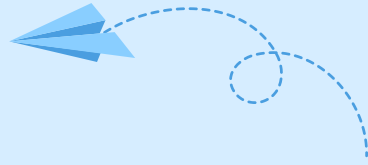




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# History of Mars Exploration

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# | HISTORY OF MARS EXPLORATION

The famous NASA Mars Exploration Rover Mission involves two rovers, which are out to explore the planet Mars. They include spirit and opportunity rovers, which commenced in 2003. This exploration had a significant objective of elucidating on the existing rocks and soils on Mars and their influence on the ancient activity of water on the planet (David, 2010).

Curiosity stands out as the main initiative allowing humanity to venture into Mars' study more extensively than all other planets. Many visits from spacecrafts prove that the planet Mars was a warm and wet place, perhaps even with water in liquid form and life. Getting to Mars was not successful on the first attempt. It required patience, determination, and dedication. It is evident as the USSR is known to have initiated several attempts on Mars exploration that failed in 1960. It included the Sputnik 24, a famous Lander that did not manage to leave the Earth's orbit. Mariner 3, by the U.S., in 1964, also failed (Stim, 2012).

Earthlings' first ever successful landing on planet Mars came about in 1971. It was by the Soviet Union's Mars 3 Lander. However, it did not go further than sending only twenty seconds of the captured video data over to the orbiter. NASA went on to claim success that same year: the famous Mariner 9, a U.S. spacecraft, orbited the Mars. Its images were of high resolution and brought about the discovery of rivers on Mars. It elicited increased hopes for NASA's mission in Viking, which was launched in early 1975. It included two principal Landers well equipped to search for extremely tiny organisms. The orbiters were mainly to map planet's surface, while the famous Landers were to monitor the apparent weather



and send back captured color panoramic views. This achievement was echoed by Scott Hubbard. He was the head of the Mars program for NASA at that moment. He said: "It was extraordinary engineering achievement. A huge amount of science came out."

It was followed by two consecutive unsuccessful decades of inactivity. It did not send any spacecraft to planet Mars until the year 1993. The first one was the Mars Observer, which failed but the Mars Global Surveyor, in 1996, succeeded. The break in exploration was due to the existing tight budgets and economic downfall at that moment. The Challenger disaster that happened in 1986 was also another setback for NASA.

Massive developments were realized with the evolution of a meteorite believed to have emanated from Mars. It was found in the Allan Hills, in 1984, in the Antarctica. Research is still being conducted to discover where it came from, but it elicited further curiosity in exploration of planet Mars. There was a need to get additional samples and images from Mars to allow further analysis of the meteorite. Scientists were ready to work on this only if the explores could provide them with extra information to base their findings. Hubbard, who was mandated to plan for the next exploration decade, said: "Without the Mars rock, we might not have Curiosity today." At NASA, his main goals included the clear understanding and illustration of Mars as a comprehensive system. He was also to make sure that potential habitable environments in Mars were identified and eventually bringing the data collected back to Earth for analysis. In line to this, he said: "The sequence of Landers was strategically planned to have ever-increasing capability to go forward and do more" (David, 2010).

Other nations started participating in the exploration. It included Japan

which, in 1998 invented the Nozomi orbiter. However, it did not communicate as expected. NASA came up with Odyssey mission that would relay communications and help other following missions to experience success in their endeavors. Europe did not sit back as it invented the famous Mars Express Orbiter in 2003 and also the renowned Beagle 2 Lander. The former orbiter still operates up to today, but the latter was never successful as it failed to communicate from the surface. In 2005, another orbiter, known as Mars Reconnaissance, was launched. It conducted several analyses on Mars that were essential to scientists in determining where Curiosity should ardently land. The orbiter, in 2008, discovered a new mineral, known as opaline silica. It was enough evidence that there were traces of water on planet Mars around two billion years ago.

There is a hope for the launch of another orbiter, next year, by the name MAVEN. The necessary instruments to propel it are already built. Its target is to measure the existing interaction between the solar wind and the current atmosphere. Putting the models of history of the sun into practice, scientists and explorers may estimate the quantity of water lost by Mars. Zurek, the head of the MAVEN invention and exploration, said: "MAVEN is the next mission. We don't want it to be the last mission in Mars exploration for a similar period, like in the '80s where there were no Mars missions and everything was sort of on hold" (David, 2010). Meanwhile, European continent has plans underway to launch an orbiter, in 2016, referred to as the ExoMars. It will base on Russian inventions and instruments.

The next step that will follow these inventions and plans remains unclear. However, NASA officials are always hopeful that the existing dire

budgetary situation will not last too long to affect their targets. With support from the Congress, who signaled the possibility of investing into planetary science, further exploration is possible.

