

IAF SPACE EXPLORATION SYMPOSIUM (A3)
Mars Exploration – missions current and future (3A)

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STATUS OF CHINA'S FIRST MARS EXPLORATION MISSION

Abstract

The China's first Mars exploration mission planned for implementation around 2020 is progressing well. The first of Mars exploration mission in China will achieve the three goals of "orbiting, landing, and cruising" within one flight. It is not only to implement global remote sensing around Mars, but also to break through key technologies such as Mars' entry, landing, cruising, and long-distance communication, measurement and control.

The Mars probe includes orbiter, lander and rover. The Mars orbiter, after it is separated from the lander and rover, enters mission orbit to carry out global remote sensing for Mars. At the same time, relay communication is performed for the lander and rover. The lander and rover combination is separated with orbiter and enter the atmosphere of Mars, passing through the aerodynamic deceleration, parachute deceleration and retro-propelled engine deceleration, and finally landing on the surface of Mars. The Mars Rover leave the landing platform, begin the Mars surface inspection, to detect the morphology of Mars, soil, environment, atmosphere, to study the water ice distribution on Mars, physics, and internal structure and so on.

China's first Mars exploration probe will carry a total of 13 kinds of payloads, 7 kinds for orbiter, 6 types for rover, including space environment detection, Mars surface detection, Mars surface structure detection and other fields.

In this paper, the main configuration and mission profile are discussed. The status of the mission development is also introduced.