

Name Joby

UNIT 10 TEST

Divide.

15 F

1.
$$\begin{array}{r} 17 R1 \\ 4 \overline{) 69} \\ \underline{4} \\ 29 \\ \underline{28} \\ 1 \end{array}$$

2.
$$\begin{array}{r} 64 R0 \\ 6 \overline{) 384} \\ \underline{36} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

3.
$$\begin{array}{r} 403 R0 \\ 2 \overline{) 816} \\ \underline{8} \\ 01 \\ \underline{00} \\ 06 \\ \underline{06} \\ 0 \end{array}$$

5.
$$\begin{array}{r} 2 R24 \\ 30 \overline{) 84} \\ \underline{60} \\ 24 \end{array}$$

6.
$$\begin{array}{r} 19 R0 \\ 50 \overline{) 950} \\ \underline{50} \\ 450 \\ \underline{450} \\ 000 \end{array}$$

7.
$$\begin{array}{r} 3 R6 \\ 23 \overline{) 75} \\ \underline{69} \\ 6 \end{array}$$

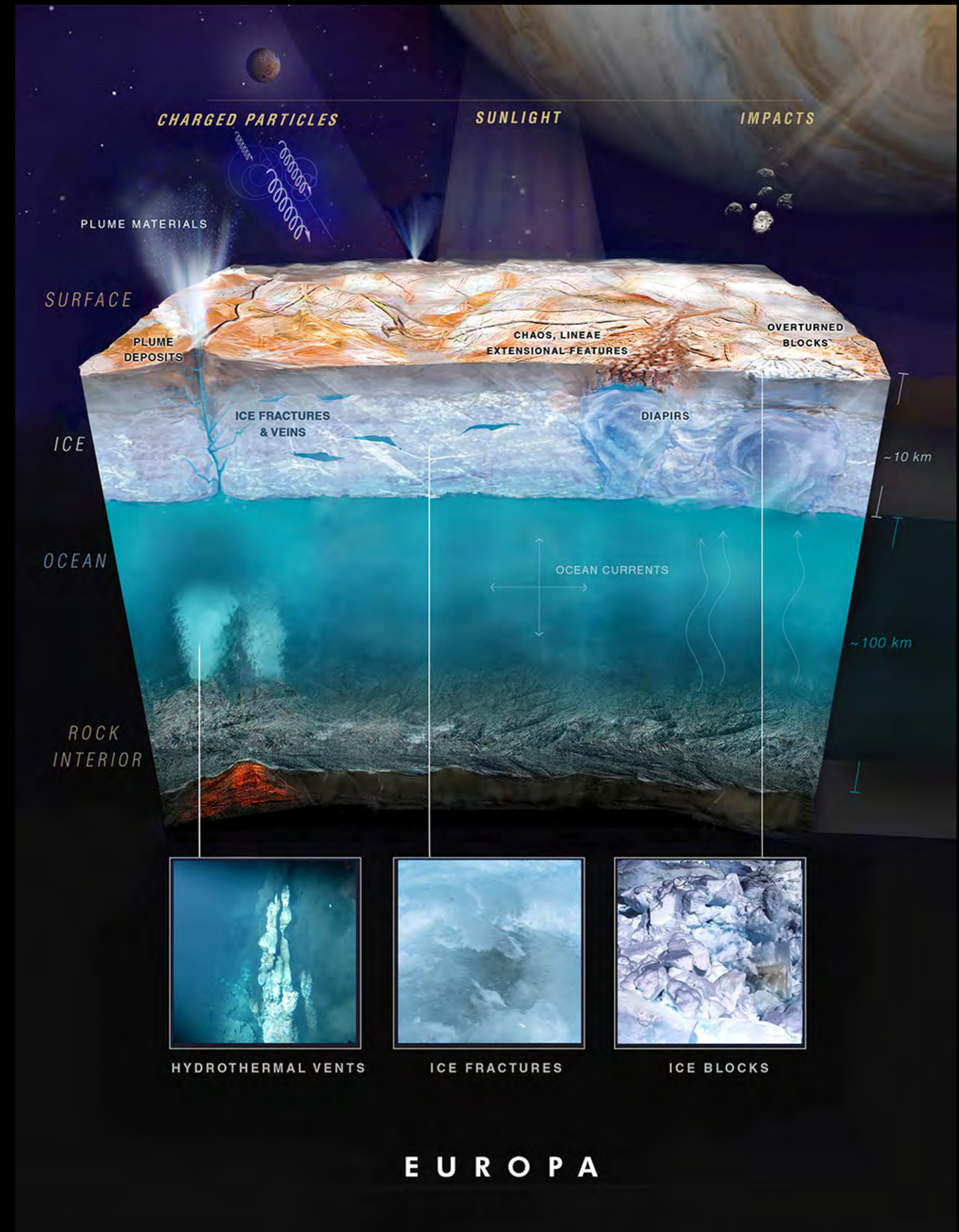
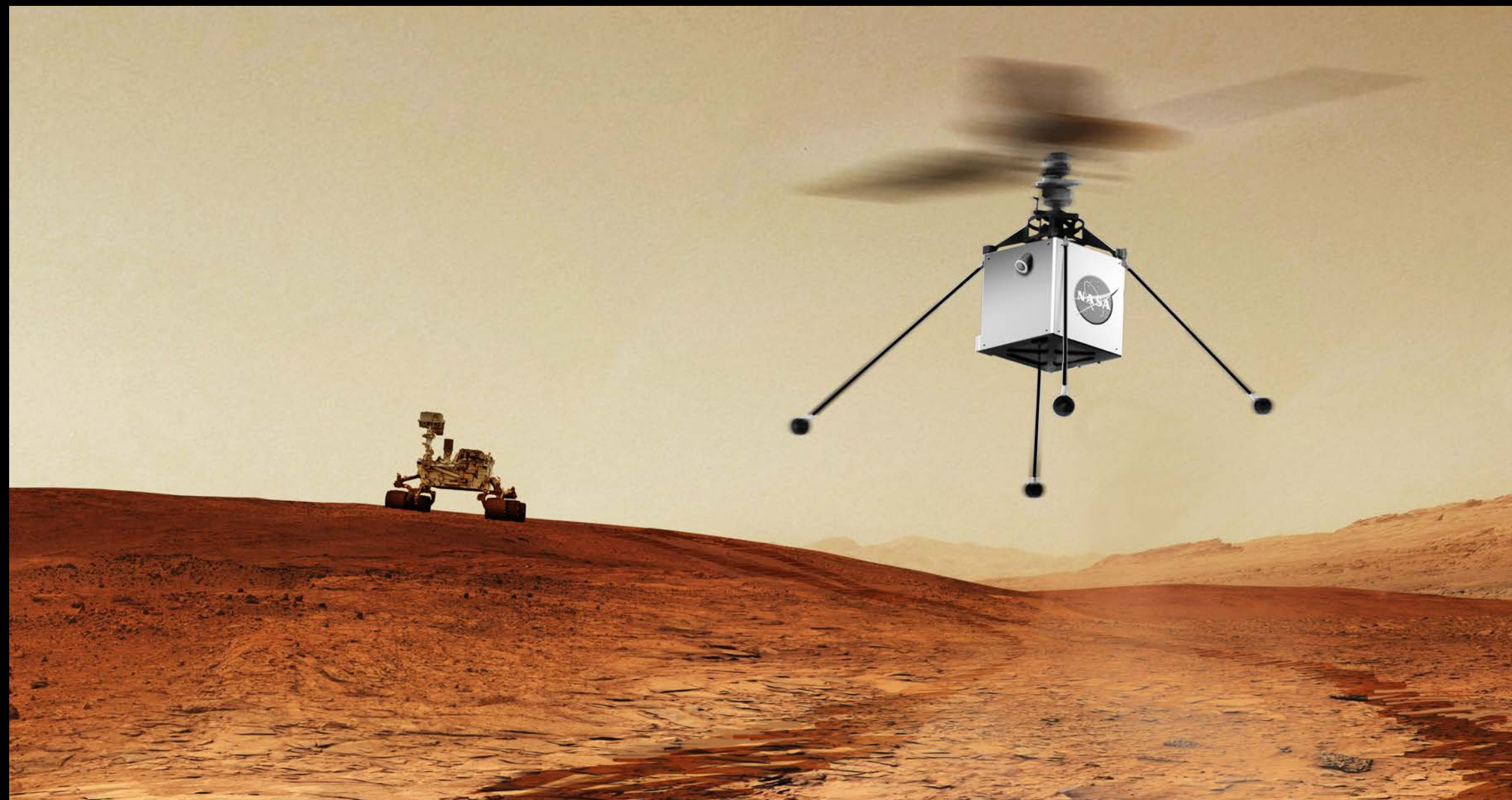
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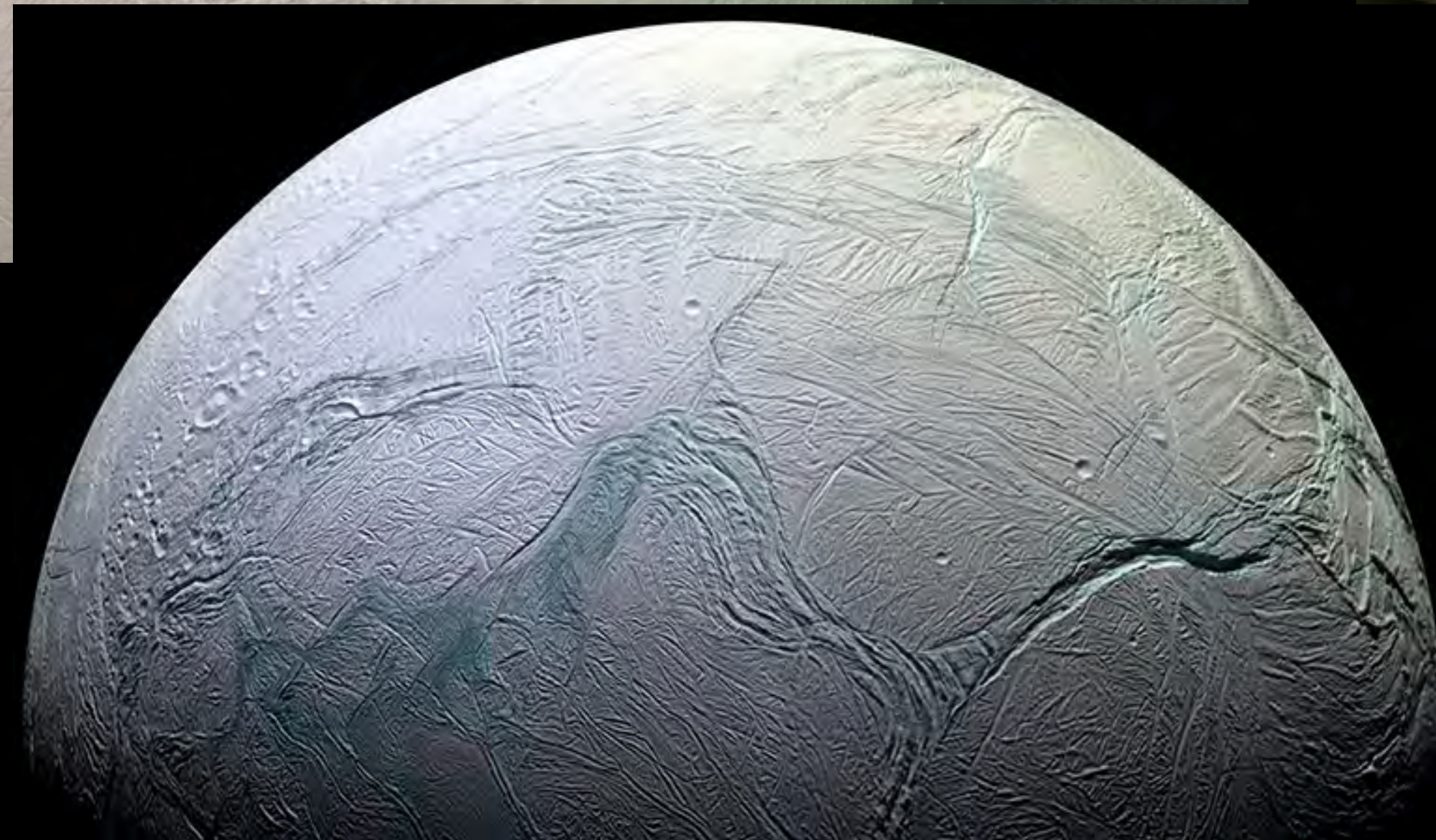


STORYBOARDS

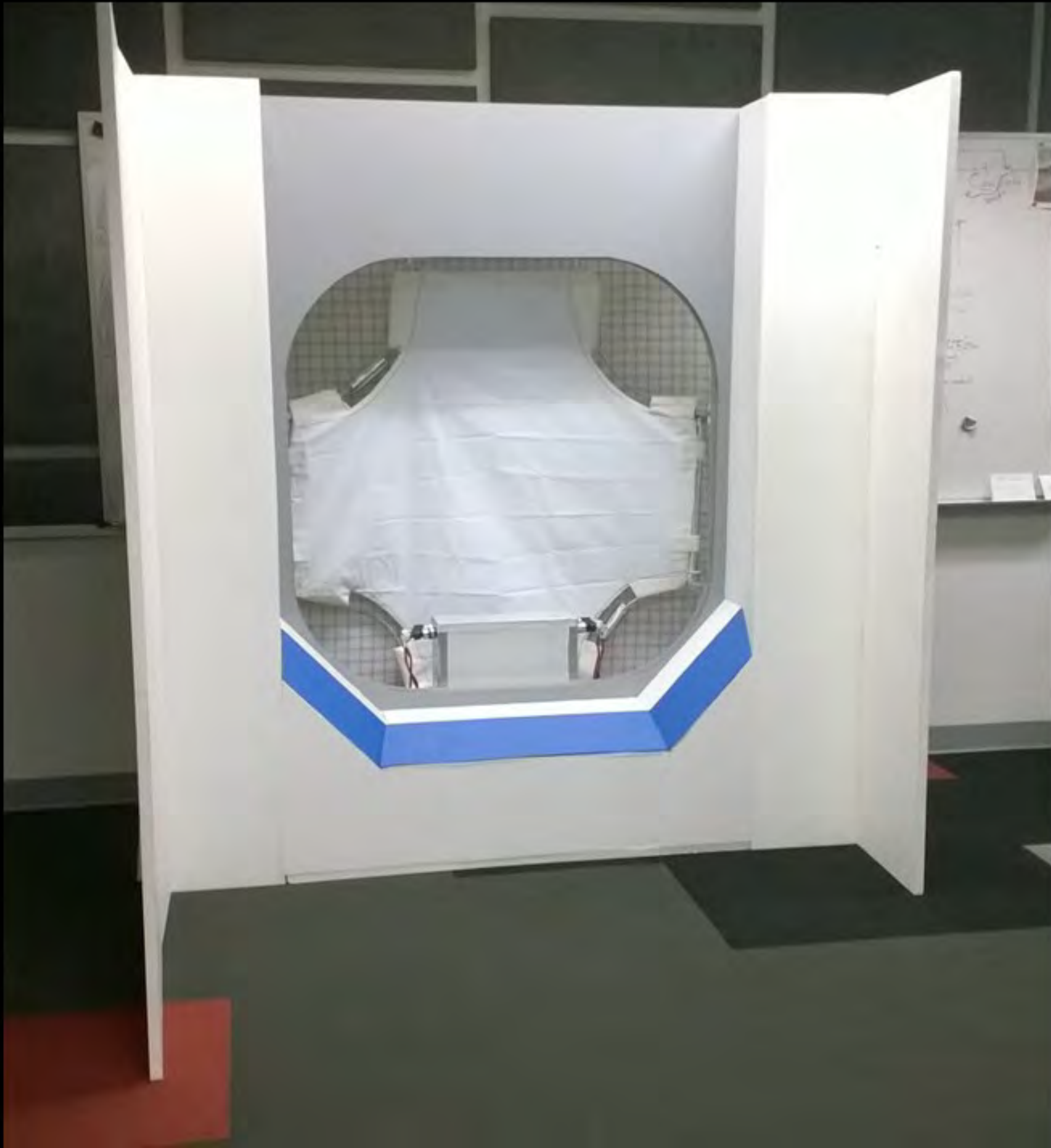


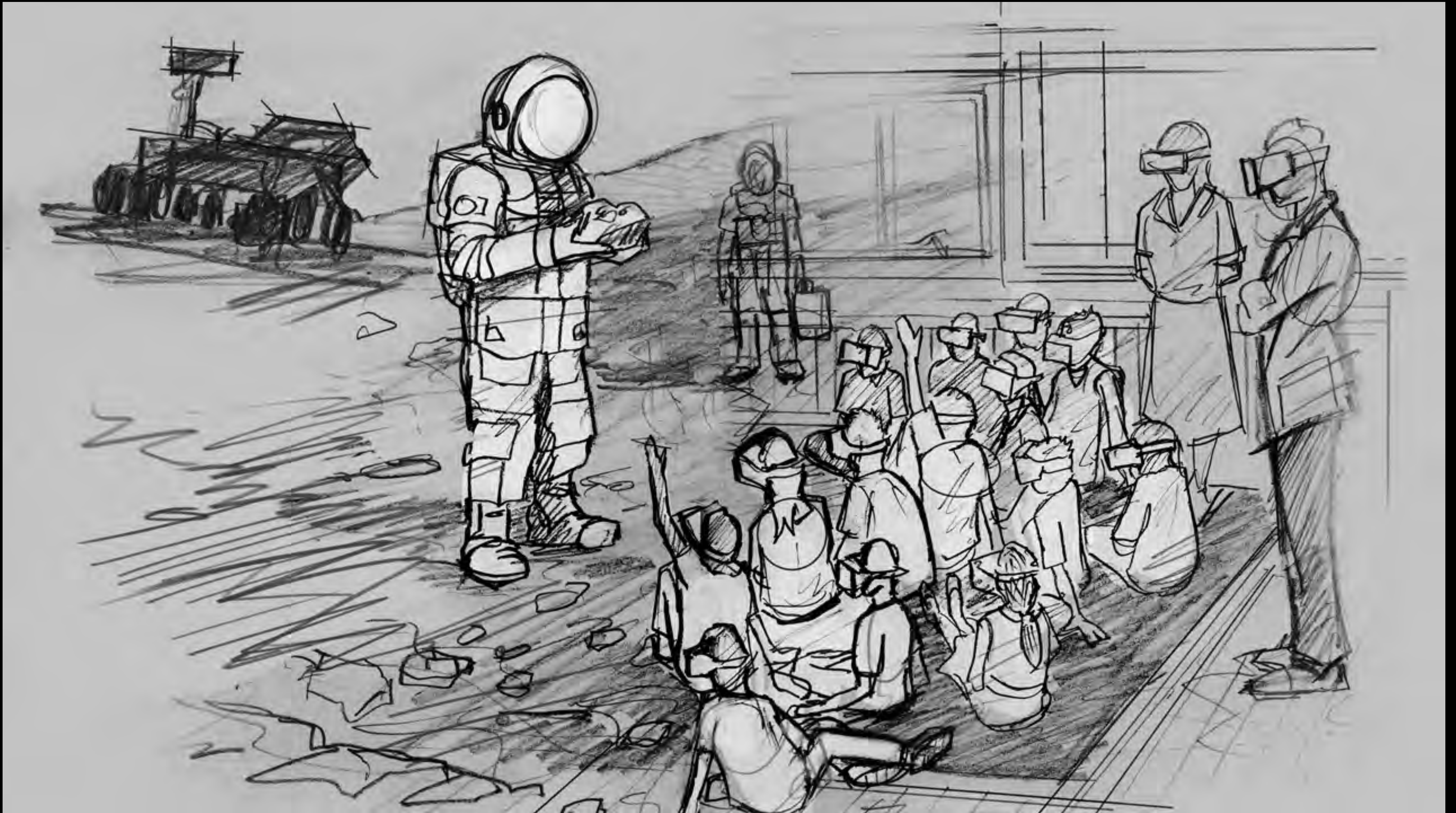












“ I hope the future generations will realize that we have not only the scientists and engineers capable of shaping the destiny of our age, but artists worthy to keep them company.”

- Lester Cooke *National Gallery of Art*

NASA ART PROGRAM

<https://www.dailyartmagazine.com/nasa-art-program/>

NASA HQ | Centers and Facilities

ENGINEERS

SCIENTISTS

PUBLIC ENGAGEMENT

EDUCATION & OUTREACH

OTHER NASA SPECIALISTS

SOFTWARE ENGINEERS; AR / VR / UX; FACILITIES; ADMIN; WRITERS ETC.

