

# The Future of Geography: How Power and Politics in Space Will Change Our World

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In 'The Future of Geography: How Power and Politics in Space Will Change Our World' Tim Marshall offers a futuristic perspective on the geopolitics of space for the coming five decades.

This perspective explores the competition between nations and private companies for control over power and access to the collective future of humanity. Renowned for his comprehensive style in earlier publications such as 'Prisoners of Geography' and 'The Power of Geography', Marshall provides valuable perspectives and commentary on the potential risks of astropolitics, skilfully guiding readers through the unknown territory of space.

The book is structured with a high level of effectiveness, starting by acknowledging the contributions of scientists and thinkers who have propelled humanity in space exploration. Marshall then evaluates the progress and ambitions of the three major superpowers – the USA, Russia and China. Finally, he explores the potential landscape of tomorrow's world, highlighting the race among private companies and entrepreneurs to leave their mark on history.

The book begins with a brief introduction (Marshall 2023, 12) that sets up a journey that exceeds the limits of earthly boundaries. Chapter one, titled 'Looking Up' (ibid.: 18) invites people to think about the deep ideas behind going into space. Recognising that 'space has shaped human life from our very beginning' (ibid.: 12), Marshall traces humanity's fascination with the stars, spanning from hunter-gatherer tribes to civilisations such as the Babylonians, Sumerians, Greeks, Romans and the Golden Age of Islam. He carefully follows the evolution of scientific exploration through the milestones set by figures like Copernicus, Giordano Bruno, Galileo Galilei, Newton and Einstein. Marshall emphasises the surprising accuracy of past knowledge in measuring the Earth and its celestial position.

Eratosthenes of Cyrene becomes a main point, with Marshall noting that over 2,000 years ago, Eratosthenes concluded, without today's advanced equipment, that 'Earth's circumference was between 40,250 and 45,900 kilometres. The actual circumference is now usually accepted as 40,096 kilometres' (ibid.: 24). Marshall discusses how the human drive to explore the cosmos has been a significant force, stating, 'Much of human endeavour has been driven by our desire to reach for the stars' (ibid.: 20). He emphasises that recent decades have brought humanity to the brink of exciting new discoveries, noting, 'and the desire to find out, to know more – and even to go there ourselves – has proved irresistible' (ibid.: 34).

Marshall cautions against carrying current political conflicts into space, urging that the mistakes of the past should not be repeated. He stresses that venturing into space is a venture for all of humanity and should not be monopolised by a single entity or a shaky coalition of organisations. Marshall warns of the potential for competition and conflict in the new arena of space if a unified approach is not adopted: 'If we cannot find a way to move forward as one unified planet, there is an inevitable outcome; competition and possibly conflict played out in the new arena of space' (ibid.: 16).

In chapter two, 'The Road to the Heavens' (ibid.: 35), this book tells us about Yuri Gagarin's amazing journey into space. It shows how beautiful our planet looks from far away and captures all of these eager adventures we take into outer space. Quoting the Russian scientist Tsiolkovsky, Marshall echoes the sentiment that 'Earth is the cradle of humanity, but one cannot stay in the cradle forever' (ibid.: 40). Marshall precisely explores the post-World War II decades when humanity took its initial steps into space, highlighting the role of conflict on Earth, particularly the Cold War arms race, in propelling space exploration. He acknowledges the historical 'firsts' achieved by the Russians, causing consternation among the Americans. Marshall notes Russia's precedence in reaching the Moon, even if it involved a 'hard landing'. He points out, 'Then, later in 1959, the Soviets had a hit, literally, when Luna 2 became the first spacecraft to reach the surface of the Moon' (ibid.: 45).

Reflecting on the Space Race of the 1960s, the author observes that the fervour waned after the successful Apollo 11 mission. He emphasises the global collaboration that enabled Neil Armstrong's iconic step on the Moon, acknowledging the contributions of notable figures throughout history: 'Armstrong is a colossal figure, but he knew he stood on the shoulders of giants such as Gagarin and Tsiolkovsky, Goddard, Oberth, Korolev, von Braun and, before them, the great scientists down the ages' (ibid.: 52).

In this chapter, Marshall expresses a somewhat nostalgic sentiment, suggesting that the late 1960s might have been a key moment that could have significantly fueled space exploration worldwide. While he acknowledges the reasons for the conclusion of the Space Race, attributing it to budget constraints and

political pressures, he also recognises the enduring fascination humanity has with the Moon. He states, 'It's estimated that about 110 billion humans have walked on the surface of Earth. Almost all of them will have gazed at the Moon in wonder' (ibid.: 57). With over 50 years having passed since humans last walked on the Moon, Marshall poses the question of whether it is now the opportune time to return. He notes, 'Apollo 17 was the last, leaving on 14 December 1972, and since then no one has been back' (ibid.: 56).

