



Keck Twin Telescopes, Mauna Kea, photo by

TWO-EYED SEEING: ARABIAN INDIGENOUS ASTRONOMY & THE STARDUST PROJECT

MAY 14
FRIDAY

2021
10 AM PDT

PRESENTED BY:

*D*anielle Adams, Annette S. Lee, Raja GuhaThakurta, Tavia La Follette, Kate Rosok, and Andrea Medina.

Supporting organizations are: Lowell Observatory, Native Skywatchers, Starry-Starry-Night (UC-Santa Cruz), and NASA-Next Gen STEM.

REGISTER/WN_5-BCEETSRRYBH1IQEQ2J7A



Photo credit Max Huck



Photo by Bjorn Franke



Photo by Wireto



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](#)

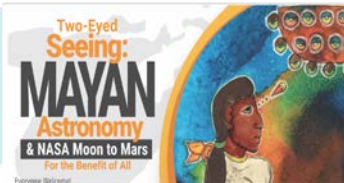


Two Eyed Seeing:
D(L)AKOTA Astronomy &
NASA Moon 2 Mars

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

[Register](#)

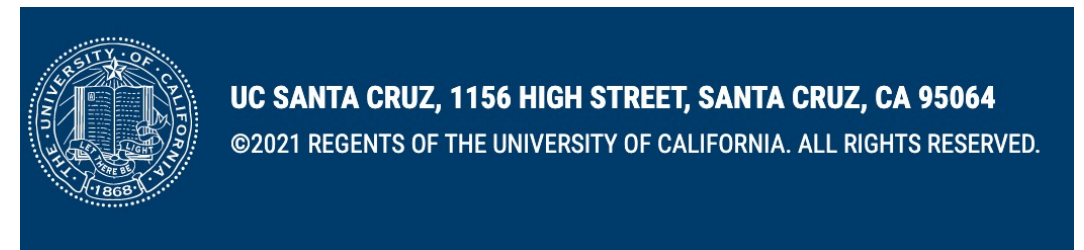
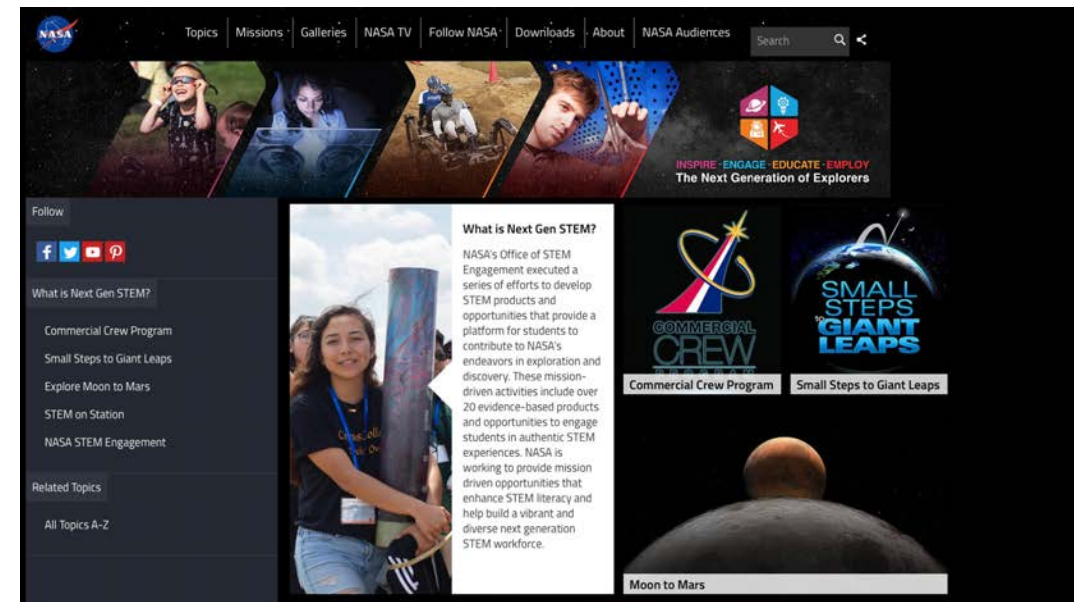


Two Eyed Seeing:
ART, Indigenous Astronomy &
NASA Science-Making Spirit,
Making Art

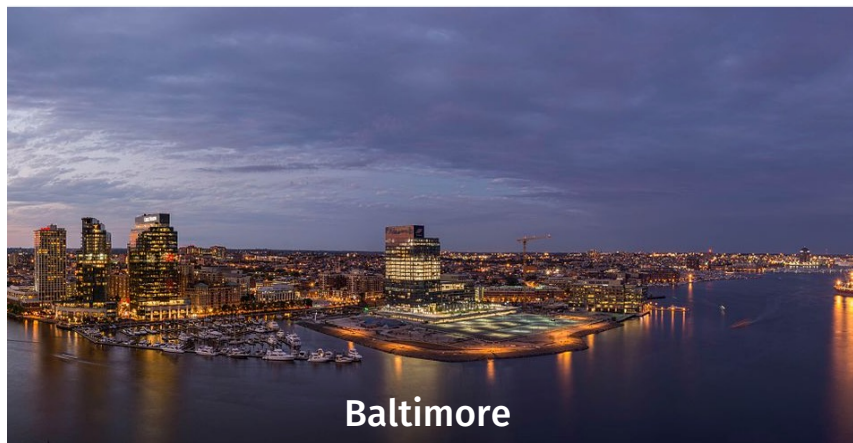
Friday, April 30, 2021

9 am cdt, 10 am edt, 8 am mdt, 7 am pdt

[Register](#)



