

Mars

By tigers:

Introduction: In the solar System there are 8 planets in which we know Mars is the most similar to the conditions on the Earth that's why we think that Mars is a better place for us humans to live.

Mars is a planet with a smaller dimension than Earth, which is why it receives less insolation, and its surface is colder than Earth's. Its atmosphere is made up especially of carbon dioxide, nitrogen and oxygen in smaller quantities than Earth's, so its pressure is very low compared to Earth. Mars has an internal structure similar to that of its neighbor, since it also has a mantle core and crust. However, since its magnetic field is very weak, it is assumed that its core is in a solid state and the same it would be rich in iron, aluminum, potassium, magnesium and calcium.

Objectives: The goals of this project is to know Mars better, we will do it with research, experiments and a crew highly prepared for this mission that will help us describe all the unknowns that exist on Mars as well as its climate and what matters most to us is that there is life and if we could live there.

Place to land: our team choose the Jazero crater because is the preferred area of scientists, there is a lake almost as large as the island of Ibiza spread out, and where traces of microbial activity could be detected. Jazero is a character impact of about 35 kilometers in diameter located in the northern hemisphere of the red planet is estimated to have formed a few

4 billion years. Over time the crater was filled with volcanic debris and later. During the time when the planet harbored water 2 channels broke into a lake some 500 years later Jazero was turned into a dry lake bed whose accumulated sediments They will serve to study the geological evolution of the Red Planet for billions of years. We believe that it will not be very difficult to land there since it was done before with a robot that is currently analyzing the area and there is a lot of similarity to the volcanic rocks of the earth and water with many minerals has also been found, so we believe that it would be easy once that the completed studies know more about these one.

Tripulation: The crew that will conduct this adventure to Mars is made up of 6 people, all with different nationalities and with excellent preparation.

Our commander for this trip is Brigitte Pettite, a French girl who is excellent at communicating with her team, she is very good at leading, she has an excellent stress management and decision making, she had a hard training to be able to make the trip that's why she has excellent physical conditions, she has a master's degree in mathematics and physics, she understands experimental science perfectly and has many numerical and computer skills. She has a lot of commitment since all her life she has prepared to be an astronaut and she has also prepared a lot for this adventure in Mars

As a pilot we have Alexei Magomedov, a Russian with a lot of training, just like Brigitte he has a master's degree in mathematics and physics, he is an expert in mechanical and flight engineering, he knows experimental science very well and is very confident in himself what he is. Important since he will be in charge of ensuring that the ship can reach the beautiful red planet, Mars

The person in charge of communication will be Mattia Ricci, an Italian who will be in charge of reporting the status and location of the ship, he has a master's degree in mechanical engineering and computing, he is very skilled with numbers, experimental science and mathematics, he knows how to maintain very well calm and is very skillful with communication

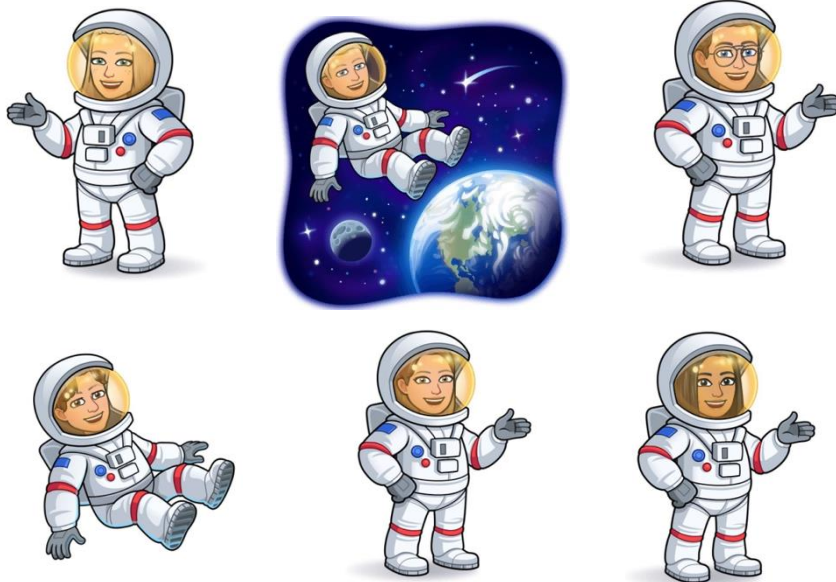
The person in charge of responding and reporting emergencies is Olivia Miller, an American who has a very good preparation, she does not have any master's degree but is very skilled with mathematics, computing, mechanical engineering, experimental science and is very passionate about physics.