NEWS & MEDIA

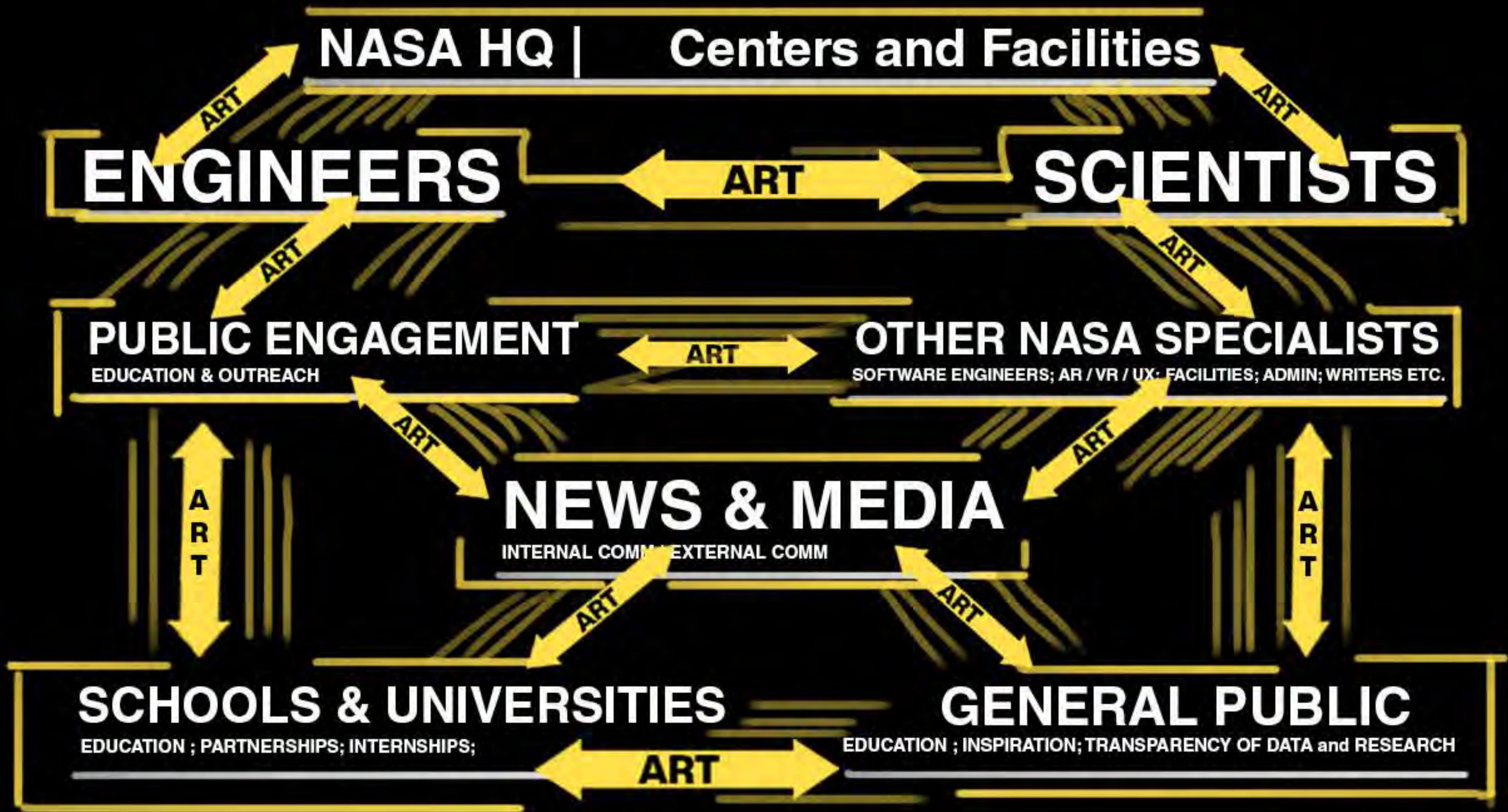
INTERNAL COMM | EXTERNAL COMM

SCHOOLS & UNIVERSITIES

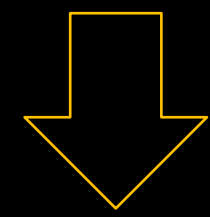
EDUCATION ; PARTNERSHIPS; INTERNSHIPS;

GENERAL PUBLIC

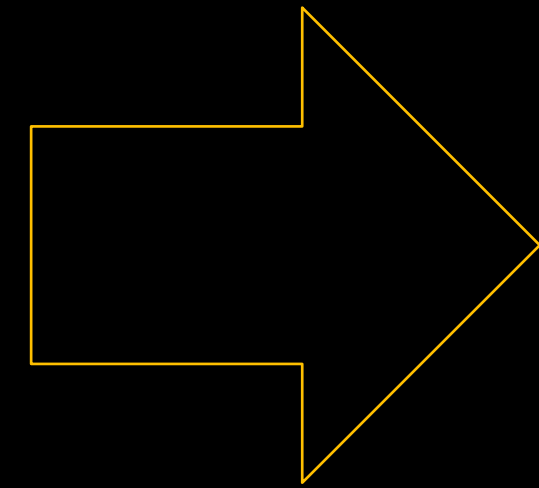
EDUCATION ; INSPIRATION; TRANSPARENCY OF DATA and RESEARCH



DATA
RESEARCH
FACTS
SCIENCE
ENGINEERING
VISION



ART



Universal language that can **communicate** complexity to all at once with clarity and leave room for interpretation and imagination.

- PHD LEVEL PROFESSIONAL
- PROFESSIONAL
- EDUCATOR

- NOVICE / AMATUER
- STUDENT

- LOCAL
- FOREIGN

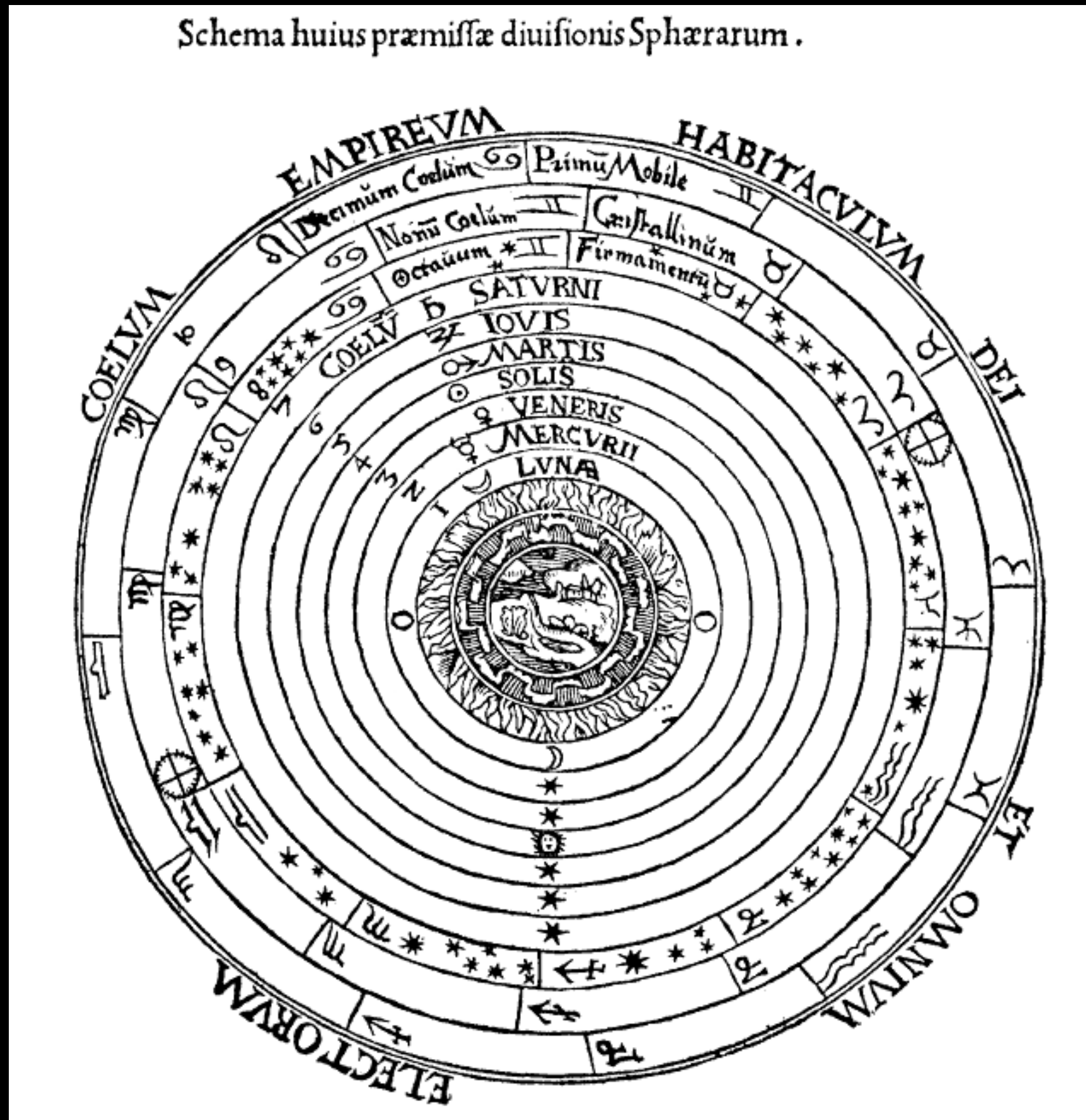
- ADULT
- TEEN
- CHILD

COMMUNICATION

- Visual Strategists (Artists/ Designers)
- News Team
- Social Media
- Writers
- Photographers
- Film and Video | Documentarians
- Education Specialists
- Outreach and Public Engagement
- Web Developers
- VR/ AR Developers
- Printing Specialists
- Archives
- Historians

NASA | JPL | 18x

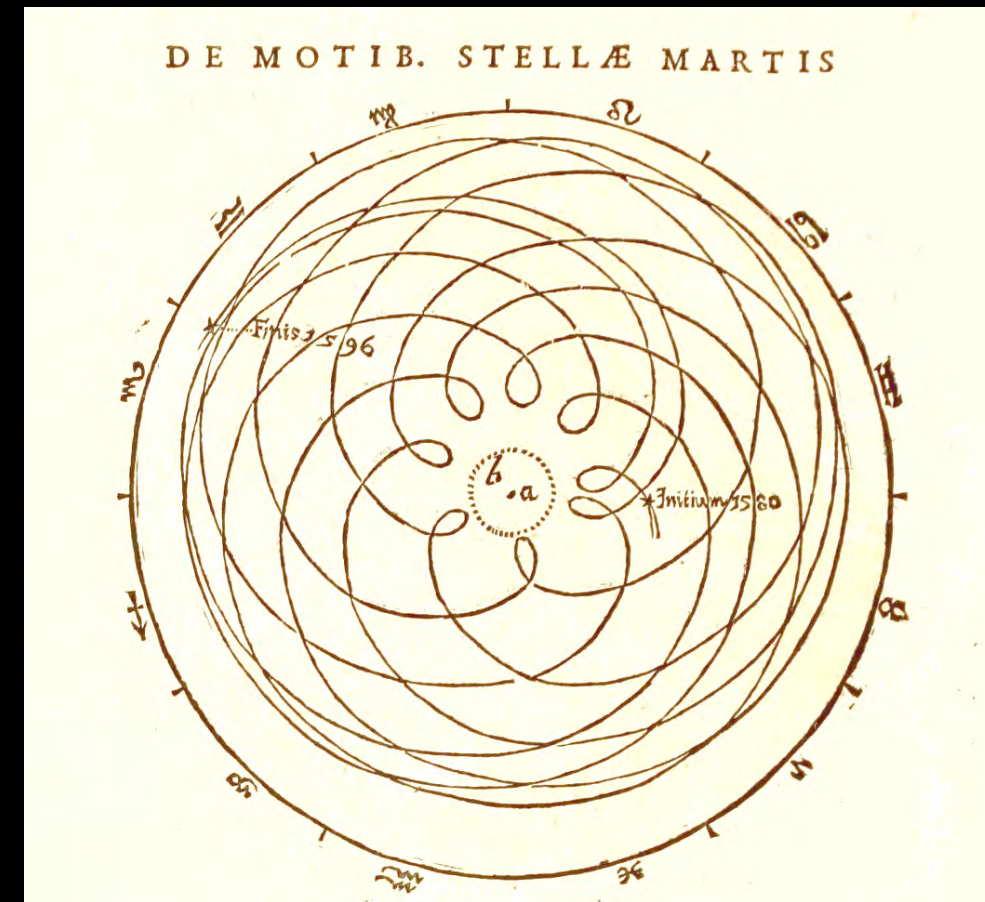
Aristotle (300 BC)



(1500's) Artist Peter Apian

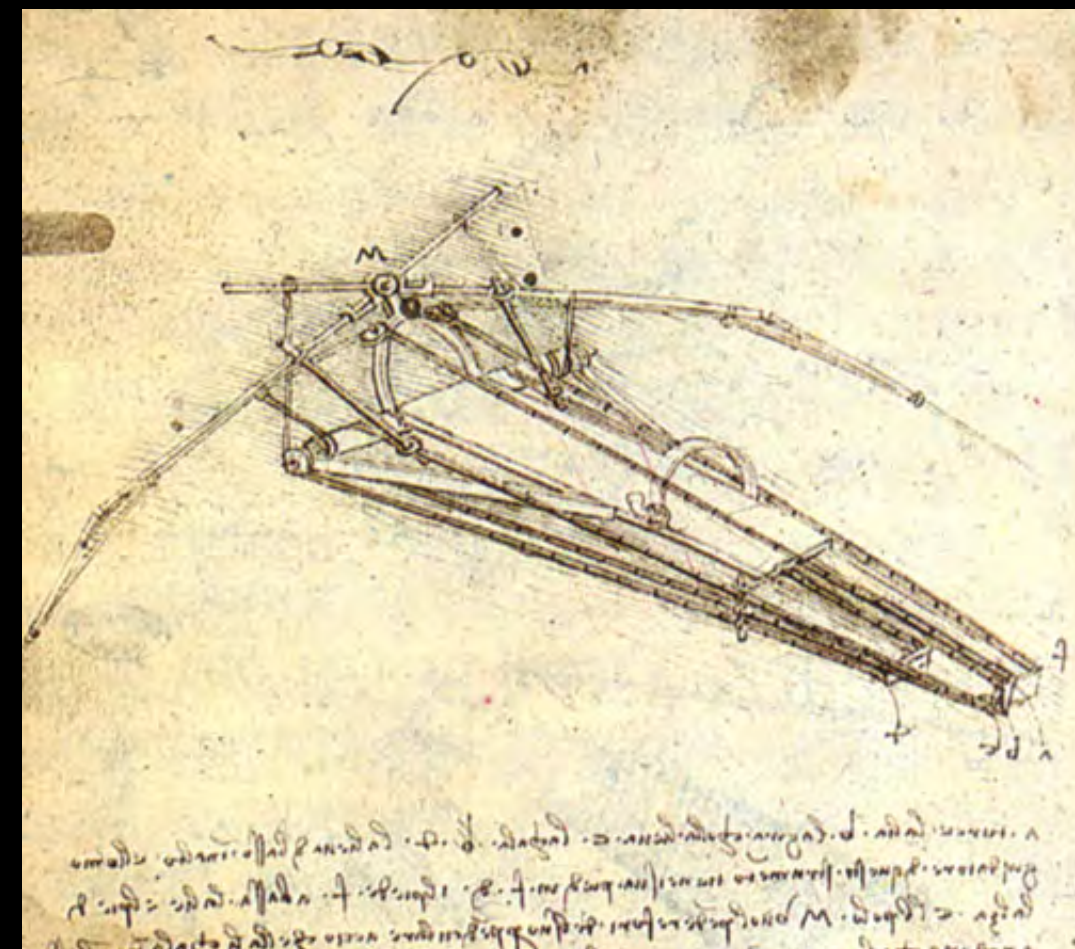
Source: https://en.wikipedia.org/wiki/Aristotelian_physics

Johannes Kepler (1600's)



https://en.wikipedia.org/wiki/Johannes_Kepler

Leonardo da Vinci (1500's)



https://en.wikipedia.org/wiki/Leonardo_da_Vinci



(1616) Engraver Léonard Gaultier

Source: https://en.wikipedia.org/wiki/Aristotelian_physics

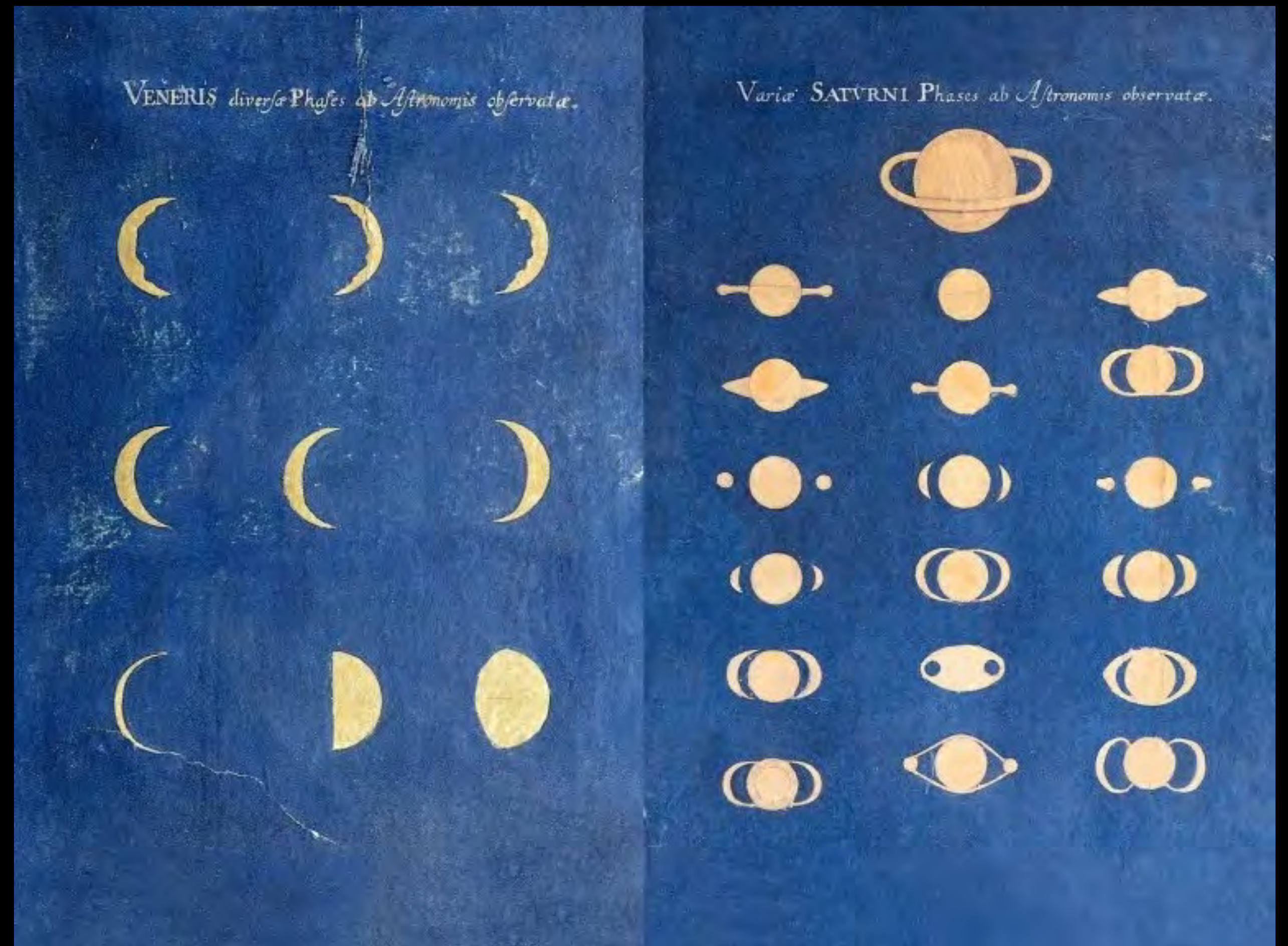
Maria Sibylla Merian (1700's)

Naturalist and scientific plants and insect illustrator.



Maria Clara Eimmart (1700's)

Artist, engraver and astronomer.



