

# THE FUTURE OF SPACE TOURISM: COST, ACCESSIBILITY, ECOLOGY?



Virgin Galactic and Blue Origin flights have shown that space is attainable, but is space tourism desirable?

July 11 will surely remain as day 0, the beginning. With his flight towards the highest strata of the atmosphere, Richard Branson opened the way for hundreds, even thousands of others, towards space tourism. The historic flight was confirmed nine days later by that of Jeff Bezos, one of his greatest competitors in the race for space and tourist flights. **Their two companies, Virgin Galactic and Blue Origin respectively, are both in search of profitability, and space tourism seems to be the ideal solution to their financial woes.**

But while the contours of what space tourism will be like are beginning to take shape, with 600 people have already booked a seat on a Virgin Galactic flight, several questions remain. One thing is certain, as of next year, space tourism will be a reality.

## Space Tourism: As Early As Tomorrow?

Virgin Galactic is two test flights away from launching its commercial program, and Blue Origin, which has just made its first convincing manned demonstration, should follow suit. With them at the forefront, the whole of New Space is getting ready to jump on the space tourism bandwagon, before it slips through their fingers.

For many companies, space tourism is the Holy Grail, the only viable solution to reach a financial balance. Today, New Space is a speculative bubble, investors are rushing to help young start-ups to develop, and the latter are living under financial perfusions, they continue to grow, without worrying about the bill. The problem in all this is that investors will eventually ask for a return on their investment. And today, the only solution found by the New Space companies, to pay back these billions, is space tourism.

## Scientific Space Tourism

But space tourism is not only about sending highly fortunate people to the farthest reaches of the atmosphere, it is also possible for the private companies offering these flights to conduct scientific experiments on board. As experts explain, all the scientific experiments conducted on Earth, conducted with gravity, never worked without this force, the fact that suborbital flights offer seconds, or even minutes, of weightlessness is, therefore, a blessing for private laboratories and major universities

This practice is not new - Virgin Galactic and Blue Origin already carried scientific experiments on test flights of their respective spacecraft - but it should become more widespread as space tourism expands. These suborbital flights are a real opportunity for scientists, who find in them a perfect in-between period between parabolic flights in "OG" planes, which offer moments of gravity of about 30

seconds, and much longer and complex missions that require either having one's own satellite in orbit or bringing the experiment to the ISS. Practices costing millions of dollars that are very rare today. Space tourism could thus make this way of studying science in space evolve.

There are many great believers in this new utility of space tourism. First of all, it could be a real marketing asset for companies like Blue Origin or Virgin Galactic. Having an impact on the evolution of tomorrow's science would give another meaning to corporate flights, which are currently seen by many as a mere "pastime for billionaires". But what could be very interesting with these flights is the huge window of experience they open.

### **What Is the Environmental Impact?**

If the scientific question could allow restoring the image of tourism for the ultra-rich, the environmental question risks unbalancing the balance of power. Indeed, going into space pollutes. If Virgin Galactic's flights are the most polluting today, since they are made using methane, Blue Origin's flights, until now propelled by the BE-3, a hydrogen-oxygen engine, cleaner than Virgin Galactic's prototype rocket plane (without being ecologically perfect for all that), the New Shepard rocket should also switch to methane with its new generation BE-4 engine. This highly toxic gas for the planet is a quasi obligation in the world of aerospace, as it offers much better results than hydrogen.

**The conquest of space is thus confronted with a new dilemma in a mode that wants to be more and more ecological.** NASA's SLS and SpaceX's Starship projects are as much good aerospace news as they are ecological disasters in the making. While space could become "a trillion-dollar economy by 2040," according to the young German start-up Isar Aerospace, it will have to deal with the ecological issue to survive. The solution may lie in nuclear reaction engines, the study of which is being funded by part of NASA's budget this year.

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