LAND ACKNOWLEDGEMENT





Two-Eyed Seeing: Indigenous Arabian Astronomy

Dr. Danielle Adams



Q & A



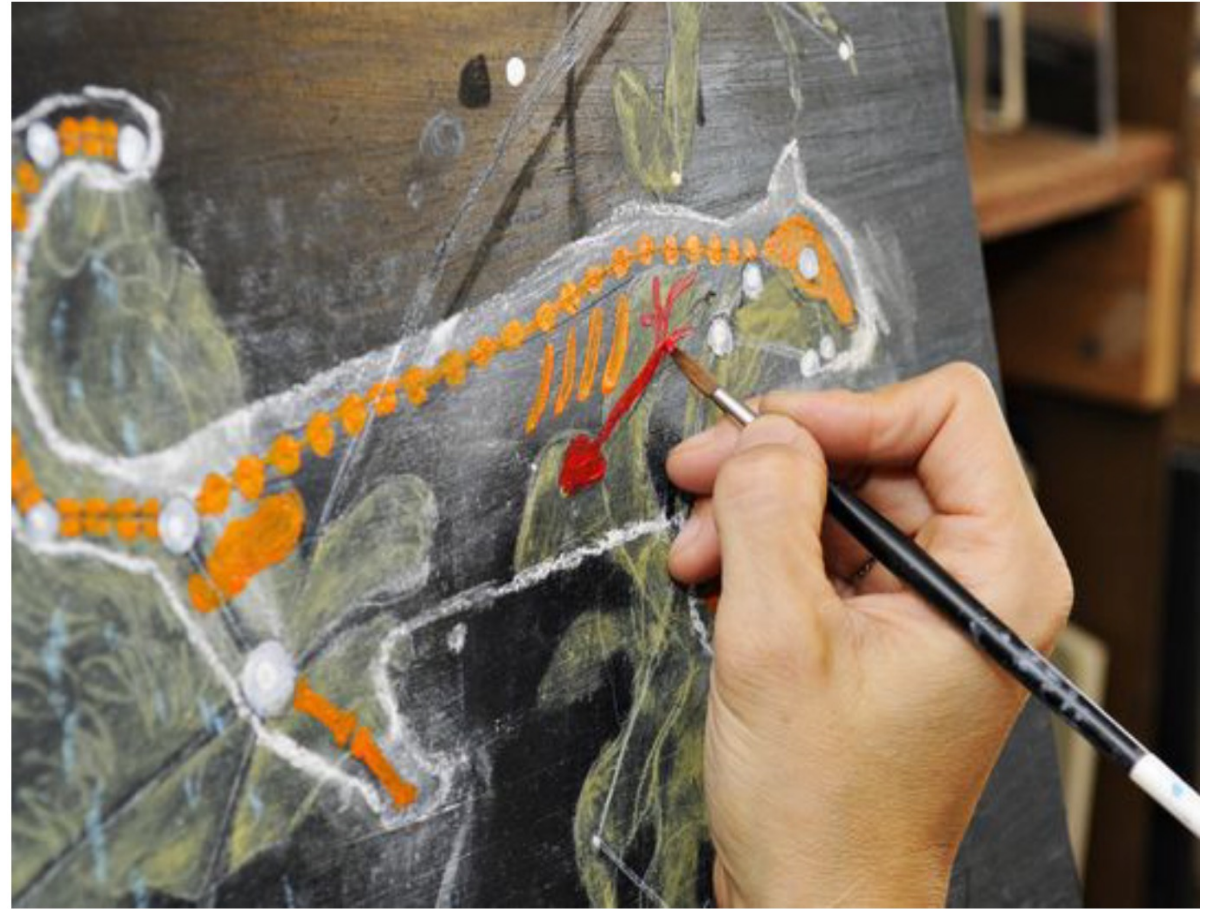
"We Are Stardust"

A Collaborative Research Project between *Native Skywatchers* and UC-Santa Cruz

This project lives at the intersection of Science-Art-Culture - Led by Annette S. Lee and Raja (Puragra) GuhaThakurta



ASTRONOMER

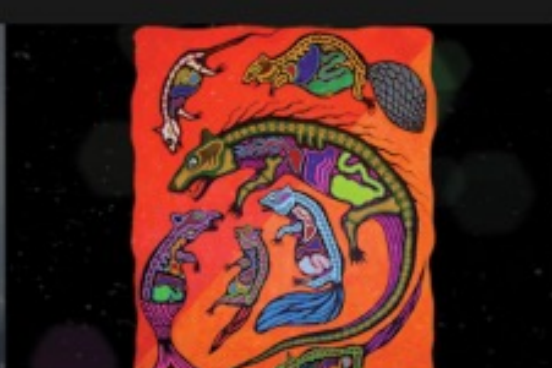


EDUCATOR

ARTIST



CARL GAWBOY



OJIG - FISHER



THE MOON'S HEARTBEAT
My heartbeat



ZAAGIBAGAA-GIIZIS
BUDDING MOON - MAY



MANIDOO-GIIZIS
LITTLE SPIRIT MOON - FEBRUARY

**Culture
Focused
Native
Skywatchers
Videos**



-Biboonkeonini-
WINTERMAKER



CARL GAWBOY
Presents "The Wintermaker"



