

# Antarctic Dinosaurs



**FIE**  
MUSEUM  
**LD.**

# Exhibition Details

**Size:** 5,500 ft<sup>2</sup> (511 m<sup>2</sup>)

**Ceiling Height:** 12 ft (3.66 m)

**Tour:** Spring 2023 – Fall 2028

**Curators:**

Pete Makovicky, PhD.

Lead Curator

Field Museum

Nathan D. Smith, Ph.D.

Associate Curator

Natural History Museum of Los Angeles County



# Features

- Over 60 fossils, full-scale replications, and touchable models
- 9 mechanical and digital interactives
- 7 videos and large media elements
- Custom soundscape and lighting elements
- Bilingual (English & Spanish)





# Graphic Panels

- Strong hierarchy makes content accessible to multiple learner levels
- Graphic novel illustration and dialogue convey a sense of adventure
- Bilingual layout and flexible graphics system (all text is for placement only)

Antarctic today panel



Reading panel samples

Simple landscape texture

Photo and caption

Header, body copy and ID text

Graphic novel illustration and dialogue

Material: Inkjet print with a 5 mil display flex lamination mounted on .25" sintra. All edges captured by frame

Antarctic prehistoric past panel







Though Antarctica today can be a forbidding land of snow and ice, 200 million years ago it was part of the supercontinent Gondwana, a wooded, verdant habitat where dinosaurs thrived. After the age of the dinosaurs, the landmass now known as Antarctica separated from South America, opening a new path for ocean currents that froze the South Pole over millions of years. As the climate changed, so did life on the continent.



