



Engaging the Public in Addressing Climate Change

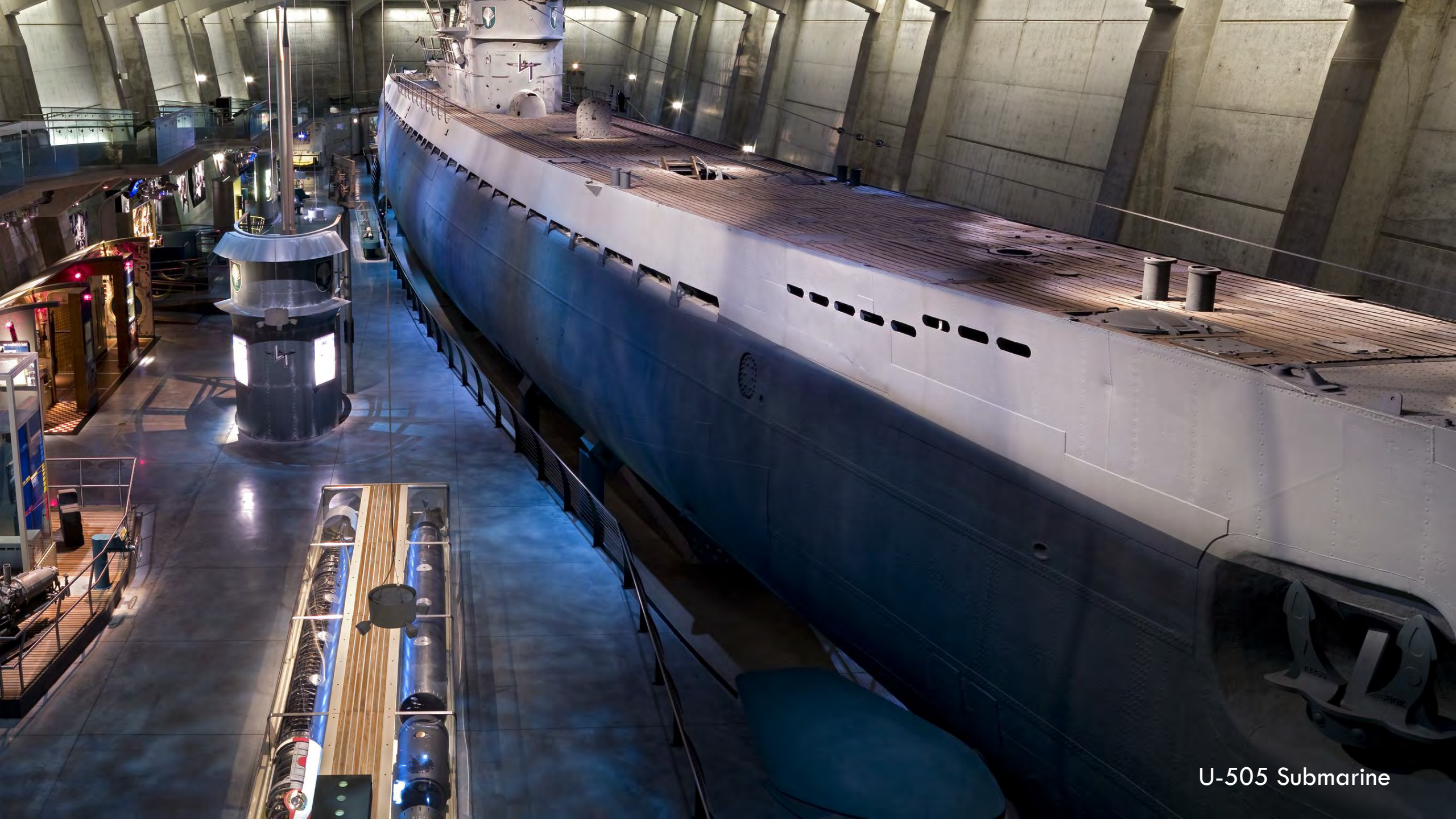
Patricia Ward, PhD
Director, Science Exhibitions and Partnerships
JPL OST Science Team Conference
October 21, 2019