Video Director:
ANNETTE S. LEE

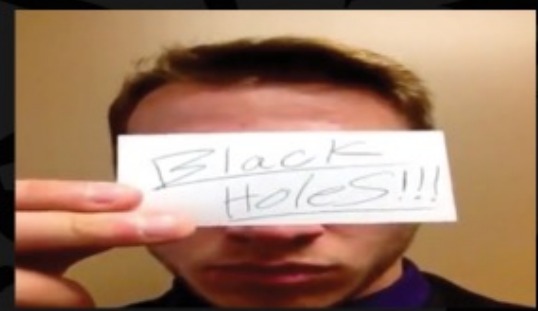
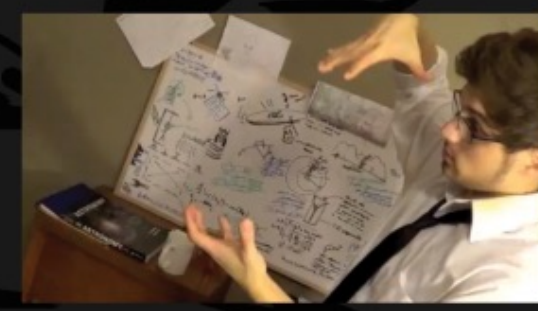
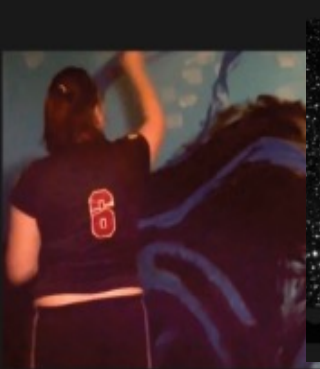
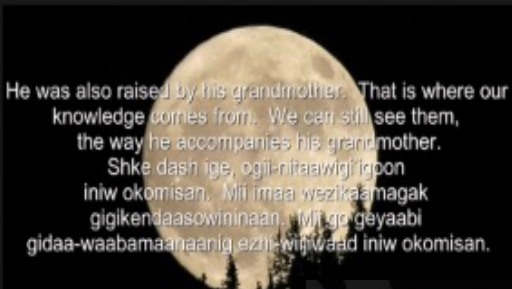


They (the Spirits) put Maang-loon to watch over the stars....

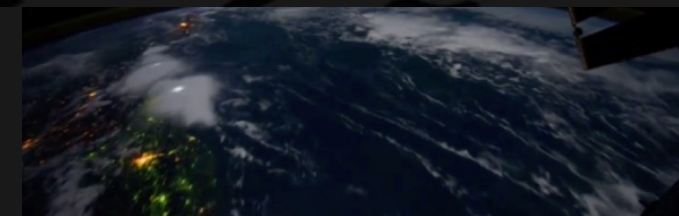
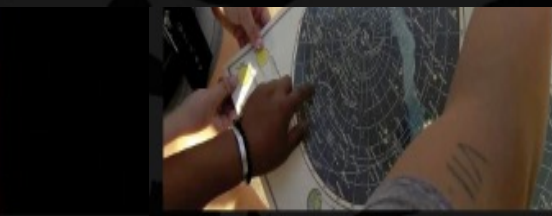
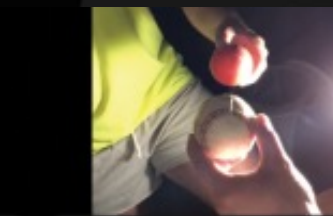
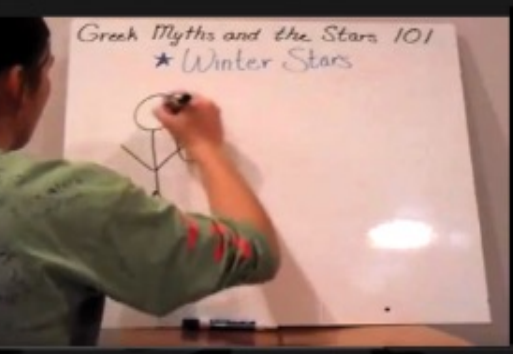
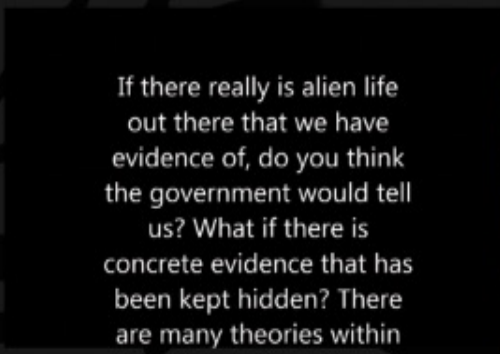


"If the Indian person kills a loon, never put him (loon) on his back....."