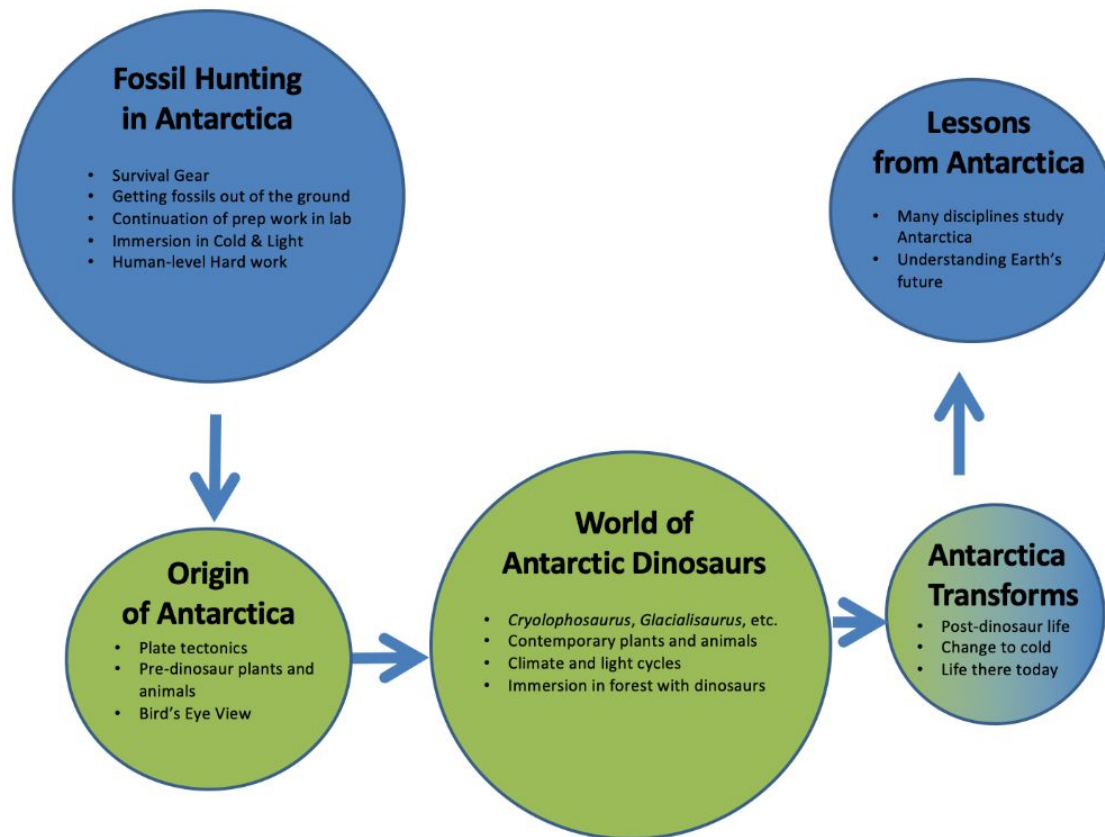
# Exhibition Summary



## EXHIBITION SUMMARY

Antarctica is a beautiful and remote place that few people get to experience. The goal of the exhibition is to transport people to this harsh, mysterious landscape through immersive environments, images, lighting, sound, and smells. Dynamic projection mapping of the excavation site, authentic fossil finds, robust tool interactives, and graphic novel storytelling allow visitors to join our dinosaur hunters on this epic adventure.

## Antarctic Dinosaurs Bubble Plan



# Main Messages



## MAIN MESSAGES

# Main Messages

- Antarctica was once a lush land populated by dinosaurs
- Fossils from Antarctica shed new light on our planet's ever-changing geology
- Interdisciplinary scientists from around the world study Antarctica's landscape to understand planet's past, present, and future climate transitions







#### THE CLUE OF THE CASSIDY COLOR

LA CLAVE DE LOS COLORES DEL CASSIDY

When the body was first discovered in 1942, the Tyrannosaurus Rex was thought to be a dark, almost black color. However, the discovery of the Cassidy specimen, a young T-Rex, revealed that the dinosaur was actually a light brown color. This discovery led to the realization that the adult T-Rex was also a light brown color, not a dark one. The Cassidy specimen was named after the man who discovered it, and its discovery was a major breakthrough in the study of the Tyrannosaurus Rex.



#### THE MYSTERY OF THE LOST TEETH

EL MISTERIO DE LOS DIENTES PERDIDOS

One of the most intriguing mysteries of the Tyrannosaurus Rex is the disappearance of its teeth. It is well known that the T-Rex had a powerful bite, capable of crushing bone. However, the fact that its teeth were so strong and yet so easily lost is a mystery. Scientists have found many T-Rex teeth, but they have never found a complete set. This has led to the theory that the T-Rex lost its teeth as it grew older, or that it lost them in fights with other dinosaurs. The mystery of the lost teeth remains one of the most fascinating puzzles in paleontology.







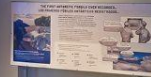
# Fossil Hunting in Antarctica

Following the footsteps of paleontologists, visitors are transported to one of the most inhospitable environments on the planet: bitterly cold mountains. There they must rely on an arsenal of modern power tools to excavate fossils from rock. Experience the taxing but exhilarating work of digging for fossils that reveals that Antarctica wasn't always a frozen, hostile landscape.

## GET SET TO JOURNEY TO ANTARCTICA PREPÁRATE PARA VIAJAR A LA ANTÁRTIDA

No place on Earth compares to this barely cold and seemingly barren continent. So for centuries, men of curiosity and exploration have made the journey, and come, to see, go, and learn about the continent. Today, it's not just for curiosity's sake, but to explore the continent's secrets and discover the continent's secrets.

Ningún otro lugar de la Tierra se compara a este continente: apenas frío y aparentemente estéril. Sin embargo, desde hace siglos los hombres de curiosidad y exploración han hecho el viaje, y han venido a ver, ir, y aprender sobre el continente. Hoy en día, no es solo por curiosidad, sino para explorar los secretos del continente y descubrir sus secretos.