MISSION

Inspire the inventive genius in everyone

- Opened 1933
- 400,000 square feet
- >35,000 artifacts
- 1.5 million guests/year
- 350,000 students
- Education programs



U-505 Submarine



Transportation Court



Science Storms



YOU!

the experience

WREN · HALE · NEWTON · GIBBS · DESCARTES · HALE · NEWTON · GIBBS

HIMEDES ·

create an ad

YOU! The Experience





Wired to Wear

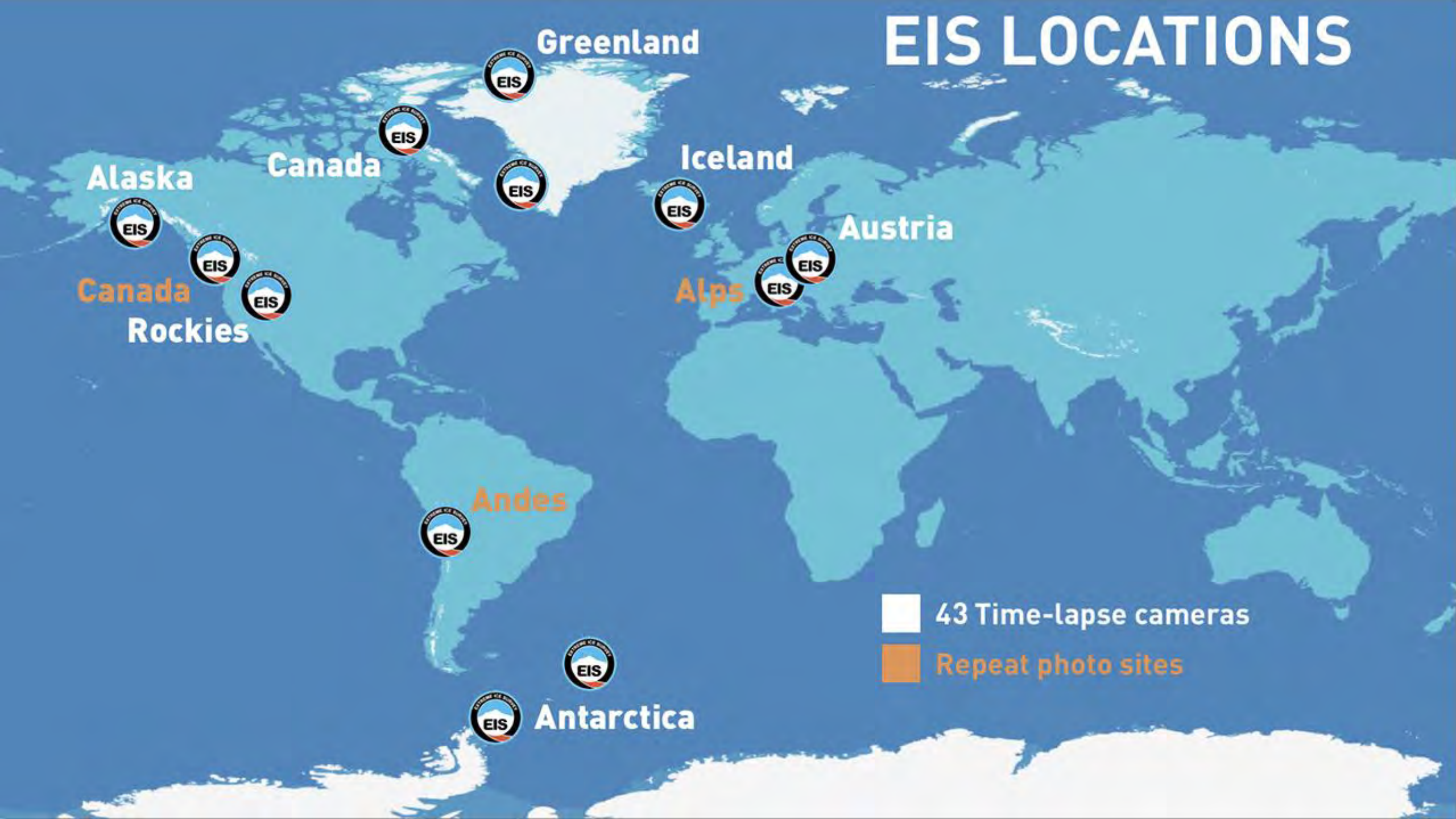
A Story of Climate Change



James Balog



EIS LOCATIONS













Mendenhall Glacier Alaska, 2007



Mendenhall Glacier Alaska, 2011

EXTREME ICE



*You almost feel the power of those glaciers and those landscapes
wanting to speak through you. Through those cameras.*

—James Balog



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The Extreme Ice exhibition team utilized a wide variety of scientific resources to inform the overall content as well as the specific information and visualizations presented in the exhibition.

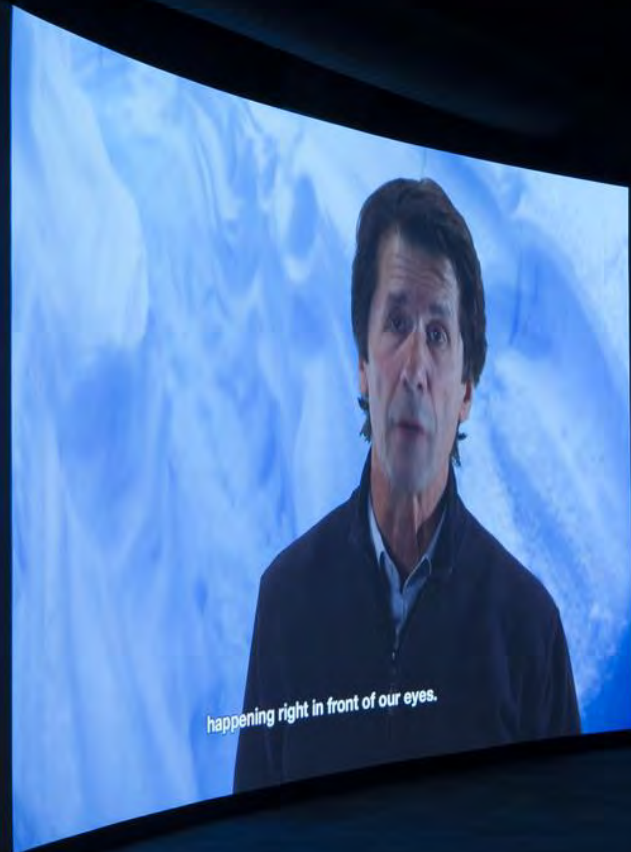
Background Research

Anthropocene Review
 Regional National Publishing
 Carbon Cycle Information Analysis Center
 for Climate and Energy Science
 International Academy of Sciences
 in Science Review
 A Change Model about the Changing Climate
 after Sea Level, W.D., and Deep Science
 in the History of the National
 Publishing, Science Management Office
 Life Science Science and Technology
 Life Science Science and Technology
 with Data Center
 1997
 1997

Exhibition Resources and Partners

[illegible]

Productions

[illegible]

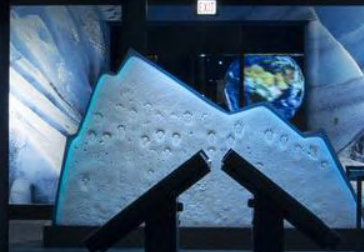


Like Greenland and West Antarctica the calving is very much on the rise;

he air we breathe is preci



2015



Glaciers In Retreat

*It's real. The changes are happening.
They're very visible. They're photographable.
They're measurable.*

—James Balog

More than 90% of the world's glaciers are in retreat. Over the past 15 years, rising temperatures have caused glaciers to lose ice thickness at a rate two to three times greater than during the 20th century. In places like Alaska, that translates into 75 gigatons of ice lost every year.

The Extreme Ice Survey documents these changes by returning to the same locations years later, capturing visible evidence of our disappearing landscapes.

