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Tens of Thousands of 5G Telecommunications Satellites. Escalating Tensions in a Contested and Congested Space Environment

By Claire Edwards
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The Outer Space Treaty of 1967 enshrined the principle of outer space being preserved as a common heritage of humankind,[1] yet "lacks any provisions that would regulate the methods of the settlement of eventual disputes, which usually appear in law-making treaties, such as the 1959 Antarctic Treaty".[2] Outer space is now an "increasingly congested and contested environment".[3] Delegates at the UN's First Committee dealing with disarmament and international security determined that "prompt action [is] needed to address the safety and security of the Earth's orbit, given growing numbers of satellites, the development of sophisticated defence systems and the ever-increasing amount of orbital congestion, which currently [includes] more than 500,000 pieces of debris".[4] "[R]adio frequencies and any associated orbits...are limited natural resources thatmust be used rationally, efficiently and economically ... so that countries ... may have equitable access to those orbits and frequencies."[5]

> "[A]s more countries integrate space into their national military capabilities and rely onspace-based information for national security, there is an increased chance that any interference with satellites could spark or escalate tensions and conflict in space or on Earth. This is made all the more difficult by the challenge of determining the exact cause of a satellite malfunction: whether it was due to a space weather event, impact by space debris, unintentional interference, or deliberate aggression."[6]
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> "Some states are developing or have developed a range of [anti-satellite] ASAT capabilities,including ground- and space-based weapons, that could be used to deceive, disrupt, deny, degrade, or destroy elements of space systems. Developing and testing ASAT capabilities would likely undermine political and strategic stability, especially without clarity of intent. Further, testing or using debris-generating weapons could contaminate the orbital environment for decades to centuries, significantly affecting all space actors and severely undermining the long-term sustainability of space."[6]
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> "[T]he weaponization of outer space for any purpose—whether offensive or defensive,against any space/celestial body or against an Earth-bound target—would effectively turn space objects into potential targets and turn outer space into a potential conflict zone."[7]

Yet despite the risk of "mishaps, misperceptions and miscalculations",[8] there exists no

"legally binding instrument dealing with … the prevention of an arms race in outer space".[8] Nor are there "legally binding rules to refrain from creating space debris",[7] yet such debris can collide, including with nuclear power sources in outer space, [9] and generate "more debris, in a cycle popularly known as the 'Kessler syndrome'",[10] which posits "an exponential growth of orbital debris as time progresses, with an ever-increasing risk for operational bodies in orbit. … With regular launch rates and no mitigation measures, the quantity of debris in orbit is likely set to grow exponentially."[11]

In this legal void, "[m]assive constellations of … satellites in low-Earth orbit are being planned and manufactured that … will blanket the globe in low-latency, high-bandwidth capacity" in order to expand the reach of the global Internet to rural and remote areas and complement terrestrial 5G networks.[12]

Permitting commercial entities from current spacefaring states to place **tens of thousands of 5G satellites** in the already congested—and contested—Earth orbits in the absence of a legally binding regime governing activities in outer space has grave implications for international peace and security. It denies equitable access to a finite resource and puts at risk social, economic, scientific and technological development; and existing satellite uses such as communications; navigation; disaster risk reduction and emergency response; greenhouse gas emission monitoring from space; air quality monitoring for aerosols and pollutants; monitoring of atmospheric processes; climate change, including essential climate variables monitoring; ozone loss monitoring; environmental protection; natural resource management; ecosystems management; biodiversity; forestry; hydrology; meteorology and severe weather forecasting; land use and land cover change monitoring; sea surface temperature and wind monitoring; seismic monitoring; environmental change; glacier mapping and studies; crop and soil monitoring; food security; irrigation; precision agriculture; groundwater detection; space weather; health impacts; security; law enforcement; mineral mapping; and urban development.[13]

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***Claire Edwards**, BA Hons, MA, worked for the United Nations as Editor and Trainer in Intercultural Writing from 1999 to 2017. Claire warned the Secretary-General about the dangers of 5G during a meeting with UN staff in May 2018, calling for a halt to its rollout at UN duty stations. She part-authored, designed, administered the 30 language versions, and edited the entirety of the International Appeal to Stop 5G on Earth and in Space (www.5gspaceappeal.org) and vigorously campaigned to promote it throughout 2019. In January 2020, she severed connection with the Appeal when its administrator, Arthur Firstenberg, joined forces with a third-party group, stop5ginternational, which brought itself into disrepute at its foundation by associating with the Club of Rome/Club of Budapest eugenicist movement. She is a frequent contributor to Global Research.*

Notes

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