

NATIVE
SKYWATCHERS

Welcome!

- ✓ Celestial Navigation
- ✓ Hawaiian Star Families
- ✓ Hawaiian Star Compass
- ✓ NASA- Moon to Mars
- ✓ A Hua He Inoa-Calling forth a name

REGISTER

https://a00web.com/us/webinar/register/WX_p0VH10yqPLUWbRCZUnf8A

Two-Eyed Seeing: Hawaiian Indigenous Astronomy & NASA Moon to Mars

Join us for an exciting live show on Hawaiian Indigenous Astronomy including the revitalization of Wayfinding and traditional Hawaiian methods of navigation. Students from the Volcano School of Arts & Sciences will present their research such as: "Make Your Own Hawaiian Star Compasses" and essential understanding of the Hawaiian Star Families. Important discussion on the parallels between the Indigenous Hawaiian process of choosing a crew and the NASA process used for the Artemis Moon mission (2024) and later the Mars mission (2030's), both grounded in the spirit of exploration but employing different worldviews.

Friday
March 12

2021

9am hst

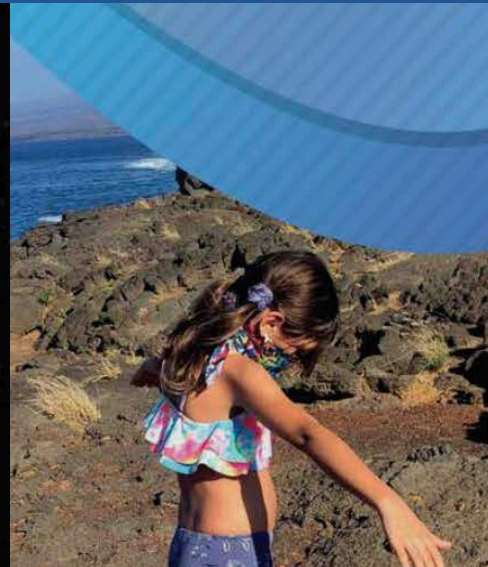


photo by: Kālepa Baybayan

credit: Kālepa Baybayan, AAS conference 2020

Presented by:

**Kālepa
Baybayan**



Two Eyed Seeing – NASA & Indigenous Astronomy – For the Benefit of All

As described by Mi'kmaw elders: *Etuaptmumk*



Two-Eyed Seeing is learning to see from one eye with the strengths of Indigenous knowledges and ways of knowing, and from the other eye with the strengths of Western knowledges and ways of knowing, and to use both these eyes for the benefit of all. (Bartlett, Marshall and Marshall 2012, 336)

Join us!...For this eight month project that weaves together Indigenous Astronomy and NASA content in a way that will engage K-12 learners to participate in science and culture. Seven seasonal live (virtual) events will be produced and delivered each month Oct. 2020 to April 2021. Funded by NASA - Next Gen STEM, focus: Moon to Mars & STEM on Station.

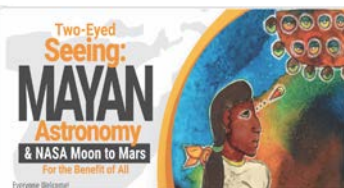
Schedule of Upcoming Live Shows for this Project:



Two Eyed Seeing:
OJIBWE Astronomy & NASA Moon 2 Mars
 Friday, October 23, 2020
 from 10-11 am cdt
[More Info](#) [Register](#)



Two Eyed Seeing:
D(L)AKOTA Astronomy & NASA Moon 2 Mars
 Friday, November 13, 2020
 from 10 am – 11 am cst
[More Info](#) [Register](#)



Two Eyed Seeing:
MAYAN Astronomy & NASA Moon to Mars
 December 17, 2020
 from 6:30-7:30 pm pst
 =8:30-9:30 pm cst



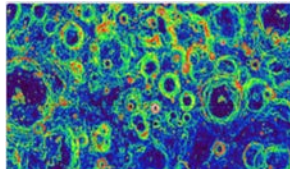
Two Eyed Seeing:
NAVAJO-DINE Astronomy & NASA Moon 2 Mars
 January 29, 2021
 9 am PST, 10 am MST
[Register](#)



