

FOI Release

Information released under the Freedom of Information Act

Title: Habitable Planet

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Information request

1. Who would get priority to leave Earth?
2. What makes a planet habitable?
3. How advanced would our technology have to be in order to travel to other galaxies?
4. Will we ever be able to adapt to the different environmental situations?
5. What kind of time range do we have before we have to leave Earth?

Information released

We have now completed a search of our paper and electronic records and although we do not hold this information, we have provided some answers to your questions below:

- 1) We need to look after our own planet as mass relocation is not possible.
 - 2) Travel to a habitable planet is extremely challenging and could only be achieved through a multi-national partnership to pool resources. The selection process for astronauts would be agreed in the initial partnership agreement. Future orbiting space telescopes such as the planned ESA Plato mission will search for nearby habitable planets in our galaxy. You can find more following this link:
<http://sci.esa.int/plato/>
 - 3) You may also wish to contact RAL Space as they may hold the information you are looking for <http://www.ralspace.stfc.ac.uk/RALSpace/Contacts/11008.aspx>
 - 4) Survivability depends on the specific life form for example, for humans, conditions similar to Earth. However life forms that are extremophiles as the name suggest can survive extreme pressures, temperatures, alkalinity, acidity etc. A web search will provide information on the wide range of extremophiles that we know about. There have been some experiments that have exposed different microbes to space and survived. Have a look at the Wikipedia article on EXPOSE
 - 5) There is no necessity to find a new planet, it is curiosity and humans desire to understand the universe. In fact our Sun, which is essential to sustaining life on Earth, will last for billions of years.
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The United Nations have set out rules concerning visiting other bodies that may sustain life. These are set out in the outer space treaty (Wikipedia – article on Planetary Protection or <http://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html>).

Basically if there is a possibility of finding life then the spacecraft/probe has to be extremely clean so that there is no chance of contaminating the life on a planet. The level of cleanliness set depends on the likelihood of life. Missions to Mars have very strict procedures and landers have to be sterilised by baking them at 100C for an extended period. If life was found, the United Nations would have to decide whether there should be contact because of the danger of harming that eco system. Similarly they would govern the procedures for any return mission. As a minimum any spacecraft returning from a body that harbours living organism would have to be treated like the most hazardous biological material just in-case. The UK would abide by the UN ruling.

You may also wish to contact the Royal Astronomical Society as they may hold the information you are looking for <http://www.ras.org.uk/>
