

# **NASA PI-Team Masters Forum**

## ***Staying in the Box: Managing Critical Resources***

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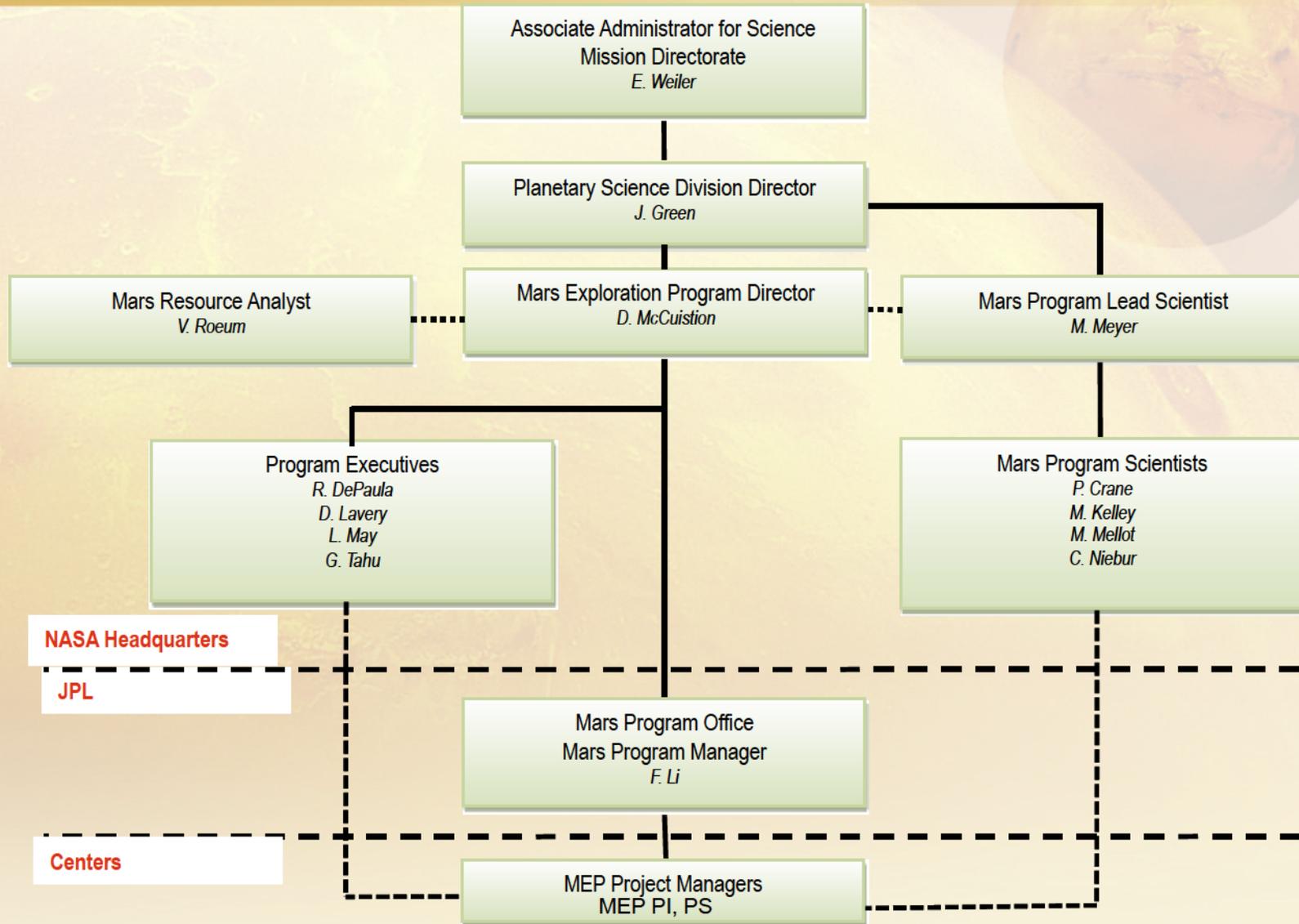
*California Institute of Technology*

