

Human Presence Beyond Earth: Critical Geographies of Outer Space

Yi-Ting Chang (University of Oxford)

Mia Bennett (University of Washington)

Eleanor S Armstrong (University of Leicester)

After 54 years, humans are returning to extraterrestrial environments, namely around and on the Moon. Unlike the Apollo missions, which focused on exploration and return, today's lunar programs envision permanent settlement—transforming the Moon from a destination for brief visits into a new human territory. In February 2026, for instance, NASA plans to launch Artemis II, which will send four humans beyond Earth's orbit for the first time since 1972 as they slingshot around the moon. As humans prepare to return to Earth's only natural satellite, how can geographers critically engage with this development while challenging uneven power relations? Building on geographers' long-standing inquiry into outer space and recent publications debating human space activities (Armstrong & Klinger, 2025; Bennett and Cudney, 2025; Klinger, 2021; Squire et al., 2021), this session continues this line of investigation by exploring critical geographies of outer space.

Contemporary space exploration differs fundamentally from the Apollo era, unfolding within a broader transformation of global geopolitics (Daniels & Krige, 2022) and commercialization (Denis et al., 2020). The bipolar order of the Cold War has given way to a multipolar landscape structured by technological rivalry, particularly between the United States and China, shaping these countries' space imaginations and missions (Puente-Lozano & Herring-Bazo, 2024; Wijeyeratne, 2026). Space exploration is no longer dominated by nation-states alone, but increasingly shaped by commercial-state partnerships, private capital, and hybrid governance arrangements emerging from shifting geopolitical configurations (Utrata, 2024). Proposals for "Moon villages," permanent infrastructures, and energy systems—including nuclear power and data centers—signal a move from exploration to settlement, raising urgent questions about sovereignty, territorialization, and control beyond Earth (Au, 2024; Vermeylen & Njeri, 2023).

Earth's orbital space is becoming increasingly crowded and integrated into social, political, and economic dynamics both on Earth and beyond (Bowen, 2020; Dunnett et al., 2019). Critical scholars have questioned who is accessing outer space and how these space missions are enabled through uneven, racialized, and even colonial exploitation on Earth (Armstrong & Klinger, 2025; Klinger et al., 2025; Redfield, 2000). Research has also explored how human perception and sensory

experience shape engagements with outer space, as scholars develop and reflect on research methods for studying space and space-related practices (Praet & Pitrou, 2025; Timko et al., 2022; Vertesi, 2015). Outer space is not simply another research project: it is interwoven with terrestrial dynamics through the spacecraft, infrastructure, imagination, and legal systems that connect humanity to space (Messerli & Olson, 2025). As outer space assumes greater importance in geopolitical power and geo-economic competition, questions arise about how space infrastructure and its entanglement with Earth's social, cultural, political, and colonial histories reproduce existing uneven power relations beyond our planet.

As outer space becomes increasingly entangled with Earth-based political economies, geographers are well positioned to interrogate this spatial reordering. How are concepts such as territory, borders, sovereignty, and jurisdiction reconfigured beyond Earth? What new forms of inequality, enclosure, extraction, and labor emerge as infrastructure, resources, and populations are mobilized into extraterrestrial environments? How do legal regimes, corporate interests, and state strategies intersect to produce new forms of governance and exclusion? How do the materialities of space—gravity, orbit, debris, energy, and distance—reshape political power and spatial control? What would a feminist or alternative future in outer space look like (West, 2023)? Methodologically, how can geographers study spaces that are remote, mediated through technoscientific systems, and governed by fragmented legal frameworks?

This session invites contributions from human geographers that analyze outer space through cultural, political, economic, and social inquiry. We welcome papers engaging with, but not limited to, the following themes:

- Infrastructure on and off Earth, including satellite systems, launch sites, and lunar infrastructure, and the politics of territorialization beyond Earth
- Space discourses, historical geographies, and decolonial critiques of participation, exclusion, and power in outer space
- Space law, governance, and contested regimes of jurisdiction across orbital and extraterrestrial spaces
- Critical geopolitics and geo-economics of space, including resources, energy, technology, and strategic materials
- STS-informed analyses of space infrastructure, technologies, and imaginaries
- Methodological, ethical, and creative approaches to overcoming remoteness and mediation to research outer space

Abstract submission: 250 words including title, abstract, 5-6 key words, author names and affiliations, and contact details by 20th February 2026 to Yi-Ting Chang (yi-ting.chang@ouce.ox.ac.uk), Mia Bennett (miabenn@uw.edu), and Eleanor

Armstrong (ea377@leicester.ac.uk). We welcome contributions from all career stages, positions, affiliations, and research approaches, including early-career or marginalised scholars. Please note that the session is planned to be held in person.

