

FOREGROUNDING MAINTENANCE AND RECIPROCITY IN SPACE SCIENCE AND ENGINEERING.

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This talk addresses the ongoing epistemological and infrastructural coloniality of the space sciences and aims to provoke the collaborative creation of methods and approaches that center sustainability and environmental justice within these discourses. Continuing in the recent conversations around ethical and anticolonial human activity in outer space,[1][2] I consider the constructive power of maintenance work and reciprocity, and argue they should be foregrounded in the fight towards equitable, just, and sustainable space sciences and engineering. In order to do so, I leverage insights from feminist and decolonial organizing: the recognition of care, maintenance, and repair work is foundational to both feminist politics and to various Indigenous worldviews which understand the human as *interdependent* with their community of humans, non-humans, and the environment. First, in conversation with feminist media studies scholarship on human-machine interaction,[3][4] I contend that despite the widespread cultural overvaluing of technological innovation, including within NASA,[5][6] it is care and maintenance work that enables the continuous terrestrial and extraterrestrial work and survival of humans. The technologies that planetary scientists depend on for their research decay with time and hence require maintenance.[7] Second, because the technologies planetary scientists work with impact the environments of various planetary bodies, i.e. requiring the mining of materials for their construction, I highlight scholarship within decolonial technoscience in order to amplify the Indigenous concept of reciprocity within the context of planetary sciences:[8][9] the idea that as Earth and its flora and fauna takes care of humans, humans ought to take care of Earth in return. Ultimately, I hope for my talk to engender conversations between social scientists and planetary scientists that consider further the concepts of maintenance and care can be applied within the broader discourse in planetary science: how could we care for, and act in reciprocity with the technologies we work with? What could it mean to establish reciprocal relations with the planets we explore?

References:

[1] Prescod-Weinstein, C., et al. (2020). Reframing astronomical research through an anticolonial lens—For TMT and beyond. ArXiv:2001.00674 [Astro-Ph].
 [2] Tavares, F., et al. (2020). Ethical Exploration and the Role of Planetary Protection in Disrupting Colonial Practices. ArXiv:2010.08344 [Astro-Ph]. [3] Forlano,

L. (2017). Maintaining, Repairing and Caring for the Multiple Subject. *Continent.*, 6(1), 30–35. [4] Mauldin, L. (2020, October 22). Support Mechanism. *Real Life*. [5] Cohn, M. (2017). ‘Lifetime Issues’: Temporal Relations of Design and Maintenance. *Continent.*, 6(1), 4–11. [6] Olson, V. (2018). *Into the extreme: U.S. environmental systems and politics beyond Earth*. University of Minnesota Press, p. 162. [7] Cohn, M. L. (2016). Convivial Decay: Entangled Lifetimes in a Geriatric Infrastructure. *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing*, 1511–1523. [8] Watts, V. (2013). Indigenous Place-Thought and Agency Amongst Humans and Non Humans (First Woman and Sky Woman Go On a European World Tour!). *Decolonization: Indigeneity, Education & Society*, 2(1), Article 1. [9] Whyte, K. P. (2020). Indigenous Environmental Justice: Anti-Colonial Action through Kin-Making. In B. Coolsaet (Ed.), *Environmental justice: Key issues* (pp. 266–278). Routledge.