



## The dilemma

# Humans on Mars: Yes or No?

## The stories

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## Two weeks on Mars!

Science report by **Ian Eddy**

MOST people wouldn't volunteer to spend two weeks in the desert, sleeping in a metre-wide bedroom and eating dried food. But most people aren't scientists carrying out research into what it'd be like to live on Mars!

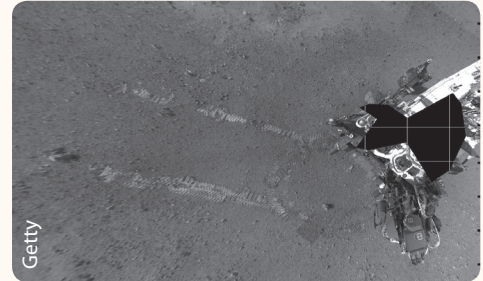
In December 2011, Ashley Dale was one of six scientists who volunteered to take part in experiments at the Mars Desert Research Station in America's Utah desert. Each year, around ten crews visit the station to carry out studies into how astronauts could live and work on Mars. The rocky surroundings are quite similar to the conditions on the red planet, and the Mars Society has another station in the Arctic, as well as three more under construction in Hawaii, Iceland and Australia.

In *Physics World*, Dale writes about

his home during the stay: a two-storey circular building with six tiny 1x3m bedrooms on the top floor. There is also a communal area with lots of books and other entertainment, so that the volunteers don't get bored in their spare time.

To mimic a real mission to Mars, any time a message was sent to mission control, there was a 40-minute delay before any reply.

Tasks that had to be carried out by the scientists included testing how space suits restrict them from working; completing surveys about their meals and mental state; and maintaining the quad bikes that were used to get around the desert. The crew also encountered their first 'Martian' – a tiny mouse!

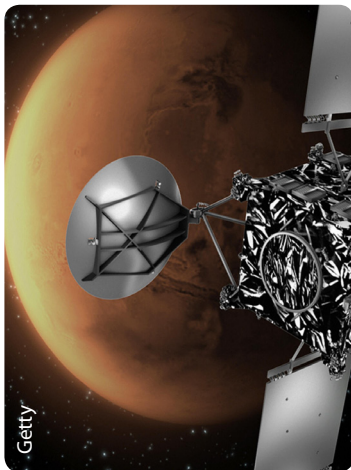


## Mars rover to examine sand

News report by **Callum Jones**

AFTER discovering last month that water might have flowed on Mars a long time ago, the unmanned *Curiosity* rover is now taking a look at the planet's sand. This week, three loads of sand grains have been examined. Scientists aren't expecting the sand from Mars to be much different from sand on Earth. Since it first touched down on the planet in August, *Curiosity* has travelled a third of a mile. The aim for the rover's mission is to find out as much about Mars as possible, by taking pictures and samples of what it finds.

## The background



Over the past few years, top astronauts and space experts have been preparing for a human trip to Mars. Lots of research has been carried out into the physical and mental challenges that people might meet on the planet. The climate of Mars, its distance from Earth and a lack of technological advancements mean that a human trip is currently impossible.

But mankind's history in

space shows how most hurdles can be overcome. From Neil Armstrong's first steps on the moon in 1969 to the building of the International Space Station which finished in 1998, humans have achieved a lot in space over the past fifty years.

Before we manage a trip to Mars, there is a lot of work to be done. Special life support machines must be developed for the first visitors to the

planet, and there is discussion over whether we could "terraform" the climate. This would mean changing the planet so that as many humans could live on it as possible without technological support.

As impressive as people walking on Mars would be, it can be quite a controversial topic. Whilst some see visiting planets as exploration and discovery, others see it as an invasion of privacy.

## The facts

- Mars is always more than **35 million** miles away from Earth.
- Due to its thin **atmosphere**, Mars is extremely cold. The atmosphere is made up nearly entirely of carbon dioxide and is not suitable for human breathing.
- Mars is nicknamed the '**Red Planet**' due to its reddish appearance caused by

- large quantities of iron oxide in its surface **sediments**.
- Mars has two **moons** - they are called 'Deimos' and 'Phobos'.
- If Mars' largest **canyon** was on Earth, it would stretch from one side of America to another!
- The planet's biggest **volcano**, Olympus Mons, is three times bigger than Mount

- Everest!
- No evidence of **life** has ever been found on Mars.
- Mars has no **water** in liquid form on its surface (so no rivers, oceans or lakes). Some evidence of water in the form of ice has been seen, and scientists have found evidence that rivers flowed on Mars a very long time ago.