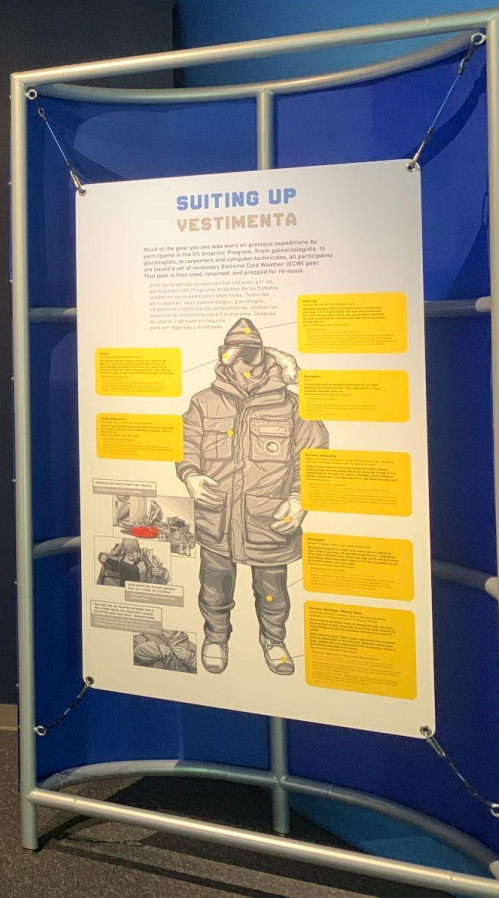






DIG OUT THE  
EXCAVATION









FOSSIL HUNTING IN ANTARCTICA

# Fossil Hunting in Antarctica

## SECTION ELEMENTS

- Media experience: on-site, modern fossil hunting
- “Excavation” mechanical interactives
- Real fossil collecting equipment
- Touchable matrix from Antarctica
- Recreated quarry ledge



# Origins of Antarctica



## ORIGINS OF ANTARCTICA

Journey back in time to explore the dynamic nature of Antarctica's geology and the forces—plate tectonics—that created the southernmost continent. Examine a reconstructed forest and encounter the early plants and animals that flourished in the once-green environment.



of years ago and covered about one-third of Earth's surface.  
Les glaciers couvraient une partie de la superficie terrestre.





# CONNECTING THE WORLD FOSSIL BY FOSSIL EL MUNDO FÓSSIL POR FÓSSIL

At the beginning of the Permian period (nearly 300 million years ago), the continents were connected in the supercontinent of Pangaea (Greeks:  $\pi\epsilon\alpha\gamma\epsilon\alpha$ ). Fossils like those Antarctic and South African ones helped scientists infer these connections.

Al principio del período Pérmico (hace unos 300 millones de años, todos los continentes estaban unidos como un supercontinente llamado Pangea. Los científicos hicieron estas conexiones gracias a fósiles como estos antárticos y sudamericanos.

Even though they may not look identical, Continental fossils from South and South Africa show clear similarities. Both of them, for example, have a similar shape, called a "triangular" shape, and their bones are arranged in a similar way.

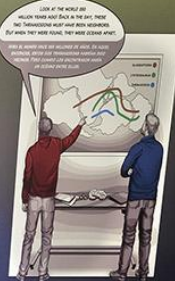
Aunque ellos no se parecen mucho, los fósiles continentales de Sudamérica y África del Sur muestran claras similitudes. Ambos, por ejemplo, tienen una forma similar, llamada "triangular", y sus huesos están dispuestos de una manera similar.

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When scientists discovered this Antarctic, Triassic fossil, it was clear that it was a fossil of a South African. Although it may not look identical, the shape of the fossil is very similar to the one found in South Africa. This discovery helped scientists infer these connections.

Cuando los científicos descubrieron este fósil antártico, Triásico, quedó claro que era un fósil de un animal que se encontraba en África del Sur. Aunque no se parecen mucho, la forma del fósil es muy similar a la que se encontró en África del Sur. Este descubrimiento ayudó a los científicos a inferir estas conexiones.



