

# Planet-B on mission to Mars

Despite Japan's worst fiscal crisis since the war, the \$100m *Planet-B* probe will launch on July 4 in a mission to study the Martian atmosphere and its depletion by solar wind. This should shed new light on the theory of life on the red planet – and enable a better understanding of climate change on Earth

M-5 launcher

**Largest solid propellant rocket built in Japan**



Stage 3  
M-34 motor

Stage 2  
M-24 motor

Stage 1  
M-14 motor

Length 31.2m  
Mass 128.4 tonnes  
(112.9 tonnes solid propellant)

Solar wind

Dish antenna  
Telecoms

*Planet-B* probe  
Mission length  
two years (one  
Martian year)

Solar panels

Thermal  
Plasma  
Analyser  
*Ion mass analysis*

Neutral Mass  
Spectrometer  
*Composition of  
upper atmosphere*

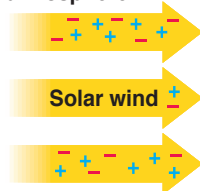
Propulsion unit

## Solar wind – effects on the atmosphere

Charged particles (ions)  
emitted from Sun's  
atmosphere

Mars

Thin atmosphere – less than  
1% of Earth's – mainly CO<sub>2</sub>  
with some water vapour



Wind penetrates Mars' weak magnetic field

Wind depletes oxygen levels

Atmosphere further  
dissipated by wind

Atmospheric  
temperature falls

**Oxygen in the atmosphere**  
Mars – 0.1%  
Earth – 21%



*Planet-B* aims to reveal how much levels have changed, and whether there was ever sufficient oxygen – and therefore water – to sustain life

Source: ISAS

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