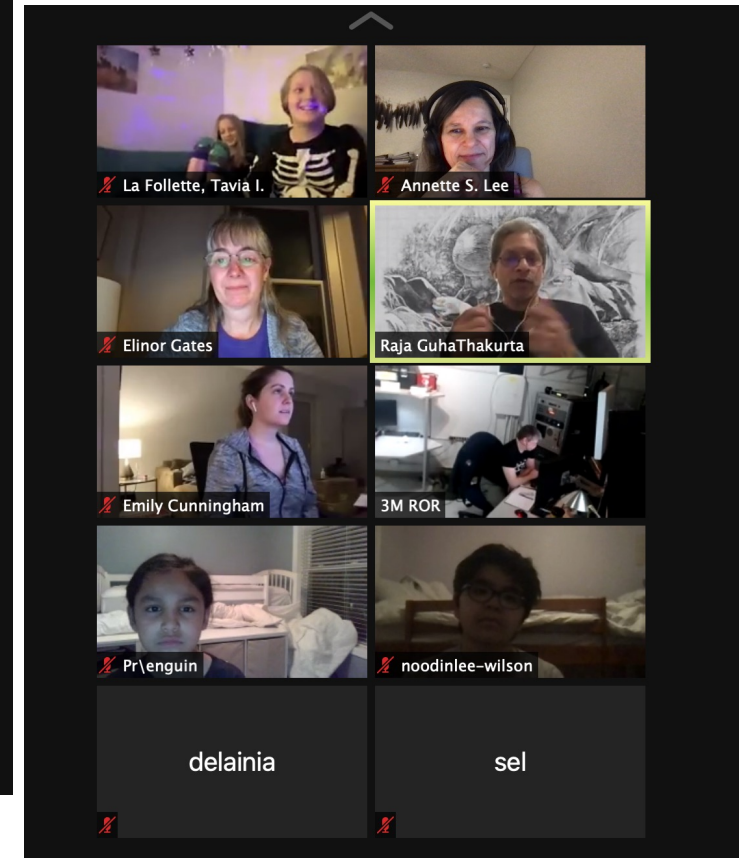
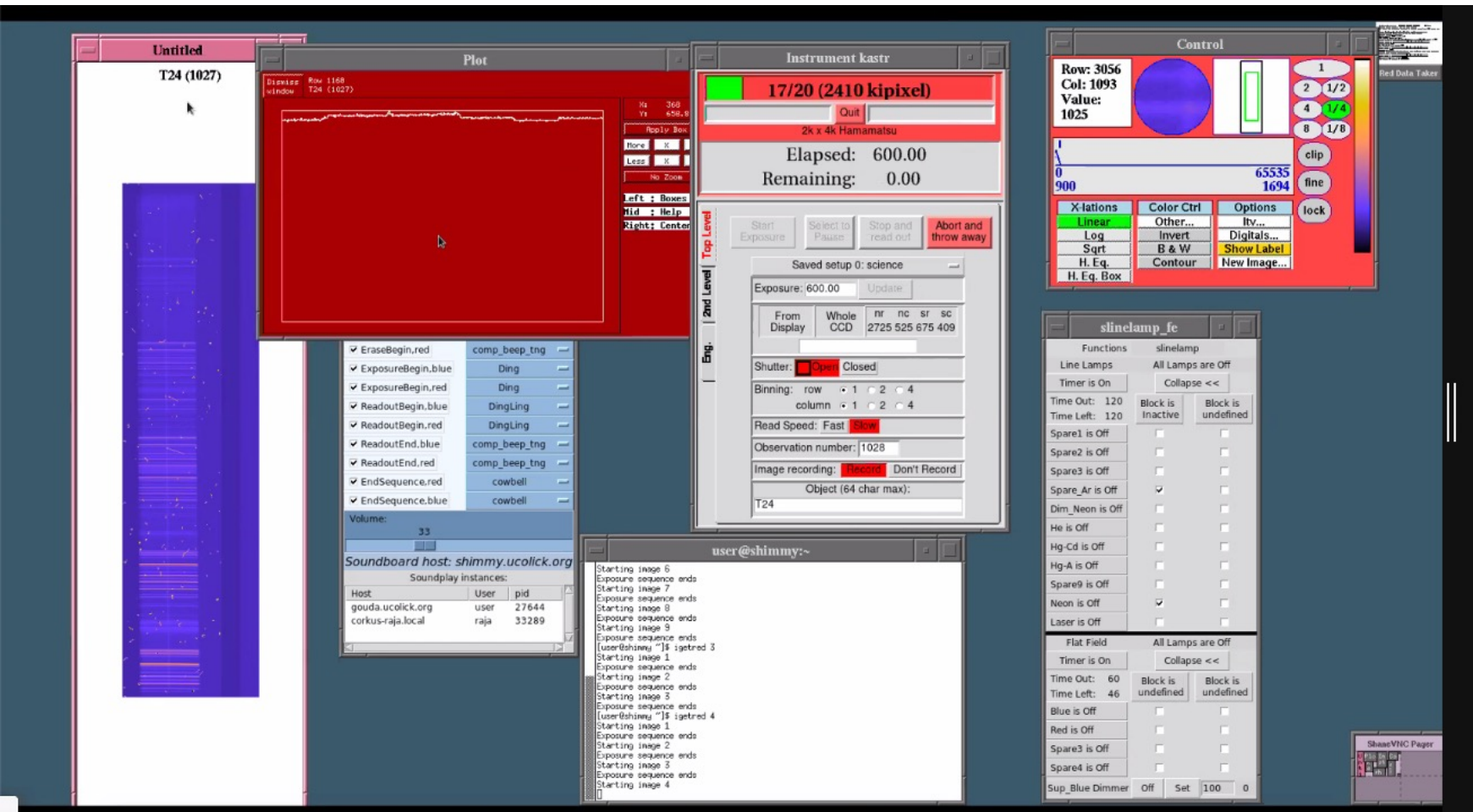