Columbia Glacier
Alaska, United States, 2009-2015
Photo by James Balog

From when it was first measured in 1966 until 1995, Columbia Glacier retreated at roughly the same pace. But since the 1990s it has been in rapid retreat, and today its single glacier front is 100 miles long and 10 miles wide.

2009



2015



2005



2011



2012



2013



The air we breathe is precious, and the glaciers helped me understand that.

—James Balog

The air we breathe is precious, and the glaciers helped me understand that.

—James Balog

2009



2015



2006



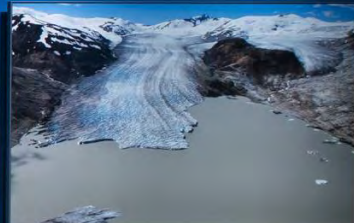
2015



2009



2012





Perito Moreno Glacier
Patagonia, Argentina
The glacier is one of the last remaining glaciers in the world, and it is a popular tourist destination.



Mount Everest
Nepal
The mountain is the highest in the world, and it is a popular destination for mountaineers.



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Glacier wall, Alaska



Glacier bridge, Alaska



Icebergs, Antarctica



Snow-capped peaks, Himalayas



Glacier flowing into the sea, Greenland

MELTING GLACIERS RISING SEAS

TOUCH TO BEGIN



810



MELTING GLACIERS RISING SEAS

TOUCH TO BEGIN



Shishmaref, AK

Vancouver, Canada

Mountain View, CA

Chicago, IL

Tampa, FL

New York, NY

Miami, FL

San Juan, Puerto Rico

People in North America below sea level: **16,633,045**
People worldwide below sea level: **213,442,617**

MAP KEY
1 METER = 3.28 FEET
CHANGE OF 1°C =
CHANGE OF 1.8°F

CURRENT COAST
 CLIMATE IMPACTS
 CITIES UNDER WATER

HOME



LEARN MORE ABOUT CLIMATE CHANGE

SOURCES

Gulf Coast



People in major regional cities below sea level: **794,399**
People worldwide below sea level: **213,442,617**

- CURRENT COAST
- CLIMATE IMPACTS
- CITIES UNDER WATER



LEARN MORE SOURCE
Data provided by Climate Central

Gulf Coast



People in major regional cities below sea level: **3,890,886**
People worldwide below sea level: **553,197,157**

