

## ARE SATELLITES A BOOM OR BOON FOR FUTURE SPACE ENTHUSIASTS?

Space has fascinated everyone from a very long time, whether it was the ancient Greeks or today's young generation looking up to the sky with utmost amazement. It's so vast, contemplated and unknown that it has intrigued man since the dawn of time. It is also one of the fields in which exploration never ends. From the very beginning, attempts were made to study and explore this mysterious place. Initially, there were a lot of setbacks, but with time and technology, we successfully launched various satellites into the space. Not only satellites, but people and even animals too! The launch of the first man-made satellite 'Sputnik 1' was indeed a flashpoint and a great achievement for mankind. From that day, there was no looking back. Today a growing number of satellites orbit around their assigned paths and help a lot to know about the space environment (including information about the extreme temperature, charged particles etc), the atmosphere (including the composition of air present, characteristics etc) and the planets along with their moons (their gravity, possibility of life etc). They have also provided information about the relief features present on the earth, given a boost to communication

skills (using special communication satellites), monitored various targets (like the moon and other space objects) and the list never ends. In fact, all the navigation facilities available are supported and complimented by satellites only. Also, scientists, governments and indigenous nations use satellite data to make the best possible decisions to meet the needs of communities in the north and diversify the local economy while simultaneously preserving biodiversity. But as it is said, there is always two sides to a coin. Satellite has its own benefits and drawbacks. On one hand satellites help us in a lot of ways (as mentioned above), but on the other hand, they have reflected various ill-effects. Some of them pose a grave danger to all forms of living. Satellites beam radio frequency radiation onto Earth which is a growing threat to human health and survival of life. We cannot see it, but studies have correlated it to the serious exposure to neurological diseases, reproductive disorders, immune dysfunction, cancer and electromagnetic hypersensitivity. Adding to this, it is also a threat to the ionosphere, magnetosphere and the ozone layer which are really important for the continuity of life on the earth. If the ionosphere and the magnetosphere get destabilized, high levels of cosmic and solar radiations can hit the earth. Even the important electrically

charged particles present in these layers can get destroyed. Also, when satellites wither away or get destroyed, they add up to the never-ending space debris. But these ill-effects can be reduced by reducing the number of satellites in the space.

Taking into consideration both its pros and cons as mentioned above, it can be concluded that it's both a boom and boon but it depends largely on how do we make use of it. But this is only about the present. The future pros and cons are yet to be considered.

It's been more than 50 years since Neil Armstrong took one small step for man and one giant leap for mankind. Since then, people got more and more interested in space. They found it amusing and started getting associated with it. Some made it their passion and decided to take it as a career choice while for others it became a part-time hobby.

Space enthusiasts have relentless curiosity about everything- from the milky way to the earth's atmosphere, from space debris to life on other planets and also from far-away stars to other forms of living in the space. It is important that this curiosity is reserved as it helps to drive the space exploration forward.

These space enthusiasts get associated differently, like

some maybe space historians or astronomy freaks while other maybe believers or space fashionista.

While the present space exploration has got new dimensions largely due to so much information given by satellites, I think that it will be the base and the most important for further exploration in the near future. Innovations form an integral part of exploration and the innovation of 100s of large satellites and more than 2000 micro satellites with improved technology will be able to give information about micro-essential things which could not be accessed until before. Future satellites will focus more on ocean data and will play a vital role as the world's mobility patterns could be changed from driver-operated to autonomous vehicles. It will also help to explore more unknown stars and planets and also new and mysterious facts about the currently known planets and stars too. Constellations could also be deeply studied and further discovered. Communication means on the earth will take a new phase as the radio waves will be much higher and will speed up the process.

There is no doubt that it will give new dimensions and possibility of touching every milestone, it will still have some ill-effects which unfortunately cannot be overlooked.

Though the larger number of satellites will only boost the exploration, it will also add up to the space junk which will be 10 times more than the present. Some space junk may collide with the 'in use' satellites and smash it apart in pieces. The large number of satellites will also cause space traffic which will be difficult to manage in the near future. There is also a possibility that the night sky will be filled with more satellites than actual stars! This will pose a huge difficulty to all the astronomers who make observations of the night sky. The astronomers also already fear that these satellites could meddle with future observations of the Universe.

Also, the future satellites will be more advanced, updated and its connective signals will be more powerful and so it will be more dangerous for the living beings on earth. Its radiation will be stronger and will harm the birds, animals and people as these waves will cause exposure to serious health problems and diseases. Layers of ionosphere, magnetosphere and ozone will be on the verge of destabilization and thus cosmic rays will start entering the earth.

For me it is definitely a boon for space exploration but at the same time it is not so appreciable for the people on earth.

Space will continue to be an inexhaustible source of never-ending opportunities for exploration but future space enthusiasts should take in account all the ill-effects because for them satellites are very important. Some people consider it a boon while some consider it as a boom, but what actually it will be, will be known with time.

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