South African Continental fossil  
Triassic period 200 million years ago  
South Africa

South African Continental fossil  
Triassic period 200 million years ago  
South Africa

South African Continental fossil  
Triassic period 200 million years ago  
South Africa

Antarctic Continental fossil  
Triassic period 200 million years ago  
Antarctica

Antarctic Continental fossil  
Triassic period 200 million years ago  
Antarctica

Antarctic Continental fossil  
Triassic period 200 million years ago  
Antarctica





# HOW DID SCIENTISTS PUT PANGAEA TOGETHER?

## ¿CÓMO ARMARON PANGAEA LOS CIENTÍFICOS?

Scientists discovered fossils of the same species across the southern continents. They pieced together this fossil evidence like a puzzle, and in doing so, pieced together the world.

Los científicos descubrieron fósiles de las mismas especies en todos los continentes del sur. Al armar el rompecabezas con la evidencia fósil, también unieron el mundo.



Each of these creatures lived in Antarctica and at least one other southern continent sometime between the Permian (298 million years ago) and the Middle Triassic (247 million years ago).

Cada una de estas criaturas vivieron en la Antártida y al menos en otro de los continentes del sur, en algún momento entre el Pérmico (hace 298 millones de años) y el Triásico medio (hace 247 millones de años).



**Glossopteris** (glah-SOP-ter-iss)  
A woody, seed-bearing tree that was deciduous (shed its leaves annually).

**Glossopteris**  
Árbol leñoso caducifolio (perdió el follaje durante cierta parte del año) que producía semillas.



**Lystrosaurus** (lis-STROH-SAW-us)  
A plant-eating synapsid (a class including mammals and mammal-like relatives).

**Lystrosaurus**  
Sinápsido (clase que incluye a los mamíferos y otros animales relacionados) que era herbívoro.



**Paracerasaurus** (para-KOH-ler-ah-saw)  
An early, plant-eating parapsid that grew to be up to 11 to 12 inches (28 to 30 cm) long.

**Paracerasaurus**  
Un parapsido herbívoro temprano que llegó a crecer entre 11 y 12 pulgadas (28 y 30 centímetros) de largo.



**Thrinacosaurus** (thrin-AK-uh-doh)  
A carnivorous synapsid that was closely related to mammals.

**Thrinacosaurus**  
Sinápsido carnívoro cercano a los mamíferos.



**Cynognathus** (SEE-meg-NAY-thuh)  
A synapsid with a larger skull compared to Thrinacosaurus.

**Cynognathus**  
Sinápsido con un cráneo más grande que el Thrinacosaurus.



**Prolacerta** (pro-lah-SEE-lah)  
A reptile closely related to dinosaurs and crocodiles.

**Prolacerta**  
Un reptil relacionado con dinosaurios y cocodrilos.



**1. Find the species**  
Match each of the southern continents with their pictures.  
**Encuentra las especies**  
Asigna cada continente a su imagen por similitud.



**2. Connect the continent pieces**  
using the species color bands.

**Conecta las piezas**  
de los continentes  
siguiendo los colores  
de cada especie.



**3. Complete the puzzle**  
by assembling Pangaea on the globe.  
**Termina el rompecabezas**  
armando Pangaea sobre el globo.



# Origins of Antarctica

## SECTION ELEMENTS

- Plate tectonics interactive
- Pre-dinosaur fossils matching Antarctica and other continents
- Fleshed out recreation of *Antactosuchus*
- Reconstructed ancient forest



# World of Antarctic Dinosaurs

Explore Early Jurassic Antarctica, a lush landscape teeming with dinosaurs that experienced the same polar darkness and auroras we can still observe today. Encounter rare fossils, large-scale replications, touchable casts, and interactive 3D models that bring Antarctica's unique dinosaur species to life. Marvel at Cryolophosaurus, the largest and most complete Early Jurassic theropod in the world and come face to face with a new-to-science sauropodomorph.