In the main part called 'Right Here, Right Now' (ibid.: 58–189), the author takes readers on a trip through astropolitics time. In chapter three, 'The Era of Astropolitics' (ibid.: 59), he changes perspectives from single countries to whole continents finally looking at all of Earth united together. Marshall intriguingly explores the motivations for countries and 'space superpowers' to revisit the Moon and sustain space activities. Drawing parallels between space geography and Earth geography, he emphasises that controlling access allows one to wield power. He states, 'If a space superpower could dominate the exit points from Earth and the routes out from the atmosphere, it could prevent other nations from engaging in space travel. And if it dominates low Earth orbit, it could command the satellite belt and use it to control the world' (ibid.: 76).

Low Earth Orbit, ranging from 160 km to 2000 km, holds significance due to satellite engagement, establishing it as a crucial location. Referring to it as a potential 'choke point', Marshall notes, 'Strategically, low Earth orbit is a potential 'choke point'' (ibid.: 67). The attractiveness of this orbital space is underscored by the fact that it accommodates the majority of satellites, as Marshall states, 'Low Earth orbit is an attractive piece of real estate because that's where most satellites operate' (ibid.: 65). Additionally, Marshall identifies the five Lagrange points in our system as another tactically important area, describing them as 'advantageous positions to place satellites' (ibid.: 70). He observes that the expansion of space activities has led to a crowded low Earth orbit, with more than eighty countries placing satellites in space.

Regarding lunar exploration, the author suggests that future visits may focus on polar exploration, driven by the motivation to mine resources, particularly helium-3. He points out, 'Many countries have the incentive to go after them [metal oxides], especially those that don't want to rely on China, which currently holds a third of the world's known reserves' (ibid.: 72). Marshall's book underscores the necessity of understanding geopolitics and 'astropolitics' in space as human expansion continues. He challenges the perception that space is merely a future endeavour, stating, 'Many of us still think of space as "out there" and "in the future". But it's here and now – the border into the great beyond is well within our reach' (ibid.: 61). However, Marshall raises concerns about a crucial gap in the enforcement of space activities, noting that existing 'laws' were written for a different time and are insufficient for the current technological and geopolitical landscape. He emphasises, 'The "laws" we currently have

for activity in space are little better than guidelines. Technology and changing geopolitical realities have overtaken them. With an increasing number of space-based platforms for military and civilian uses—space is becoming a congested twenty-first-century environment requiring twenty-first-century laws and agreements’ (ibid.: 77).

It’s essential to highlight that Marshall’s portrayal is not pessimistic. He consistently advocates for global cooperation as the crucial method and means to ensure positive progress in space exploration. As he emphasises, ‘The ISS is a symbol of what can be achieved in space through cooperation’ (ibid.: 64). Marshall expresses concern that without global cooperation, there is a risk of ‘fighting over the geography of space, just as we have done over the geography of Earth’ (ibid.: 78).

In chapter four, ‘Outlaws’ (ibid.: 79), it is shown how unimportant Earth politics can seem when seen from the Moon. The idea comes from what Apollo 14 astronaut Edgar Mitchell said about this topic. Chapters five, six and seven talk about China’s goals to explore space. They also discuss the return of America and Russia looking back at past events with special quotes that make you think. Marshall underscores the outdated nature of current ‘space laws’, asserting that they belong to a different era. He specifically mentions the ‘Outer Space Treaty (1967)’, ‘The Moon Agreement (1979)’ and ‘The Artemis Accords (2020)’, concluding that ‘Existing space laws are horribly out of date and too vague for current conditions’ (ibid.: 81). The legal frameworks and agreements currently in place rely on countries signing up to them, and some definitions are too loose and unclear to be effective.

The possibility of non-countries, represented by private enterprises like Musk’s SpaceX, competing for ‘space rights’ wasn’t envisaged when these laws were formulated. Marshall raises questions about the regulation of Musk’s space activities, emphasising the challenges of enforcing laws and agreements in the vastness of space. He notes, ‘Laws and agreements are difficult enough on Earth, where there are clear boundaries and borders, and established precedents. What’s more, in space, it’s not in the interests of the big powers to give up their advantage’ (ibid.: 81). To underscore this point, Marshall delves into hypothetical scenarios that require pre-emptive addressing rather than a reactionary response after they occur. He raises questions about the applicability and enforcement of Earth’s laws on corporate and private enterprises in space, emphasising the serious and significant nature of the issue. Marshall asserts, ‘Technology has outpaced the law. Without laws, geopolitics—and now astropolitics—is a jungle’ (ibid.: 89).

There are also urgent matters necessitating international cooperation, such as the potential risks posed by solar flares, asteroids and space debris. The author notes, ‘There are other, more immediately pressing issues that also require international collaboration. A big one is space debris’ (ibid.: 92). Sangeetha

Abdu Jyothi's statement from the University of California is quoted in the book, asserting, 'To the best of my knowledge, there are no global agreements or plans to deal with a large-scale solar storm' (ibid.: 99). The recent DART (Double Asteroid Redirection Test) development, which spent \$ 325 million to alter the orbit of another planetary object, is seen as a momentous success and a cost-effective measure for the 8 billion inhabitants of planet Earth.

