

## Ellen Stofan

We have been looking at the starry sky every night since the first human had walked on Earth. Great monarchs, explorers, peasants or scientists had stared at the same night sky that you have been looking up to today. What could have they seen in it? What could have crossed their minds when they saw the millions of stars shining like gems on the dark blue blanket of the sky?

When I look up at the sky, I am always looking for shooting stars. And as looking for those lucky charms appearing, I always realize how small I am compared to our universe. There could be thousands or millions of other solar systems in the world, which are so far from us that not even my thoughts would reach them. As other stars, or more scientifically called meteors, appear I think of how lucky we are to have this beautiful planet for us. Earth. The place where humans, animals and plants can live in harmony. The one and only place where all the necessary components for life can be found. But is it really the only place? Could there be other forms of lives in the infinitely big universe? Is life unique? And are we alone?

Ellen Stofan is an astrobiologist. She is a woman, who is a pioneer in planetary geology and deals with question of life beyond Earth. She actually believes that we will be able to find the signs of life within 10-20 years, as we have the specific instruments and we know where to look. Many people laugh at her and her unrealistic optimism. But they should not. Ellen Stofan was able to make her own crazy idea become real. She dared to bring change to the world, no matter how hard it was. She pushed her limits, did something hard, failed many times and learnt from the failure rather than letting it stop live her dream. And that's exactly what makes us move forward. People, who are crazy enough to dare to make their dreams come true and do not give up on their way.

Ellen Stofan was born in the time when humanity could boast with 9 planets in our solar system. It was the decade when NASA was able to put the first man on the Moon. She was born in a family who was fond of sciences. Her Mom worked as a science teacher, while her Father was a NASA rocket engineer. She was only 4 years old when she saw her first rocket launch. Actually, the rocket blew up on the launch pad-but this memory became a reminder for her to believe in herself and not to be afraid of failure.

As a little girl, Ellen had dreamt of becoming an archaeologist to study human origins in Africa. Later she found her passion in geology, because as she said what can be more fascinating than the study of how the landscape around us was formed. Years later, she became inspired by the astrobiologist, astronomer, astrophysicist and cosmologist Carl Sagan's presentation. She realized that those things she loves, geology and archaeology, can be combined into one field. She knew immediately, that astrobiology was invented for her.

She got her degree in planetary geology and went to work for NASA in 1989. She was relatively young, she was a woman, she was surrounded by men and people knew that her Father worked for NASA. They

had expectations and Ellen felt that she had to work twice as hard to be taken half as seriously. And so she did.

At NASA she had the chance to study different planets. She became a pioneer in studying Venus, Mars, Saturn's moon, Titan and Earth. Titan is a moon, over 144 million km away from Earth with a dense atmosphere. It rains and there are oceans on the surface of this little moon of Saturn. She proposed to send a high-tech sailboat to explore Titan.

Despite the proposal got rejected, Ellen was appointed as a chief scientist at NASA in 2013. She was also bestowed by the highest honours the US government can give. For her outstanding work she got the Presidential Early Career Award for Scientists and Engineers, in the early stage of her independent career.

As a chief scientist she focused on identifying potentially inhabited planets around other stars and on the problem of how a man can be put on Mars. There are several problems with it, such as the technological challenge of not burning in the atmosphere of Mars while landing or how people are feed once they could get there. Dr. Stofan resigned from NASA in 2016.

Ellen Stofan is a great example of scientific heroes. She is a proof that everything is possible, what you have just imagined. And if you believe that her road was actually not that hard, let me remind you that she has 3 children, she is a pioneer scientist at NASA, her field is really complex and difficult and she gets a lot of critics from 21st century people.

If you think that astrobiology is unnecessary, let me tell you that our planet is dying. We do not know how long the Earth will survive. Humans are slowly killing it. Trees, the lungs of Earth are cut out and animals are endangered because of human's greed. The planet is heating up rapidly and many people use dangerous gases to serve their comfort.

Every science has its own challenge. Let it be finding a solution for a problem or experimenting with newly found things. Its magic will only reveal for the most patience ones- those who believe in the wonders of our world and dare to change the world, no matter how small that change is. These change makers do not necessarily have to own great power, they do not necessarily have to be experts in one field, they just have to believe in themselves and that what they do is an amazing thing. They do need passion which will help them to navigate through the dangers of the world. And support, so they can see that what they are doing is really worth it.

Scientists are these kinds of people. They are heroes of our world. Their ambition can be an inspiration to everyday people and we can learn from their failures. They teach us not to give up, because maybe for the hundredth or the thousandth times it will work. Scientists may not always be referred to as heroes. But if we think about it, where would we be without them? Would the 21st century be the same without their dedication?

I believe that every person who set his or her mind can make a change. It does not matter if the person is young or old, male or female, scientist or not. We are the change makers of today's world. And it is our task to create a better world to live in.

If people would look up at the night sky every night, they would see the infinity. And "only in that darkness could they see the stars."

*Biography:*

*17 years old*

*I have always wanted to be a scientist. When I was little I was astonished by all the things around me. I loved the beautiful night sky and the planets. I was honestly amazed by different kind of experiments and adored the logic in Math. Last year I had the chance to represent my country in a summer STEM camp organized for high school girls from V4 countries. I met a lot of inspiring young ladies who are willing to change the future in this camp. Thanks to my teacher I discovered the beauty in Geography. I enjoy learning about how the land we are walking on was formed and relish the diversity of the subject. This year I competed in a Geography contest to represent my country in the International Geography Olympiad for students and ranked 14th in the Hungarian round. I know that STEM provides me a great variety of jobs that never gets me bored and always have new surprises. Learning STEM also means that you have a chance to learn other subjects because all sciences meet at one point, they are connected. You can invent, experiment, observe and learn. STEM is something that allows people to change the world and be active part of it. I believe that with teaching today's generations the future can become a more pleasant place for us to live. Unfortunately, as I am a girl I have to face with different types of stereotypes. Girls are said to be more emotional, whose rational thinking is not as developed as boy's. I would like to change this way of thinking and be a good example that girls can be anything, whatever they've just imagined.*

*Girls are active part of today's society and capable of a lot of things that most people haven't realized yet. I joined this program because involving them in a program like this would allow us to break out from these stereotypes. Because we were created equal and working on this globally would solve a lot of things, it would encourage girls. I also love in this program that they provide me a mentor.*

*Having a mentor, a woman, who has achieved something in one of these areas, provides girls a great role model. This is a great way to make new experiences and see if it's really something you would like to do.*

*Having an important person as a mentor also means that you can have the best counselling ever. Becoming part of this community and make friends with people from different types of cultures was also in my mind when I read about 1000Girls1000Futures .*