Two Eyed Seeing:
AFRICAN Indigenous Astronomy & NASA Moon to Mars
 Friday, February 26, 2021
 10:30 am cst
[Register](#)



Two Eyed Seeing:
HAWAIIAN Indigenous Astronomy & NASA Moon to Mars
 March 12, 2021
 9 am hst, 11 am pst, 12 noon mst, 1 pm cst, 2 pm est



Two Eyed Seeing:
STEAM, Indigenous Astronomy & NASA Moon 2 Mars
 April 2021
 TBA
[Coming soon...](#)



- Follow
- [f](#) [t](#) [v](#) [p](#)
- What is Next Gen STEM?
- Commercial Crew Program
 - Small Steps to Giant Leaps
 - Explore Moon to Mars
 - STEM on Station
 - NASA STEM Engagement
- Related Topics
- All Topics A-Z

What is Next Gen STEM?

NASA's Office of STEM Engagement executed a series of efforts to develop STEM products and opportunities that provide a platform for students to contribute to NASA's endeavors in exploration and discovery. These mission-driven activities include over 20 evidence-based products and opportunities to engage students in authentic STEM experiences. NASA is working to provide mission driven opportunities that enhance STEM literacy and help build a vibrant and diverse next generation STEM workforce.

Commercial Crew Program | Small Steps to Giant Leaps

Moon to Mars

Moon to Mars **MARS 2020 STEM TOOLKIT**

Connect Students to #CountdownToMars

Earn Educator Badges

NASA **STEM** FORWARD TO THE MOON

EXPLORE HUMANS IN SPACE with STEM on Station

Funded by:
NASA Next GEN STEM
 with focus on
Moon to Mars & STEM on Station