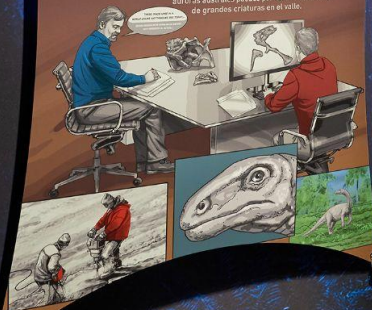


## A WORLD OF ANTARCTIC DINOSAURS UN MUNDO DE DINOSAURIOS ANTÁRTICOS



The team's hard work on Mt. Kirkpatrick reveals a lost world of Antarctic dinosaurs. As you step back millions of years, the temperature rises dramatically. Ice is nowhere to be found, and plants surround you. As the southern lights shimmer in the darkened sky, you sense the movement of large creatures in the valley.

El intenso trabajo del equipo en Monte Kirkpatrick revela un mundo perdido de dinosaurios antárticos. Si regresas millones de años, la temperatura sube dramáticamente. No hay hielo en ninguna parte y estás rodeado de plantas. Gracias a la luz de los auroras australes puedes percibir el movimiento de grandes criaturas en el valle.















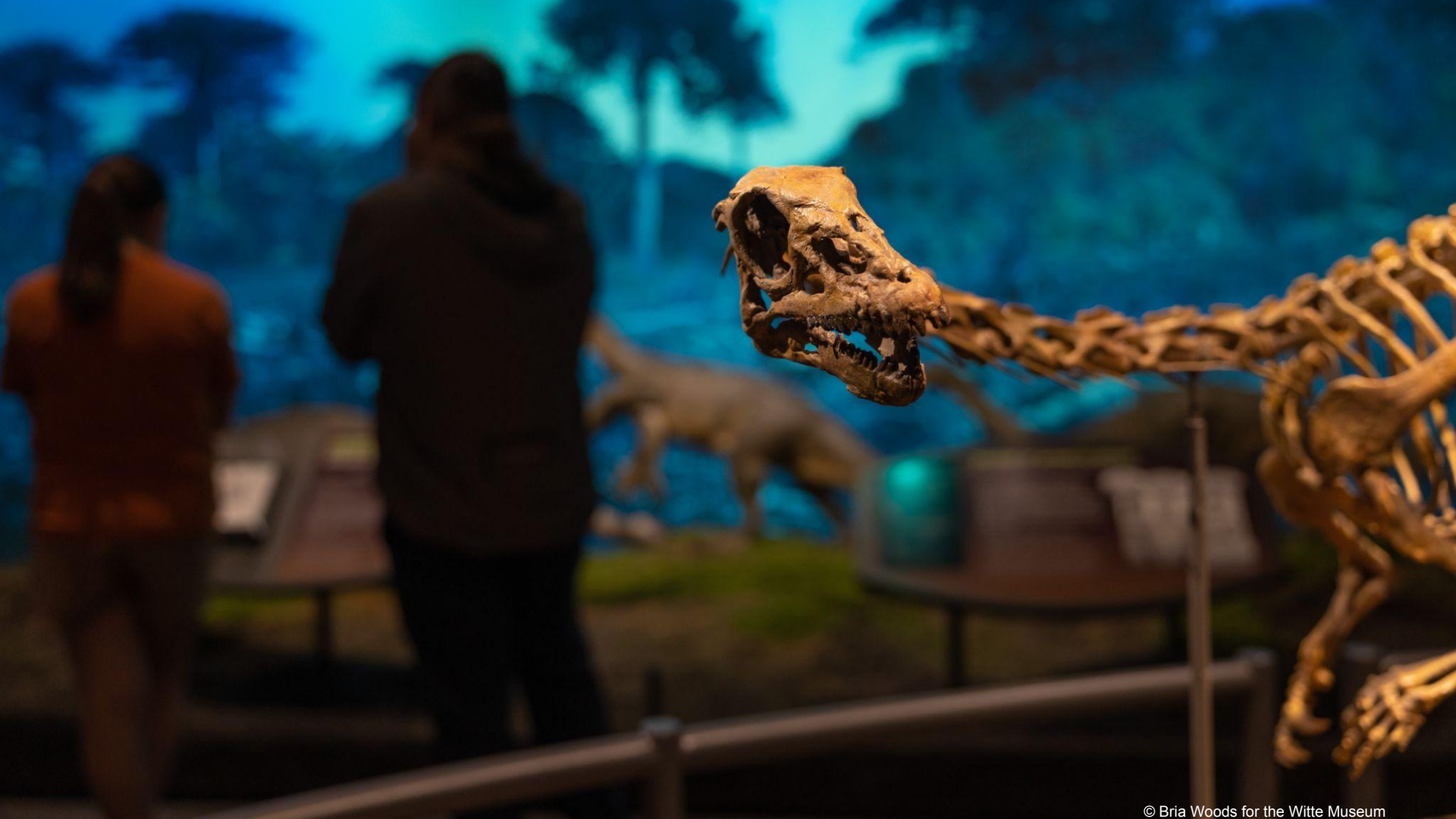
**BRACHIOSAURUS PARVUS**  
Lived 150 million years ago  
Length: 15 meters  
Weight: 10 tons  
Diet: Herbivore  
Habitat: Dry, open areas  
Fossils found in North America, Europe, and Africa  
Reproduction: Laid large eggs, cared for young  
Extinction: Unknown