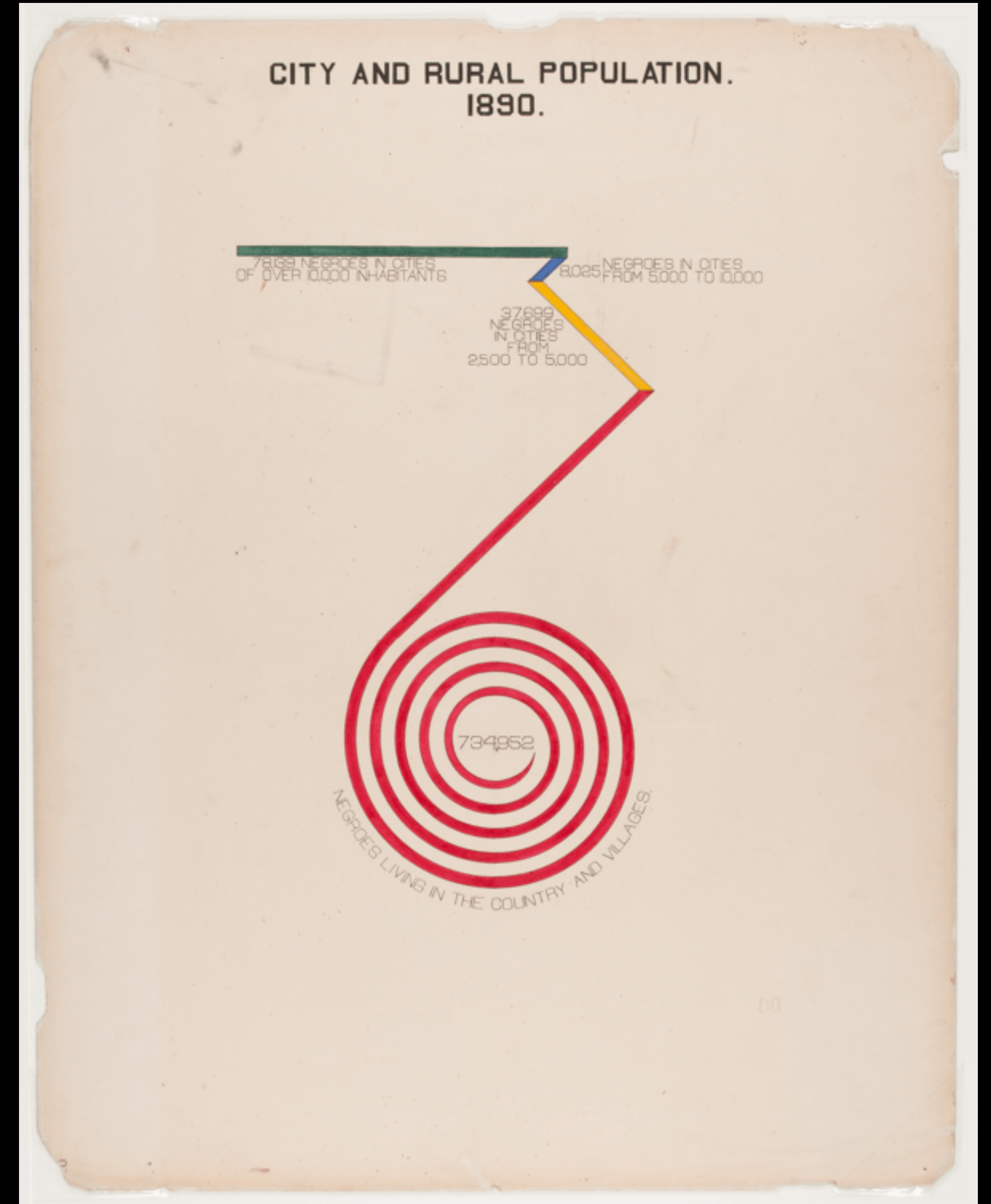
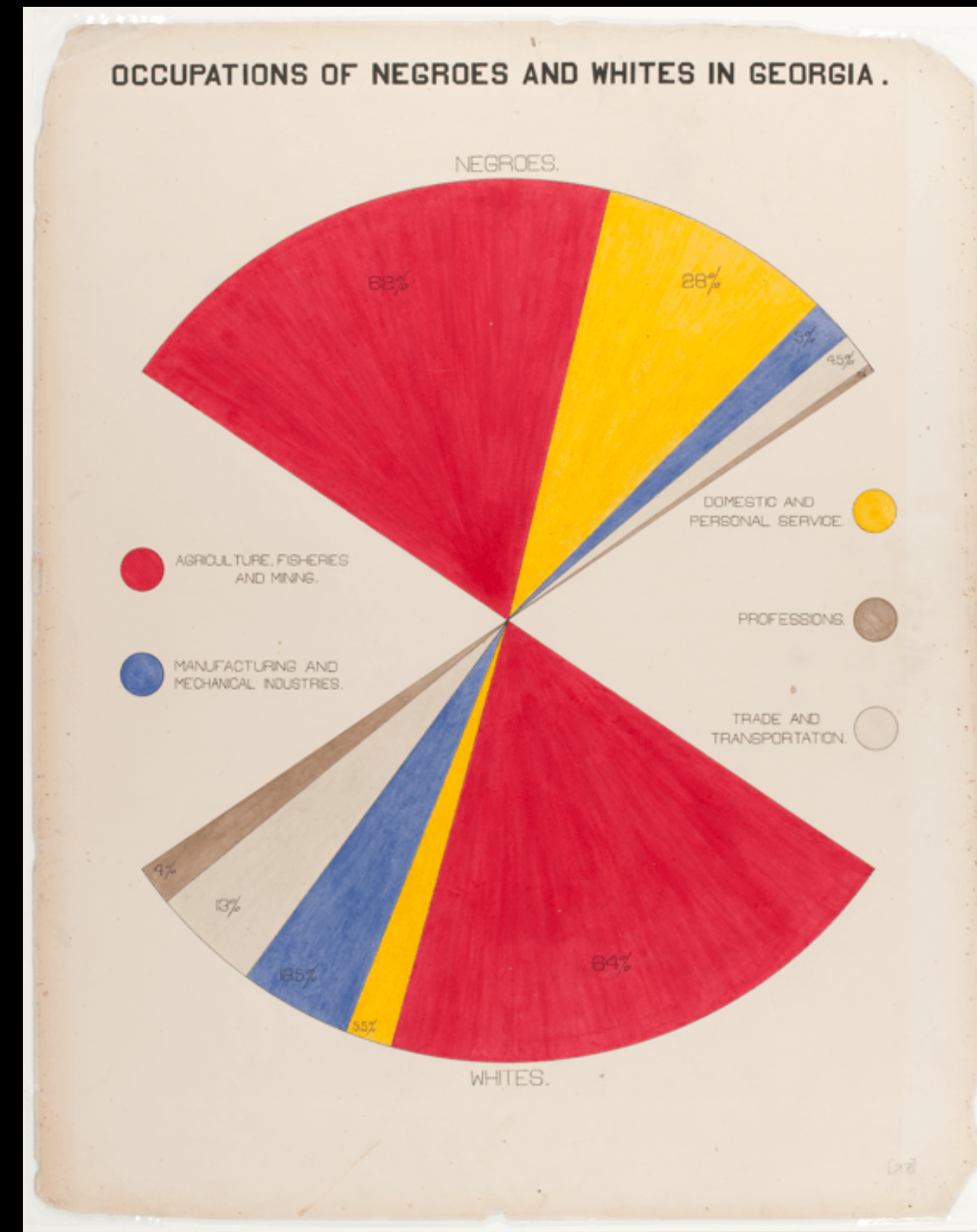
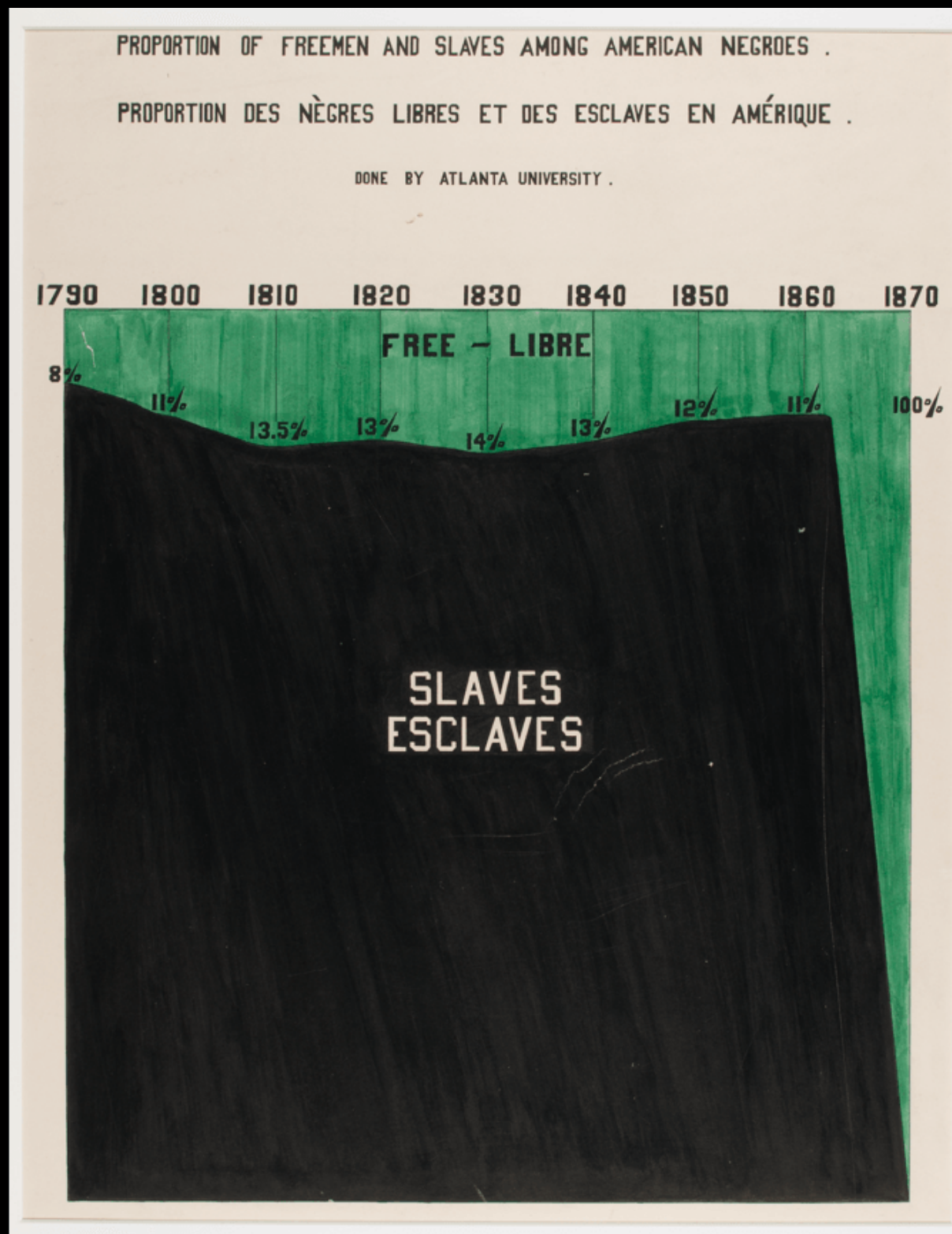
https://en.wikipedia.org/wiki/Maria_Sibylla_Merian

<https://www.brainpickings.org/2019/01/06/maria-clara-eimmart/>



W. E. B. Du Bois (1899)

African American Professor of history, sociology and economics; Pioneered a team of black sociologists who created 63 data visualizations, statistical charts, illustrating the condition of the descendants of former African slaves in residence in the USA.



https://en.wikipedia.org/wiki/W._E._B._Du_Bois



Image courtesy JPL photo archives.



R 00992

Image courtesy JPL photo archives.

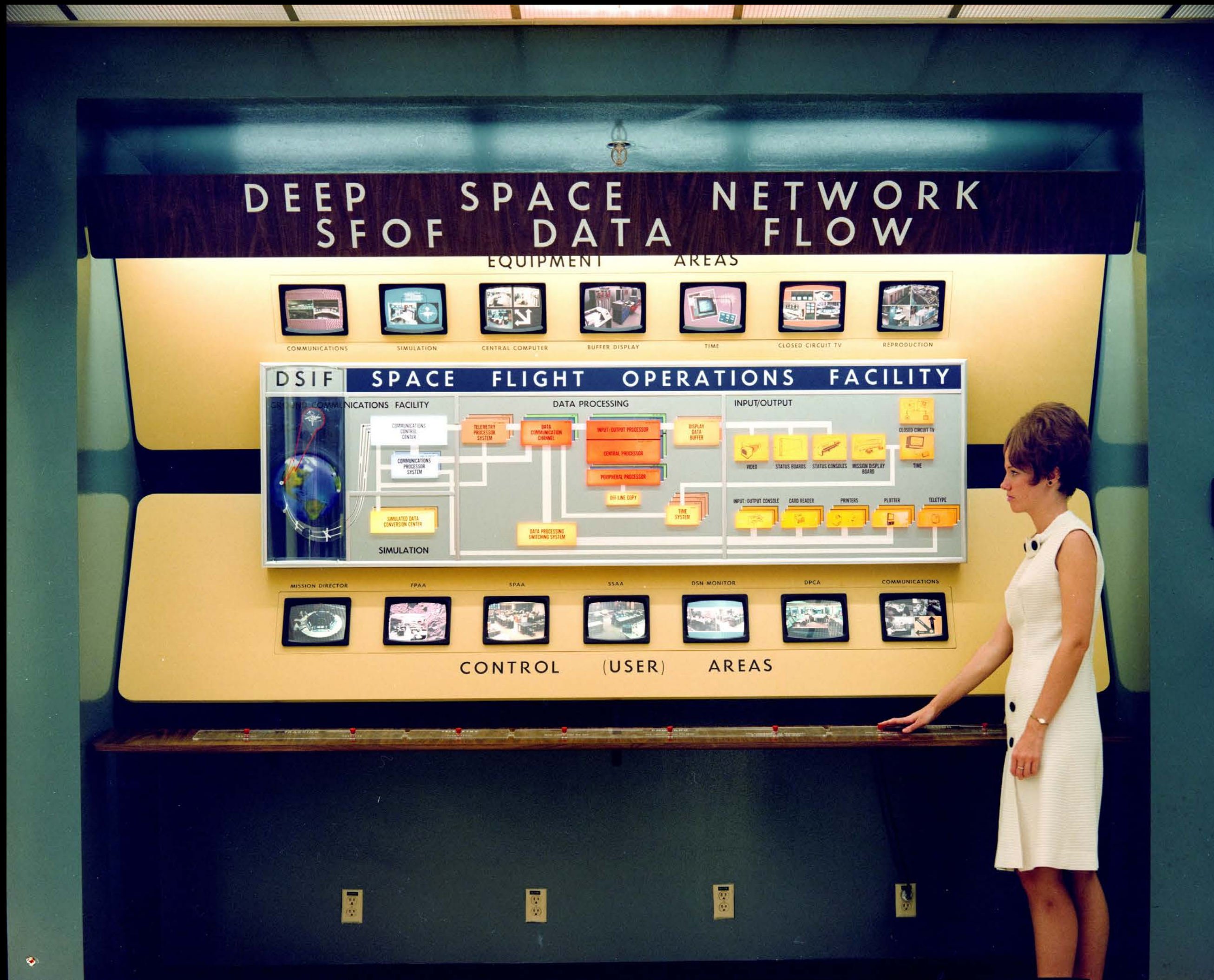


Image courtesy JPL photo archives.

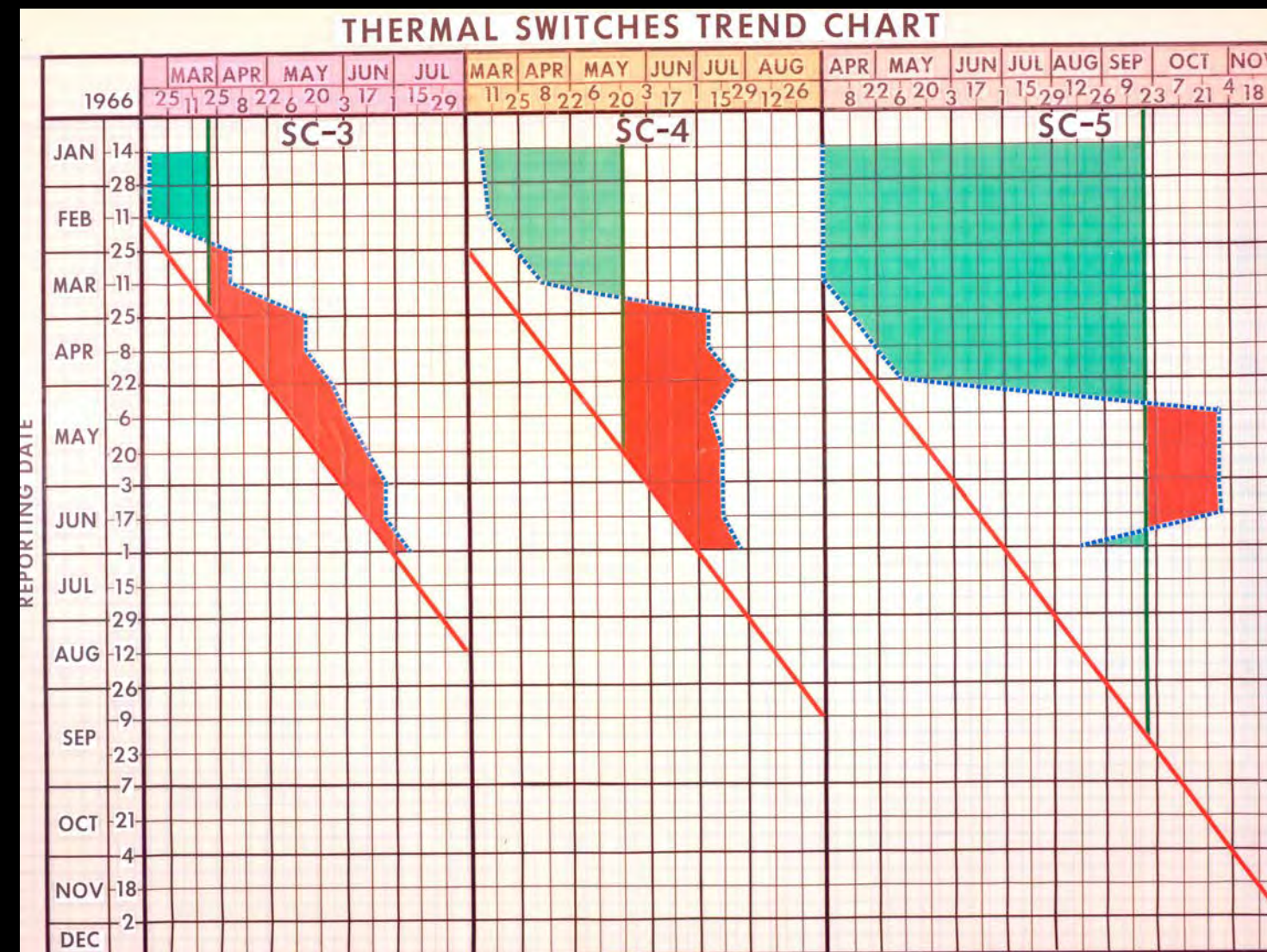
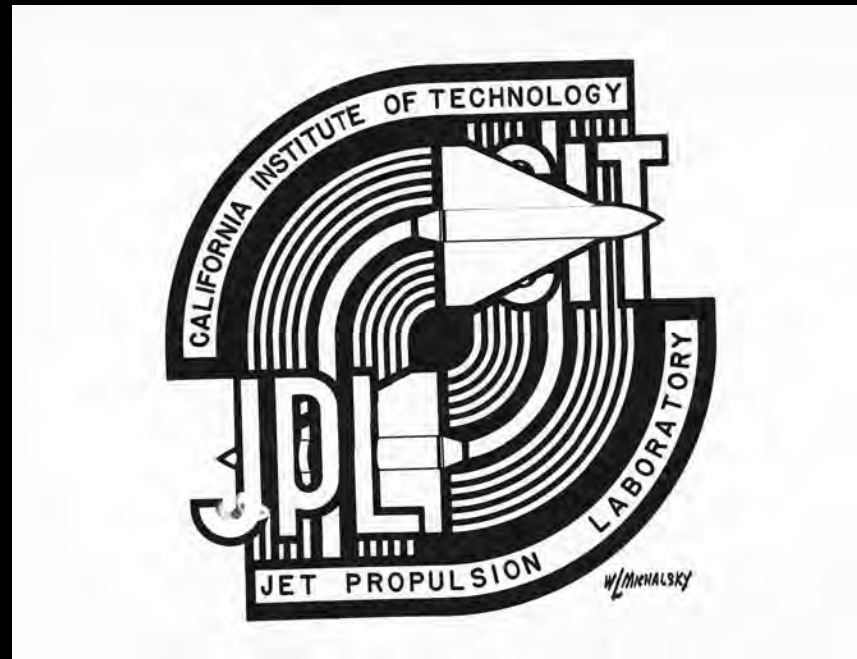
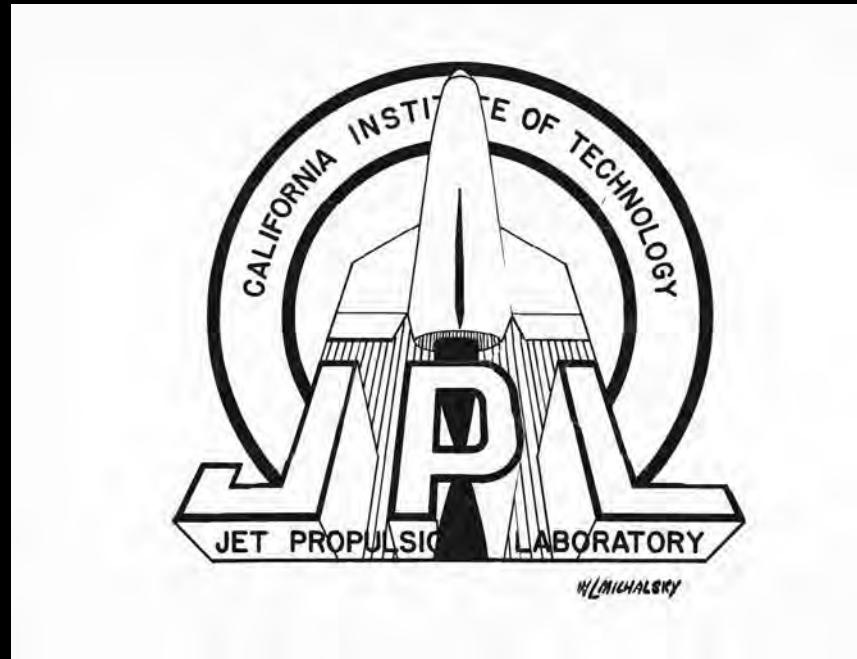


