

“Yinghuo-1”-- Martian Space Environment Exploration Orbiter

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Abstract

This paper briefly introduces the first Chinese Mars orbiter, Yinghuo-1, which is a micro-satellite with total mass of 115 kg, 3-axis stabilized, deployable solar panel, X-band TT&C. YH-1 is equipped with Plasma Package, measuring plasma electron and ion energy spectrum, angular distribution, and ion mass identification; Sat-sat occultation receiver, for subsolar and mid-night ionospheric electron density profile observation; Flux-gate magnetometer for Martian space environmental magnetic field detection; and optical imager, to take middle resolution images of Mars and sandstorms. The main scientific objectives of YH-1 are to observe the space environment variations and dynamic processes controlling the ion escaping around Mars. YH-1 would be launched with Russian spacecraft “Phobos-Grunt” in October, 2009, to Mars, and forms two-point measurement configuration in Mars’ orbit.