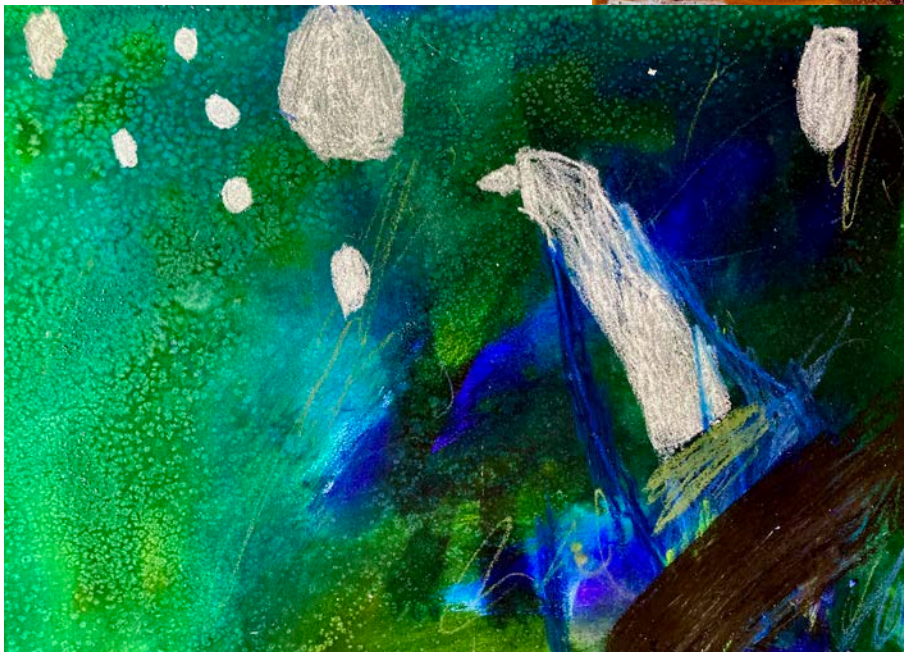
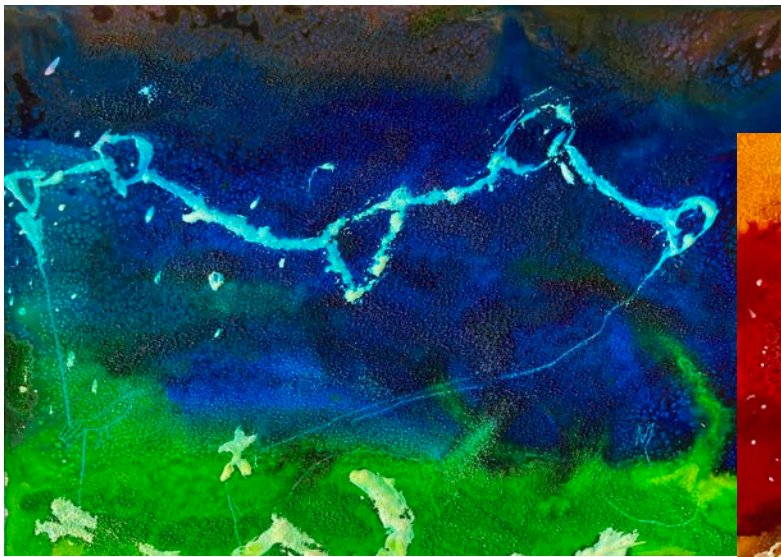
ASTR 101 - Student Made Videos - Astronomy in Culture



