

## PLANETARY NOMENCLATURE AND INDIGENOUS COMMUNITIES

Matthew S. Tiscareno, *SETI Institute*  
 Daniella M. Scalice, *NASA Ames Research Center*  
 Meagan L. Thompson, *NASA Headquarters*  
 Jessica L. Noviello, *NASA Goddard Space Flight Center*  
*(formerly at Arizona State University)*  
 Vivian White, *Astronomical Society of the Pacific*  
 Aparna Venkatesan, *University of San Francisco*  
 Moses Milazzo, *Other Orb LLC*  
 Kat Gardner-Vandy (Choctaw Nation of Oklahoma),  
*Oklahoma State University*  
 Sarah EchoHawk (enrolled member of the Pawnee  
 Nation of Oklahoma), *American Indian Science and  
 Engineering Society*

Michael Laverdure (Migisi Migwan, Makwa Dodem,  
 citizen of the Turtle Mountain Band of Chippewa),  
*American Indian Science and Engineering Society*  
 Crystal Echo Hawk (enrolled member of the Pawnee  
 Nation of Oklahoma), *IllumiNatives*  
 Larry Kimura, *Ka Haka 'Ula O Ke 'elikōlani College of  
 Hawaiian Language, University of Hawai'i at Hilo*  
 Doug Simons, *Canada-France-Hawaii Telescope*  
 Alan Tokunaga, *Institute for Astronomy, University of  
 Hawai'i*  
 Ka'iu Kimura, *'Imiloa Astronomy Center of Hawai'i,  
 University of Hawai'i at Hilo*  
 Michael Waasegiizhig Price (Anishinaabe and tribal  
 member of Wikwemikong First Nations), *Great  
 Lakes Indian Fish and Wildlife Commission*

**Executive Summary:** In recent decades, planetary nomenclature has expanded from drawing almost exclusively from European cultures to become more culturally diverse. However, Indigenous communities have generally not been included in decisions to use their cultural property for planetary nomenclature. Actively including Indigenous voices in naming decisions ensures that their cultures are accurately and respectfully represented and recognizes their sovereignty over their own culture. The planetary community and NASA should build strong co-creative relationships with Indigenous communities, eventually resulting in procedures for responsible use of cultural property in planetary nomenclature.

**Description of the white paper:** The present authors submitted a white paper to the Planetary2023 Decadal Survey in September 2020 [1]. This paper was divided into four sections, as follows.

Section 1 of our paper [1] describes the history of how names have been drawn from various cultures and have been applied to planetary bodies and to features on the surfaces of planetary bodies. We described a progression from *Stage One: Euro-centrism* to *Stage Two: Towards multiculturalism*.

In this context, we said the following:

Cultural appropriation occurs when people from one culture use or adopt the cultural property of another culture, but it is problematic especially when a dominant culture unilaterally takes from an Indigenous culture without consent.

Cultural appropriation is an aspect of colonialism, which is the posture of any culture that seeks to exercise domination over other cultures (the targets often being Indigenous cultures in their own ancestral lands). A related term in the U.S. context is “manifest destiny.” Dispossession

of land and resources is a hallmark of colonialism, and such dispossession is still with us in the form of the many inequalities that exist within the United States and throughout the globe. However, the spirit of colonialism is also widely found in a sense of entitlement to pick and choose the elements of other cultures that one finds most enjoyable, and to enjoy that cultural property on one's own terms, apart from the people whose cultures created them.

The spirit of colonialism can co-exist with a genuine desire to honor other cultures. Our focus is not on intentions, but on actions and their effects. To truly respect others requires attentive listening, and that is precisely what is often lacking in Western relations with Indigenous communities.

We concluded Section 1 of our paper [1] by pointing out the need for *Stage Three: Co-creation and cultural self-determination*. A spirit of co-creation would include Indigenous people from beginning to end of the decision-making process, giving them control over how their cultural heritage is to be used.

Section 2 of our paper [1], describes the impact of cultural appropriation and colonialism, particularly on Native American communities. The vast majority of Americans know little to nothing about the identities, values and successes of modern Native Americans, or the issues they face, and Native American youth are often deterred from participating in Western science careers because they perceive a disconnect between their communities and Western-culture-dominated institutions, often marked by a colonialist attitude of “ask, take, leave,” as others arrive with an agenda already in place, obtain what they want from the Native American community, and then conclude the relationship [2].