LAND ACKNOWLEDGEMENT



Introduction - Panelists



Kālepa Baybayan



Ms. Lisa



Ms. Barbara



Ms. Jacqueline

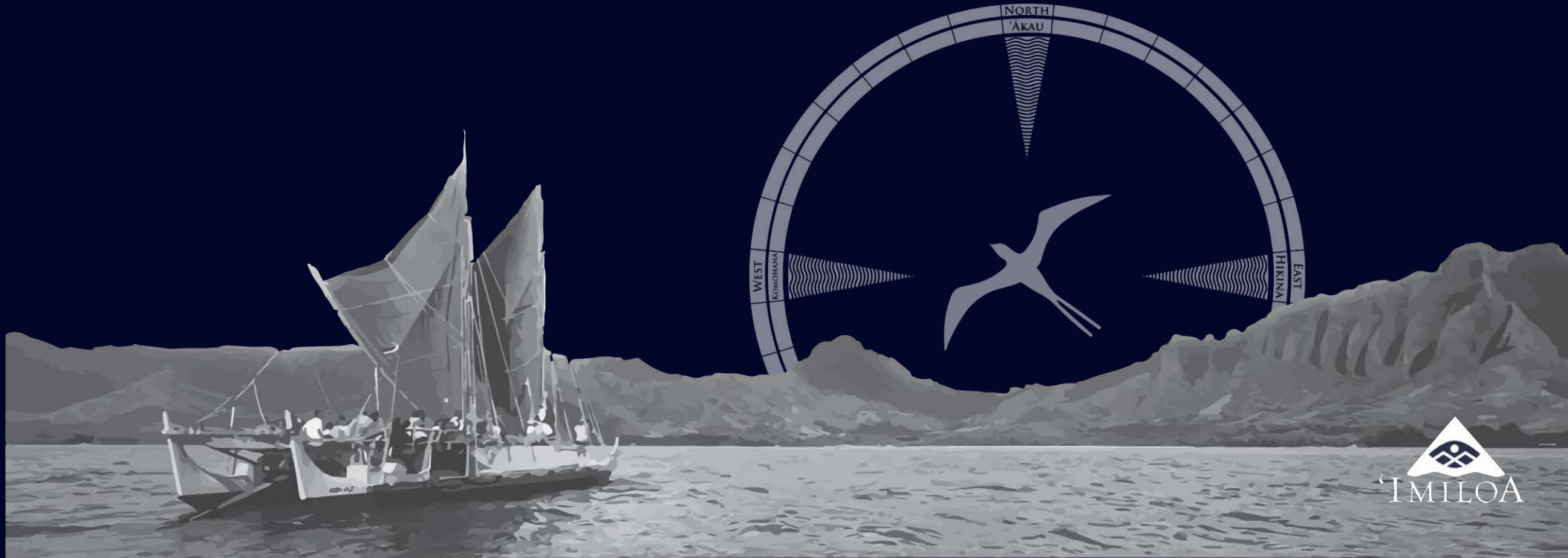


Annette S. Lee

He Lani Ko Luna, He Honua Ko Lalo

A Sky Above, Earth Below

*In Losing the Sight of Land,
You Discover the Stars*





A Hua He Inoa

To Bring Forth a Name

1. 'Ikemakalua - Two-Eyed Seeing

A Hua He Inoa-Give Forth a Name

'Ikemakalua-Two-Eyed Seeing

- 'Ike: know, see, feel, recognize, experience, understand, perception, vision

- Maka: Eyes

- Lua: Two



"I was amazed at how much attention this naming of astronomical discoveries got. So I really started to think about how this could impact our language movement; teaching a new generation this skill and the practice of creating Hawaiian names." – Larry Kimura



"To be able to name the objects, students first studied the asteroid themselves...We made sure they had access to experts in both 'ōlelo Hawaii and astronomy...A Hua He Inoa' is a critical step towards integrating indigenous perspectives and place-based scientific research." – Ka'iu Kimura

'Ikemakalua-Two Eyed Seeing

- 'Ike: To know, see, feel, recognize, experience, understand, perceive
- Maka: Eyes
- Lua: Two

Connect Two Eyed Seeing as this story is shared.



'Imiloa Astronomy Center

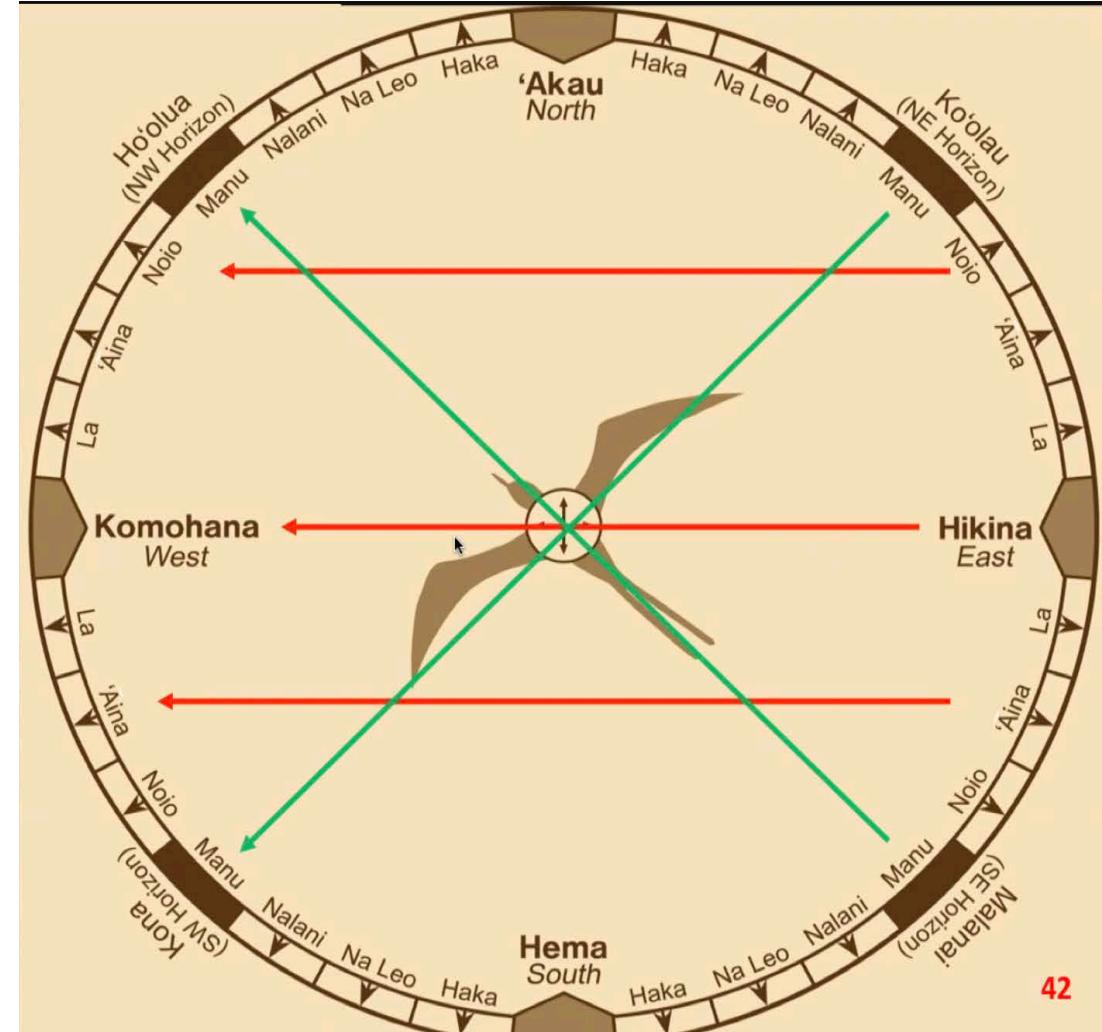
'IMILOA MEANS "TO SEEK FAR" AND IS THE HAWAIIAN WORD FOR BOTH "EXPLORE" AND "EXPLORER".