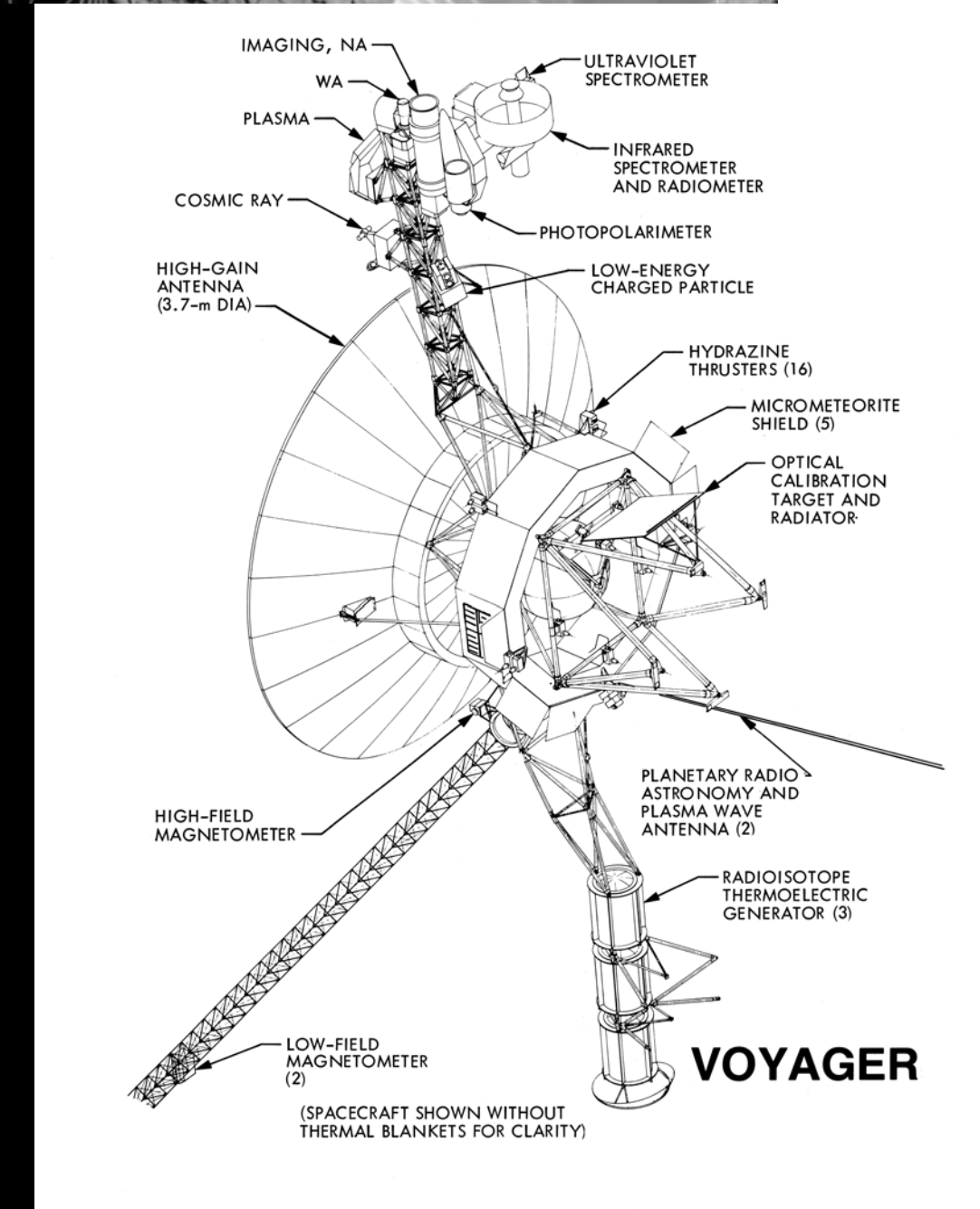
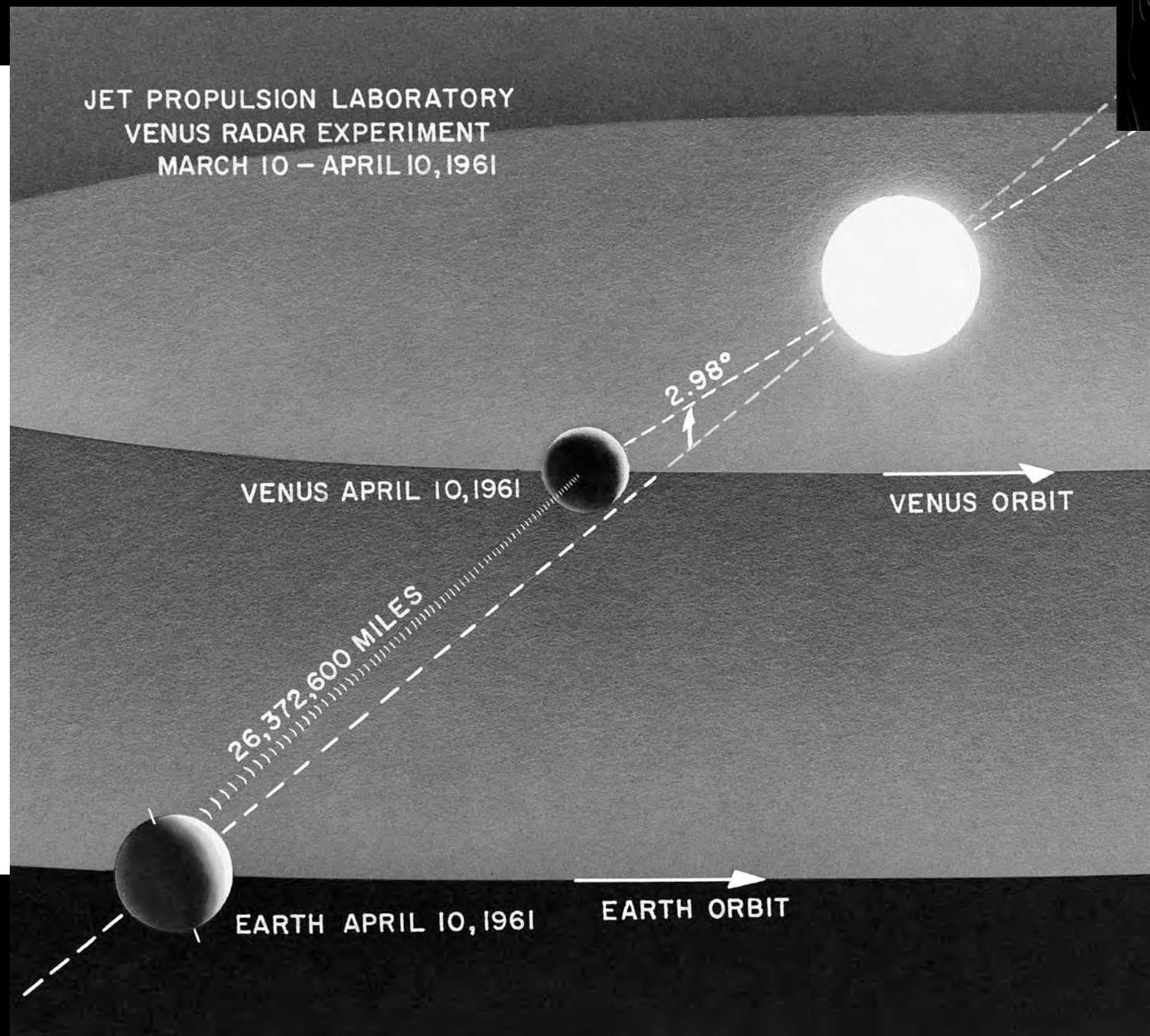
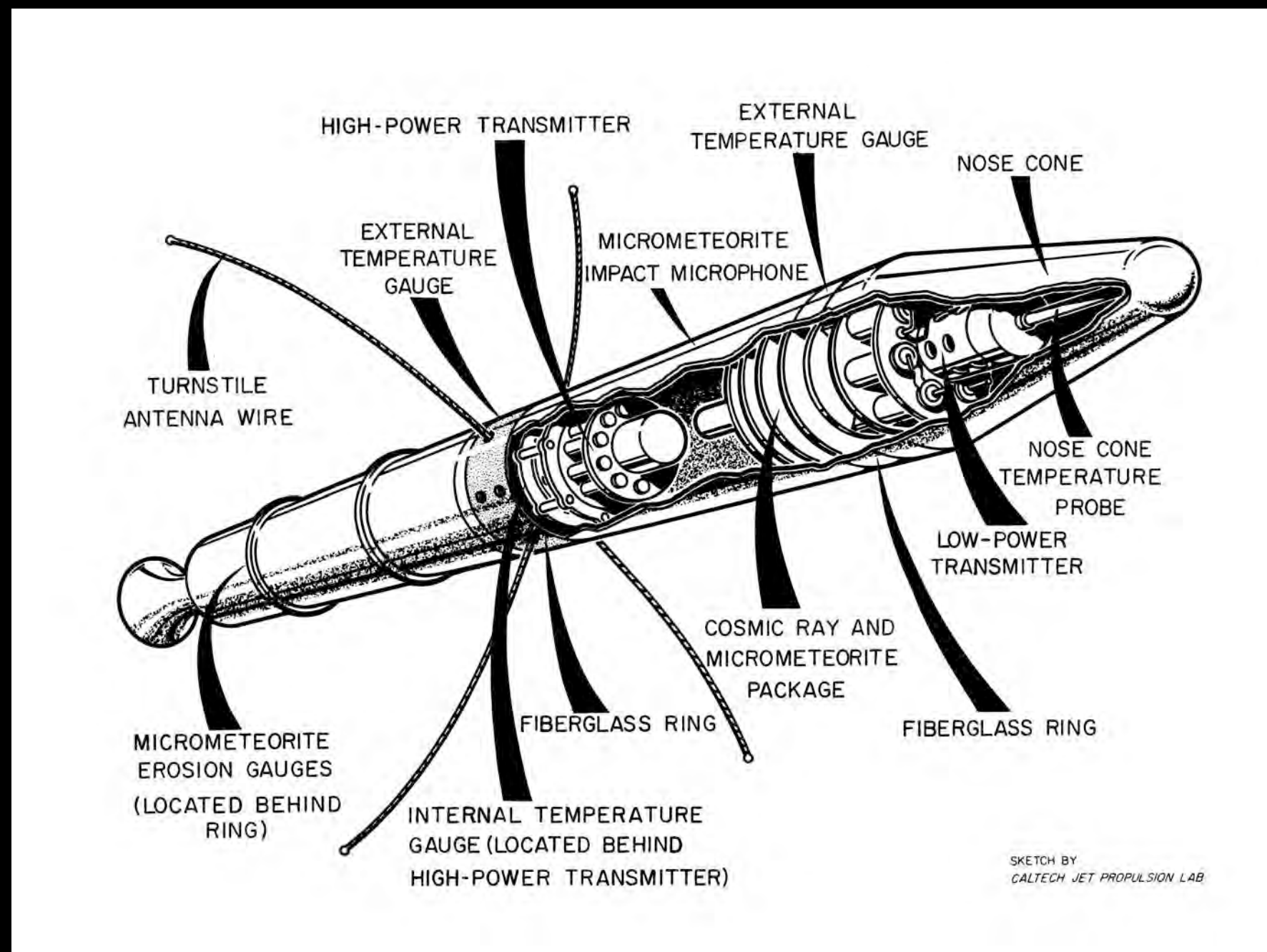
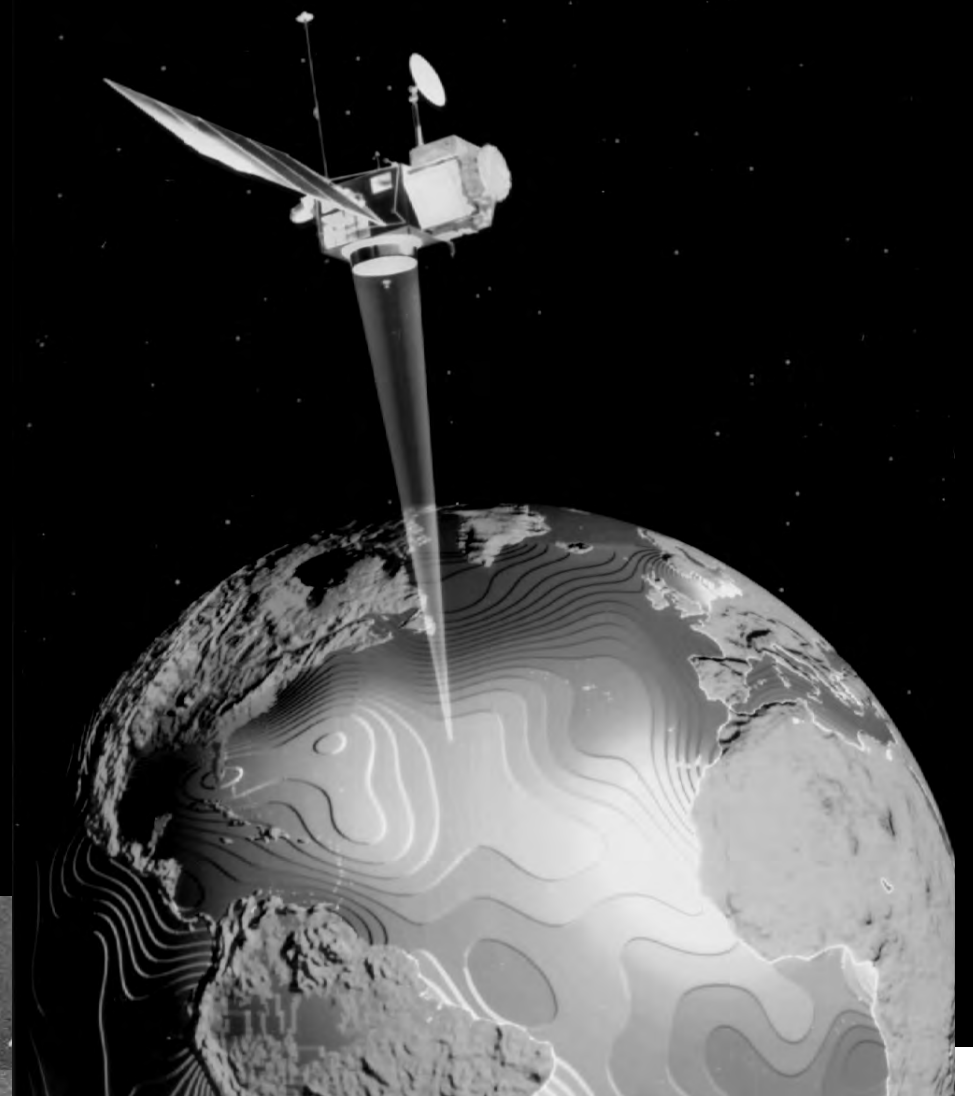
Image courtesy JPL photo archives.

ART BEEMAN

1952 – Retired 1979

JPL | FIRST ART DIRECTOR

Led a team of 14 Women and 7 Men known as the *Graphics Group*.
They were cartoonists, advertisement illustrators and draftsman from the war.



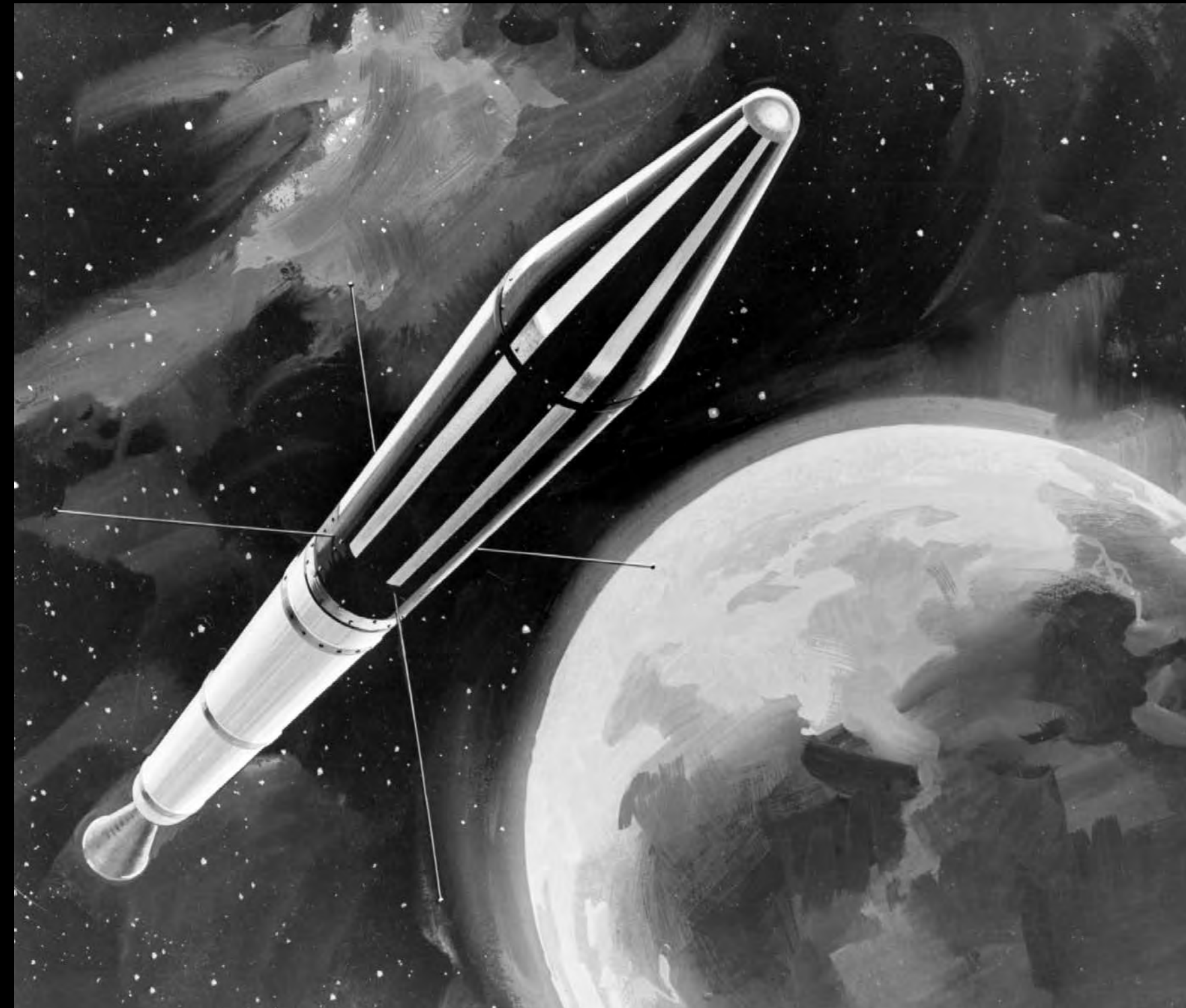
Images courtesy JPL photo archives.

Chuck Kuderna

JPL I Illustrator

1950's

One of the original designers of Smokey The Bear.
Passed away in an airplane accident.



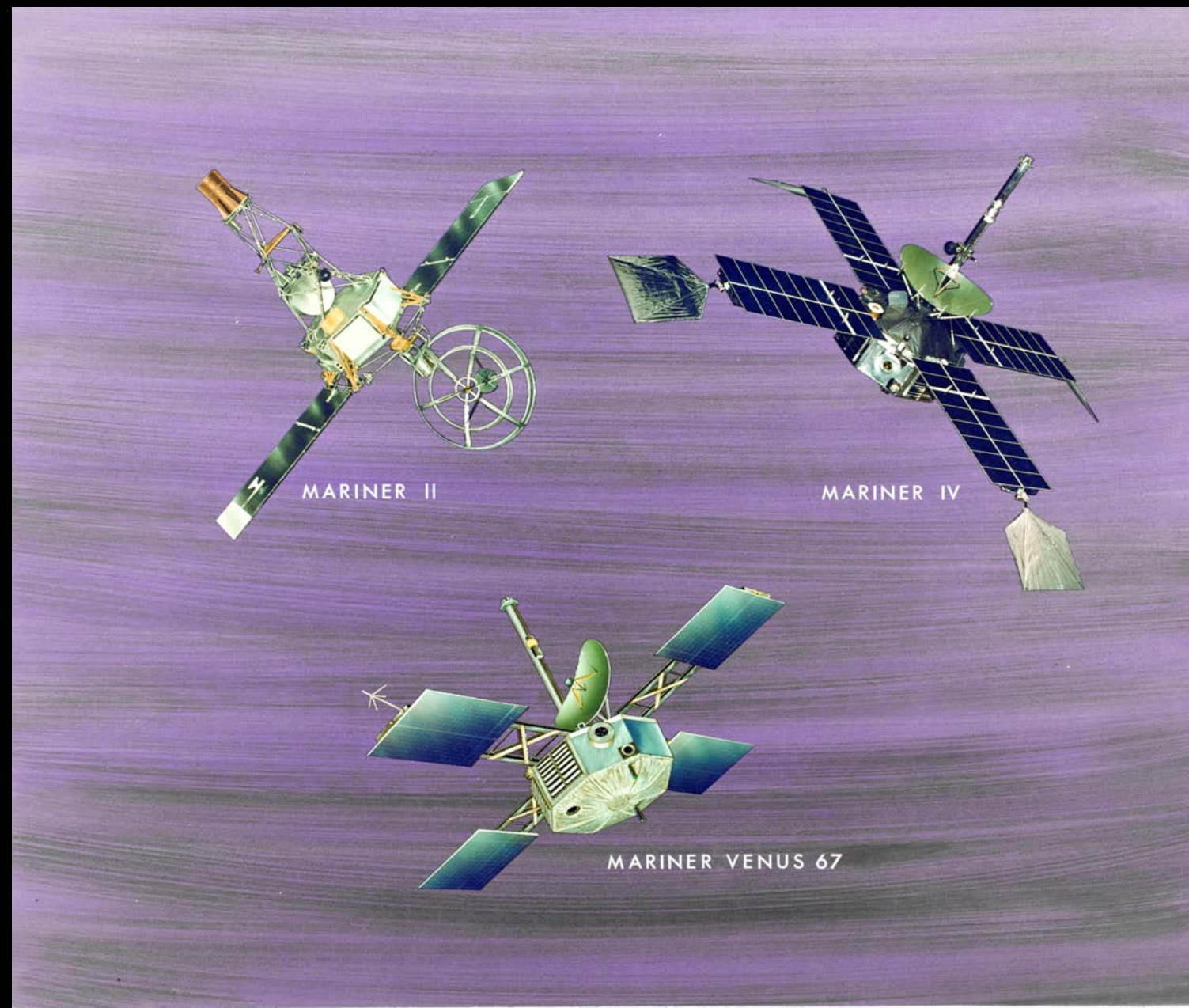
Images of rocket Explorer 1 and plane JATO courtesy JPL photo archives.

Alan Wood

1950's

Technical Illustrator at JPL post WW2 who later became a public relations officer. His personal American flag that was flown at Iwo Jima.

JPL / Illustrator



Images of courtesy of photo archives.

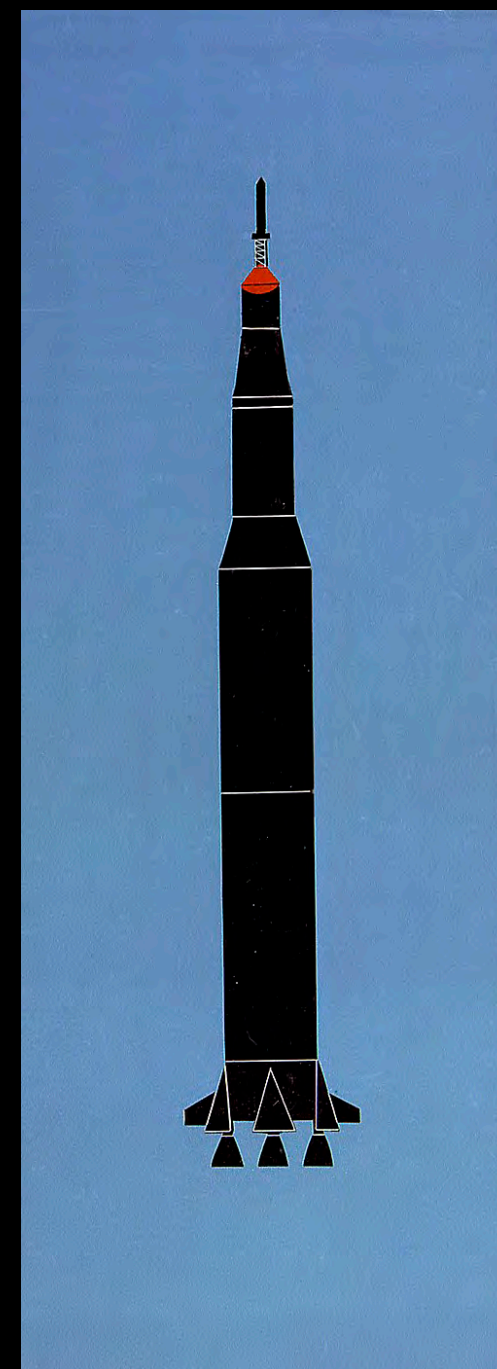


Rosemary Dobbins “Rocky”

Illustrator

1950's / 60's

She worked on every major NASA project but mainly focused on the Apollo program. Although she performed her duties with utmost professionalism, according to her family, she left with a stern word in 1966 to management to improve opportunities for women at the agency.



Images of rocket Explorer 1 and plane JATO courtesy JPL photo archives.

NASA ART PROGRAM

1963

NASA Administrator James Webb created the program that granted artists ACCESS.