## Humans on Mars: Yes or No?

### Preparation

Whilst scientists develop a range of tools to solve the physical and medical problems of travelling to Mars, extensive research has been carried out by astronauts on Earth. In 2010 and 2011, as part of the Mars 500 project, six volunteers endured 520 days in a spacecraft. Their adventure took place not in space but in Russia. During this time they had limited contact (text, email and Twitter) with the outside world, and were aiming to replicate a trip to Mars. This was the longest 'fake' space test ever conducted. The aim of the project was to investigate how humans would cope with the isolation of being away from Earth for such a long time. The astronauts kept themselves busy with experiments, learning Chinese and computer games. This study could not replicate weightlessness or the dangers of space radiation. Shorter trials are conducted regularly in places like the Utah deserts.

### Knowledge

Discovering new things and learning more about different worlds are the two reasons most often used (so far) to justify space exploration. The current *Curiosity* mission to Mars is designed to pick up as much information as possible about the planet. The challenges of these projects push humans to invent new technology that could be adapted for other uses.

### Reasons

### Insurance

Other people see Mars as an insurance opportunity. If Earth became unable to host the entire human population, another planet might provide a new home. Things like global warming and the quickly rising number of people living on Earth might one day make it hard for things to continue on this planet like they are right now.



Astronauts have been living on the International Space Station for six month stints for the last eleven years.

Getty

### Time and Money

Space travel is expensive. The US government has been known to spend up to £20 billion a year on NASA, its agency for space exploration. A manned mission to Mars would cost a huge amount - it has cost millions of pounds to merely develop the technology so far, and no official mission has even been announced yet! The amount of time the mission would take astronauts to complete is another hurdle. A return trip from Earth to Mars with work on the planet is expected to take almost two years!

### Opposition

### Cultural interest

Human beings seem to have a certain curiosity with our closest planet neighbour. The Scottish village of Glenelg is trying to twin itself with a location on Mars with the same name. The Glenelg area is where the *Curiosity* rover landed for its space mission in August. Humans have been interested in the Red Planet, Mars, for many years. Songs like *Life on Mars* and films like *Mission to Mars* have allowed people to creatively express their interest in the planet!

### Science and Ethics

If humans were to arrive on Mars, we would almost certainly bring a number of bacteria from Earth with us. Infecting a planet with new diseases and illnesses which weren't there before is an idea which not everyone is comfortable with. On top of this, claiming an entire planet to ourselves seems selfish to some people.

### The words

**Climate:** the weather conditions of an area in a specific time.

**Insurance:** a form of replacement for a damaged or lost item.

**Martian:** the (potentially fictitious) people of Mars!

**NASA:** (short for "National Aeronautics and Space Administration") the American government's space agency.

**Terraform:** the changing of a planet, to make it usable by humans.

**Space Radiation:** cosmic and solar radiation that has the potential to cause serious health problems for humans travelling in space.

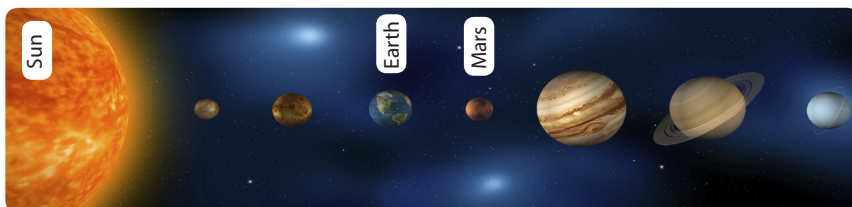
### The numbers

Last year, the American government gave NASA **£17.8 billion** to work on space advancements.

**803 days** is the longest anyone has spent in space. The record is held by Russian astronaut Sergei Krikalev, who spent over two years working at the International Space Station.

**254 days** is how long it took *Curiosity* to get to Mars.

The temperature on Mars ranges from **-125 Degrees Celsius** in the winter to **25 Degrees Celsius** in the summer!