Reference:

- Armstrong, E. S., & Klinger, J. M. (2025). Earthly entanglements with outer space: Introduction to the theme issue. *Environment and Planning D: Society and Space*, 43(2), 207-225. <https://doi.org/10.1177/02637758251328223>
- Au, Y. (2024). Data centres on the Moon and other tales: a volumetric and elemental analysis of the coloniality of digital infrastructures. *Territory, Politics, Governance*, 12(1), 12-30. <https://doi.org/10.1080/21622671.2022.2153160>
- Bennett, M. M., & Cudney, Z. (2026). Holding up the skies: is Starlink occupying low Earth orbit?. *Territory, Politics, Governance*, 1-19.
- Bowen, B. E. (2020). *War in space: strategy, spacepower, geopolitics*. edinburgh university Press.
- Daniels, M., & Krige, J. (2022). *Knowledge Regulation and National Security in Postwar America*. University of Chicago Press. <https://doi.org/10.7208/chicago/9780226817521.001.0001>
- Denis, G., Alary, D., Pasco, X., Pisot, N., Texier, D. and Toulza, S. (2020). From new space to big space: How commercial space dream is becoming a reality. *Acta Astronautica*, 166, 431-443.
- Dunnett, O., Maclaren, A. S., Klinger, J., Lane, K. M. D., & Sage, D. (2019). Geographies of outer space: Progress and new opportunities. *Progress in Human Geography*, 43(2), 314-336.
- Klinger, J. M. (2021). Environmental Geopolitics and Outer Space. *Geopolitics*, 26(3), 666-703. <https://doi.org/10.1080/14650045.2019.1590340>
- Klinger, J. M., Armstrong, E., & Richaud, R. (2025). Wasting and wanting: An extractive supply chain approach to outer space geographies. *Environment and Planning D: Society and Space*, 43(2), 283-304. <https://doi.org/10.1177/02637758241274629>
- Messeri, L., & Olson, V. (2025). Spaced Out: Bringing Outer Spaces into Anthropological Conversations. In I. Praet & P. Pitrou (Eds.), *Otherwhere Ethnography: An Introduction to Outer Space Studies* (pp. 0). Oxford University Press. <https://doi.org/10.1093/9780197790885.003.0002>
- Praet, I., & Pitrou, P. (2025). *Otherwhere Ethnography: An Introduction to Outer Space Studies*. Oxford University Press. <https://doi.org/10.1093/9780197790885.001.0001>
- Puente-Lozano, P., & Herring-Bazo, A. (2024). Making Mars resonate: the role of analogue sites in territorializing China's outer space imaginaries. *Territory, Politics, Governance*, 12(1), 132-152. <https://doi.org/10.1080/21622671.2023.2173284>
- Redfield, P. (2000). *Space in the tropics: From convicts to rockets in French Guiana*. Univ of California Press.
- Squire, R., Mould, O., & Adey, P. (2021). The final frontier? The enclosure of a commons of outer space. *Society and Space*, 24.

- Timko, P., Korpershoek, K., Ojani, C., & Szolucha, A. (2022). Exploring the extraplanetary: Social studies of outer space. *Anthropology Today*, 38(3), 9-12. <https://doi.org/https://doi.org/10.1111/1467-8322.12726>
- Utrata, A. (2024). Engineering Territory: Space and Colonies in Silicon Valley. *The American political science review*, 118(3), 1097-1109. <https://doi.org/10.1017/S0003055423001156>
- Vermeylen, S., & Njeri, J. (2023). *Reclaiming Space*. Oxford University Press. <https://doi.org/10.1093/oso/9780197604793.003.0010>
- Vertesi, J. (2015). *Seeing like a Rover : how robots, teams, and images craft knowledge of Mars*. The University of Chicago Press.
- West, J. L. (2023). Lost in space: feminist considerations of space security. *Zeitschrift für Friedens- und Konfliktforschung*, 12(2), 307-323. <https://doi.org/10.1007/s42597-023-00107-w>
- Wijeyeratne, S. (2026). *The Islands and the Stars : A History of Japan's Space Programs*. Stanford University Press. <http://ebookcentral.proquest.com/lib/oxford/detail.action?docID=32424115>