“Important events can be interpreted by artists to give a unique insight into significant aspects of our history-making advances into space. An artistic record of this nation’s program of space exploration will have great value for future generations and may make a significant contribution to the history of American art.”¹

- James Webb



Andy Warhol



Mitchell Jamieson

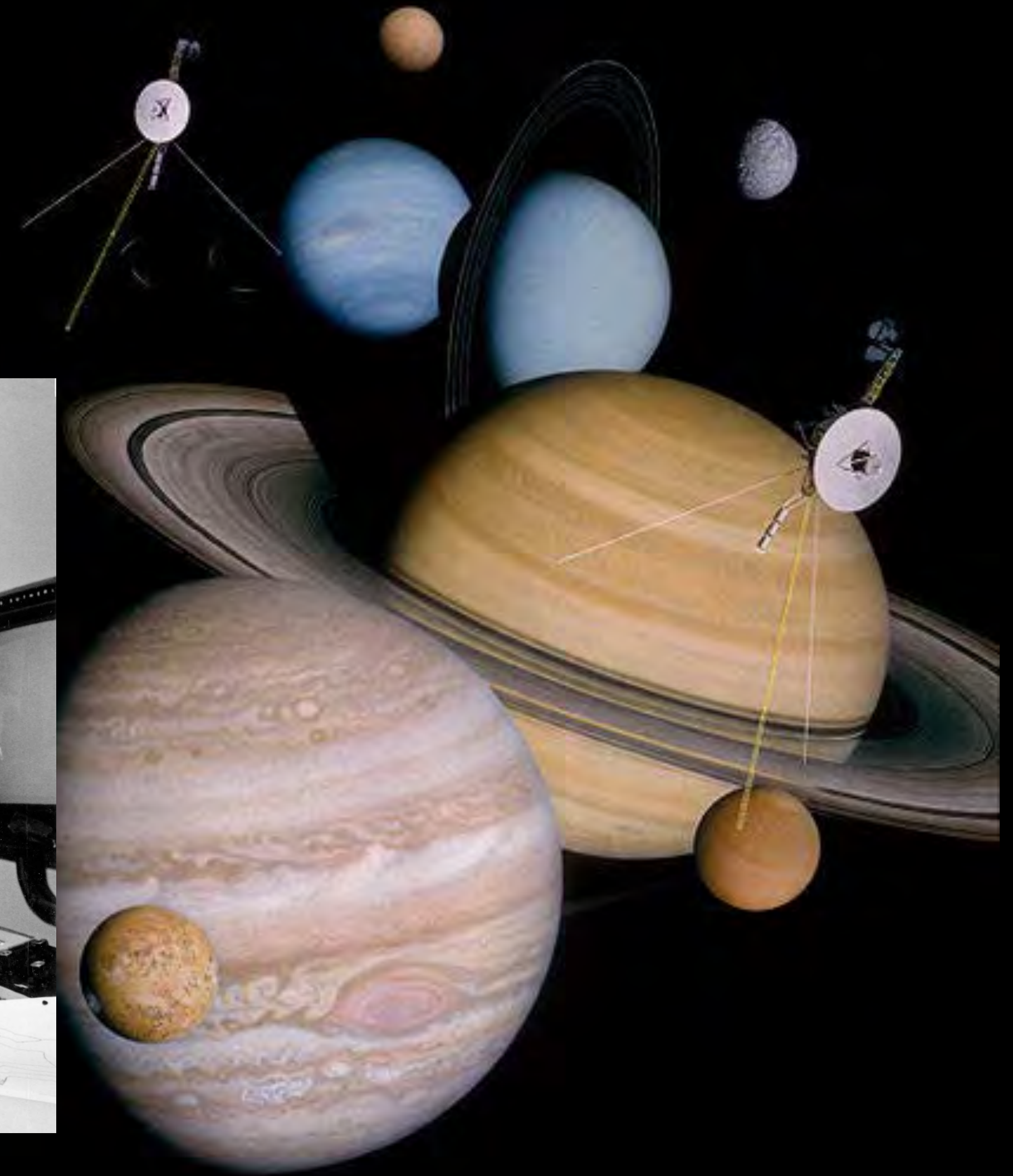
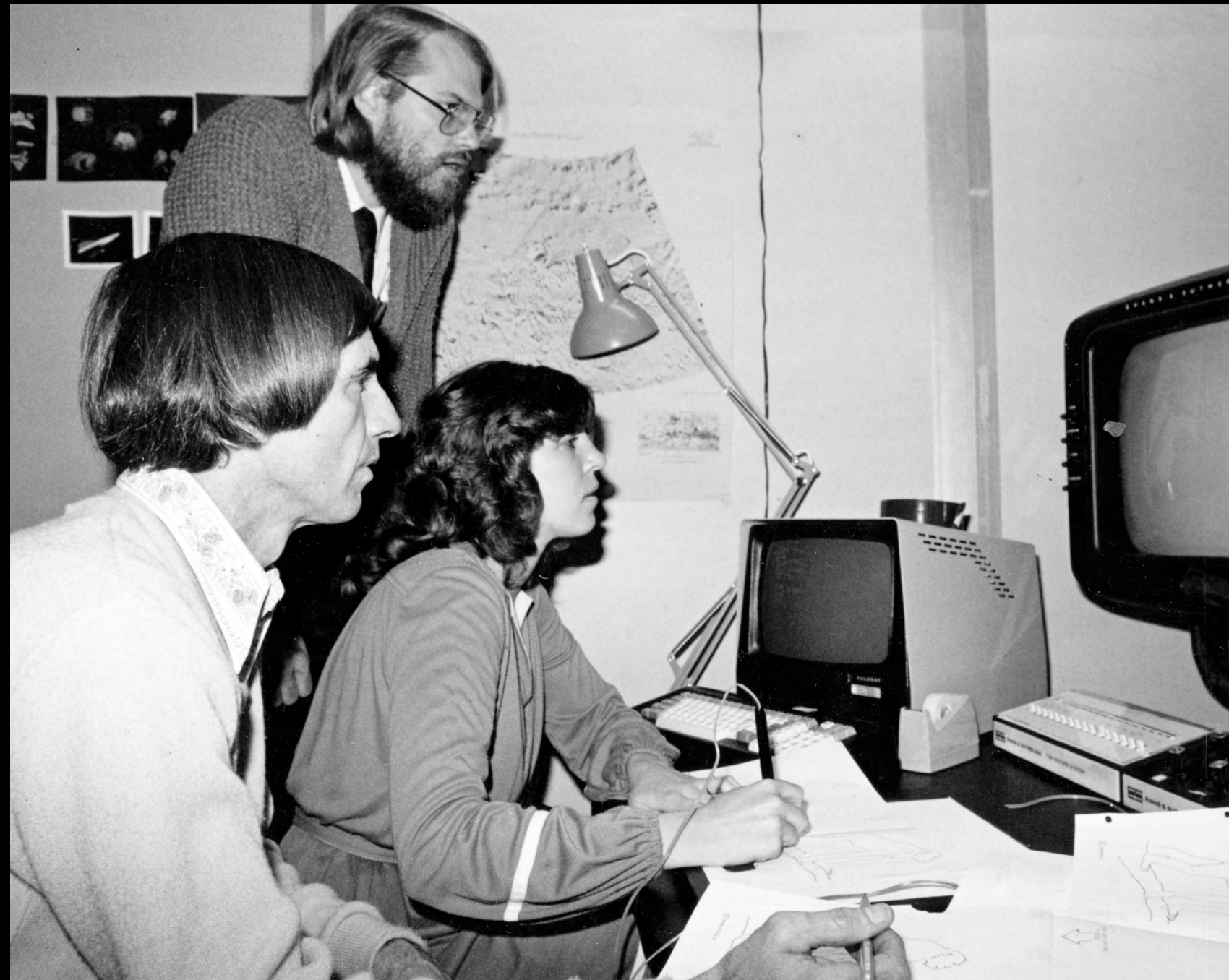


Norman Rockwell

NASA JPL COMPUTER GRAPHICS LABORATORY

1977 – 1990

This small team lead by Bob Holzman pioneered early 3D computer graphics and animation applicable into areas of NASA space flight Operations, planetary encounters and visual outreach to news and media.



Dr. Jim Blinn, inventor of Blinn's Law, which asserts that rendering time tends to remain constant, even as computers get faster.

1980s

A heyday of education, design, products and outreach that solidified NASA presence in pop culture, media and design. Outside artists were commissioned for outreach and education.

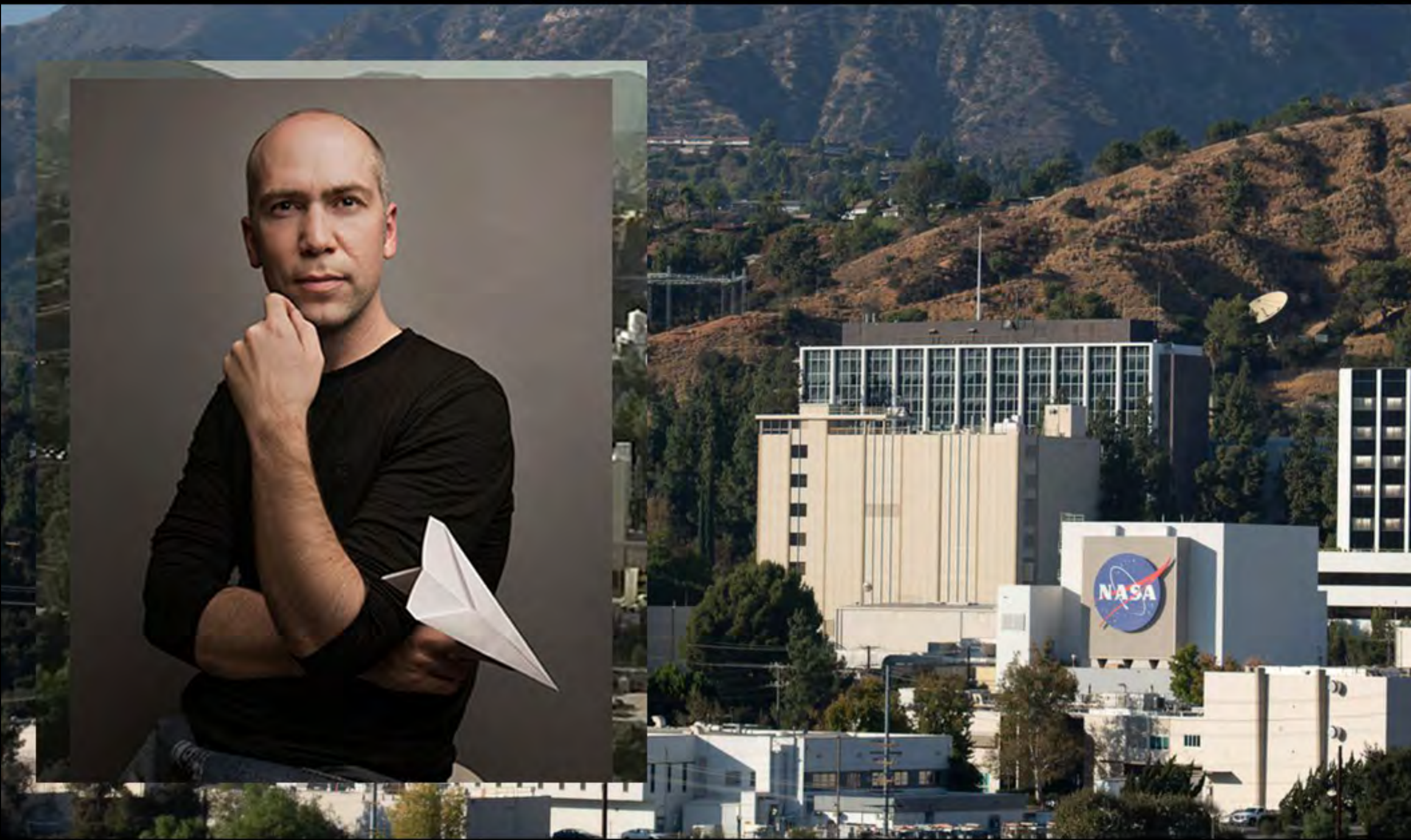


Artist Robert McCall

https://www.nasa.gov/topics/people/features/mccall_gallery.html

Today

Exoplanet and Visions of the Future travel posters released in 2015 went viral warranting millions of downloads still appearing in homes, offices, online backgrounds and in tv and films everywhere.



Dan Goods, The Studio

JOBY HARRIS

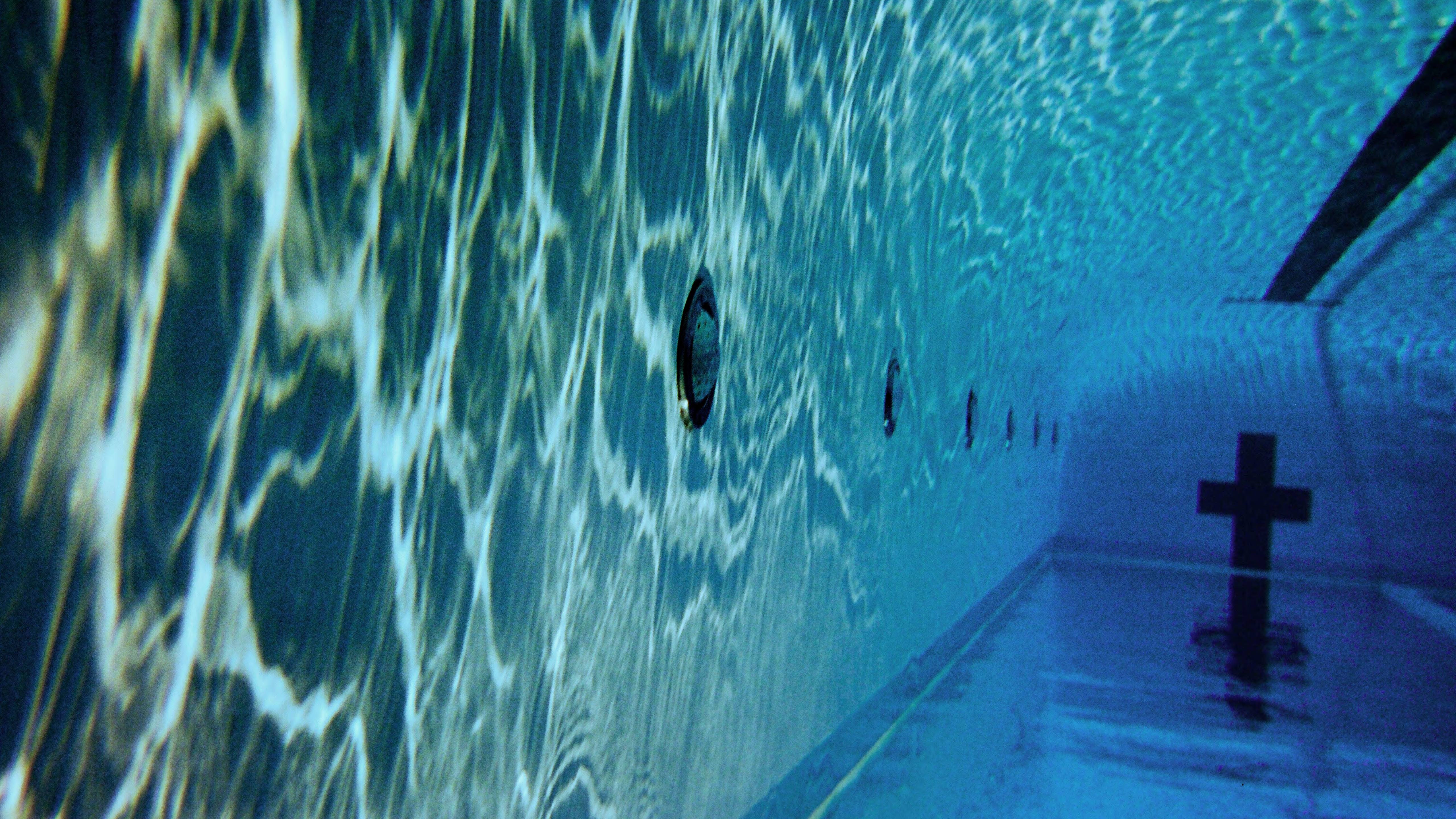
Visual Strategist | NASA/ JPL

Instagram @joby



Art Center
College of Design
NEXT EXIT

NASA-JPL
NEXT EXIT





ADVERTISING

PRODUCER

MOTION DESIGN

ANTHROPOLOGY

SPECIAL FX

ILLUSTRATION

GRAPHIC DESIGN

CREATIVE TECHNOLOGY



DesignLab

**The
Studio**

**Design &
Production**

**Web Design &
Development**

**HELPING
PEOPLE
THINK
THROUGH
THEIR
THINKING**

The
Studio

**SNEAKING UP
ON LEARNING**

ADVERTISING

MOTION
DESIGN

SPECIAL FX

GRAPHIC
DESIGN

HUMANS, ROBOTS, SPACE & THE FUTURE OF CONNECTEDNESS

RECORDED BY AUDREY MURTY

GETTY
PACIFIC
STANDARD
TIME (PST)
2024

08:31

in the "think Tank"



KISS WORKSHOP
@ THE KECK CENTER



09/01 DAY 1

08:50

INTROS

@ the Dart Cloud Lounge



WHAT STORIES BIND US?

HOW DO WE GET CONNECTED?
HOW DO WE STAY CONNECTED?

PERSISTENCE

WE'RE EXPERIENCING A CONNECTEDNESS AS WE TALK ...

WHAT ABOUT DISCOVERING NEW CONNECTIONS



TECHNOLOGY ALSO GAVE US THE FALAFEL EMOTI...

CREATING A MEMORY FOR PEOPLE THAT BECOMES A REALITY



"UBUNTU"

(I am because we are)

TECHNOLOGY CAN FLATTEN THE EXPERIENCE OF CONNECTING

11:45

MORE BRAINSTORMING

WHAT'S THE RELEVANCE OF CONNECTEDNESS TO SCI ROBOTIC EXPLORATION



ASTRONAUT DEVICES AND WEARABLES WORKSHOP

/ METHOD 03



Sticky notes were clustered into Key Themes that appeared. Credit: NASA/JPL

Idea Cluster

EXPLANATION

Clustering Ideas helped us turn individual ideas with similar themes into robust solutions by identifying items that are improved through working in systems as well as ideas that work best as stand alone innovations.

TIME

30 Minutes

PARTICIPANTS

All Participants

/ FRAMEWORK

We identified the problem areas below that will benefit from JPL technology and potential partnerships.

01 Asset Awareness

Today on earth we have robotic systems that can recognize and pick a tool out of thousands. To alleviate stress on the astronaut's body, a system for identifying assets would be beneficial. Assets include:

- Tools on the field
- Medical Devices
- Other Astronauts

02 Communication

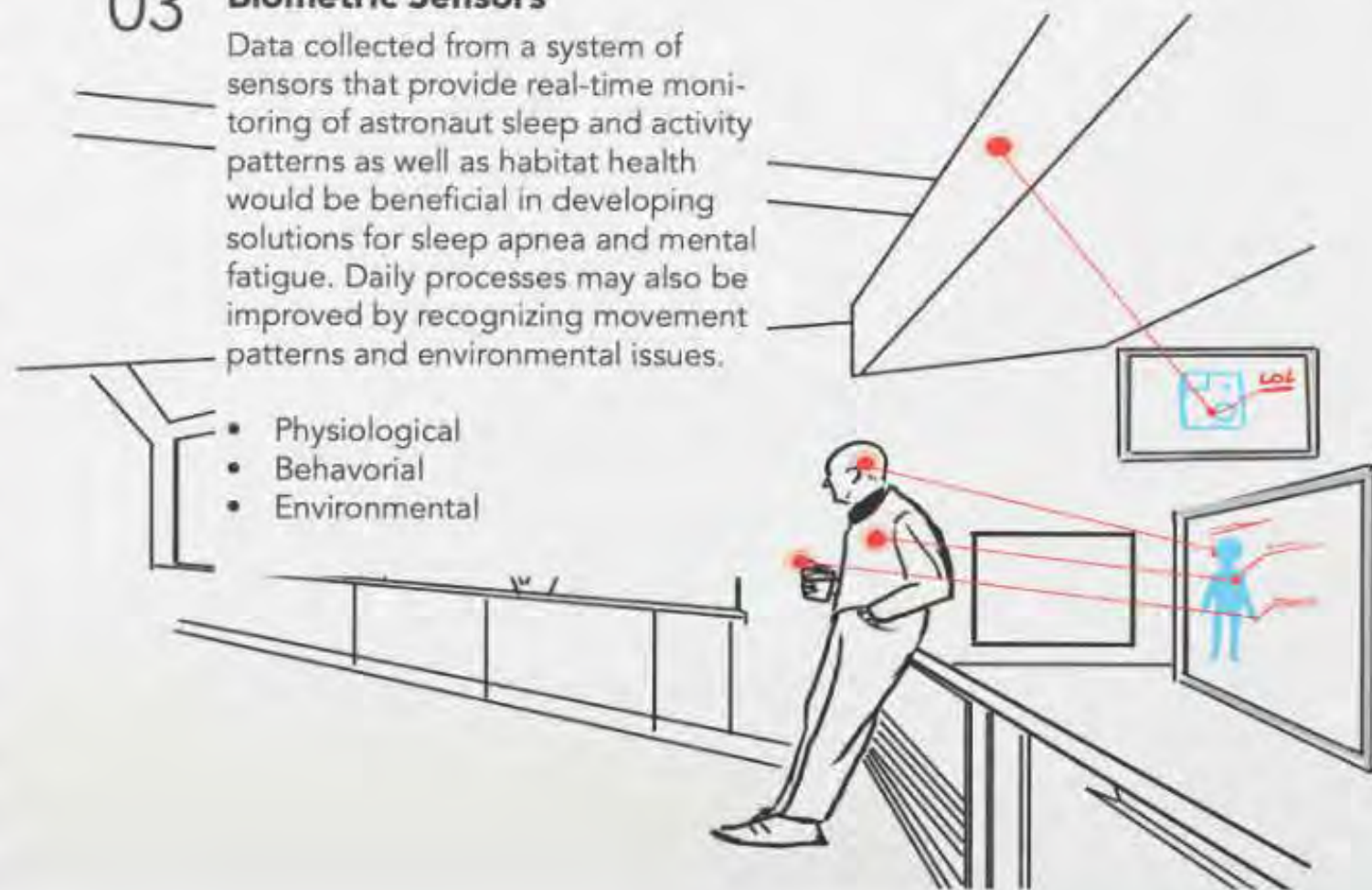
"Advanced fabrics" currently in production that can see, hear, sense and correspond might be utilized when creating a system for communication on mars. A system would include the space suit, the habitat and all vehicles with user intuitive interfaces when necessary. Some examples are:

- Real time GPS tracking
- Suits that respond to each other and the habitat.

03 Biometric Sensors

Data collected from a system of sensors that provide real-time monitoring of astronaut sleep and activity patterns as well as habitat health would be beneficial in developing solutions for sleep apnea and mental fatigue. Daily processes may also be improved by recognizing movement patterns and environmental issues.

- Physiological
- Behavioral
- Environmental



HUMAN & ROBOTIC INTERACTION TO SUSTAIN PLANTS ON MARS

FY21 CIF WORKSHOP FINAL REPORT

Approach/ Innovation:

We aimed to achieve our objectives by using elements of concept design, creative thinking, and formulation studies. Because of the remote nature of the workshop, we utilized a visual, collaborative, web-based tool to connect participants from various parts of the world.



