



HOW DO WE
KNOW WHAT
EARTH'S
CLIMATE
WAS LIKE
LONG AGO?



1

00:00:00,483 --> 00:00:03,407

How do we know what Earth's climate was like long ago?

2

00:00:03,810 --> 00:00:05,549

We Asked a NASA Scientist.

3

00:00:06,099 --> 00:00:08,232

Earth's climate affects almost everything.

4

00:00:08,749 --> 00:00:12,410

And so when the climate changes, it leaves traces almost everywhere.

5

00:00:12,764 --> 00:00:15,489

Some of those traces can be seen in the landscape —

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00:00:15,804 --> 00:00:19,870

erratic rocks that have been pushed far from their origin by ancient glaciers,

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00:00:20,211 --> 00:00:23,944

or relic beaches that tell us how high sea level was in the past.

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00:00:24,385 --> 00:00:26,052

Other traces are more subtle —

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00:00:26,052 --> 00:00:29,852

the composition of ice in cores drilled in Greenland and Antarctica,

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00:00:29,852 --> 00:00:34,844

or the geochemistry of the shells of single-celled organisms in ocean sediment

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00:00:34,844 --> 00:00:37,578

that can date back hundreds of millions of years.

12

00:00:38,068 --> 00:00:42,701

These efforts have led to detailed understanding of the ice ages of the last

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00:00:42,701 --> 00:00:47,401

few million years and the hothouse climates of 50 or 100 million years ago.

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00:00:47,568 --> 00:00:51,901

They've given us insight into long-term changes driven by plate tectonics,

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00:00:51,901 --> 00:00:56,868

shorter-term variability driven by the wobbles in the Earth's orbit, and rapid events

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00:00:56,868 --> 00:01:00,601

such as the climate response to the
asteroid impact that killed the dinosaurs.

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00:01:00,795 --> 00:01:03,695

And they've allowed us to see that what's happening to

18

00:01:03,695 --> 00:01:07,128

climate right now is unlike anything else we've seen.

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00:01:07,577 --> 00:01:11,244

So how do we know what Earth's climate was like long ago?

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00:01:11,504 --> 00:01:13,404

The answers are all around us

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00:01:13,501 --> 00:01:15,068

if we know where to look.

22

00:01:15,406 --> 00:01:16,643

We Asked a NASA Scientist.