

## ROBOTS IN SPACE: MARS ROVERS

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*Why do we send Mars Rovers?* It's a good question because the budget for a Mars Lander or a rover is huge: sending the duo Spirit Opportunity cost 820 Million dollars for the original mission. There are many reasons for sending Mars Rovers. It is worth highlighting only three of them. First of all, they will make it possible to answer several questions like: Is there life on Mars? What is its history? Is it preparing for a manned mission to Mars? There are two other big reasons why to send robots into the space instead of humans:

- they are cheaper (lighter, no return ticket...);
- they are safer (a robot can be lost, but not an astronaut).

*Mars Rovers Programs.* There have been several missions to the planet. Mars 2, Mars 3, Beagle 2 were lost by different reasons. Mars 2 failed landing. Mars 3 was lost when the lander stopped communicating for about 20 seconds after landing. Contact with Beagle 2 was lost six days before its entry into the Mars' atmosphere.

Sojourner rover (1996 — 1997) was Mars Pathfinder's robotic miniature Mars rover, and explored Mars for around three months. It was designed for a 7 Sol mission with possible extension to 30 sols. It was active for 83 sols, until the base station had its last communication with Earth. (A Sol or Martian solar day is 24 hours 39 minutes, and 35 seconds.)

Opportunity (2004 — nowadays) is a robotic rover on the planet Mars, it has been active since 2004. On 19May, 2010 it reached 2244 sols of operation, making it the longest Mars surface mission in history.

The Curiosity (2011 — nowadays) rover is a car-sized robotic rover explorer. The main scientific goals of this mission are: to explore Mars; to find proofs of Life on the planet (in the past or present); to determine the geological history of the Red Planet; to look for traces of past life-friendly conditions; to determine the levels of different radiations on the surface.

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