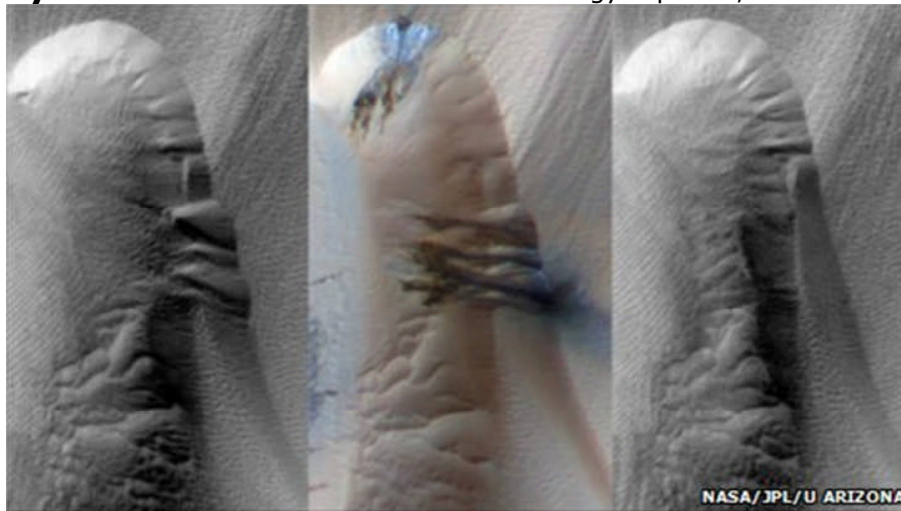


4 February 2011 Last updated at 13:04 ET

Mars sand dunes shift and change annually, images show

By **Jason Palmer** Science and technology reporter, BBC News



Images taken during a Martian summer, spring, and the following summer clearly show that the dunes are dynamic, changing places

Vast sand dunes near the northern pole of Mars are not frozen relics of a distant past, but shift and change every Martian year, data have shown.

A hi-tech camera aboard Nasa's Mars Reconnaissance Orbiter has spotted UK-sized dune fields that are among the most dynamic on the Red Planet.

Causes, [says a report in Science](#), include carbon dioxide gas that freezes solid onto the dunes each winter.

As it thaws in spring, the gas released destabilises, causing sand avalanches.

The dune fields at high northern latitudes of Mars were first spotted by the Mariner 9 mission, launched in 1971. But only with the benefit of the High-Resolution

Imaging Science Experiment (Hirise) orbiting Mars has the dynamic nature of the dunes finally been revealed.

"Hirise has been monitoring seasonal processes for several years now and we've seen for a long time these strange spots and streaks that form, particularly on the sand dunes when they're defrosting," said Alfred McEwen, a planetary geologist at the University of Arizona who led the Hirise team.

A series of images taken of the dune fields over two Martian years - nearly four years on Earth - after the departure of the annual ice clearly show a changing picture of the Martian surface.

"What we've noticed more recently though is in looking at these sand dunes from year to year there are new gullies, new channels that form on the dunes, and we're seeing gullies only a year-old that have been repaired again - so there's a lot of activity we weren't aware of," Professor McEwen told BBC News.

"There's lots of debate about whether features we see on Mars could be produced in the current Mars climate or whether they require different conditions.

"What [these findings] lead to is understanding where and when sand is moving, what that implies for both the weather and surface properties on Mars, and tweaking and calibrating various models that can be used to understand Mars in the past as well as today."