- CURRENT COAST
- CLIMATE IMPACTS
- CITIES UNDER WATER



Data provided by Climate Central



Shishmaref, AK

Vancouver, Canada

Mountain View, CA

Chicago, IL

New York, NY

Tampa, FL

Miami, FL

San Juan, Puerto Rico

People in North America below sea level: **16,633,045**
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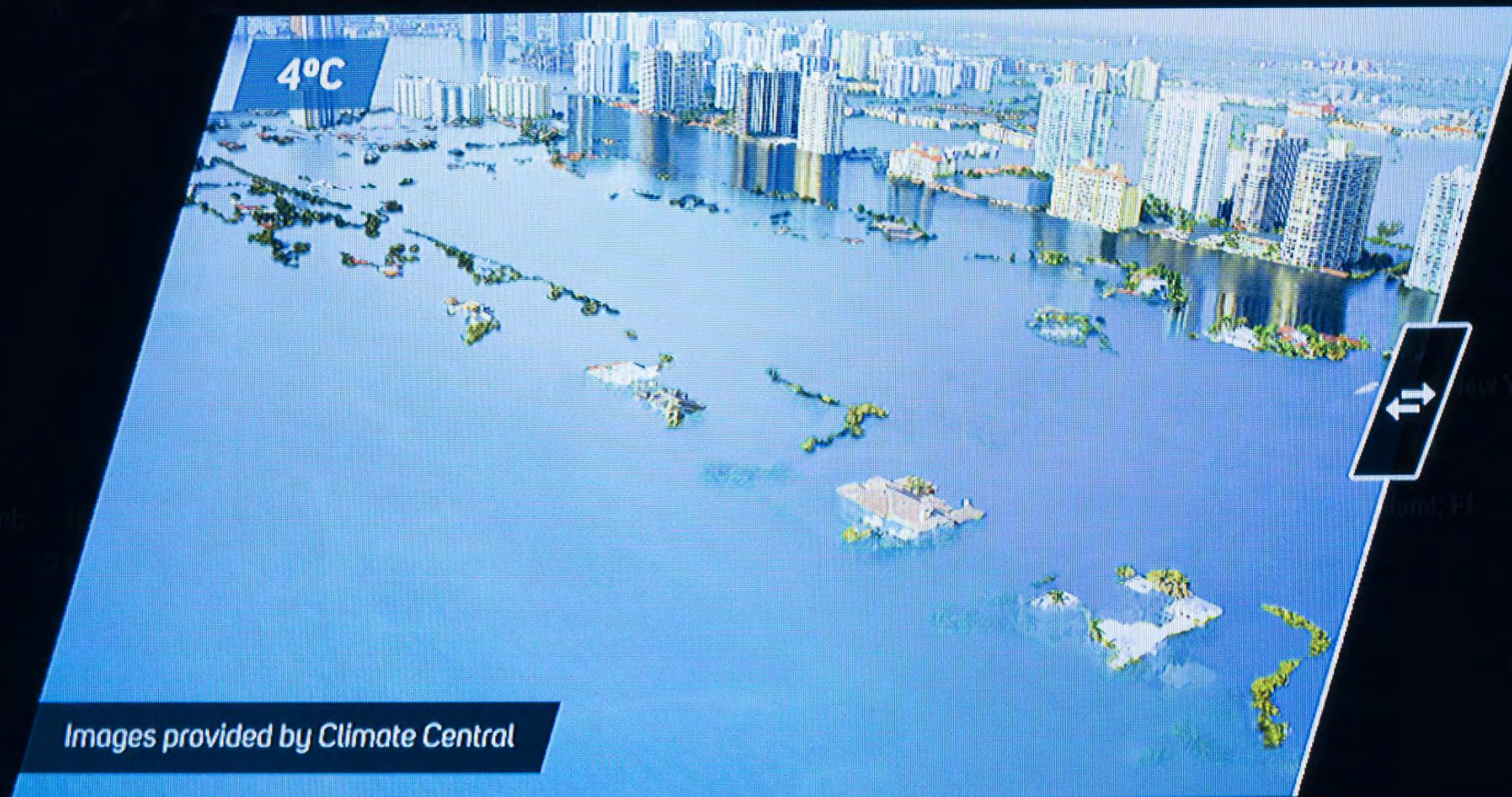
HOME



LEARN MORE ABOUT CLIMATE CHANGE

SOURCES

Miami, FL








Extreme Cold

Please protect the display by using only gloves to touch it.





LOOKING AHEAD

Environment and Climate Change at MSI

INFLUENCES

- Team discussions / research
- Environment Advisory Committee
- Teen Advisory Committee
- UN Sustainable Development Goals
- Project Drawdown
- Planetary Boundaries Framework
- UN Climate Trends Report 2019
- Circular Economy