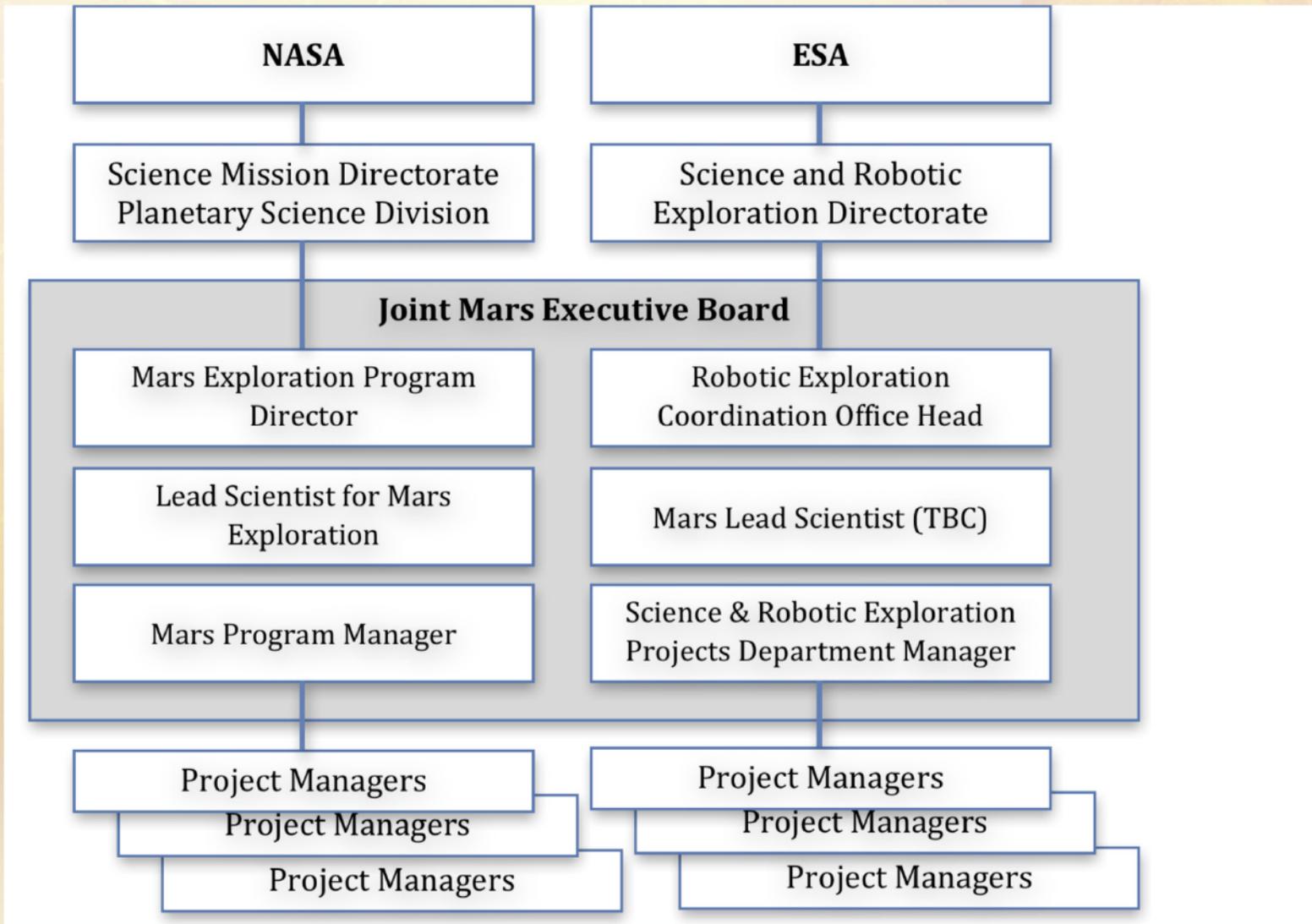
*July 29, 2011*



Mars Program Office  
Jet Propulsion Laboratory  
California Institute of Technology

