

**AUDIO SCRIPT**

**[M1: Male Interviewer; F1: Female Interviewee]**

M1: Good morning, listeners. Welcome to Earth Matters. Today, I'll be talking to Dr. Anita Goswami, a geologist who focuses on Antarctica. Welcome to the program, Dr. Goswami.

F1: Thanks for having me, Brian.

M1: Now, many of us think of Antarctica as just a huge mass of ice, but that's not really accurate, is it?

F1: No, it's not, Brian. Underneath the ice sheet, there's a mountain range as big as the Alps in Europe. A group of Russian scientists discovered these mountains in 1958. The Gamburtsev Mountains, as they're called, are completely buried under nearly two miles of ice. They ...

M1: Before we continue, how were you able to measure the size of these mountains?

F1: By using remote-sensing technology. Two survey aircrafts flew over the region and sent radar signals that could penetrate the ice. These signals created an image of the land surface underneath the ice so we got some pretty accurate information. We know that the mountain range is approximately 750 miles wide and nearly 2 miles high. We also know they are extremely old—about a billion years! And we ...

M1: If I could just stop you for a moment, Dr. Goswami ... Why are geologists interested in these mountains?

F1: Well, at first, the existence of these mountains didn't make any sense. Antarctica is an ancient continental shield, and therefore ...

M1: Would you mind clarifying a continental shield?

F1: Well, a continental shield is the stable, unchanging region in the middle of a tectonic plate. Mountains are generally found where the Earth's tectonic plates meet. That area is *unstable* because the tectonic plates can shift, causing earthquakes. It's also where we find volcanoes. So, finding a mountain range in the *middle of a continental shield* like Antarctica was very surprising indeed. Our theory is that the Gamburtsev Mountains started forming when the Earth's continents looked nothing like they do today. Antarctica was then part of a massive supercontinent called Gondwana. Rifts, or cracks, started forming approximately 100 to 250 million years ago, when dinosaurs walked the Earth. This rifting may have caused Gondwana to break apart and the sides of the rifts to lift up and create the Gamburtsev Mountains.

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M1: Hm, interesting. So, why explore these mountains further?

F1: Well, as you know, climate experts are watching the polar ice regions very closely. It's clear that the polar ice is melting as a result of global warming. About ten years ago, a huge ice shelf broke apart in just six weeks. We had never seen such a large mass of ice disappear so quickly. And we predict this will continue to happen. Now, *melting ice shelves* don't make the sea level rise. It's what lies behind them—the glaciers. Glaciers are massive expanses of solid ice. We're talking about millions of miles of ice. If all the Antarctic ice melted, the sea level would rise by up to 200 feet! Even if the sea level rises by only a few feet, it will have a devastating outcome for coastal cities. So, the ice shelves act like barriers, or closed doors, that keep the glaciers secure. For now.

M1: That sounds very scary indeed. So, what's it like working in Antarctica?

F1: Well, it's hard on my family when I'm gone for long periods. But I feel highly motivated whenever I'm in Antarctica, even though it's cold. The average temperature in summer—that is, December and January—is minus 16 degrees Fahrenheit, so it's not comfortable for humans. The temperature drops to minus 38 degrees in February, and in winter the average temperature is minus 73 degrees. You don't want to be there in July.

M1: I can imagine! Well, that's all we have time for today. Thanks for coming in, Dr. Goswami.

F1: It's been my pleasure, Brian.