Key Points

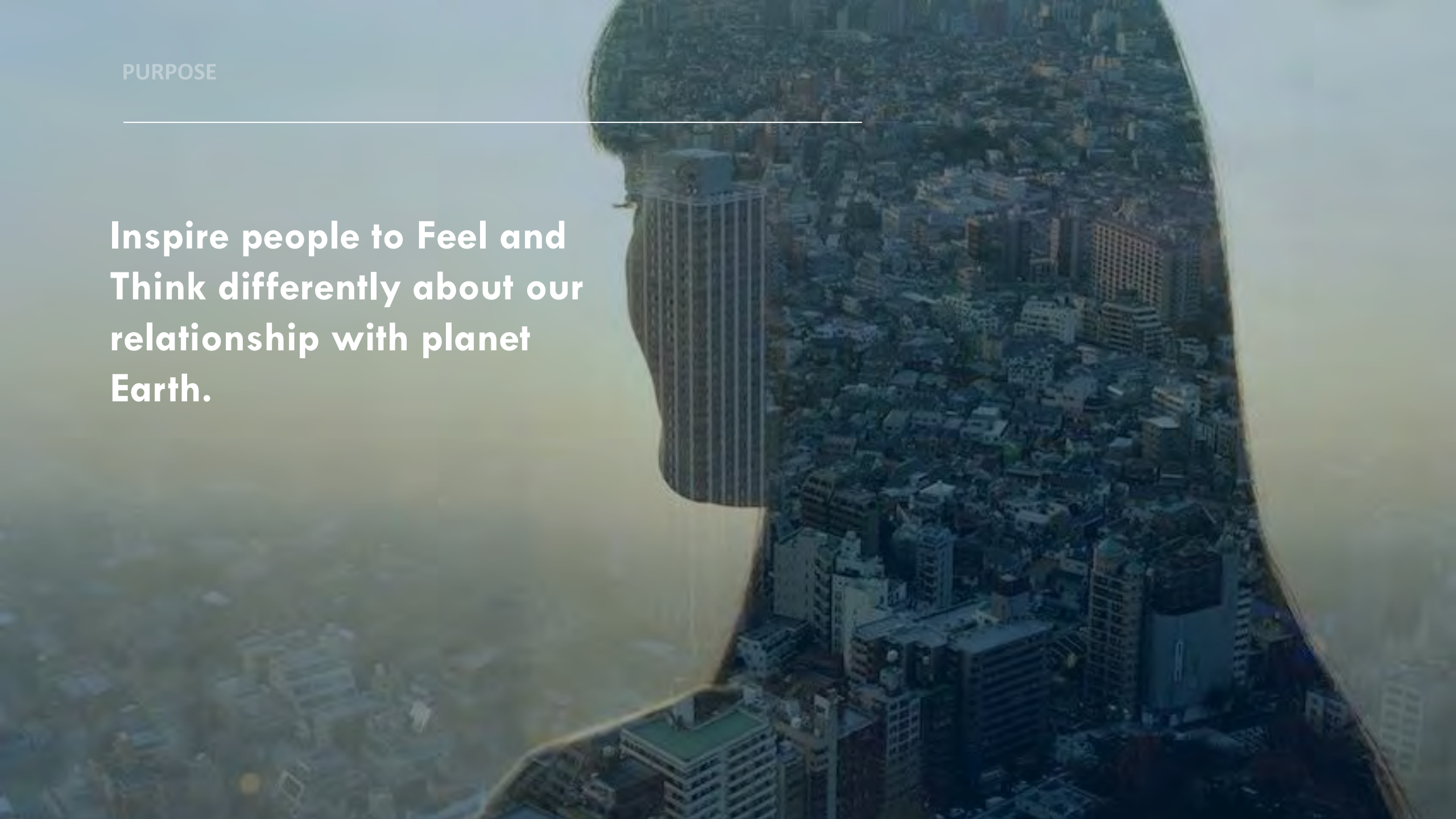
- Take a long-term, holistic view of our future on Earth
- Transformational change is essential
- People are worried about the future of the planet and have no idea of what to do or how they can make a positive impact.

