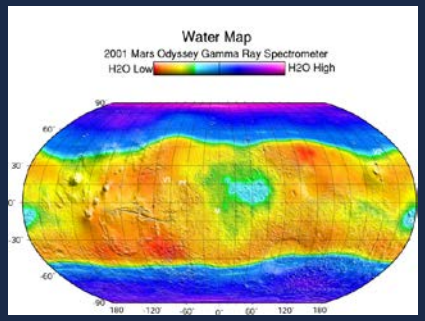
Exploration Precursors

- ISRU Production
- Surface Power for ISRU
- Rad/ECLSS Validation
- Increased EDL Mass & Precision
- Science Instruments

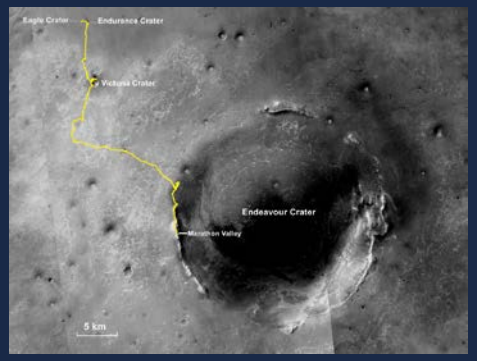
Robotic precursors fulfilling the Mars Sample Return objective intrinsically inform strategic exploration planning by providing invaluable flight experience

Mars Exploration Program Milestones

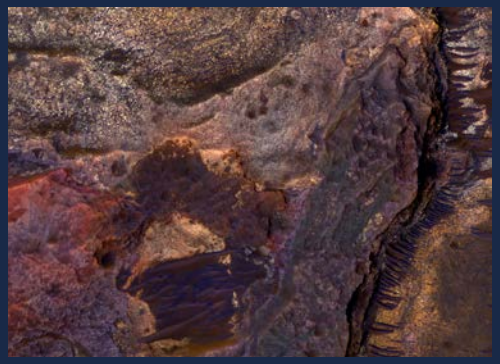
Odyssey: 60,000 orbits



Opportunity: Roved> 26 miles



MRO: 10th year since MOI

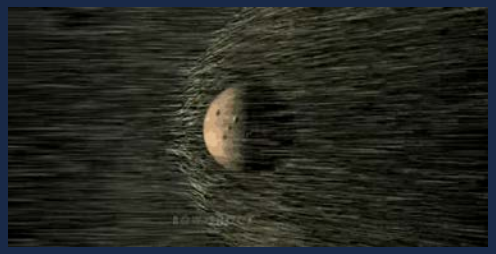


Curiosity: >3 years since landing

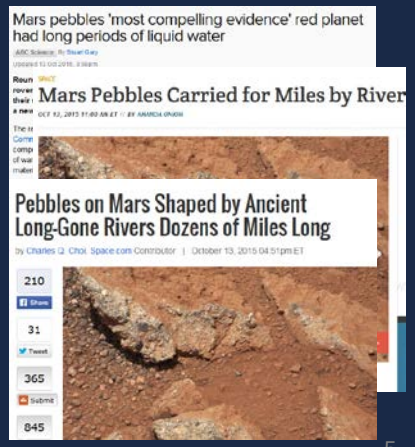
Mars Exploration Program Highlights

RSL Press Conference

MAVEN Press Conference



'The Martian' Movie

Credits: Twentieth Century Fox

Gale Crater
Press Coverage