Co-creation of planetary nomenclature would bolster the ongoing revitalization of ancestral languages and cultures, and would also reduce disconnection, thus making space for Indigenous youth to engage with planetary science while remaining true to their whole person. Indigenous scholars from the American Indian Science and Engineering Society (AISES), the Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS), the Indigenous Education Institute (IEI), the Smithsonian National Museum of the American Indian (NMAI), tribally controlled community colleges and universities (TCUs), the think tank IllumiNatives, and the 'Imiloa Astronomy Center of Hawai'i (some of whom are co-authors of this paper), among others, combine expertise in Western astronomy with expertise in traditional Indigenous Knowledge and in working with Indigenous communities, and stand ready to facilitate more effective partnerships with NASA and other institutions. Such partnerships would both enable the co-creation of planetary nomenclature and be further enabled by it.

Section 3 of our paper [1], describes three recent case studies and lessons that can be learned from them.

U.S. involvement in the NameExoWorlds project ended with beneficial cooperation with Native American communities in the use of names from their cultures, but it would have been better if such collaboration had been in place on co-equal footing from the beginning.

Similarly, the naming of Arrokoth ended with permission being sought and obtained from relevant cultural leaders before the name was announced, but NASA and the spacecraft team were not in a relationship with these tribal communities prior to approaching them about the naming of Arrokoth, and thus the naming process cannot truly be described as co-creative with the Indigenous leaders.

Finally, the A Hua He Inoa (AHHI) nomenclature project is a positive example. This is an initiative from within the Hawaiian community that resolves to "weave traditional indigenous practices into the official naming of astronomical discoveries made in Hawai'i." Indeed, the name A Hua He Inoa itself means "calling forth a name." The naming of the first detected interstellar object 'Oumuamua, among other recent discoveries, was conducted via a collaborative exercise involving experts in the Hawaiian language, K-12 educators, astronomers who work at Hawaiian observatories, other community leaders, and groups of Hawaiian youth. The resulting names are popular with scientists and the general public alike. Furthermore, the students involved commented that, through this program, they were able to see the link between their ancestral knowledge and modern science.

**Recommendations:** We ended our paper [1] with the following recommendations.

*A) The planetary community should question the notion that discoverers "own" the right to name planetary objects or features, especially with names from indigenous cultures. Science is a collaborative endeavor. Scientists generally work with resources obtained via public funds and should see themselves as representing all humankind. The act of naming their discoveries, thus, should also be a collaborative endeavor. Furthermore, names themselves are cultural property, reflecting and expressing the hearts of the people who created them, and Western scientists must stop appropriating names from other cultures without consent and participation. Because reverting to a blatant focus on industrialized cultures for nomenclature is also not an acceptable alternative, co-creation with Indigenous communities is the only tenable option.*

*B) The planetary community and NASA should build stronger relationships with Indigenous communities, based on equality and cooperation, laying a foundation for co-creation of planetary nomenclature. It is impossible to implement responsible co-creation of planetary nomenclature without a pre-existing foundation of intentional relationships with Indigenous communities. Umbrella organizations such as AISES and SACNAS and IEI (and similar groups around the world) are a good place to start. These relationships should have an open-ended focus on co-creation in scientific endeavors, and will carry the benefit of being already in place when co-creation of nomenclature is called for.*

*C) The IAU and NASA should work with a diverse array of Indigenous community leaders to establish a procedure for responsible use of cultural property in planetary nomenclature. We will not specify here the form that this procedure should take, though we do commend initiatives such as AHHI as a model (see Section 3.3 of [1]). Procedures that proactively avoid cultural appropriation should be worked out organically with Indigenous leaders, as a result of the relationships recommended above. We recommend working with Indigenous leaders to potentially rethink the paradigm of contests or competitions as a framework for selecting names, and to co-conceive with them how to ensure the need to give names to celestial bodies as a co-creative endeavor and as an opportunity for their youth.*

**References:** [1] Tiscareno MS *et al.* (2020). Planetary nomenclature and indigenous communities. *Planetary2023 Decadal Survey White Papers*, #515 ([link](#)). [2] Gardner-Vandy K *et al.* (2020). Relationship first and always: A guide to collaborations with Indigenous communities. *Planetary2023 Decadal Survey White Papers*, #524 ([link](#)). [3] Kimura K *et al.* (2019). A Hua He Inoa: Hawaiian culture-based celestial naming. *Bull. Am. Astron. Soc.* **51**, 135 ([link](#)).