

Our Shared Geoheritage: Antarctica

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Antarctica is an extreme continent. It has an extremely low permanent population, is the site of the lowest recorded temperature, and is invaluable to scientists everywhere. It is not only rich in geoheritage, but is, according to United Nations Secretary-General Ban Ki-Moon, “an unique example of international cooperation.”

During the Eocene period, about 34 million years ago, there was no land-based ice on Earth. Atmospheric levels of carbon dioxide were high and the planet was warm. Thus, Antarctica had a thriving biosphere. However, this changed at the start of the Oligocene period, during which carbon dioxide levels dropped. As a result, the planet cooled and Antarctica glaciated. Approximately 32.8 million years ago, after atmospheric carbon dioxide dipped below 600 ppm, the ice sheet expanded greatly. Thus, most vegetation on the continent died.

Today, the ice around Antarctica is increasing due to many factors. Firstly, certain climate cycles have entered phases characterized by the cooling of the Pacific. Additionally, glacial melt increased the amount of fresh water in surrounding waters and the Antarctic ozone hole has impacted the continent’s wind patterns.

The Antarctic Treaty states that abiding nations can conduct research across the continent and that it must remain peaceful. Additionally, the treaty ensures the “freedom of scientific investigation.” All resources in Antarctica are preserved for scientific purposes. Although Antarctica has oil and minerals, the Madrid Protocol bans commercial mining until 2041. The lack of liquid groundwater has also caused minerals to be spread thinly across Antarctica. Therefore, mining in the area is not economically viable or safe.

In summary, Antarctica is a valuable scientific resource and, to quote the British Antarctic Survey, “[a place] on Earth where there has never been war, where the environment is fully protected, and where scientific research has priority.”