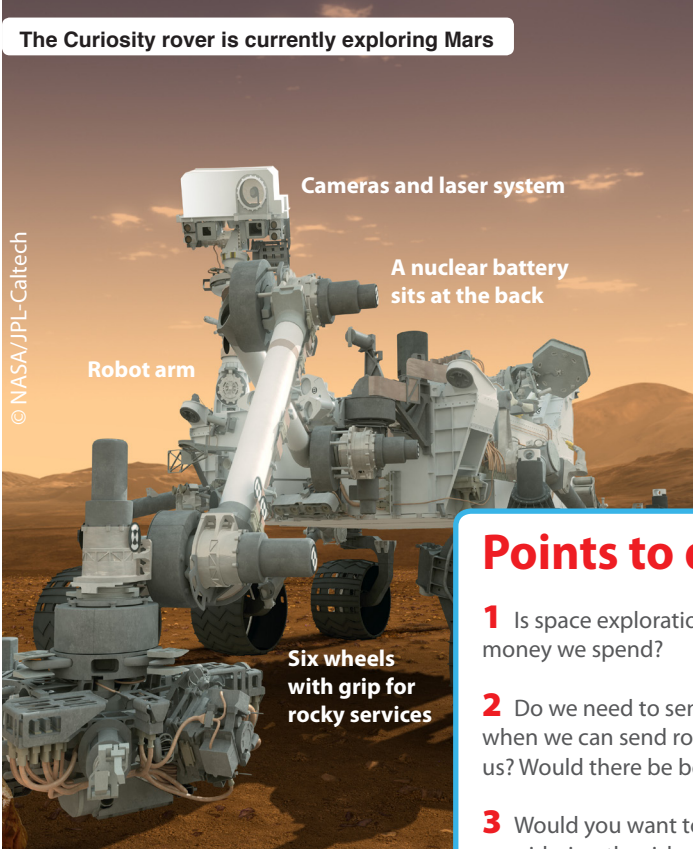


# FirstNews The Weekly Debate 12 - 18 OCT 2012

News Views: The Weekly Debate by Callum Jones, Political Reporter, First News

## The dilemma

## Do you think we should send humans to Mars?



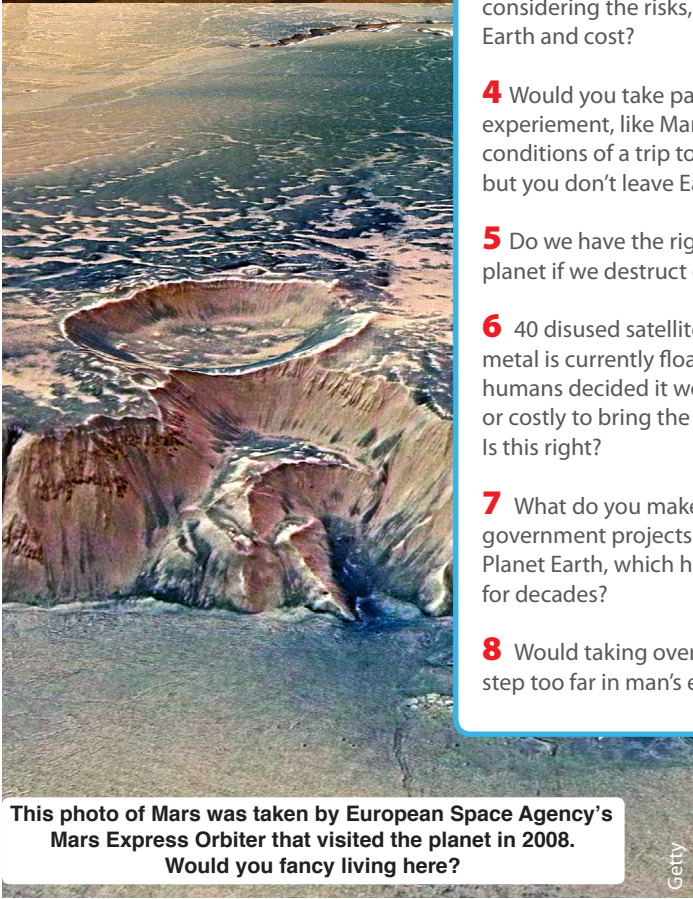
© NASA/JPL-Caltech

The Curiosity rover is currently exploring Mars



Humans have achieved a lot in space in person!

Getty



This photo of Mars was taken by European Space Agency's Mars Express Orbiter that visited the planet in 2008. Would you fancy living here?

Getty

### Points to discuss

- 1** Is space exploration worth all the money we spend?
- 2** Do we need to send humans to Mars when we can send robots to explore it for us? Would there be benefits?
- 3** Would you want to travel to Mars, considering the risks, times away from Earth and cost?
- 4** Would you take part in an isolation experiment, like Mars 500, where the conditions of a trip to Mars are simulated but you don't leave Earth?
- 5** Do we have the right to develop another planet if we destruct our own?
- 6** 40 disused satellites and a lot of scrap metal is currently floating in space, after humans decided it would be too difficult or costly to bring the items back to Earth. Is this right?
- 7** What do you make of the top government projects to find life outside Planet Earth, which have taken place for decades?
- 8** Would taking over another planet be a step too far in man's exploration of space?

Extensive global warming might one day mean that humans can no longer live on Earth.

Getty





# Do you think we should send humans to Mars?

## News views

Reasons for supporting sending humans to Mars:

- 1.
- 2.
- 3.

Reasons to oppose sending humans to Mars:

- 1.
- 2.
- 3.

Finding out more about the following points would help me make an even, more informed, decision:

- 
- 

# Do you think we should send humans to Mars?

## The verdict

I would / would not vote to send humans to Mars. My reasons are as follows:

- 
- 
- 

Why not vote on this discussion and post your opinions on the *First News* website? [www.firstnews.co.uk/polls](http://www.firstnews.co.uk/polls)  
Interesting comments may be printed in the News Views column of the newspaper next week.