

Phoenix Lander digs for life in Martian Arctic

North Pole

NASA's *Mars Phoenix Lander* is designed to search for organic molecules in the ice-rich soil of the Martian Arctic to confirm whether life does, or possibly could, exist on the red planet

Landing site: *Vastitas Borealis*, northern Arctic plains where large amounts of subsurface water-ice were discovered by *Mars Odyssey Orbiter* in 2002

Entry: Phoenix – protected by heat shield – hits Martian atmosphere at 5.7km per second after being jettisoned from orbiter

Surface stereoscopic imager: Provides high-resolution images for geological survey of digging area

Meteorological station: Records daily weather conditions

Descent: Parachute deploys about 13km above surface. As speed decreases to about 55m per second, lander separates from shell and parachute

Landing: Thrusters provide self-powered landing

Solar arrays: Unfurl like Chinese fans after touchdown

Robotic arm: Digs through soil layer to water-ice below, taking samples for onboard investigation

Robotic arm camera: Provides close-up, full-colour images of samples and surrounding area

Microscopy, electrochemistry, and conductivity analyzer: Determines origin and mineralogy of samples

Thermal and evolved gas analyzer: Uses heat to check chemical character of soil and ice

Recent studies show that micro-organisms can survive in dormant state at temperatures as low as -20C for very long periods of time

Length: 2.5m

Source: NASA © GRAPHIC NEWS