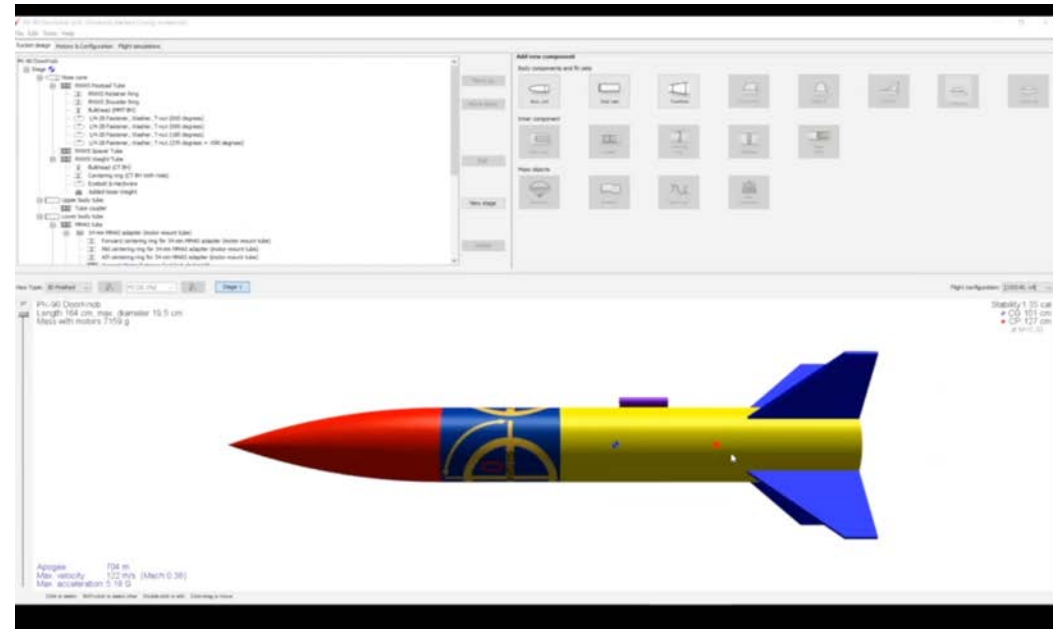
The Science Story -> PJ Observing



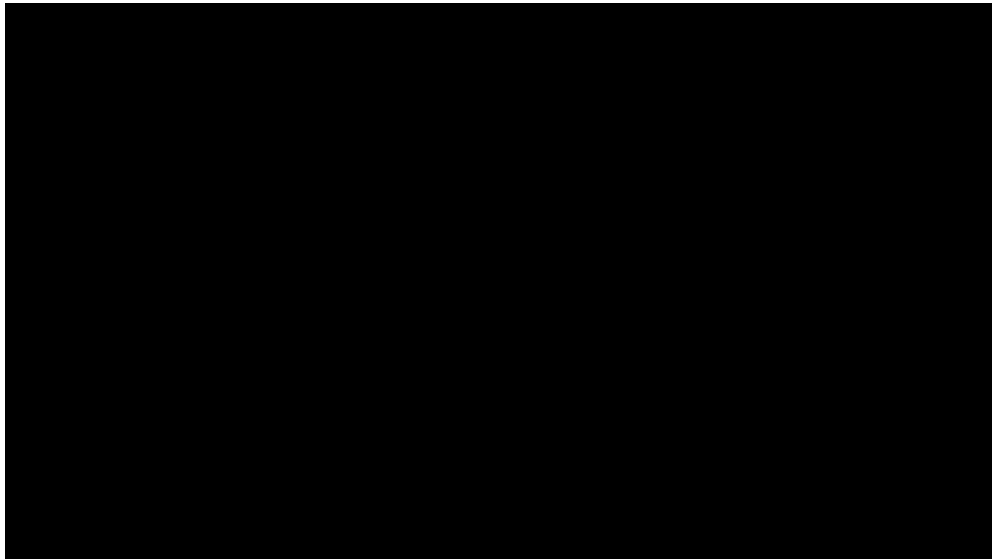
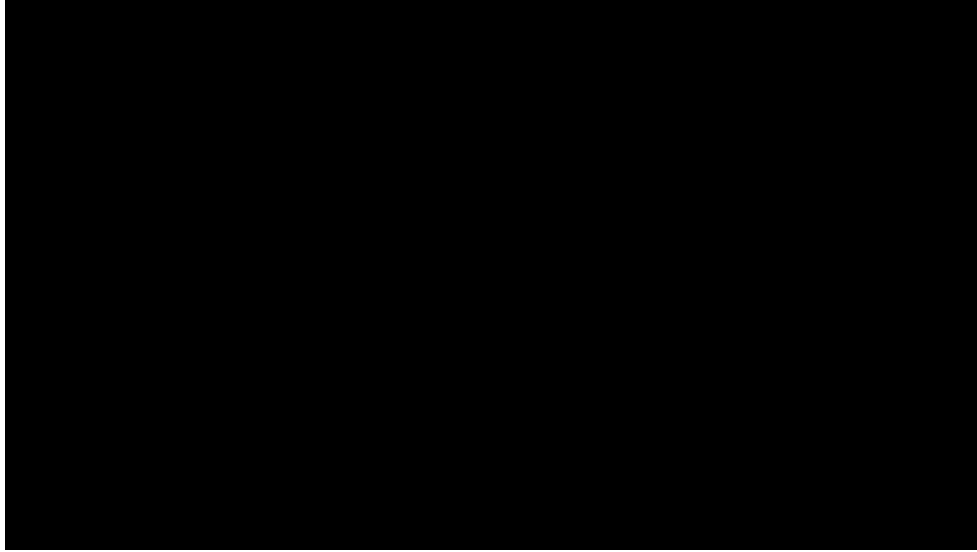
My Story -> Create Something!



Culture Story -> Interview the Expert



Elementary & Middle School Cohort – Video Productions



South High School Cohort

NGVS Graphical Search Tool

powered by **CANFAR**

Centering controls
RA: 186.711230
Dec: 9.959372 Go
Zoom: 7
Object: VCC1316 Go Clear

List Images
List individual images
List stacked images

Display
Sky Background: ☒ Vis ☐ IR
None
Show Grid ☒
Show Stacked Images ☒
Show Individual Images ☒
Show Pointings? ☒
Show **NGVS images** 7

Filters
[Buttons: B, G, R, I, Z, K]

Exposure
Long Short Merged
☒ ☒ ☒

Individual Images
No pre-processing ☒
Normal Elixir pre-processing ☒
Elixir-LSB pre-processing ☒

Elixir preview stacks
LSB Preview Images, binned 3x3 ☒
LSB Preview Images, binned 24x24 ☒

MegaPipe stacks (Documentation)
Local background subtraction, median combine (1128) ☒
MegaPipe global background subtraction, artificial skepticism combine (g002) ☒

meet.google.com is sharing your screen



Centering controls
RA: 186.925691
Dec: 12.872605 Go
Zoom: 11
Object: VCC1316 Go Clear

List Images
List individual images
Get outline

Display
Sky Background: ☒ Vis ☐ IR
None
Show Grid ☒
Show **NGVS images** 7

Filters
[Buttons: B, G, R, I, Z, K]