FY21 CIF WORKSHOP FINAL REPORT

Workshop End Products:



Habitat System -

Built-in robot on a rail system to monitor the plants at all times

Plants growing in spherical form per Don Pettit's experiment in the ISS

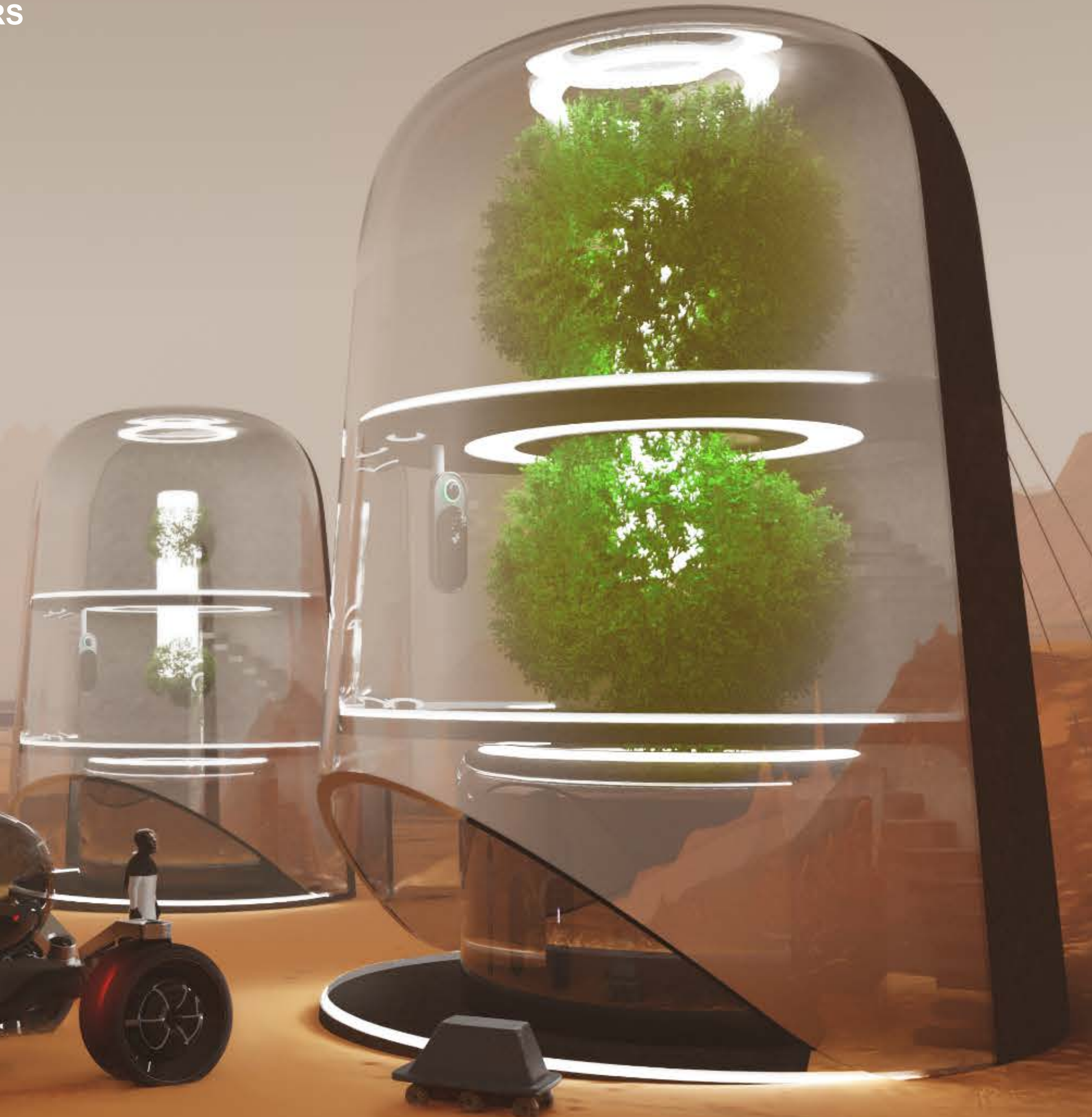
Perhaps outer layer is made out of aerogel material



Martian Rover -

Plant pod will be stored and transported through the back entrance space of the rover vehicle.

CIF: SYSTEMS OF HUMAN AND ROBOTIC INTERACTION TO SUSTAIN PLANTS ON MARS



A ONCE IN A LIFETIME GETAWAY

THE GRAND TOUR

JUPITER / SATURN / URANUS / NEPTUNE
EXPERIENCE THE CHARM OF GRAVITY ASSISTERS EVERY 10 YEARS NOW BOARDING

RELAX ON

KEPLER 16b

THE LAND OF TWO SUNS

WHERE YOUR SHADOW ALWAYS HAS COMPANY

VISIT THE HISTORIC SITES

MARS

MULTIPLE TOURS AVAILABLE

ROBOTIC PIONEERS / ARTS & CULTURE / ARCHITECTURE & AGRICULTURE

EARTH

YOUR OASIS IN SPACE

WHERE THE AIR IS FREE and BREATHING IS EASY

VENUS

SEE YOU AT THE CLOUD 8 OBSERVATORY

VOTE FOR YOUR PLACE IN THE SOLAR SYSTEM TO WATCH THE MERCURY TRANSIT

CERES

QUEEN OF THE ASTEROID BELT
GATEWAY TO THE OUTER SOLAR SYSTEM

LAST CHANCE FOR WATER UNTIL JUPITER

EXPERIENCE THE MIGHTY AURORAS OF

JUPITER

Kepler-186f

WHERE THE GRASS IS ALWAYS REDDER ON THE OTHER SIDE

..... VISIT BEAUTIFUL SOUTHERN

ENCELADUS

MORE THAN 100 VASARIANING KEYLESS BOOKING TODAY NOW

VISIT THE PLANET WITH NO STAR

PSO J318.5-22

WHERE THE NIGHTLIFE NEVER ENDS

TITAN

RIDE THE TIDES THROUGH THE THROAT OF KRACKS

EUROPA

DISCOVER LIFE UNDER THE ICE

ALL BIODIVERSITY





Come to

EGYPT

FOR SUNNY DAYS & MAGIC NIGHTS

L'AMERIQUE DU SUD



PAR LE PAQUEBOT
"L'ATLANTIQUE"
(40000 T.)

COMPAGNIE DE NAVIGATION
SUD-ATLANTIQUE

© BNPS.CO.UK

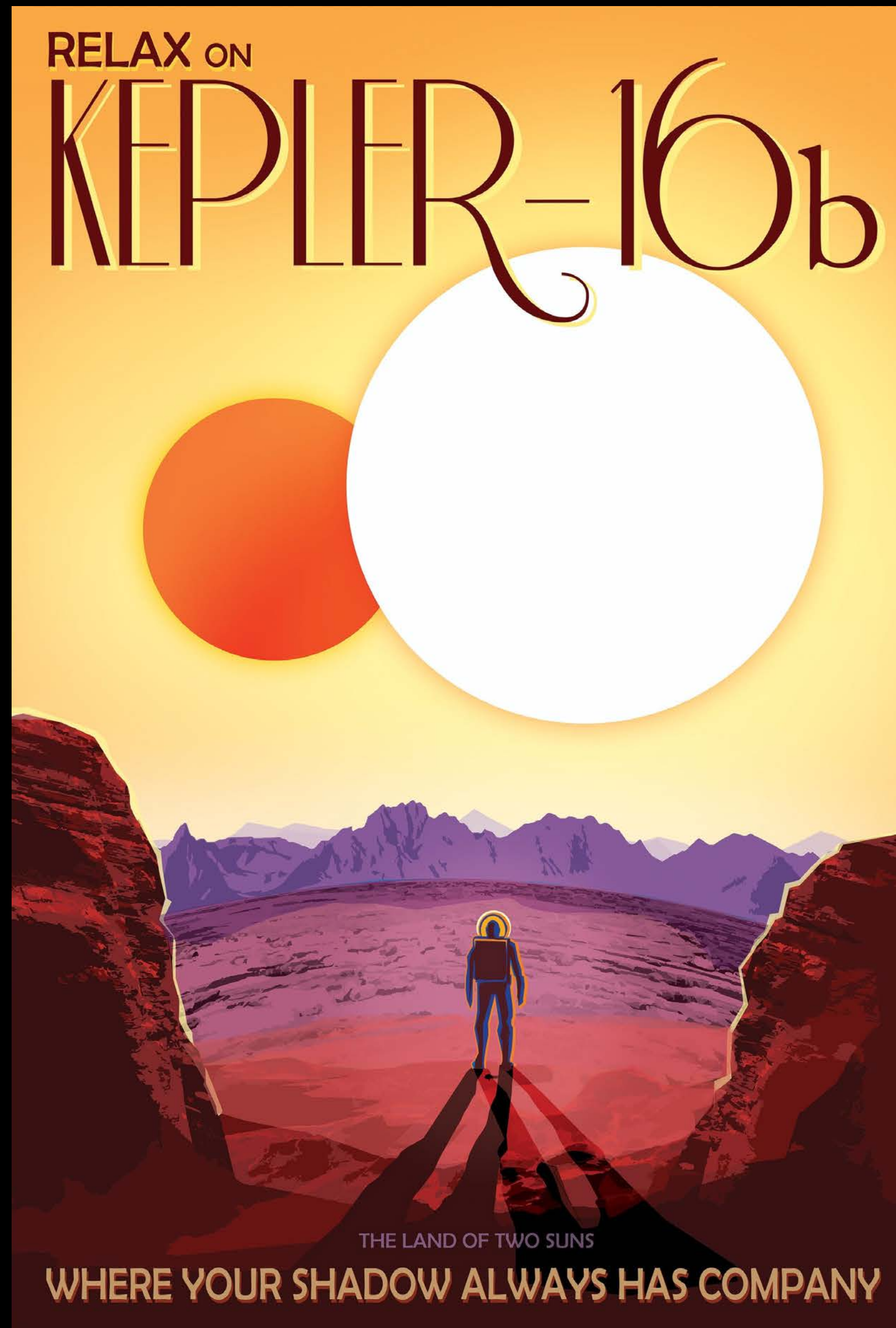
INDIA



AIR-INDIA







Whiteboard content (partially legible):

- Case - ...
- ... of ...
- ... of ...
- ... of ...
- ... of ...

TRAVEL CALENDAR CONCEPT / APPROACH

Focus on one science concept that helps characterize the travel destination.

Reinforce the science concept in the tag line.

Expand the picture at the bottom.

Show people in the scene so it is easy to imagine being there.

Reference the @NASA and Tweet Photos.

MARKETING POINTS

THE LINE

BACKGROUND

MARKETING POINTS

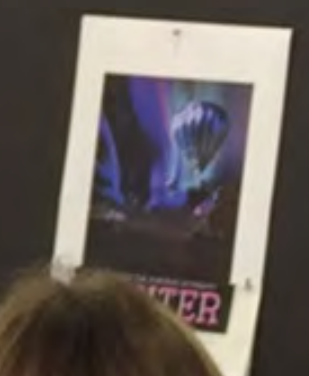
THE LINE

BACKGROUND

MARKETING POINTS

THE LINE

BACKGROUND



EARTH

... of ...

CERES

THE BRIGHTEST LITTLE KID

VENUS

... of ...



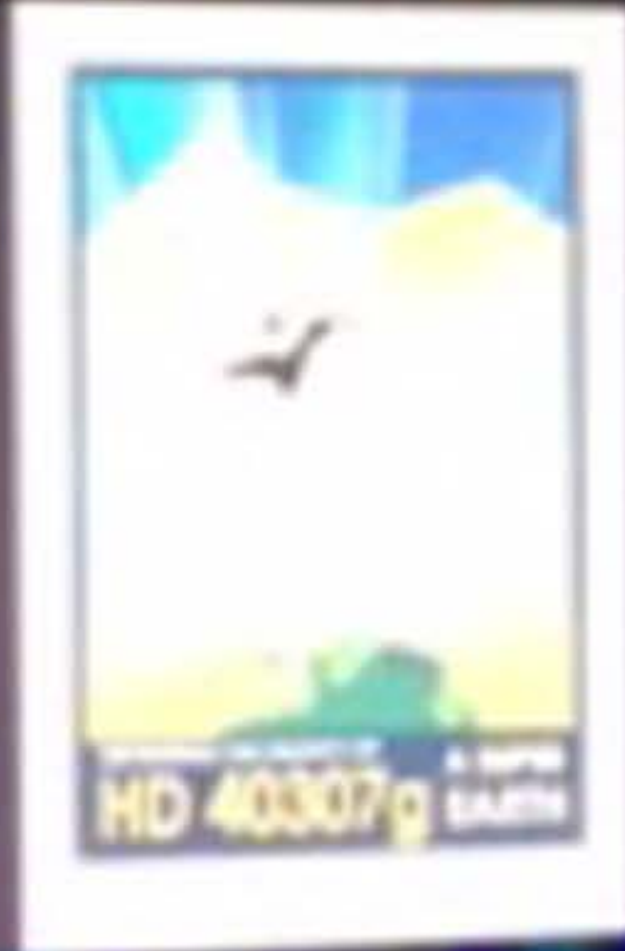


VISIT THE PLANET WITH NO STAR



PSO J318.5-22

WHERE THE NIGHTLIFE NEVER ENDS!



TED





EXPERIENCE THE GRAVITY OF
4030

KEPLER-186f
THE GRASS IS ALWAYS REDDER ON THE OTHER SIDE

NEW YORK
COZMIC



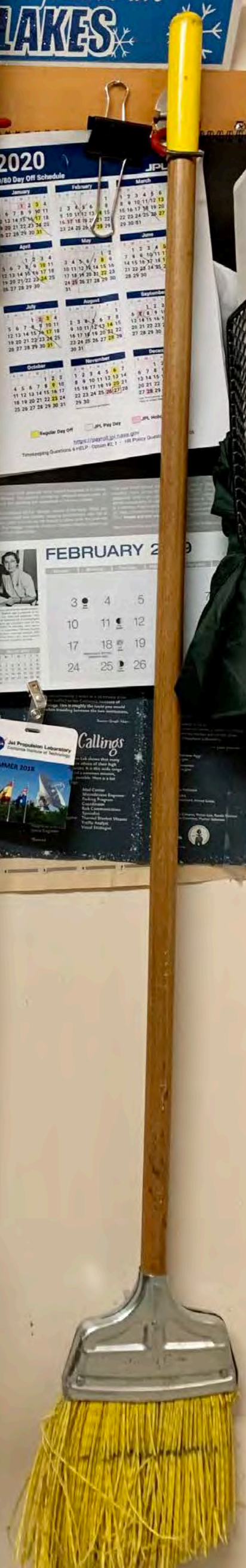
Some of my best friends are LAKES



301 Floor's housekeeping JPL

2020
JPL
2020 Day Off Schedule

Month	Day	Off
January	1	
January	2	
January	3	
January	4	
January	5	
January	6	
January	7	
January	8	
January	9	
January	10	
January	11	
January	12	
January	13	
January	14	
January	15	
January	16	
January	17	
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February	27	
February	28	
February	29	









Retro NASA Travel Poster - Kepler 186f Hip Flasks

"Where The Grass Is Always Redder On The Other Side". Kepler-186f is 'habitable zone' around another star, where ...

[See more details at Zazzle »](#)

\$30.95

+\$2.86 tax and \$5.99 shipping

Zazzle

[Shop](#)

...I would like to acquire the posters so I can hang them in our child's nursery. My wife isn't pregnant now, but we plan to start trying in the next few months. I would like my son/daughter to grow up dreaming big,



NASA

7

N7NA







THE OCEANS

AQUA
for a Surface



Was Mars Ever A Habitat for Past Or Present Life?

To find out, NASA first sends orbiters, landers, and rovers to look for places on Mars where water has been present for long periods of time, either now or even long ago. Water is necessary to life as we know it.

The next step is to look for places on Mars that have "signatures." Organisms are carbon-based molecules that are the chemical building blocks of life.

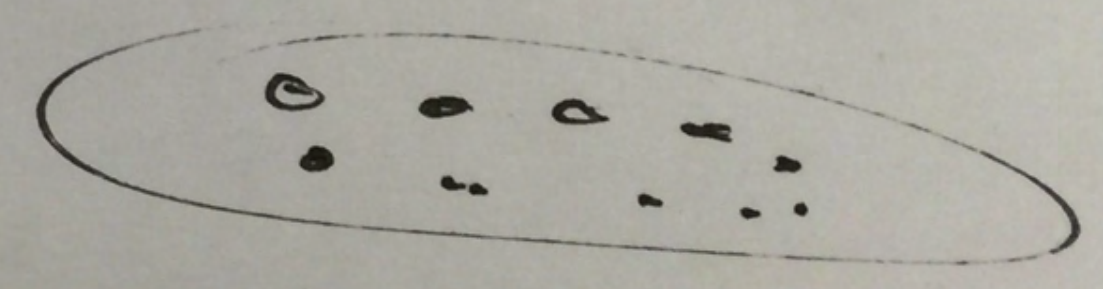
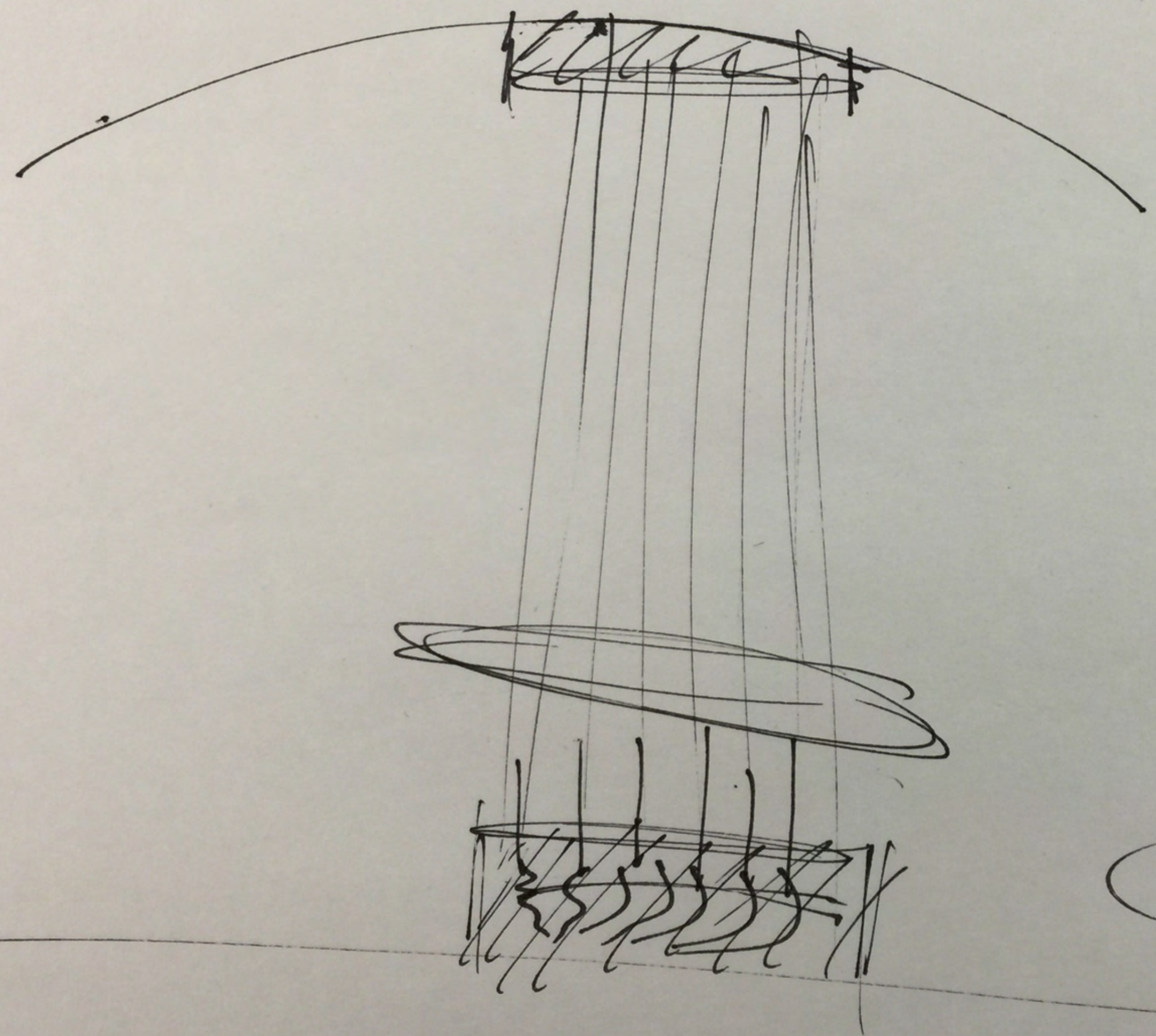
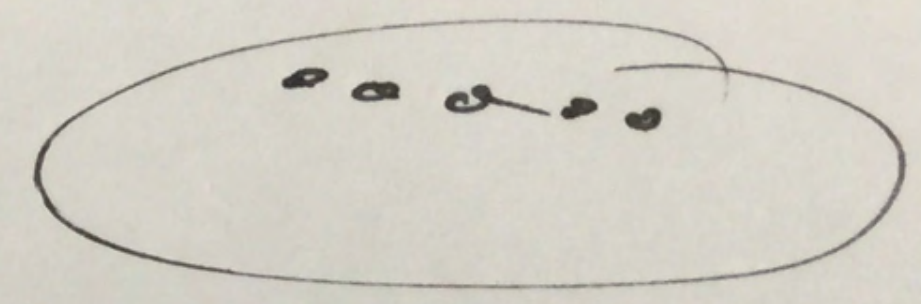
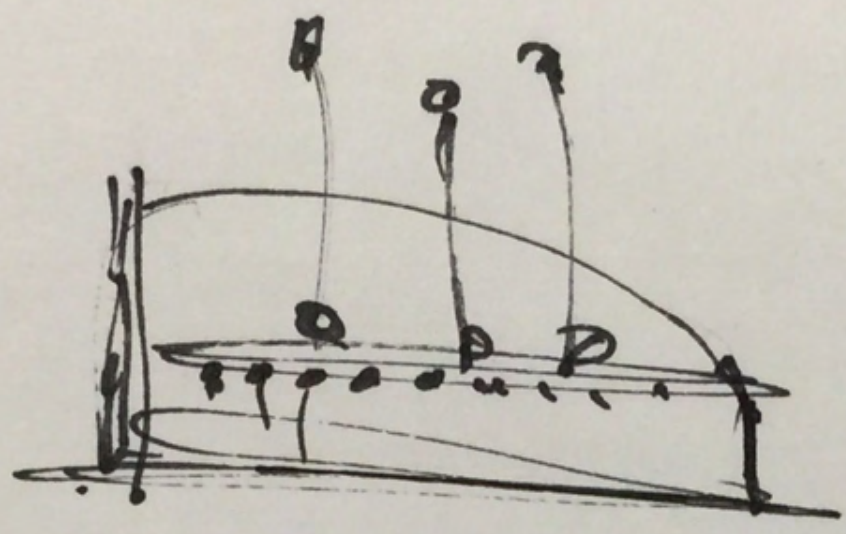
Places on Mars that have both signs of water and signatures may be the most likely places to look for signs of past or present (and the future) habitability.