AT 'IMILOA, WE EXPLORE OUR PLACE IN THE GENEALOGY OF THE UNIVERSE AND CONTINUALLY SEEK, LEARN, AND ADAPT TO AN EVER-EVOLVING ENVIRONMENT THAT INSPIRES DISCOVERY AND INNOVATION.

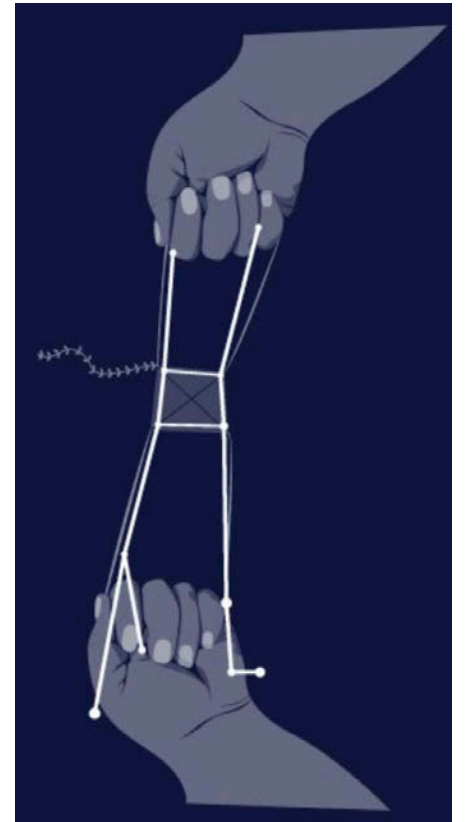
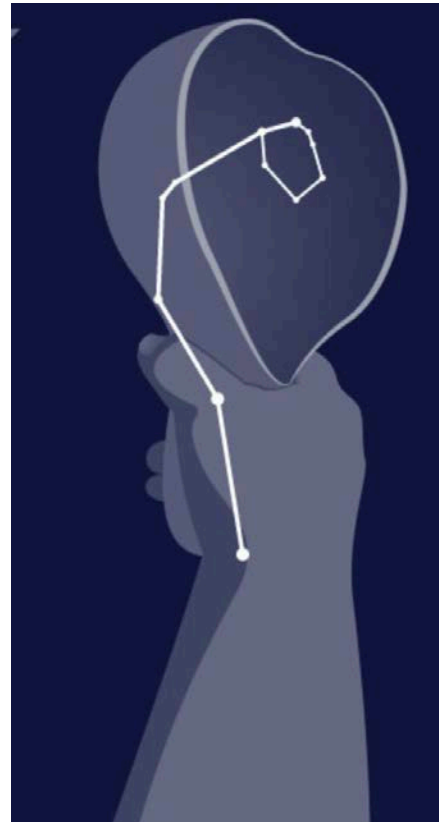
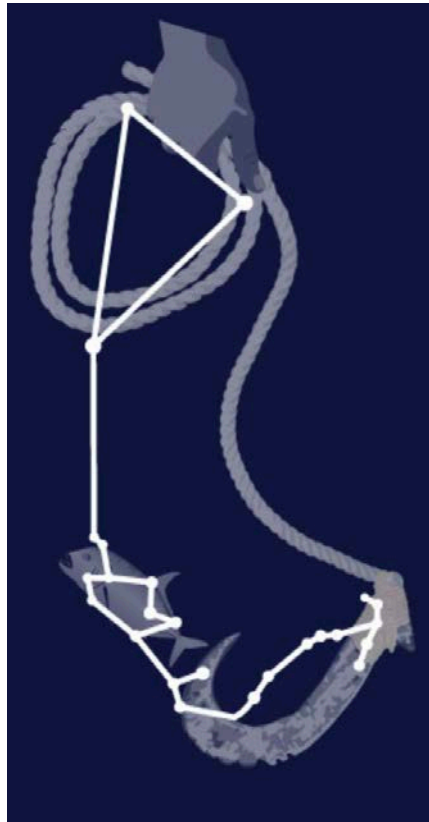
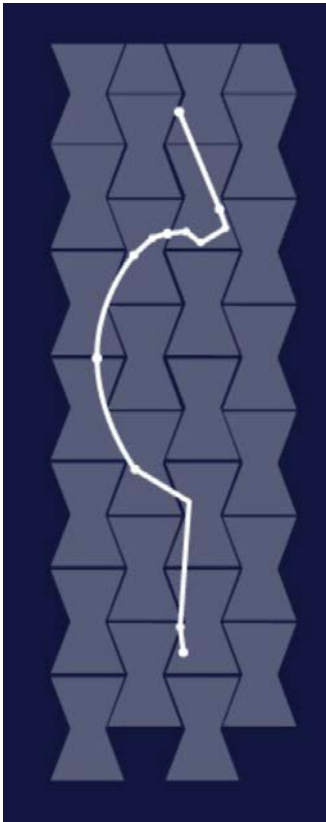


2a. Voyaging-Wayfinding

Oceanic Exploration
Wayfinding and Navigation



2b. Voyaging-Star Families:





E 'Ohi'ohi I Nā Pono

Kahea:

E 'ohi'ohi I nā pono!

Voyagers gather up your possessions!

Pane:

He kā, he iwi, he makau, he lupe.

A bailer, a bone, a fishhook, a kite.

Kākou:

Ua lako ka ipu a ka ho'okele.