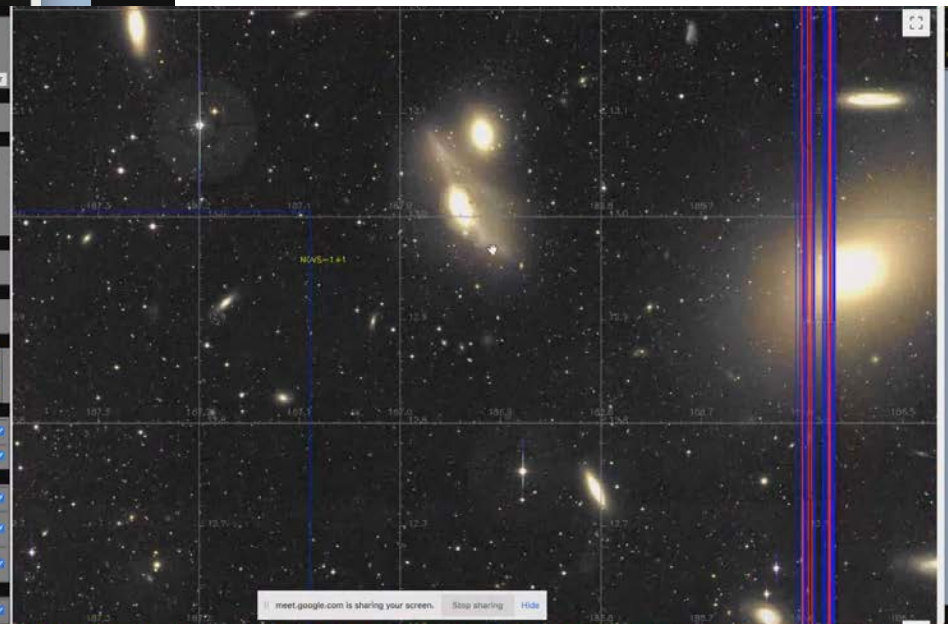
Exposure
Long Short Merged
☒ ☒ ☒

Individual Images
No pre-processing ☒
Normal Elixir pre-processing ☒
Elixir-LSB pre-processing ☒

Elixir preview stacks
LSB Preview Images, binned 3x3 ☒
LSB Preview Images, binned 24x24 ☒

MegaPipe stacks (Documentation)
Local background subtraction, median combine (1128) ☒
MegaPipe global background subtraction, artificial skepticism combine (g002) ☒
Elixir-LSB global background subtraction, artificial skepticism combine (g004) ☒

meet.google.com is sharing your screen



The logo features the letters 'OSP' in a stylized, blue, rounded font. The 'O' and 'P' are connected, and the 'S' is integrated into the design. To the right of the logo, the words 'SCIENCE' and 'INTERNSHIP PROGRAM' are stacked in a large, bold, black, sans-serif font.

OSP SCIENCE INTERNSHIP PROGRAM

Art, Culture, and STEM

Project code: ACS-01 (AST)

Title: Native Skywatchers – Starry, Starry Nights Collaboration: We Are Stardust

Primary mentor: Prof. Annette Lee (St. Cloud State U.)

UCSC faculty contact: Prof. Raja GuhaThakurta

Location: Remote/online

Number of interns: 8

Project description:

As described by Mi'kmaw elders: "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). This collaboration will follow in the spirit and framework of Two-Eyed Seeing, with particular emphasis on the last line 'use both these eyes for the benefit of all'. It builds on the existing Native Skywatchers research and programming initiative in a unique merger with the Starry, Starry Nights initiative. The goal is to give students a unique opportunity for authentic involvement in science and to weave in cultural relevance equally into the experience to produce the highest level of engagement, excitement, and meaning for all involved. This project lives at the intersection of science, art, and culture.

Tasks:

The SIP interns' tasks will include the following: (1) participating (remotely) in night time observing with the Lick Observatory in California and Keck Observatory telescope in Hawai'i; (2) digital art (recording, video editing, etc.); (3) Citizen Science; (4) creating art; and (5) documenting and sharing multiple views, ways of knowing, and culture.