Even if Mars never had abundant life, NASA's robotic explorers to Mars may tell us whether there would ever be a habitat for human exploration someday.

Learn more about Mars Science Laboratory at:
<http://www.mars.jpl.nasa.gov/>

JPL Planetary Laboratory
California Institute of Technology
Pasadena, California
www.jpl.nasa.gov/













UP DOWN

DURATION 3166

INTERVAL 109

SPEED MIN 32

SPEED MAX 40

0 1 2 3

PULSE RAIN SMOKE HAIL WAVES

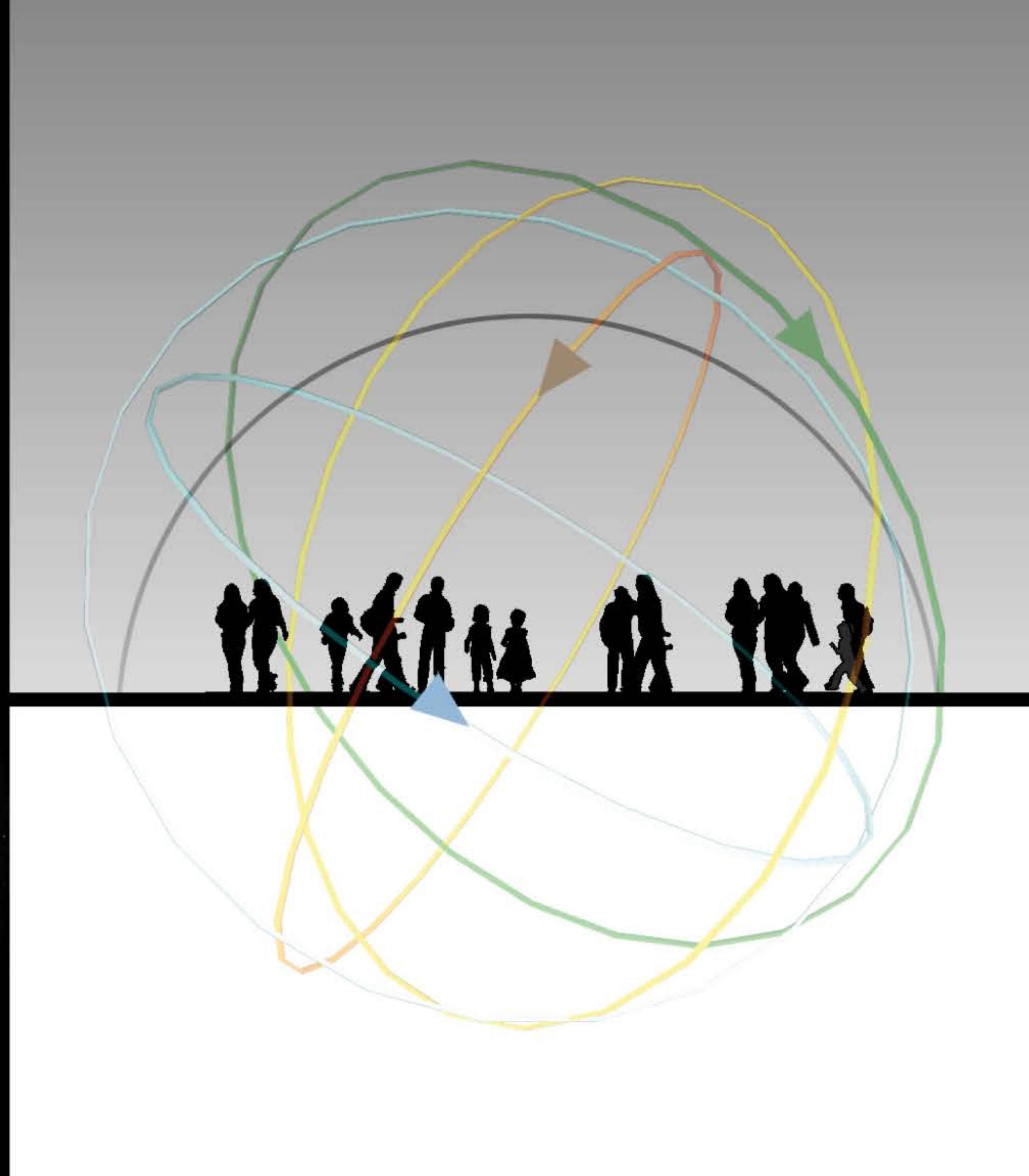
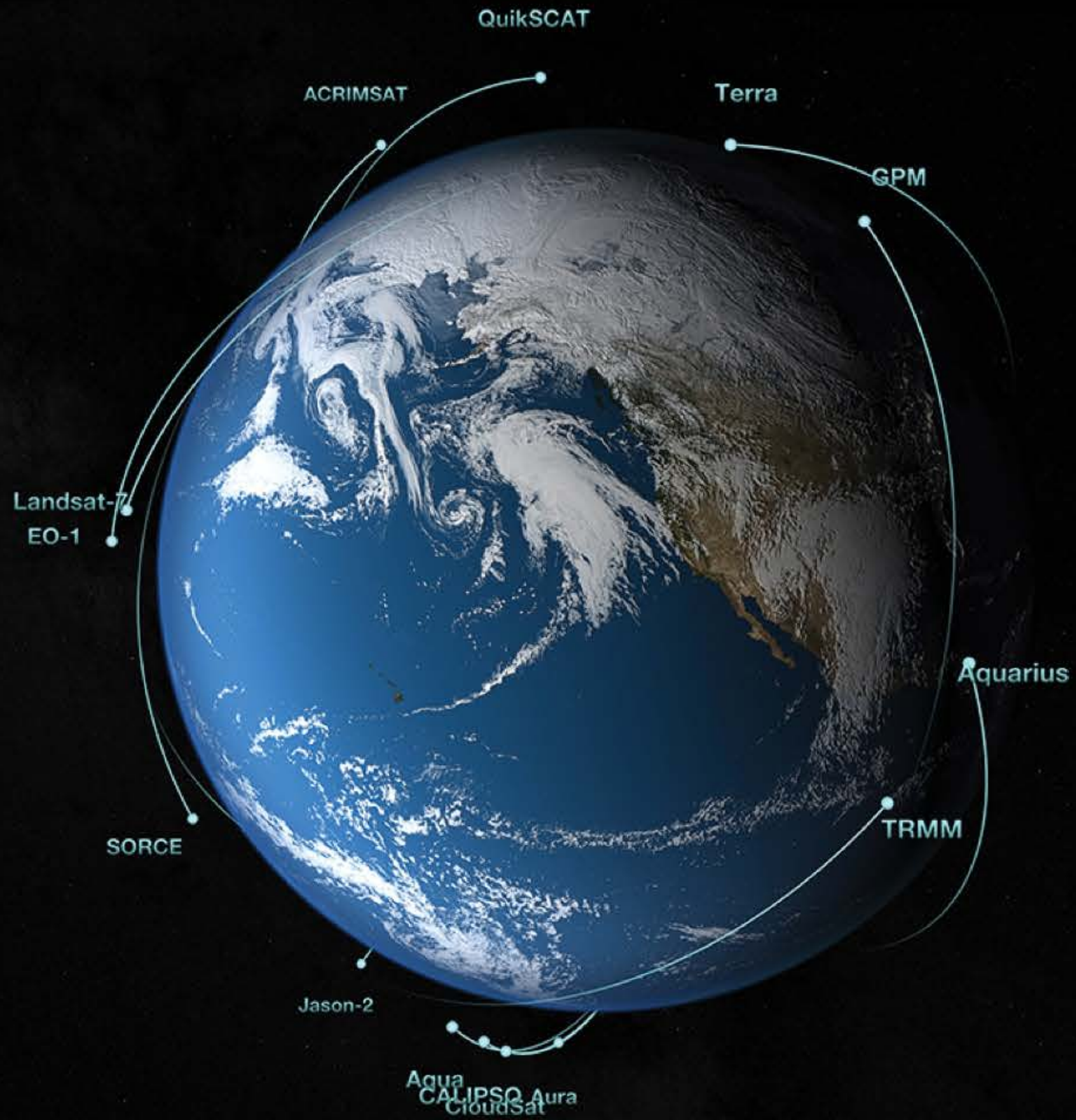


LED COLOR





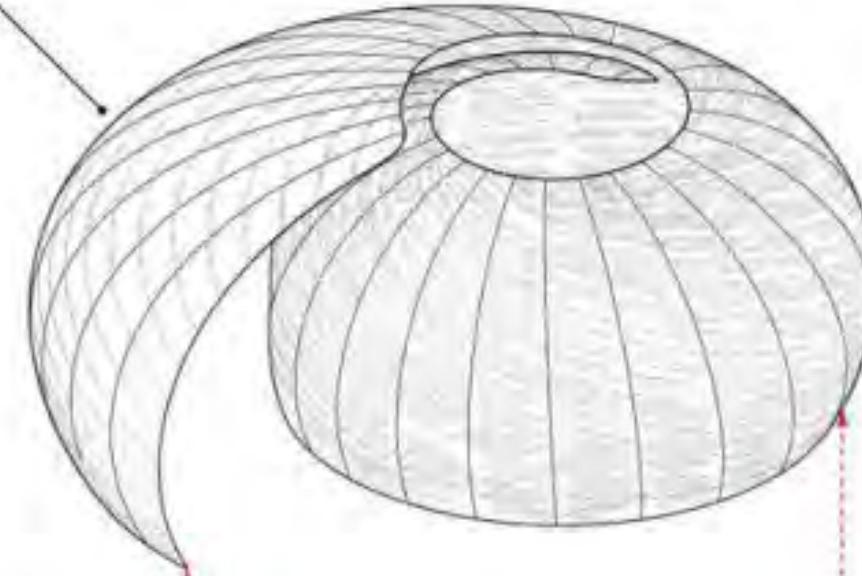






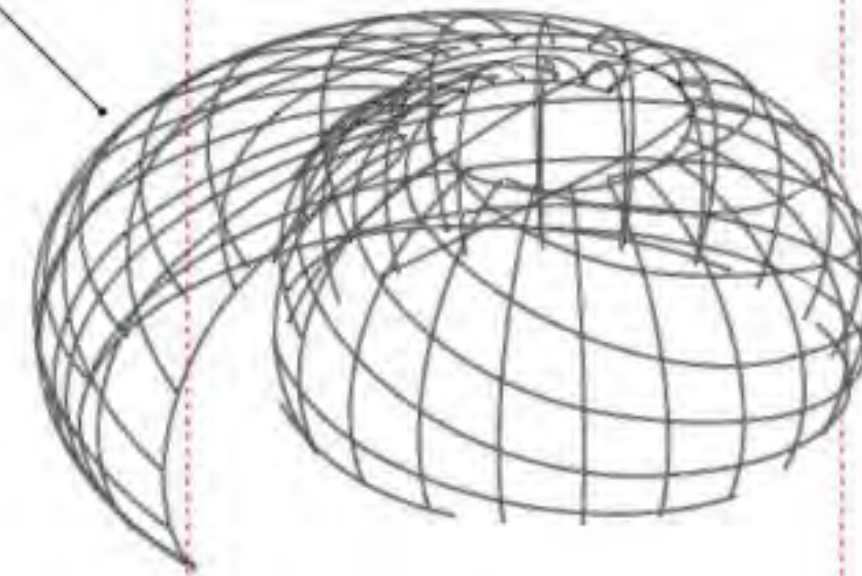
Aluminum Shell Surface

72 water-jet cut aluminum panels tied together and bolted to the structural frame to create a double-curved shell.



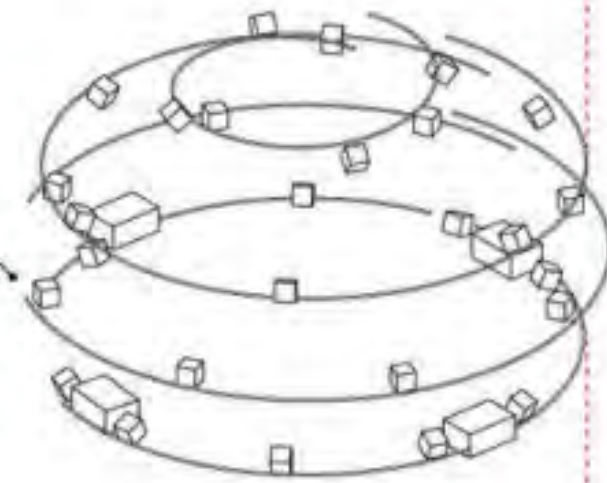
Structural Frame

1300 linear feet of curved aluminum tubes connected together to create a structural spiral diagrid.



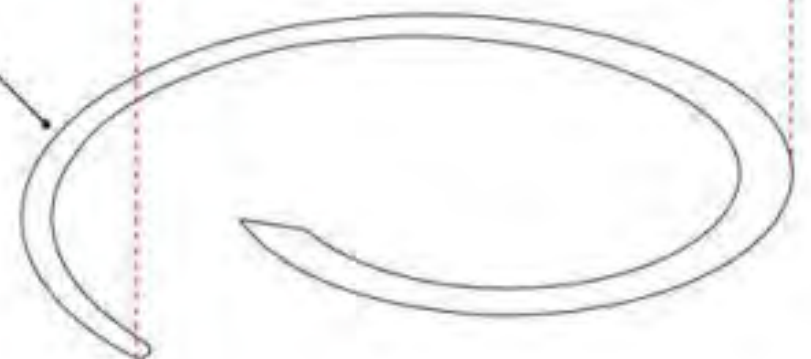
3D Sound Chamber

24 speaker array arranged within a 30 foot diameter sphere to create a three dimensional sound experience.



Footing

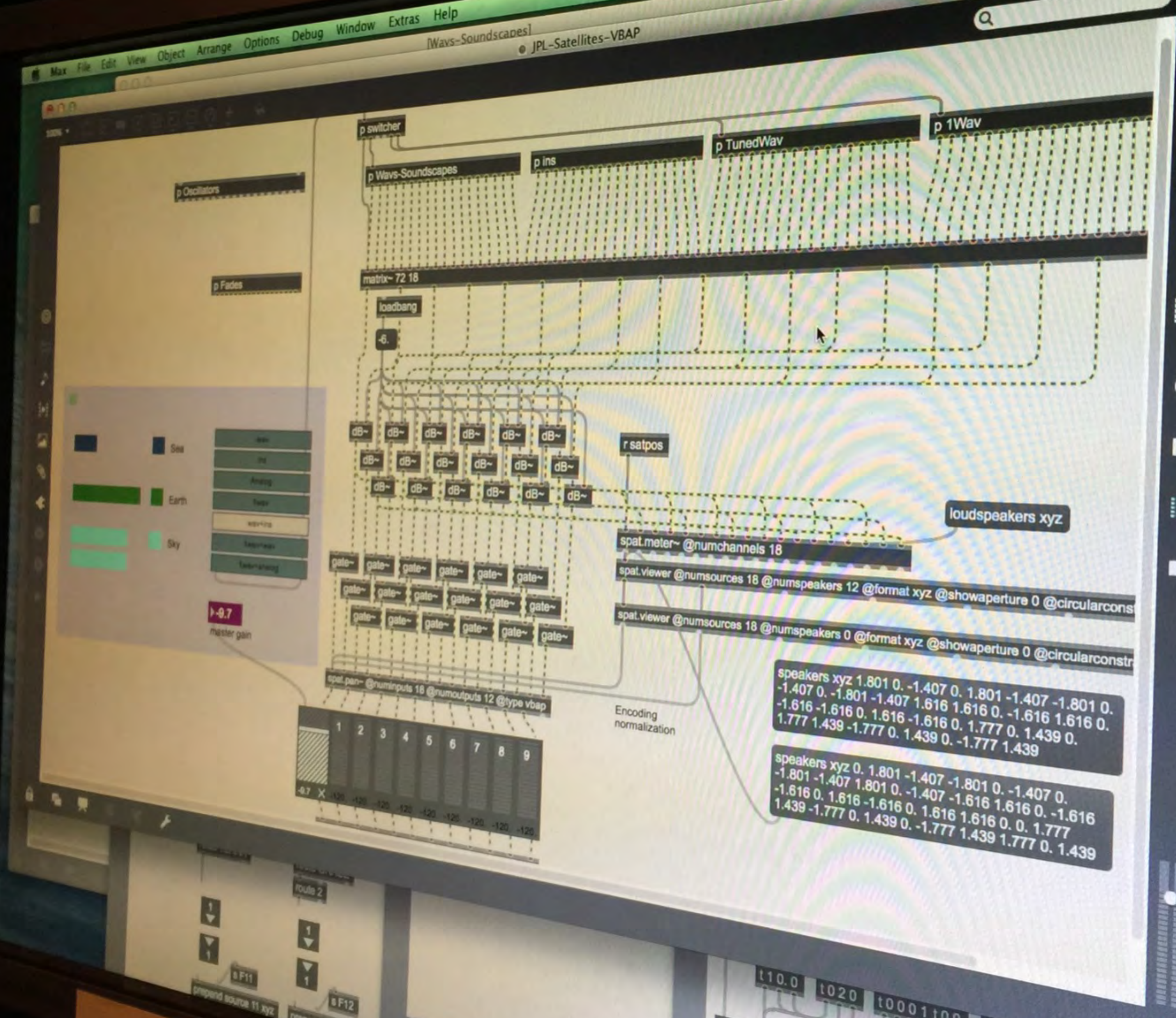
163 feet of CNC milled panels connected together to create a base for the pavilion.











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Grid icon
 Info icon
 Window icon
 List icon
 Window icon

speakers xyz 1.801 0. -1.407 0. 1.801 -1.407 -1.801 0.
 -1.407 0. -1.801 -1.407 1.616 1.616 0. -1.616 1.616 0.
 -1.616 -1.616 0. 1.616 -1.616 0. 1.777 0. 1.439 0.
 1.777 1.439 -1.777 0. 1.439 0. -1.777 1.439

speakers xyz 0. 1.801 -1.407 -1.801 0. -1.407 0. -1.616
 -1.801 -1.407 1.801 0. -1.407 -1.616 1.616 0. -1.616
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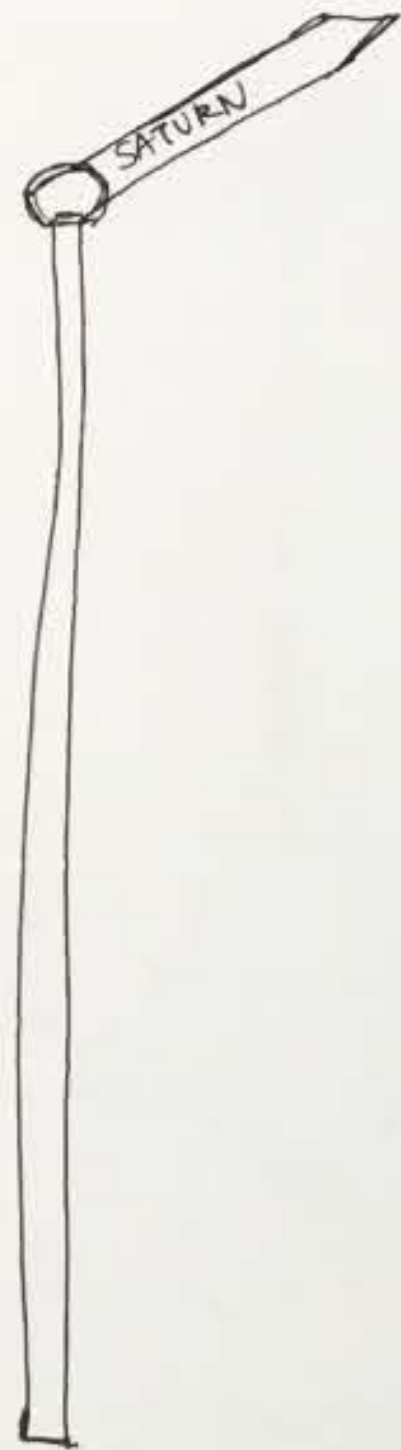