The gourd of the navigator is provisioned.

3a. Volcano School

Kula 'Amakihi - Video



3b. Volcano School

Who are You in the Crew?

What role would you want to fill while aboard the Hōkūleʻa, and why?



Q & A



Photo credit: NASA.gov, <https://www.nasa.gov/artemisprogram>

Our Educators recommend:

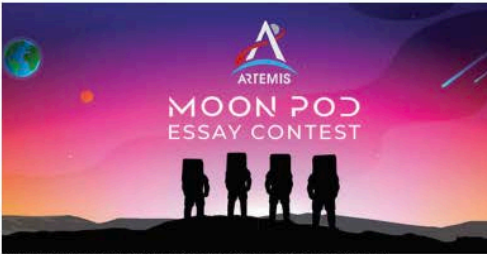


Photo credit: NASA.gov, https://www.nasa.gov/sove/Moon_Pod_Essay_Contest/

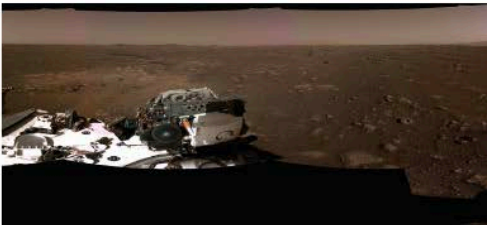
Ms. Lisa, Ms. Barbara, and Ms. Jacqueline recommend this NASA Artemis Activity: **IMAGINE LEADING A ONE-WEEK EXPEDITION ON THE MOON AND WRITE AN ESSAY THAT TELLS NASA ALL ABOUT IT.**