Marshall dedicates individual chapters to each of the Big 3 space superpowers – China, the USA and Russia – highlighting their notable achievements and aspirations in space activity. He mentions, 'In 2019, the uncrewed Chang'e 4 became the first spacecraft to land on the far side of the moon' (ibid.: 112). In what has become an expected symbolic tradition, he notes that it 'planted the Chinese flag on the surface and began digging for rocks in a region it is considering using as a base' (ibid.: 119). The USA, in contrast, has plans to construct a 'Lunar Gateway Space Station' near the Moon. Russia is working on a new system called 'Kalina', which could deploy laser beams to dazzle or 'blind' other orbiting satellites, actions reminiscent of those seen in a James Bond movie.

Chapter eight, 'Fellow Travelers' (ibid.: 162), summarises Marshall McLuhan's thoughts very touchingly. It emphasises the role we all play as crew members on Earth-spaceship together. An increasing number of countries and companies are striving to establish themselves in the burgeoning realm of space exploration. According to the author, 'While China, the USA, and Russia are the three main players in space, many others are looking to increase their presence' (ibid.: 164). Notable figures like Jeff Bezos with 'Blue Origin', Richard Branson with 'Virgin Galactic' and Elon Musk with 'SpaceX', along with various countries including France, Germany, Japan, Australia, India, the UK, Israel, Iran and the UAE, are all competing for projects, partnerships and recognition in a crowded market. Unfortunately, this shift in perspective portrays space not as a hopeful frontier for the expansion of the species but as an opportunity for resource exploitation and abuse, suggesting that lessons from the past remain unlearned.

The last part, 'Future Past' (ibid.: 190–229), talks about space wars in chapter nine named 'Space Wars' (ibid.: 191). It uses Albert Einstein's ideas to remind us how big our universe is and the possible results of what people do. In chapter ten, 'Tomorrow's World' (ibid.: 210), the story takes us to the future. It gets its ideas from Lord Alfred Tennyson's view of our world. The author draws attention to the historical pattern of conflict accompanying human ventures into new domains, asserting, 'Each time humanity has ventured into a new domain it has brought war with it. Space is no different, and the potential battlefield is beginning to take shape' (ibid.: 193). Despite recognising the historical inclination toward conflict, the author expresses doubt that humanity will overcome its differences and collaborate in space for the equitable distribution of its riches, stating, 'Given all recorded human history, it is unlikely that we will recognize our common humanity and work together in space to harvest its riches and then

distribute them equally' (ibid.: 228). Simultaneously, the author acknowledges the inevitability of humanity's continued exploration of space, asserting, 'Humanity has not gone so far only to stand still now' (ibid.: 212).

Looking ahead to the mid-2030s, a mere 15 years from the present, the author envisions the possibility of the first human landing on Mars, prompting contemplation about the global viewership of such a unifying event. Reflecting on the historic Moon landing in 1969, the author questions the message humanity will leave in the stars, wondering about the language it will be in and whether it will acknowledge and reflect our shared humanity and vision or mirror our conflicting natures. The author emphasises the significance of the ongoing efforts in space, stating, 'We are now writing what will be history in space. We already have magnificent pioneers and amazing achievements. Where they went, and what they did, was incredibly hard' (ibid.: 212). The book concludes with a really insightful epilogue, featuring a quote from H. G. Wells: 'The past is the beginning of a beginning, and all that is and has been is but the twilight of the dawn' (ibid.: 229). This quote captures the idea that everything we've experienced and achieved is just the start of something new, emphasising the cyclical nature of time and the ongoing progress of humanity. It's a kind of reminder that each chapter in our history is a stepping stone to what comes next, like the dawn of a new day.

While contemplating humanity's exploration of new frontiers, the author observes, that whenever humankind entered a new area, it brought along inevitable conflict. This pattern continues in space, where the potential warfare is emerging (ibid.: 193). Drawing from our historical experiences, he holds the belief, 'it is unlikely that we will recognize our common humanity and work together in space to harvest its riches and then distribute them equally' (ibid.: 228). Simultaneously, he accepts the inexorable progression of our explorations into space (ibid.: 212).

Marshall's skilful storytelling, rooted in historical context and enriched with insightful commentary, provides readers with a clear understanding of humanity's past, present and potential future in space. The book's relevance lies in its ability to navigate complex geopolitical landscapes, uncovering the changing dynamics as nations and private companies compete for dominance beyond Earth. From acknowledging historical contributors to space exploration to painting a picture of a crowded space race, the book navigates the complexities of astropolitics.

Marshall consistently emphasises the need for global cooperation as the key to ensuring a positive trajectory for space exploration. He expresses a genuine concern, stating that 'without this we may end up fighting over the geography of space, just as we have done over the geography of Earth' (ibid.: 77). Marshall's call for global cooperation resonates through his warnings about potential conflicts, offering a compelling perspective on humanity's cosmic journey.

This book is especially recommended for those seeking a holistic view of astropolitics, blending historical insights with futuristic visions. Whether you're a space enthusiast, geopolitics follower, or just curious about what lies beyond our planet, Marshall's clear and engaging writing style makes this book an insightful journey for a diverse range of readers.

**Marshall, T. (2023): *The Future of Geography: How Power and Politics in Space Will Change Our World*. London: Elliott and Thompson Limited.**