



# Planetary Protection for Humans on Mars



## Planetary Protection Policy: Protect the Earth, Avoid Harmful Contamination

*Adding humans, policy has the same intent—but different implementation*



Robotic  
Exploration

*We Are Here...*

Early Human  
Exploration

Future  
Use



**Phased Approach:** Be careful early; tailor later constraints using knowledge gained

- Humans have many interests at Mars; understanding potential hazards supports all of them
- Searching for Mars life becomes more difficult, the more Earth contamination is introduced
- Future colonization could be challenged, if unwanted Earth invasive species are introduced
  - Blocking aquifers
  - Consuming resources
  - Interfering with planned introductions



# Basic Motivation