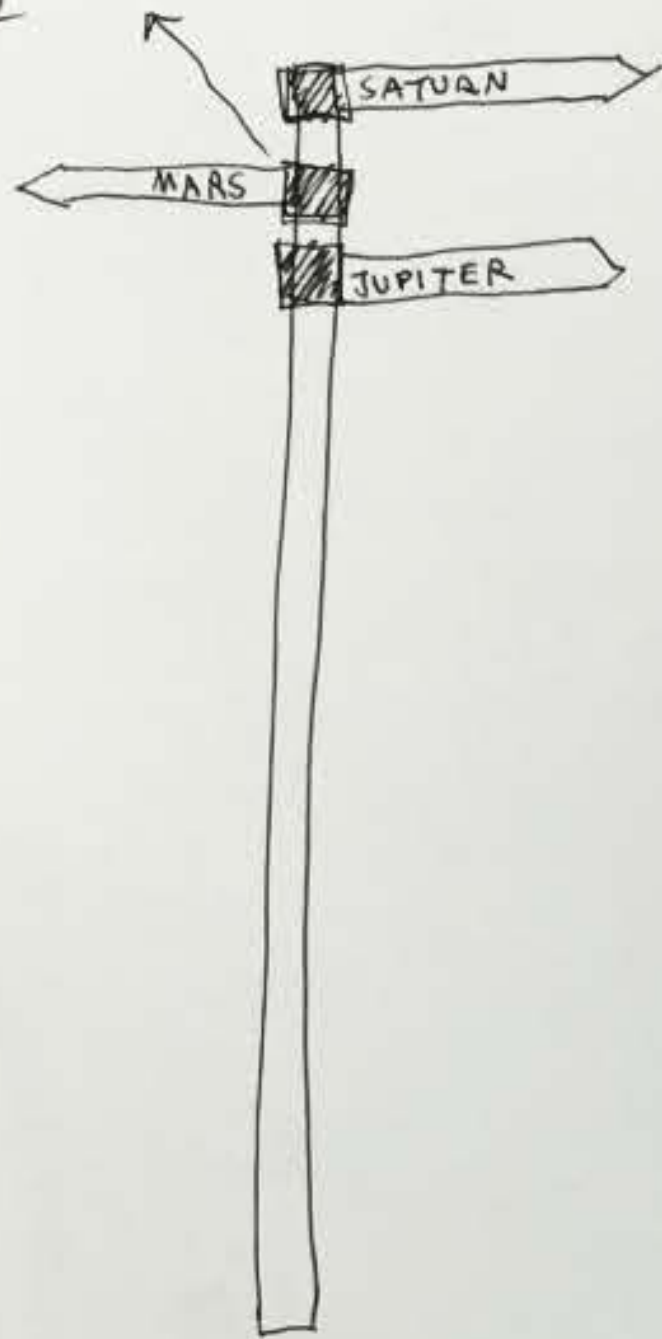
SURVEYOR, RD

MARINER RD

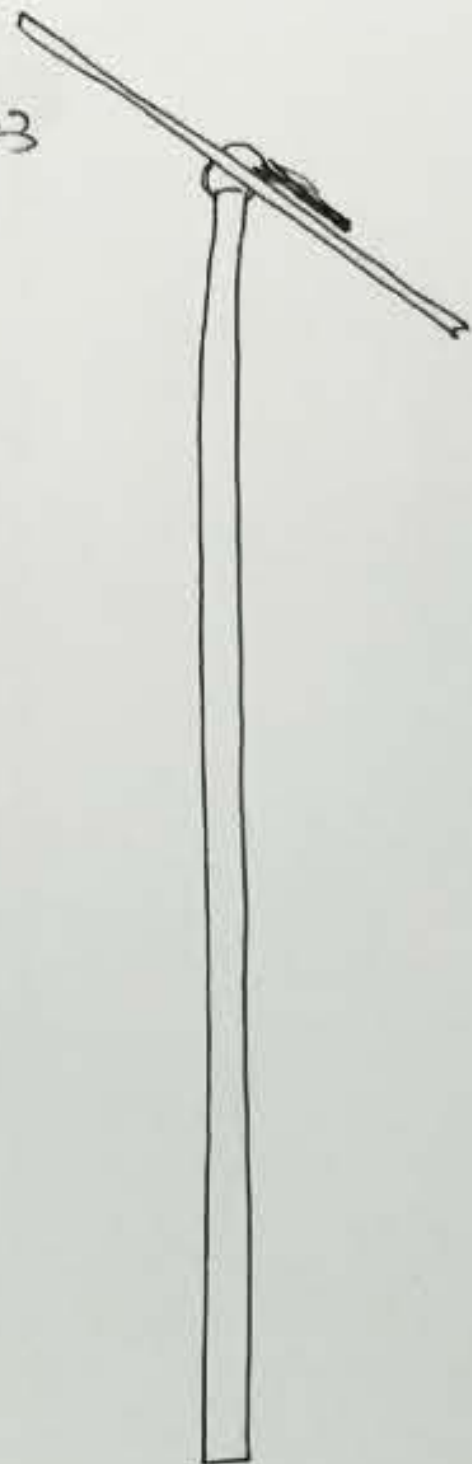
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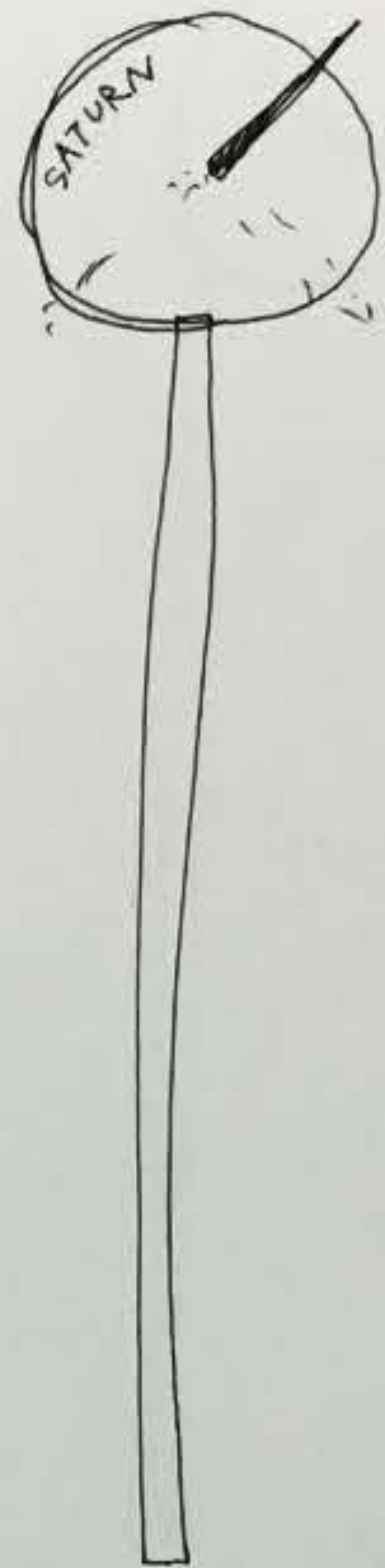
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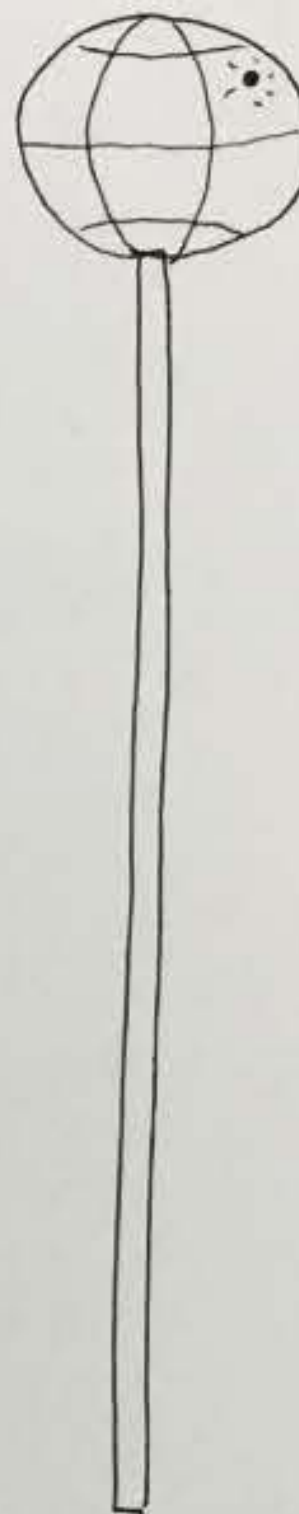
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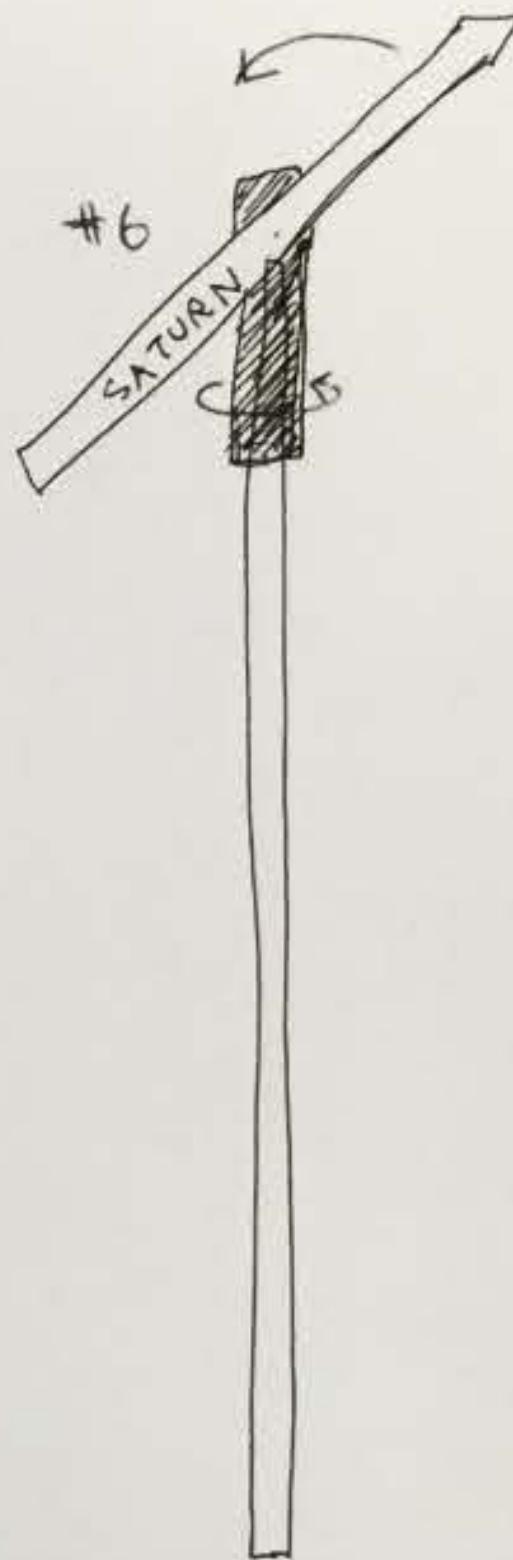
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#5



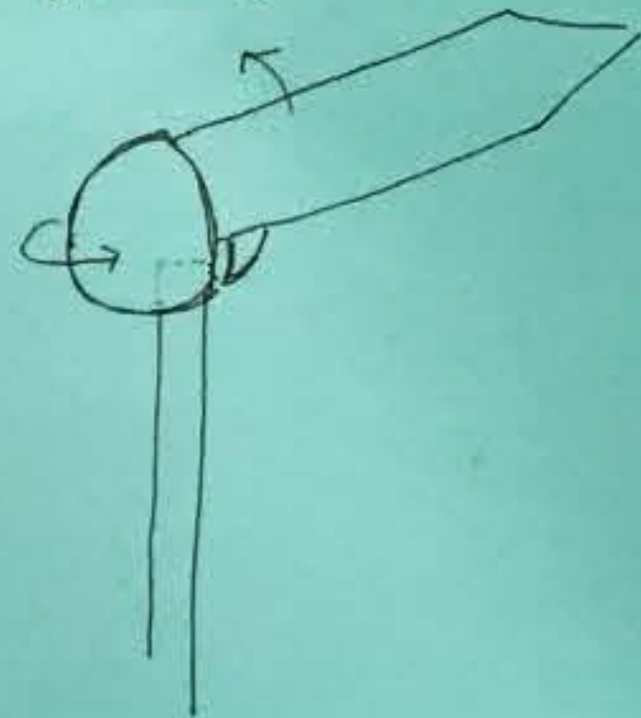
#6



Mechaniz.

earlier version of #1

BALL JOINT



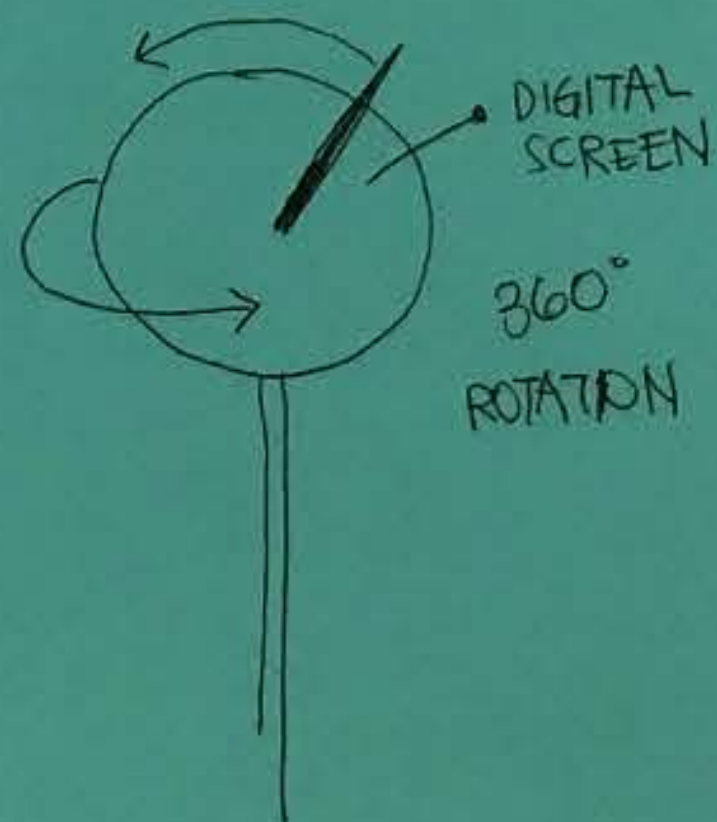
NOT ORBITING IN THE SAME PLANE
"STREET SIGN"

TOP VIEW



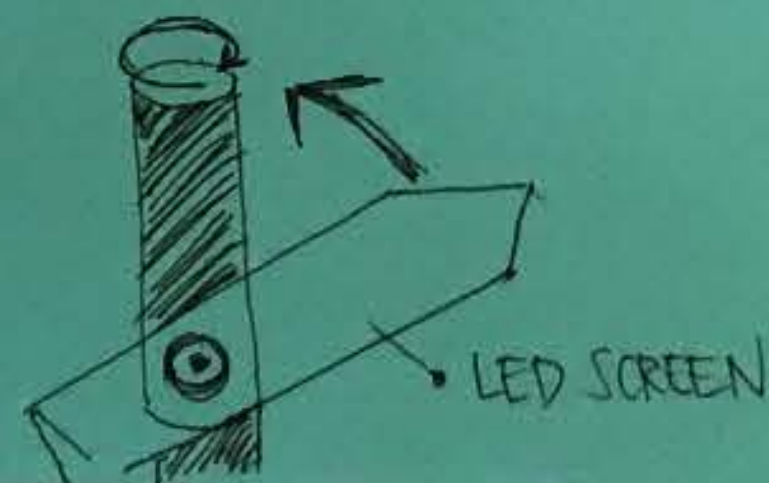
Clock format?

Not readable



DIGITAL SCREEN
360° ROTATION

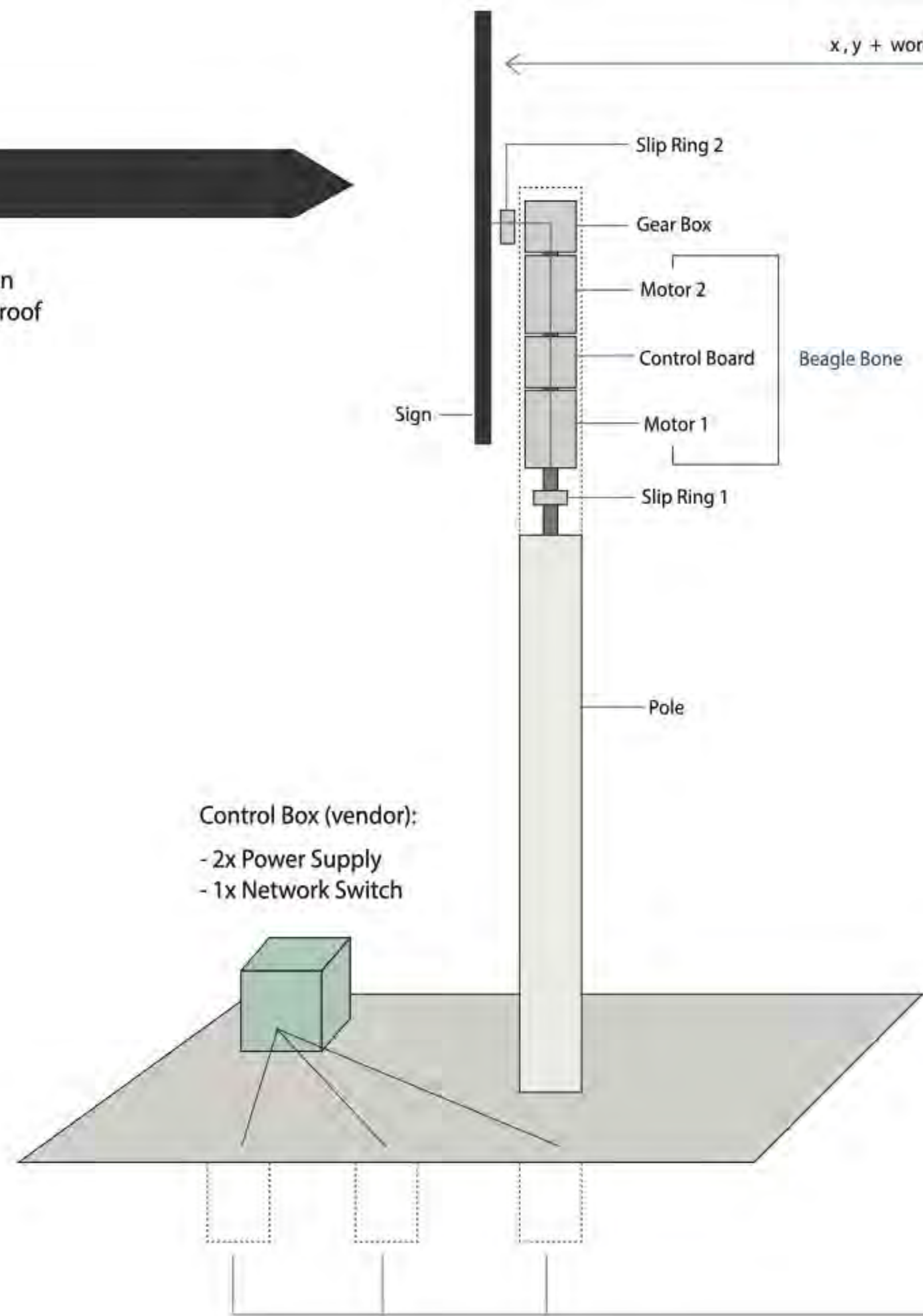
ROUND LED BOARD?
GLOBE (LIGHTS ANIMATING)



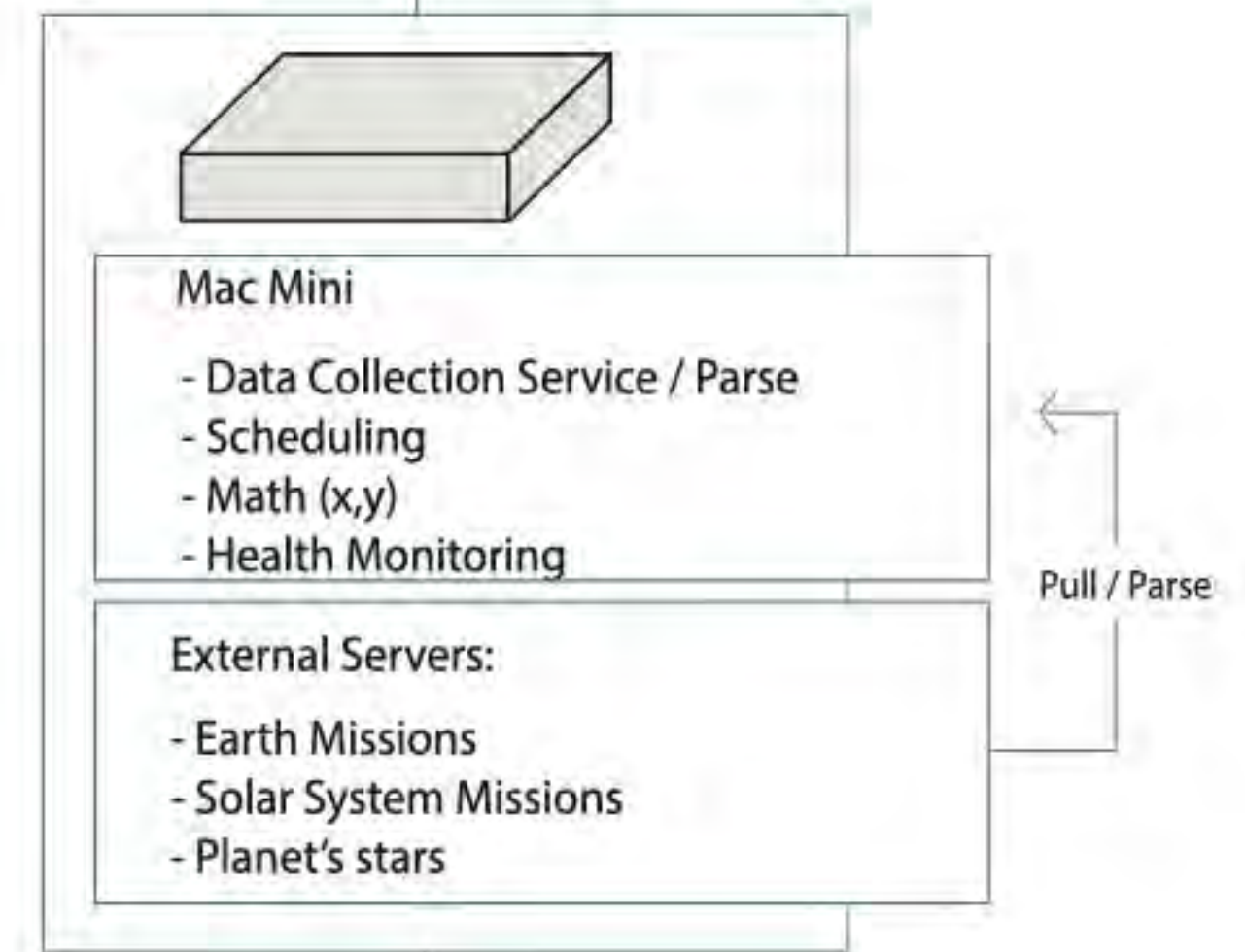
LED SCREEN



Sign:
- Fabrication
- Weatherproof
- LED



Control Box (vendor):
- 2x Power Supply
- 1x Network Switch



Mac Mini
- Data Collection Service / Parse
- Scheduling
- Math (x,y)
- Health Monitoring

External Servers:
- Earth Missions
- Solar System Missions
- Planet's stars

Studio Display:
- Computer

Facilities (JPL):
- 3x Pole Holes
- 2x Data
- 1x Power (in box)



#6
SATURN
C B







A composite image featuring the Juno spacecraft in orbit over the planet Jupiter. The spacecraft is positioned centrally, with its solar panels extended. The planet's surface, showing cloud bands, is visible in the background. A bright sun is located behind the spacecraft, creating a lens flare effect. Overlaid on the image is the text "HI JUNO" in a white, stylized font. The "HI" is on the left, and "JUNO" is on the right, with the spacecraft's body acting as a visual separator between the two words.

HI JUNO