**THE ANCESTORS OF GIANTS: ANCESTORS OF GIANTS**

Over the course of the Mesozoic Era, dinosaurs evolved into a wide variety of shapes and sizes. Some of the earliest dinosaurs were small, bipedal animals, but over time, they grew larger and more diverse. The ancestors of the giant sauropods were small, bipedal dinosaurs that lived in the Triassic period. These dinosaurs were the ancestors of the giant sauropods that lived in the Jurassic and Cretaceous periods.

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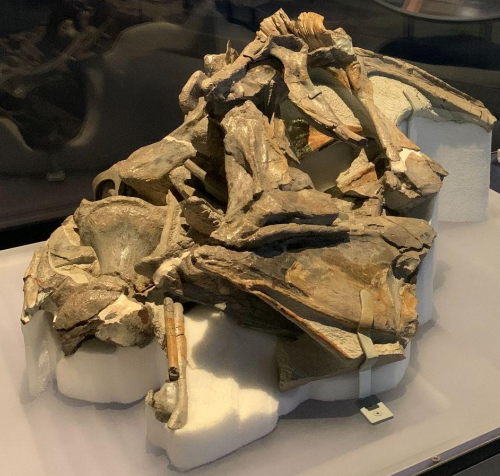




**THE LEG THAT KICKED OFF THE DISCOVERY LA PIERNA QUE PUSO EN MOVIMIENTO EL DESCUBRIMIENTO**



*Cryolophosaurus ellisi*  
Early Jurassic (201–174 million years ago)  
Dated to 174–188 million years ago  
Mt. Kragerø, Antarctica  
4/10/2012

[illegible][illegible]

**SKULL WITH A FLASHY FEATURE** **UN CRÁNEO ESPECTACULAR**

Every animal with a skull has sinuses in the brain, but here's one that has a really fancy one. The skull of a *Trilophosaurus* has a large, hollow, and highly decorative feature called a "crest" made of bone. It's the only one of its kind in the world. The crest is made of bone and is highly decorative. It's the only one of its kind in the world. The crest is made of bone and is highly decorative. It's the only one of its kind in the world.

