

Example of mars science laboratory research paper

[Environment](#)



MARS SCIENCE LABORATORY

The “ Mars Science Laboratory”, or MSL, is a component of ‘ Mars Exploration Program’ of NASA. It is a lasting undertaking that involves computerized exploration of the planet Mars whose launching was carried out on the 6th day of November, 2011 (Mars Science Laboratory, 2012, para 1). MSL or curiosity rover will carry out the assessment of whether the planet Mars has at any point in the past has been able to sustain microbial life before or still provides an environment that supports this life (Mars Science Laboratory, 2012, para 1). This is a mission that is intended to find out ‘ habitability’ of Mars as a planet. The rover is expected to land on Mars in early August 2012 (Wall, 2011).

The MSL will take with it the largest and highly developed set of tools for carrying out scientific studies that have ever been taken to the Mar’s surface (Mars Science Laboratory, 2012). It will carry out the analysis of a number of samples dug from the rocks and soil. The geology and climate record of this planet (Mars) can be traced in the soil as well as in the rocks (Mars Science Laboratory, 2012); basically in their formation as well as their chemical components and arrangement. The involved laboratory of the rover will examine the geological setting, rocks as well as soil with an intention of identifying life’s building blocks on the planet Mars and will evaluate how the environment here looked like in the earlier periods (Mars Science Laboratory, 2012).

The success of this rover will be dependent on the fresh innovations, and mostly in regard to landing. It is pointed out that the rocket will come down on a parachute and it will in turn, in the course of the final moments just

before landing, bring down the vertical rover on a tether to the ground, in the same way as a sky crane (Mars Science Laboratory, 2012). The moment it will reach the surface, it will be in a position to move over obstructions up to the height of 75 cm and will move at a speed of a maximum of 90 m/hr (Mars Science Laboratory, 2012). It is pointed out that the rover will move with a 'radioisotope power system' which is capable of ensuring generation of electricity and this generation will be realized through the radioactive decaying of plutonium (Mars Science Laboratory, 2012). Such power source provides the mission with an operating duration on the surface of Mars of at least 687 days (earth days) which is an equivalent of one Martian year and at the same time offering remarkably higher mobility as well as improved science payload ability, and exploration of a greater variety of heights and latitudes more than it was achievable on earlier missions to the planet (Mars Science Laboratory, 2012, para 4).

Several improvements have been carried out on the MSL as compared to the rovers that were sent earlier on to Mars. Those that had been sent in the past were Spirit and Opportunity rovers. MSL or curiosity rover weighs one tone; which is about five times heavier than Spirit and Opportunity. These rovers touched the surface of Mars in 2004 with a mission of finding out whether there were any indications of water activity in the past (Wall, 2011). As on one hand the former rovers (Opportunity and Spirit) took with them five science tools, MSL carries ten and among these, there are equipment set up in such a way that they can make out organic compounds which are life's chemical building blocks (Wall, 2011). Among the instruments carried by this new rover, there are those that are located at its " five-jointed-seven-foot-

long robotic arm's" end that is almost half the weight of either opportunity or Spirit (Wall, 2011, para 15). The arm as well uses five-centimeter drill which makes it possible for this rover to collect samples from the inner sections of the Martian rocks and no rover sent to Mars earlier on has been in a position to carry out this, according to what researchers point out (Wall, 2011).

References

Mars Science Laboratory, (2012). Mission Overview. NASA. Retrieved from, <http://mars.jpl.nasa.gov/msl/mission/overview/>

Wall, M. (2011). NASA launches \$2. 5 billion rover to Red Planet. Msnbc. com. Retrieved from, http://www.msnbc.msn.com/id/45444246/ns/technology_and_science-space/t/nasa-launches-billion-rover-red-planet/