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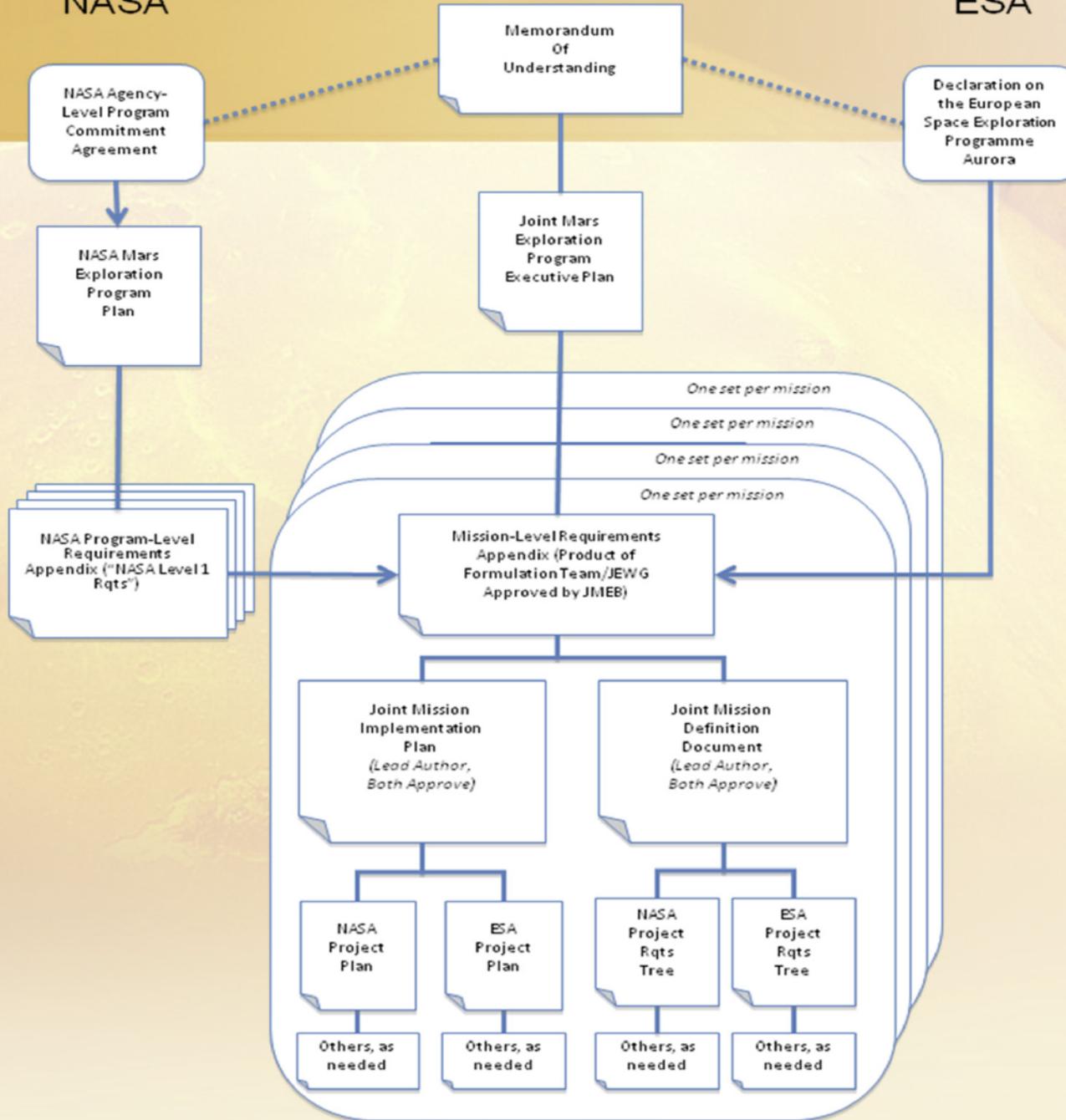






NASA

ESA



# *This Decade Mars Exploration*

Launch Year

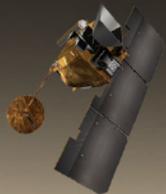
1996



**Mars  
Global  
Surveyor**  
*(mission  
completed)*

**Mars  
Pathfinder**  
*(mission  
completed)*

2001



**Mars  
Odyssey**

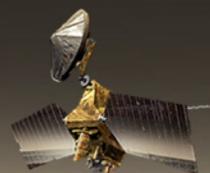
2003



**Mars Express  
Collaboration**

**MEP Rovers  
Spirit  
Opportunity**

2005



**Mars  
Reconnaissance  
Orbiter**

2007



**Phoenix**  
*(mission  
completed)*

2011



**Mars  
Science  
Laboratory**



## ***Guidelines for Managing Critical Resources***

- **Know what is required, not just desired**
  - “*need, not want*”—*The Forbin Project*
  - Get consensus with external players, communicate within team
- **Remember that there will be unknowns that become known problems**
- **There will also be knowns that become problems**
  - Give special attention early on to heritage items
- **Be pro-active**
  - Use your reserves (but don't squander them)
- **Balance your portfolio of risks appropriately**



## ***Critical Resources***

- **Mass, Power, Money, Schedule**
- **Value**
  - Scientific, Technical & Programmatic Goals
- **Mission Design**
- **Risk**
  - Involved in almost all trades
  - Proactive as well as reactive management
- **Knowledge**
  - What do I know—what can I find out
  - Self/team: how do I manage when data are not in hand?
  - Heritage comes with liens—do I know what I have?
- **Time**
- **Personnel: Managing / Working with People**
  - Skill / Experience
  - Aptitude / Motivation / Attitude
  - Level of Effort/Stamina