

World view



By Alvin D. Harvey

Stop sending human remains to the Moon

The Navajo Nation is calling to safeguard the Moon as a shared cultural space. The space community should listen.

On 8 January, US space company Astrobotic launched the first commercial Moon lander, called Peregrine. Among the spacecraft's 20 payloads were five instruments built by NASA. Other cargo included the cremated remains of at least 70 people and one dog, sent by two US companies, Celestis and Elysium Space, which give people the opportunity to be interred on the Moon.

The Moon is a shared cultural space for humanity. Many people might instinctively feel uneasy about its incipient commercialization, which has happened with little consultation and remains mostly unregulated. Many Indigenous Peoples, including *Diné* (the people) of the Navajo Nation such as myself, feel a whole other level of unease. For us, the Moon is an ancient relative – Grandmother Moon is a term of reverence shared by many Indigenous Peoples – and we should be careful, diligent and respectful when visiting her.

That is why, when Navajo Nation President Buu Nygren learnt of the plans shortly before the launch, he asked NASA and the US Department of Transportation (DOT) to halt the mission and consult with Indigenous Nations, in accordance with Navajo Nation law and US government policies.

Peregrine is now failing because of a propellant leak, Astrobotic says, and has “no chance of a soft landing on the Moon”. Members and leaders of the space community should use this opportunity to become well-informed and ethical space actors.

Nygren's call to action is not about ownership of the Moon or to enforce *Diné* religious beliefs, but rather about the right to be consulted, to uphold Native American legal rights, to hold government agencies accountable and to safeguard the Moon for future generations.

A similar issue has arisen before. In 1998, then Navajo Nation president Albert Hale condemned NASA for sending a portion of the remains of planetary scientist Eugene Shoemaker to the Moon aboard its Lunar Prospector. NASA apologized and promised to consult Native Americans if it ever planned similar missions. The agency then sent a delegation to the Navajo Nation to listen to concerns; the delegation was co-led by a Navajo Nation citizen, a Navajo NASA employee and outreach specialists at the Jet Propulsion Laboratory in Pasadena, California. They met with community members and traditional-knowledge holders in Pinon, Arizona. Amid summer rains, the congregation met in a Navajo *hogan* for a Talking Circle – a ceremonial way of structuring dialogue and sharing information.

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I have been studying this constructive conflict for my PhD in aeronautics and astronautics. I grew up in Dinétah, the traditional homeland of my people, feeling the presence of space through the warmth of Grandfather Sun and the stars that shine on a clear night. On my journey to becoming an aerospace engineer, those connections became distant. Like most space engineers and scientists, I was educated in a system that upholds an ethical and emotional distance from space. And that can materialize in acts of colonization and might even cause collective hurt.

But the Lunar Prospector incident shows how Indigenous Methodologies can lead the way to healing and partnership. The ceremonies led to a deeper understanding of how differences in star knowledge are to be celebrated, not ignored, and how *Diné* youth should not be pushed away from our People's traditional knowledge when we work in the space community. The ceremonial approach co-led by Native American community leaders made room for the hurt felt by the *Diné* and laid foundations for future collaborations with a shared goal of furthering our connections with the cosmos. NASA delegates participating in person and following the guidance of Native American leaders made a world of difference in turning the incident into a spark of friendship.

All of this makes NASA's response to Peregrine's plans particularly disappointing. It stated in a prelaunch press conference on 4 January that it is a customer of Astrobotic and therefore doesn't have regulatory power to approve or disapprove of payloads on the company's spacecrafts. Formal regulatory responsibility for the payloads of space missions falls to the DOT, and specifically the Office of Commercial Space Transportation. The DOT has a legal responsibility to consult with Native American Nations as part of a 2021 White House Memorandum and a 2021 inter-agency agreement signed by the department. After receiving Nygren's letter, the White House called a last-minute intergovernmental meeting that included NASA and the DOT.

But as one of Astrobotic's biggest funders, NASA cannot entirely sidestep responsibility. In my view, Astrobotic should do more to listen to and partner with Native American Nations. An environment of collaboration and challenge can inform space activities in sophisticated ways.

We now have an opportunity for Indigenous People to help guide the caretaking of space, just as they guide the protection and restoration of environments on Earth. To me, Grandmother Moon is sacred, my relative who has lighted my ancestors' paths for eons. Weaving together Indigenous and Western science could help in resolving issues and lead to the production of policies and innovative approaches that protect and celebrate our shared Moon. After all, don't we all want to be good relatives?