

# WHO OWNS OUTER SPACE?

The end of the 30-year space shuttle programme this summer does not mean the end of our romance with outer space. Here, **Jill Stuart** explores the history of cosmic governance and points to the future.



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On 4 October 1957, Sputnik I was launched into outer space... and into a legal vacuum. As it circled the planet every 92.6 minutes and became earth's first human-made satellite, was it crossing through different countries' airspace? Or was it passing freely, like a ship on the high seas, through neutral territory?

As was the case with most issues at the time, the question became embedded in Cold War politics, and the Soviet Union and the United States didn't quite see eye to eye on the matter. Both had determined that it was impossible to exclude the other from entering space, so engaged in treaty negotiations through the United Nations to establish governance over the region.

As a closed society with more to hide, the Soviets preferred an airspace analogy, which would exclude objects from the "space" that extended above a state, that "no-orbit" area rotating along with the land beneath it. (Never mind that the USSR had already indirectly established a contrary norm with Sputnik I emitting its beeps around the world).

The Americans were more drawn to space reconnaissance, and preferred the high seas analogy – with space deemed neutral territory. Luckily for the US, rising tensions between the USSR and the equally secretive state of China in the 1960s piqued Soviet interest in space spying as well, and by 1967 neutrality had been established by the Outer Space Treaty (OST) drawn up by the UN.

Despite the strategic geopolitical motivations that informed much of the Treaty, its wording is eloquent and optimistic: space is to be used for "peaceful purposes", "the province of all mankind", and not subject to "national appropriation by claim of sovereignty, by means of use or occupation, or by any other means". One detail not covered was where airspace ended

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## “In the 1970s a new set of challenges to the growing body of outer space law emerged from developing countries”

(*Usque ad coelum* – “as far as the sky” according to air law) and where outer space began.

The US and USSR’s space programmes continued throughout the 1960s in a tit-for-tat manner (first satellite, first man in space, first woman in space, first two-person flight, first space station...). By most accounts the Space Race culminated in the successful American moon landing – a feat that would wow humanity, hint at the sublime, fulfil humankind’s inherent need to explore... and of course less romantically: demonstrate long-range missile capabilities (since if you can send a manned capsule far into space, you can clearly swap that capsule with a bomb).

On 20 July 1969, the Americans took that small step for man and that giant leap for mankind when the Apollo 11 mission landed on the moon. Most will be familiar with the images of Buzz Aldrin and Neil Armstrong planting the US flag on the surface. So who owns the moon? The answer is: no one. No matter how many flags the Americans symbolically littered the surface with – and indeed through

subsequent missions there have been six American flags hand-planted there (the Soviet Union, Japan, the European Union and most recently India also have flags on the moon, though delivered remotely on unmanned devices) – the moon remains neutral territory under the Outer Space Treaty.

In the 1970s a new set of challenges to the growing body of outer space law emerged from developing countries. Through the Group of 77 (G77) – 77 developing countries working to promote the interests of developing nations and to act as voting bloc – less developed countries were challenging various aspects of international law and ownership of resources such as minerals beneath the sea bed. With regards to outer space, one of the G77’s main targets was the governance of geostationary orbit (GSO) – the swathe of orbit above the Earth’s equator, 35,786 kilometres up, where satellites appear fixed in the sky from the Earth beneath them.

The International Telecommunications Union (ITU) had, since the 1960s, been keeping a record of

satellites’ orbital slots within GSO, as well as the radio frequencies that they used to communicate back to Earth. Based on earlier precedents of the ITU registering radio frequency usage *a posteriori* (that is, once someone started using a frequency, if there were no conflicts the frequency was registered to that user), GSO orbital slots were registered to a “user” after the satellite was in place. Developing countries felt that this policy was unfair as GSO could feasibly become full before they had the chance to develop satellite technology.

A further development with implications for space ownership was the Bogotá Declaration. In 1976 eight equatorial countries (Brazil, Colombia, Congo, Ecuador, Indonesia, Kenya, Uganda and Zaire) signed a Declaration stating that, given the lack of a definition of outer space, GSO should not be considered part of neutral outer space, but rather as the territory and jurisdiction of the states that are beneath them. This would mean that at some undefined point airspace became neutral outer space, but that upon reaching GSO above the equator, there would be a swathe of sovereign territory, belonging to the states below. Neither the UN nor the ITU engaged with these claims very seriously, although the Declaration limped along and was reluctantly addressed in various meetings of the international community for quite some time. ►

## ALUMNI VIEWPOINT



### Rebecca Spyke Keiser on the future of NASA

This summer, NASA plans to fly its last Space Shuttle mission, and upon its landing, the Shuttle orbiters will be

prepared for transfer to museums around the United States for display. This last mission will complete an incredible 30 years of Shuttle flights and a new generation of United States human space flight will begin. NASA’s new space exploration programme is based on maintaining a national crew and cargo transportation capability to the International Space Station in partnership with the private sector, and on developing a NASA capability to go beyond the International Space Station with a heavy lift vehicle and crew capsule. We will design increasingly complex human missions as we gain the technological capability

to go ever deeper into our solar system. Mission destinations include the Moon, asteroids, Lagrange Points, the moons of Mars, and ultimately Mars itself.

Although NASA has a long history of working with the private sector (80 per cent of NASA funds are spent on contracts), NASA is pursuing a new and innovative way to collaborate through the Commercial Orbital Transportation Services (COTS) programme and the Commercial Crew Development programme. COTS has already begun for cargo, and in this effort, NASA and the commercial partner co-fund development of a cargo transportation capability. Commercial crew development will work the same way. NASA will then purchase the cargo and crew services from these commercial entities once they are developed and are proven reliable. NASA will also continue to collaborate with its international partners on utilising and operating the International Space Station, and on its deeper-space human space flight missions.

In this new and collaborative environment, it is not yet clear what we need to revise or add to our international legal framework for outer space. Dr Stuart raises an interesting point in this issue about the potential need

for mining rights as part of our legal regime. NASA’s lunar plans are now at a point of being more of a technological challenge, and it is not yet clear that significant revisions to the existing international legal regime will be needed to enable or even facilitate such efforts. Moreover, an international treaty may or may not be the solution at that point – for instance, NASA and its international partners formed the International Space Station approach around a framework multilateral agreement. Indeed, bilateral and multilateral agreements, tailored to the technical and legal challenges of specific partnerships, can be effective means for advancing space exploration goals. The issues we will face in that future environment are not yet known, and we hope to address them through whatever legal structure is best suited to the issues, under the overall framework of the Outer Space Treaty.

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