

Doomed Russian spacecraft to hit Earth

Russia's failed *Phobos-Grunt* Mars probe is expected to re-enter Earth's atmosphere and burn up on January 15. Scientists predict that about 20 to 30 fragments with a total weight of less than 200kg might survive the fiery descent, but exactly where they will fall is still unknown

PHOBOS-GRUNT

Total weight:
13.5 tonnes

Phobos landing module

Support frame

Solar panels

► **Mission:** To return soil samples from Martian moon *Phobos* to Earth. After launch on Nov 9, probe became stuck in Earth's orbit and all attempts to communicate with it failed

Sample return capsule
Cone-shaped object protected by heatshield, component most likely to survive re-entry

Yinghuo-1: Hitching ride on *Phobos-Grunt*, intended to be China's first probe to visit Mars

Propulsion module and fuel tanks: Contain 11 tonnes of highly toxic propellant. Likely to vaporize on re-entry unless fuel has frozen

Radioactive material: Small amount of cobalt-57



Typical ground track of *Phobos-Grunt*: As Earth rotates, all areas between latitudes 51.4 degrees north and 51.4 degrees south pass under spacecraft orbit

LARGEST UNCONTROLLED RE-ENTRIES FROM SPACE

Crash site

1	Columbia space shuttle	2003	100 tonnes	Texas, U.S.
2	Skylab	1979	85 tonnes	Australia
3	Salyut 7-Kosmos 1686	1991	44 tonnes	Argentina
4	Pegasus 2	1979	11 tonnes	Atlantic Ocean
5	UARS	2011	6 tonnes	Pacific Ocean