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# World of Antarctic Dinosaurs

## SECTION ELEMENTS

- Recreation of many dinosaurs from *Cryolophosaurus* Quarry
- Real and cast skeletons
  - *Cryolophosaurus*
  - *Glacialisaurus*
  - “Jolly Roger:” the nearly complete skeleton of a juvenile sauropodomorph
- Touchable casts of bones
- Stations focused on anatomical details



# Antarctica Transforms



## ANTARCTICA TRANSFORMS

How did Antarctica become the polar environment it is today? Shifting from the warm Mesozoic Era through the cooling of the continent, investigate the atmospheric mechanisms behind the dramatic transformation to a polar environment. View rare evidence of species from the late and post-dinosaur periods and examine the fauna and flora that call Antarctica home today.

# Antarctica Transforms

## SECTION ELEMENTS

- “Cooling of Antarctica” interactive
- Cretaceous dinosaur fossils
- Replicated penguin







# Lessons from Antarctica

The research currently happening in Antarctica extends well beyond the excavation of dinosaurs. Together with the study of diverse scientific disciplines in the region, the examination of dinosaurs allows for a greater understanding of our planet's past, present, and future climate transitions.

# ANTARCTICA: DATA-COLLECTING DESTINATION FOR THE WORLD LA ANTÁRTIDA: DESTINO MUNDIAL PARA LA RECOLECCIÓN DE DATOS

- **Year-round research stations: 48**  
A permanent research station is located at McMurdo Station, Antarctica. Over 40 other stations are used for research throughout the year.
- **Continents that have signed the 1959 Antarctic Treaty: 53**  
Antarctica has been signed by 53 countries. The treaty was signed in 1959 and entered into force in 1961.
- **Population of U.S. research stations in peak summer: 4,200**  
The population of U.S. research stations in peak summer is 4,200. This includes scientists, support staff, and visitors.
- **Average number of researchers and staff stationed in peak summer: 4,200**  
The average number of researchers and staff stationed in peak summer is 4,200. This includes scientists, support staff, and visitors.


Scientists studying climate change, lichens, and even space go to Antarctica for their research. Despite having different specialties, they are there for the same purpose: to piece together the continent's past and observe the present conditions. By doing both, we can better understand the future of not just Antarctica, but the world.

Los científicos que estudian el cambio climático, líquenes e incluso el espacio hacen investigaciones en la Antártida. Aunque tienen diferentes especialidades, están allí con el mismo propósito: entender el continente en el pasado y observar las condiciones actuales. Esto nos ayuda a comprender el futuro de la Antártida y de todo el mundo.





**LICHEN GROWTH RATES TELL US HOW FAST THE CLIMATE IS CHANGING**  
**LOS RITMOS DE CRECIMIENTO DEL LÍQUEN REVELAN LA VELOCIDAD DEL CAMBIO CLIMÁTICO**



Lichens are slow-growing organisms that can live for hundreds of years. By measuring the growth rates of lichens, scientists can determine how fast the climate is changing. Lichens are also sensitive to air pollution, so they can be used as bio-indicators of environmental health.

**NEEDS ANTARCTIC GO TO ANTARCTICA**  
**NECESITA ANTÁRTICA IR A ANTÁRTICA**

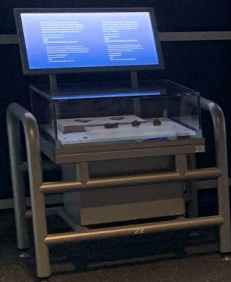
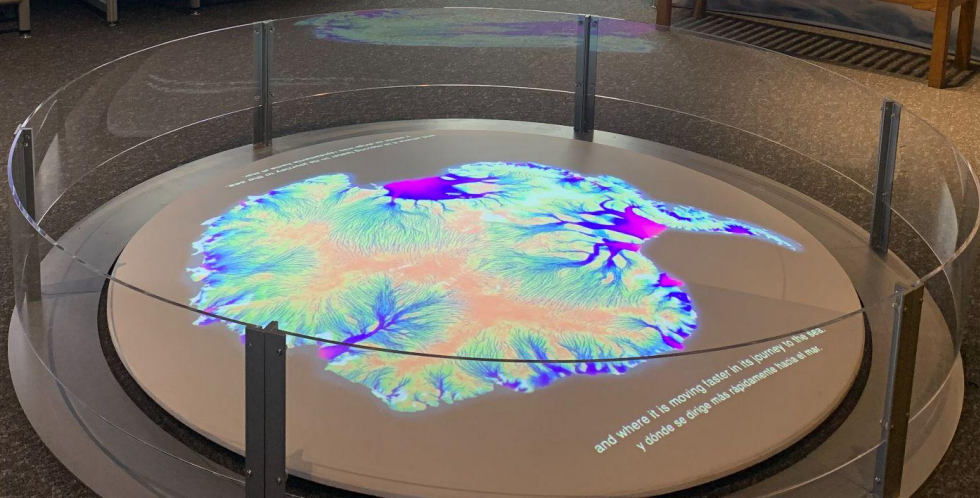