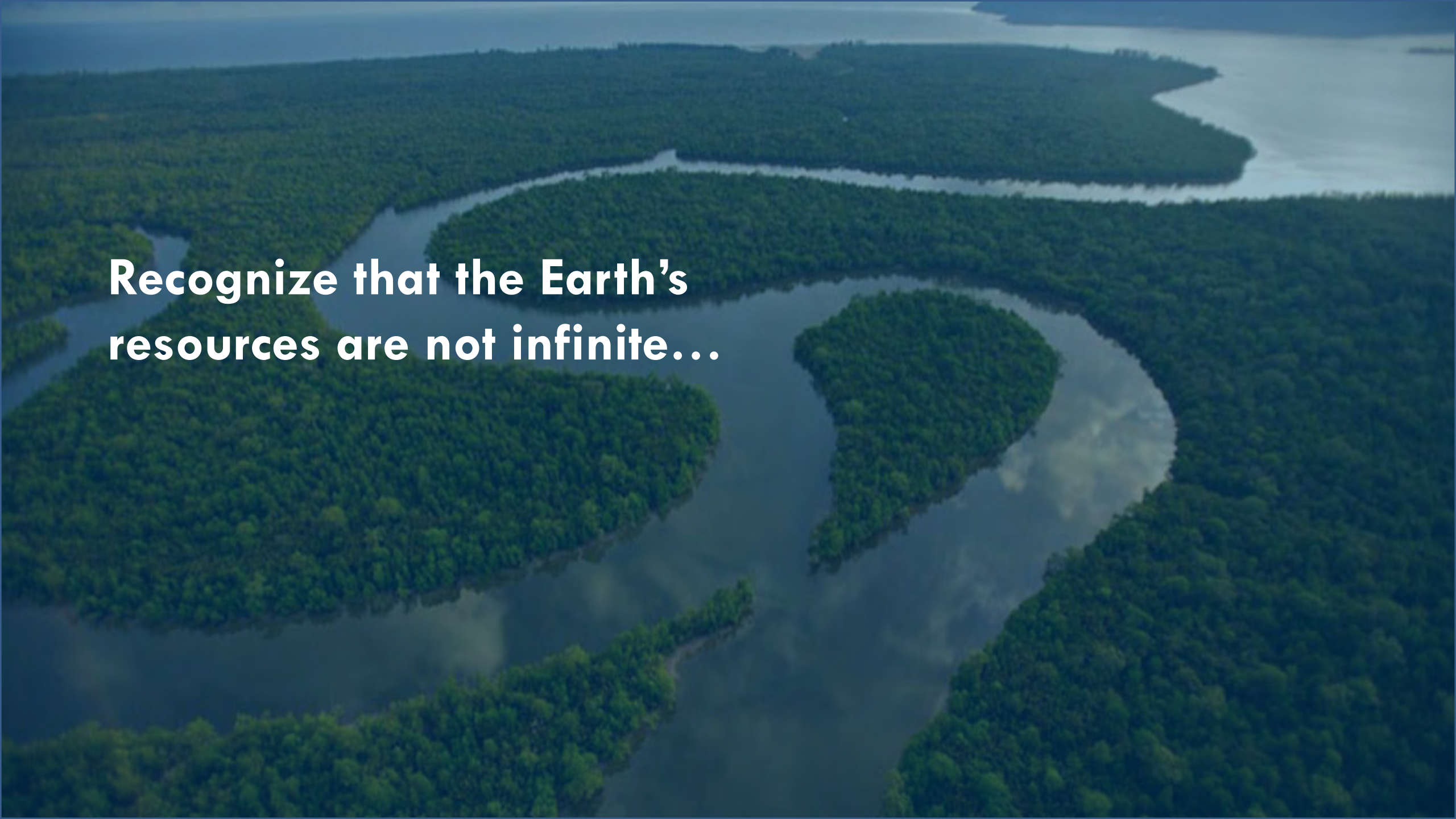
What can an
exhibition do?



PURPOSE

**Inspire people to Feel and
Think differently about our
relationship with planet
Earth.**



An aerial photograph showing a dark, winding river or stream that meanders through a vast, dense green forest. The forest appears to be a mangrove or a similar wetland environment. The river's path is highly irregular, with many loops and bends. In the upper right corner, the river opens up into a larger body of water, possibly a bay or a lake, which is lighter in color. The overall scene is a lush, natural landscape.

**Recognize that the Earth's
resources are not infinite...**

**Empower people to explore
pathways and opportunities
for creating a sustainable
future for life on Earth....**

**...and find their place in
this critical endeavor.**



How do we set up the
exhibition to achieve our
purpose?

Organize the exhibit's content, design
and experiences around...

SYSTEMS

- Earth is a dynamic system of interdependent parts that make a collective whole.
- Human-built systems (for supporting our food, energy, water and other needs) greatly impact the Earth's systems.
- We see these impacts in our changing climate and other environmental challenges, which have reached a crisis level and threaten our future existence.
- To sustain the future of life on our planet, we need to transform our human systems.

To create a sustainable future Earth,
we must change our systems for
harnessing its resources to support our
(increasing) needs.



Needs of people and the
health of the planet must
come together.





Thank you!

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