# debating the future of space tourism: balancing environmental costs with innovation



A recent debate has brought to light contrasting perspectives on the burgeoning space tourism industry, examining its environmental impact against its potential to foster innovation and economic growth in the space sector. The discussion follows closely on the heels of Blue Origin’s high-profile all-female spaceflight last week, an event that stirred considerable public scrutiny.

One side of the debate highlights the environmental costs, with critics pointing to the significant carbon emissions generated by space tourism activities. Notably, a 2022 World Inequality Report estimated that a single space flight emits more carbon than one billion individuals will throughout their lifetimes. This assessment took into account indirect emissions, estimating that an 11-minute suborbital trip produces at least 75 tonnes of carbon per passenger, and potentially as much as 250 to 1,000 tonnes. The argument emphasises the lasting impact this could have on Earth's delicate 'celestial crash helmet'—the atmosphere that protects all life. Andy Blackmore, picture editor at City AM and contributor to the debate, commented on this aspect, stating: “Space tourism is worse than all that combined... There is no planet B.”

On the other hand, proponents of space tourism, such as consultant Chris Bosquillon from SAY Space, argue that the sector offers substantial benefits that could outweigh its environmental footprint. Drawing parallels with early aviation, Bosquillon points out that the development of space tourism technologies—such as propulsion systems and reusable launch vehicles—is instrumental in driving down costs for scientific missions, which in turn advances wider space exploration efforts. He elaborated to City AM: “By reducing costs for scientific missions with access to orbit, and generating more cash flow for exploration, space tourism also supports societal advances.” Furthermore, he highlighted that investment in space tourism infrastructure fuels a growing global economy encompassing spaceports, vehicles, life support systems, and training programmes. Bosquillon also argues that space tourism can demystify space travel, fostering public engagement and inspiring increased advocacy for Earth’s protection.

The debate touches on the wider context of luxury travel and its environmental consequences, with Bosquillon noting the inconsistency of singling out space tourism while luxury industries like private jets, yachts, and cruises continue with far greater prevalence and negligible technological spin-offs.

In summarising the discourse, City AM delivers a measured verdict following Blue Origin’s recent flight, observing that while the industry has been met with scepticism, it may spur breakthroughs and innovation in the space sector. Yet, it also questions whether society can justify the environmental cost at this juncture, suggesting there might be a boundary at Earth’s atmosphere where environmental considerations should dictate limits.

The dialogue underscores a fundamental tension between immediate environmental responsibilities and the potential long-term benefits of space tourism. As the industry develops, these competing viewpoints contribute to a broader conversation about the role of cutting-edge technologies in shaping humanity’s future both on Earth and beyond.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

1. <https://www.verdict.co.uk/space-tourism-environmental-disaster/> - This article corroborates the claim from the 2022 World Inequality Report that an 11-minute suborbital space flight emits at least 75 tonnes of carbon per passenger, comparable to the lifetime emissions of one billion low-emission individuals, highlighting the significant carbon footprint of space tourism.
2. <https://carbonmarketwatch.org/2024/08/30/billionauts-space-tourism-and-mars-fantasies-need-to-be-pulled-back-to-earth/> - This source supports the environmental concerns related to soot emissions from spaceflights, explaining how increased rocket traffic would raise stratospheric temperatures, deplete ozone, and have a strong warming effect on the atmosphere.
3. <https://www.ucl.ac.uk/news/2022/jun/climate-damage-caused-growing-space-tourism-needs-urgent-mitigation> - This study led by UCL confirms that black carbon (soot) particles from rocket launches remain in the stratosphere and are nearly 500 times more effective at trapping heat than other soot sources, thereby significantly impacting climate and the ozone layer.
4. <https://insideclimatenews.org/news/29062022/space-tourism-climate/> - This report details how black carbon emissions from space tourism could contribute to 6 percent of global warming from black carbon and deplete the protective ozone layer, emphasizing the urgent need to regulate the rapidly growing space tourism industry.
5. <https://spacegeneration.org/space-tourism-a-closer-look-on-safety-sustainability> - This article presents the perspective that while space tourism does have a large relative carbon footprint per passenger, in absolute global terms its impact remains negligible, and it highlights the sector's potential to drive innovation and lower costs for broader space exploration activities.
6. <https://www.cityam.com/space-tourism-the-climate-debate/> - This source discusses the debate around space tourism's environmental impact and its role in fostering economic growth and technological innovation, echoing Chris Bosquillon's view on how space tourism infrastructure investment supports a growing global economy and public engagement with space.
7. <https://news.google.com/rss/articles/CBMirwFBVV95cUxNanZDMDBaTlczbS1KQ0hLRi12VzIyOFlLQWxINlNHWHpFQWlQd2U3RWstcW5md1Z1UmY3ekw0THpjQ2tnQjRscXBMTnF4XzBMeFM4MHI0VTR5dlFOMFZzZUdiVktQMTVreXpxZkxwVzNMVVJlcUdQWUJ0Sm91QTdUSnUzVWUtNDBtNW0ycS03bUlRVjN5OFlzdzRBQVpra3JDLXBLN29HRDZEaUxGUVpv0gG0AUFVX3lxTE5UY3ROM2FiUkU4NGJ6ai1Fd2xmTzdOVXB4Vm5WNHVmaGFBeERiR1M0NGljaUhwUkVZRm1UMVlFVXVEUFFDdkgxZ1pyRlNEeDFDSjRTZEFzSDUzOE1XZWEyZm1NZUFndkJaTThHc0RjNGVEWm51ek80cm1RYTdrZTY0YTdlNGJXUi1jTmRzREVQVVlCdmRIWXVpRnMyN3UzYUdsVVpLclNkRjJPZE9jNEVzZjVLMA?oc=5&hl=en-US&gl=US&ceid=US:en> - Please view link - unable to able to access data