The person in charge of keeping the ship's log updated is Oriol Escotet, a Spaniard who specializes in mechanical engineering, but is very skilled in mathematics and computing. And our last crew member is Maria del Rosario Domingues, a Mexican who will be in charge of the maintenance and repairs of the ship. She specialized in Mechanical and flight engineering, has knowledge of computers, mathematics, experimental science, physics and knows the ship like the palm of her hand. From his hand

All our crew members had a 4-year preparation for this mission and many tests have been done to make sure that everything will go well and that they are ready to go to the red planet, but we trust them one hundred percent since they have an excellent preparation and are very skilled for everything that requires going to space

The crew members will remain in constant communication with our technical team that will stay on earth. They will help them monitor everything they find on the red planet, and will even help them if an accident happens.

We know that having physical and mental health is very important since they need to be healthy to be able to complete the mission without any complications. That is why, as part of the training, the crew members receive psychological therapy that includes self-confidence and problem-solving training, among other things. That on the trip they experience a lot of pressure and need to be psychologically very well to be able to solve the problems that may arise on the ship in the best way.



Trajectory:The date on which our mission will begin will be September 6 of this year and thanks to the alignment of planets that occurred it will be much easier to reach Mars without complications, the trip will take approximately five to eight months and we still do not have the exact date of return since everything depends on how the mission on Mars develops. Our team of astronauts will stay on Mars for approximately 180 days so that they can carry out all the necessary tests and experiments to get to know the red planet better but not overwhelm them with such a long trip, so we consider that it is the right time.

We will use the Hohmann transfer orbit where we will assume that the influence of the planets on the movement of the spacecraft on its way from Earth to Mars is negligible.

The ship will describe an elliptical orbit one of whose foci is on the Sun, its perihelion will be the radius of the Earth $r_1=1.49 \cdot 10^{11}$ m and its aphelion the radius of Mars $r_2=2.28 \cdot 10^{11}$ m.

Finally we have approximately ten to fifteen months to complete our entire mission including the trip, the stay and the return to earth.

Propulsion: For the propulsion we will choose the electric propulsion since it is the most efficient for us in this mission because the planet has many chemical components and this will ensure that the fuel will last us all the way we can count on carbon dioxide, nitrogen, argon, oxygen and carbon monoxide and having so many chemical components makes it easier for us to obtain fuel, our crew members will have the necessary fuel to go and return without any problem but if there is a problem they are prepared to create their own propulsion using a reactor to generate electricity that charges propellant gases such as xenon or krypton, accelerating ions through a propellant that propels the spacecraft.” We are sure that our crew members will be able to get the fuel since they are prepared to create it and as we mentioned there are many chemical components to be able to create it without any problem.

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Experiments: Our experiment will be based on climatology. This experiment will consist of testing in each type of climate that our crew encounters on the Mars mission. What we expect from this experiment is to better understand the conditions on Mars to find out all the possibilities of climates. And what we would face if we were there.

According to studies carried out previously by robots sent to Mars say that daytime highs, at the equator and in summer, can reach 20°C or more, while nighttime lows can easily

reach -80 °C. But there are no studies of the coldest temperatures, if there is a possibility of rain or a possibility of snowfall, that is why we decided to do these experiments to better understand the types of weather we would face and if we could survive the type of climates that exist on mars

With this experiment, our crew promises to inform us about all the existing climates on Mars and thus try to get to know the red planet as well as possible.

For this experiment we will use the technique of analytical climatology based on the statistical analysis of the climatic characteristics that are considered most significant. It basically involves establishing the mean values of the atmospheric elements and establishing the probability that certain extreme values will be reached.

Of course, this experiment has its risk, like everything we do in this mission, our crew will face completely different climates than they are used to, so they could suffer illnesses, difficulties and even death, but with the preparation of our crew, we trust that everything will turn out as expected.

From this experiment we hope to be able to know all the climates that exist on Mars in order to know it 100 percent since we believe that the climate is one of the most important factors to know on Mars since that is one of the most important points that could prevent us from go to mars and even be able to live on it