NASA is taking remote learning to the Moon! 2020 has been a year of working and living at a distance. Now consider what it might be like if you were living with a pod of astronauts 250,000 miles from Earth. Your challenge is to imagine leading a one-week expedition at the Moon's South Pole – with the whole world cheering you on. Tell us about the types of skills, attributes, and/or personality traits that you would want your Moon Pod crew to have and why. How many would be in your pod?



And of course you'll need high tech gear and gadgets! In your essay, also describe one machine, robot, or technology that you would leave on the lunar surface to help future astronauts explore the Moon.

Photo credit: European Space Agency, samantha, https://www.youtube.com/watch?v=C-6smB07s_Q



Credit: Perseverance's Mastcam-Z's 1st panoramic image of Mars, <https://mars.nasa.gov/>

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Mahalo!
Thank you.

- ✓ Celestial Navigation
- ✓ Hawaiian Star Families
- ✓ Hawaiian Star Compass
- ✓ NASA- Moon to Mars
- ✓ A *Hua He Inoa*-Calling forth a name

REGISTER

https://aui.gov/education/wayfind/register/WNV_PDF_Hawaiian_Astronomy

Friday
March 12
2021
9am hst



Presented by:
Kālepa Baybayan

Mahalo! Thank you!

nativeskywatchers@gmail.com www.nativeskywatchers.org

Educator Materials & Resources:

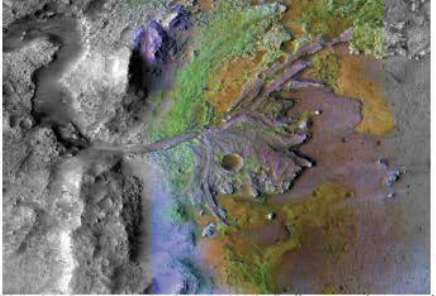
- **Booklet** featuring Hawai'ian Indigenous Astronomy & NASA Moon to Mars content | [Coming soon...](#)
- **Slides** supplement to the Live Show & NASA Moon to Mars content | [Coming soon...](#)
- **Event Flyer** | [View](#)
- **Worksheet** | [Coming soon...](#)
- **Recording** of Live Event (will be posted ~week after the event) | [Coming soon...](#)



Credit: <https://www.nasa.gov/press-release/nasa-s-perseverance-drives-on-mars-terrain-for-first-time>

NASA's Perseverance Drives on Mars' Terrain for First Time

NASA's Mars 2020 Perseverance rover performed its first drive on Mars March 4, covering 21.3 feet (6.5 meters) across the Martian landscape. The drive served as a mobility test that marks just one of many milestones as team members check out and calibrate every system, subsystem, and instrument on Perseverance. Once the rover begins pursuing its science goals, regular commutes extending 656 feet (200 meters) or more are expected. "When it comes to wheeled vehicles on other planets, there are few first-time events that measure up in significance to that of the first drive," said Anais Zarifian, Mars 2020 Perseverance rover mobility test bed engineer at NASA's Jet Propulsion Laboratory in Southern California. "This was our first chance to 'kick the tires' and take Perseverance out for a spin. The rover's six-wheel drive responded superbly. We are now confident our drive system is good to go, capable of taking us wherever the science leads us over the next two years." -<https://www.nasa.gov/press-release/nasa-s-perseverance-drives-on-mars-terrain-for-first-time>



Credit: Jezero Crater, Perseverance landing site, 3.5 billion year old delta, <https://www.nasa.gov/perseverance/images>



Credit: Perseverance's Mastcam-Z's 1st panoramic image of Mars, <https://mars.nasa.gov/>

