

The enigmatic space rock 'Oumuamua shot through the Solar System in 2017.

## ASTRONOMY

# Hawaiian culture makes its mark on the Solar System

*Naming project aims to strengthen Indigenous connections to discoveries made in the state.*

BY ALEXANDRA WITZE

**O**umuamua is best known as the interstellar visitor that flew through the Solar System in 2017, a cosmic rock on a temporary visit from deep space. But it is also blazing a trail in connecting Hawaiian Indigenous culture with modern astronomy.

In the Hawaiian language, 'Oumuamua means 'a messenger from afar arriving first', a reference to its scout-like nature. Astronomers and the public adopted the name quickly. Now, the experts who came up with it are developing names for other celestial objects discovered using Hawaii's world-class telescopes.

The team includes specialists in Hawaiian culture and astronomy. It hopes to strengthen the links between the Hawaiian language,

which has gone from nearly extinct to a vibrant source of cultural identity, and astronomical findings with ties to the island chain. The International Astronomical Union (IAU), which approves official celestial names, is considering two more Hawaiian-language submissions from the project, which describe two unusual asteroids.

"A name isn't just something by which we call something or someone," says Ka'iu Kimura, executive director of the 'Imiloa astronomy and cultural-education centre in Hilo, Hawaii, where the effort is based. "A name provides identity and gives insight." She unveiled the project on 7 January at a meeting of the American

Astronomical Society in Seattle, Washington.

The effort is called A Hua He Inoa, a Hawaiian phrase referring to the practice of calling forth a name (see 'Cultural studies'). It is not directly related to the controversy over building a next-generation observatory, the Thirty Meter Telescope, atop the Mauna Kea mountain on Hawaii's Big Island. But it does try to address the decades-long dispute over whether astronomers have properly developed and managed observatories on Mauna Kea and other peaks that are sacred to Native Hawaiians.

"This is a way to flip the whole controversial conversation on its head," says Kimura.

It is a rare example of connecting modern Indigenous culture with local astronomical discoveries, says Doug Simons, the director of the Canada-France-Hawaii Telescope on

**"A name provides identity and gives insight."**

Mauna Kea, who is part of the naming project.

The concept arose in March 2017, when Hawaiian businessman John De Fries suggested that the cultural group that advises Mauna Kea's management propose Hawaiian-language names for local discoveries to the IAU. He then met with Kimura and Simons.

The team was beginning to grow when, in October 2017, astronomers on the Hawaiian mountain of Haleakalā discovered the interstellar space rock. "That was the pivotal moment," says Simons. It was an entirely new class of object that would require an entirely new type of name from the IAU — the chance they didn't know they had been waiting for.

Kimura called her uncle Larry Kimura, a professor of Hawaiian language and studies at the University of Hawaii in Hilo who spearheaded the language's revitalization. The next day he called back to suggest the name 'Oumuamua.

Now, the team is building on that first example. "The opportunity to name this interstellar object that literally hurled through our Solar System equally hurled us an opportunity to test our effort," says Kimura.

A Hua He Inoa aims to create Hawaiian names on demand. Last October, Kimura and her colleagues gathered ten school and college students, all fluent in the Hawaiian language, and gave them two unusual asteroids to name.

The first — an apparent fragment of a larger asteroid — was given the name Kamooalewa, which refers to an offspring that travels on its own. The second, which travels in a peculiar backwards orbit near Jupiter, garnered the name Ka'epaoka'awela, which refers to its mischievous behaviour. Both names are awaiting the IAU's approval.

"There's so much in language," says Aparna Venkatesan, an astronomer at the University of San Francisco in California. "It's a way to teach a new generation of scientists about humanity's shared heritage."

Starting on 18 January, Kimura and her colleagues will be offering Hawaiian-language lessons to staff members at any of the observatories on Mauna Kea or Haleakalā. Later this year, they plan to convene a group of teachers from Hawaiian-language schools to generate names for more asteroids.

Kimura hopes astronomers outside Hawaii will support the effort. "If they're using data from Hawaii, we hope they will see the importance of recognizing the place," she says. "There's already a connection." ■

## CULTURAL STUDIES

### What's in a name?

The Hawaiian language has yielded names for many Solar System objects. In the past, names were typically mythological references; more recently, they have come from the living language.

#### 'Oumuamua

"A messenger from afar arriving first"

The first known interstellar object

#### Lanikea

"Immeasurable heaven"

A galactic supercluster

#### Haumea

Goddess of childbirth and fertility

A dwarf planet with moons Hi'iaka and

Namaka, spirits that Haumea birthed

#### Haulani

Goddess of plants

A crater on the dwarf planet Ceres

### CORRECTION

The timeline in the News Feature 'A father's fight' (*Nature* **565**, 148–151; 2018) erroneously located the National Alkaptonuria Centre in Cambridge, UK. In fact, it is in Liverpool, UK.

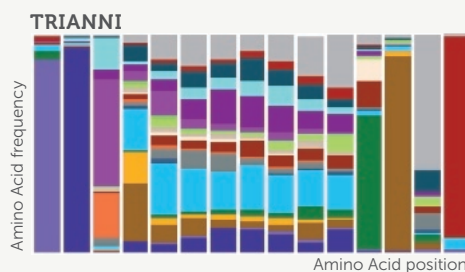
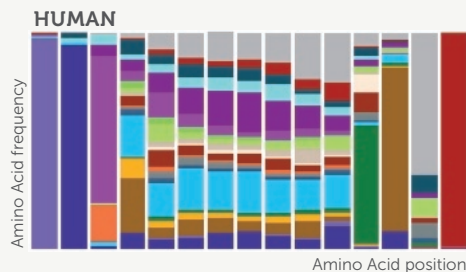
## The Best Antibody Discovery Technology Is Now at Your Fingertips

### Trianni Mouse Antibodies are a Match for Humans

The Trianni Mouse™ platform is the only transgenic antibody discovery platform ever developed that offers the entirety of human antibody variable gene diversity in a single organism.

The V-gene segments in The Trianni Mouse are chimeric, but the variable domains of antibodies made by the mouse are entirely human. The result is human antibody leads generated from antibody genes optimized for function in the mouse. Or, in the simplest terms, The Trianni Mouse is a more human mouse.

To learn more about this innovative platform and how it can help you leave your mark on therapeutic antibody discovery and development, visit [Trianni.com](http://Trianni.com).



CDR-H3 residue utilization in antibodies derived from human samples and the Trianni transgenic Ig Mouse. In the naive Trianni Mouse, heavy chain CDR3 (CDR-H3) aa utilization frequency is effectively the same in humans and in The Trianni Mouse.

**TRIANNI**  
Exceptional Human Antibody Discovery