Antarctica is a unique and important part of our planet. It is home to a wide variety of plants and animals, and it plays a key role in regulating the Earth's climate. Antarctica is also a source of valuable scientific data, and it is important that we continue to study and protect it.

**ANTARCTIC ICE SHEETS ARE MELTING**  
**LOS GLACIARES DE LA ANTÁRTICA SE FUNDEN**



The ice sheets of Antarctica are melting at an alarming rate. This is due to a combination of factors, including global warming and the depletion of the ozone layer. The melting of the ice sheets is causing sea levels to rise, which is a major threat to coastal cities and low-lying islands.



**LICHEN GROWTH RATES TELL US HOW FAST THE CLIMATE IS CHANGING  
LOS NIVELES DE CRECIMIENTO DE LÍQUEN INDICAN LA VELOCIDAD DEL CAMBIO CLIMÁTICO**



**ANTARCTIC ICE SHELVES KEEP THE SEA LEVEL FROM RISING...FOR NOW.  
LAS BARRERAS DE HIELO DE LA ANTÁRTIDA EVITAN QUE SUBA EL NIVEL DEL MAR... POR AHORA.**

Ice shelves are glaciers that extend over the ocean and act as barriers to melting ice that would enter the water and raise the sea level. Ice shelves are glaciers that cover an area of land greater than 11,500 square miles (30,000 km<sup>2</sup>). Antarctica's ice sheet contains 90% of the world's fresh water. If it melted, the sea level would rise by 200 feet (60 m).

Las barreras de hielo son glaciares que flotan sobre el océano y funcionan como barreras que evitan que el agua derretida llegue al mar. Los glaciares de hielo que cubren una zona de tierra mayor a 11,500 millas cuadradas contienen el 90% del agua dulce del planeta. Si se derritiera, el nivel del mar subiría 200 pies (60 m).



On July 12, 2017, a piece of the Larsen C ice shelf about the size of Delaware broke off from the Antarctic Peninsula. Experts on the peninsula often signal what is to come for the rest of the continent. These trends suggest that Antarctica is warming faster than scientists previously thought. Experts caution, however, that this is a natural process—it's possible the ice shelf could recover and re-form.

El 12 de julio de 2017, una parte de la barrera de hielo Larsen C, del tamaño del estado de Delaware, se separó de la península de la Antártida. Los expertos a menudo señalan lo que está sucediendo en la península de la Antártida para lo que está sucediendo en el resto del continente. Estas tendencias sugieren que la Antártida está calentándose más rápido de lo que se pensaba. Sin embargo, los expertos advierten que esto es un proceso natural y que es posible que la barrera se recupere y se reforme.





# Lessons from Antarctica

## SECTION ELEMENTS

- Multi-layered map of Antarctica
- Ice core technology
- Meteorites from Antarctica
- Participatory/Reflection experience





# Antarctic Dinosaurs

*Antarctic Dinosaurs* was developed by the Field Museum, Chicago in partnership with the Natural History Museum of Los Angeles County, Discovery Place – Charlotte, NC, and the Natural History Museum of Utah. Generous support was provided by Kenneth C. Griffin.

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