Required skills for interns prior to acceptance: None

Skills interns will acquire/hone: Field work, statistical data analysis

Q & A



Photo by Bjorn Franke

TWO-EYED SEEING: ARABIAN INDIGENOUS ASTRONOMY & THE STARDUST PROJECT



Photo credit Max Huck



Photo by Bjorn Franke

MAY 14
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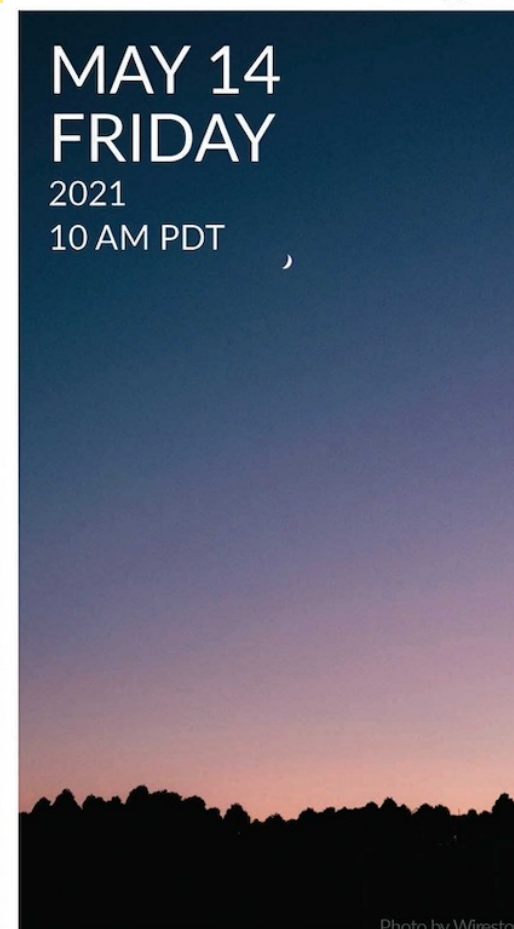
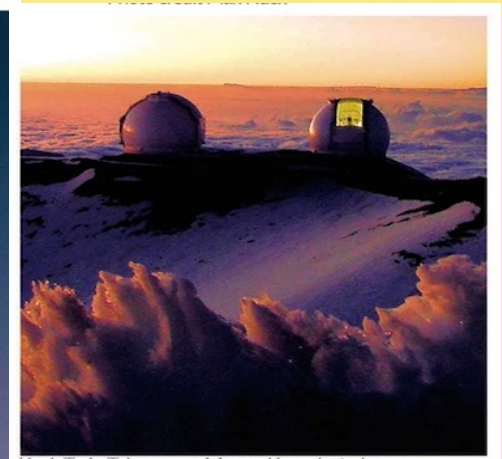


Photo by Wirestock



Keck Twin Telescopes, Mauna Kea, photo by

PRESENTED BY:

*D*anielle Adams, Annette S. Lee, Raja GuhaThakurta, Tavia La Follette, Kate Rosok, and Andrea Medina.

Supporting organizations are: Lowell Observatory, Native Skywatchers, Starry-Starry-Night (UC-Santa Cruz), and NASA-Next Gen STEM.

REGISTER/WN_5-BCEETSRRYBH1IQEQ2J7A

Wopida! Miigwech! Thank you!

nativeskywatchers@gmail.com

www.nativeskywatchers.org



Schedule of Upcoming Live Shows for this Project:

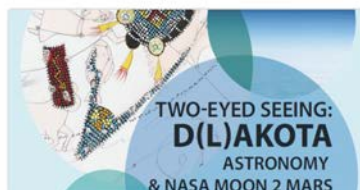


Two Eyed Seeing: **Ojibwe Astronomy & NASA** **Moon to Mars**

Friday, October 23, 2020

from 10-11 am cdt

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

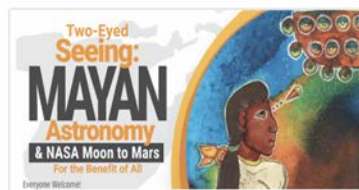


Two Eyed Seeing: **D(L)akota Astronomy & NASA** **Moon to Mars**

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 2** **Mars**

February 2021



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 2** **Mars**

March 2021



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: **ART, Indigenous Astronomy &** **NASA Science-Making Spirit,** **Making Art**

Friday, April 30, 2021

9 am cdt, 10 am edt, 8 am mdt, 7 am pdt

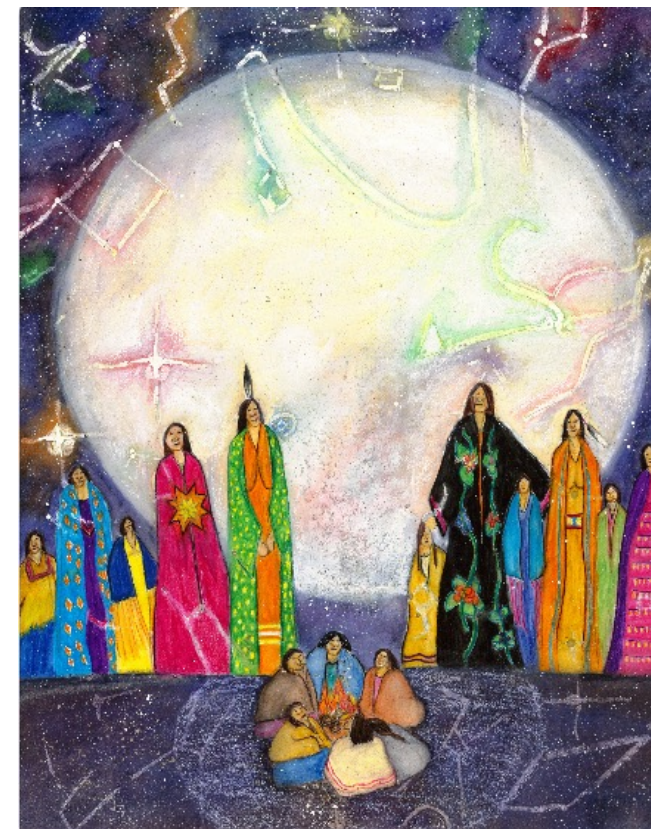
[Register](#)

Save the Date!!!

Native Skywatchers – Educator & Community Summer Workshop 2021!

June 14-15, 2021

Free, online event



“Two-Eyed Seeing: Arabian Indigenous Astronomy & the Stardust Project”



May 14, 10 am PDT = 11 am mdt = 12 noon
cdt = 1 pm edt