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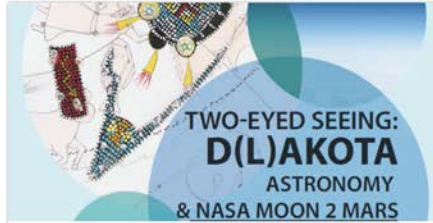


Two Eyed Seeing: *Ojibwe Astronomy & NASA Moon to Mars*

Friday, October 23, 2020

from 10-11 am cdt

[More Info](#) [View](#)

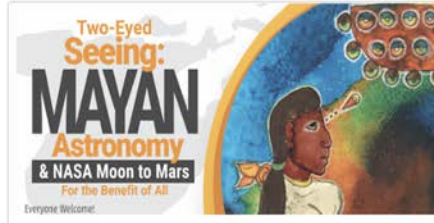


Two Eyed Seeing: *D(L)akota Astronomy & NASA Moon to Mars*

Friday, November 13, 2020

from 10 am – 11 am cst

[More Info](#) [View](#)



Two Eyed Seeing: *Mayan Astronomy & NASA Moon to Mars*

December 17, 2020

from 6:30-7:30 pm pst
=8:30-9:30 pm cst

[View](#)



Two Eyed Seeing: *NAVAJO (Dine) Astronomy & NASA Moon to Mars*

January 2021

9 am PST, 10 am MST

[Register](#)

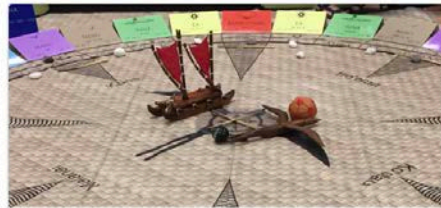


Two Eyed Seeing: *AFRICAN Indigenous Astronomy & NASA Moon to Mars*

Friday, February 26, 2021

10:30 am cst

[Register](#)

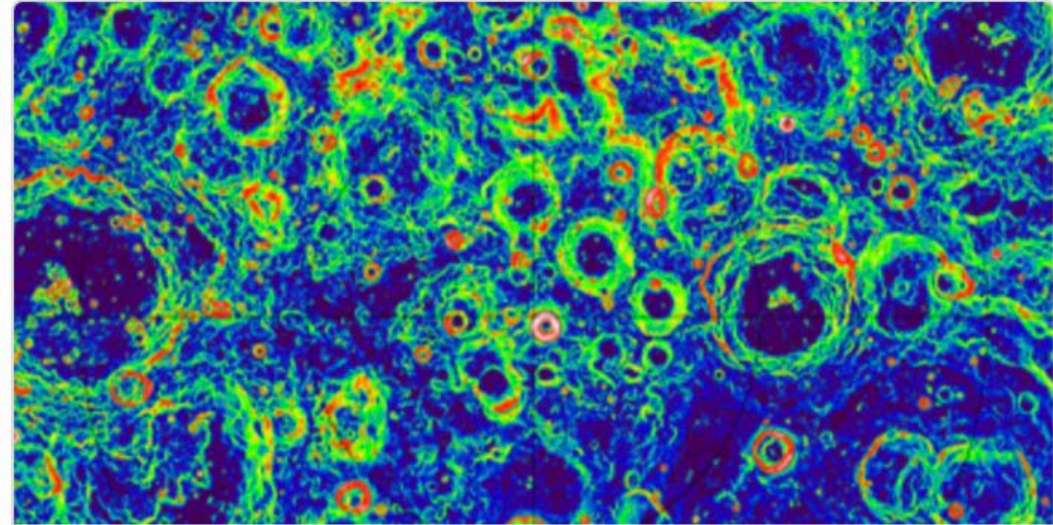


Two Eyed Seeing: *HAWAIIAN Indigenous Astronomy & NASA Moon to Mars*

March 12, 2021

9 am hst, 11 am pst, 12 noon mst, 1 pm
cst, 2 pm est

[Register](#)



Two Eyed Seeing: **STEAM, Indigenous Astronomy & NASA Moon 2 Mars**

April 2021

[Friday, April 30, 2021](#)

[Coming soon...](#)