

Heaven on Earth melting away

December 3 2010, By Fen Montaigne

On a November evening, with the spring sun in northern Antarctica slowly setting about 11 p.m., the view from the top of the Marr Ice Piedmont - a glacier nearly 40 miles long by 20 miles wide - was all ice and sky. Through the dust-free atmosphere, I gazed at mountain peaks 120 miles to the south, their summits enveloped in rivers of ice that dropped sharply to the Southern Ocean. The sea itself was frozen, its surface studded with countless icebergs. The scene in front of me, devoid of any sign of man, glowed with a cool, blue purity. And as the mountains that form the spine of the 900-mile Antarctic Peninsula were lit with a pale golden light, two thoughts ran through my head: This is as close to heaven as I'll ever get on Earth, and if all this ice starts to melt in earnest, the world will be a sorry place in which to live.

The truth is, this ice-bound world has already begun to waste away. In the last 60 years, the northwestern Antarctic Peninsula has warmed faster than virtually any place on Earth. [Winter temperatures](#) have soared by 11 degrees Fahrenheit. Year-round temperatures have climbed by 5 degrees Fahrenheit, and [ocean temperatures](#) are gradually rising. Ninety percent of the region's glaciers are in retreat. [Sea ice](#) now blankets the Southern Ocean off the western Antarctic Peninsula nearly three months less a year than in 1979.

If such profound changes had come to our temperate zones over the last few decades - if average winter temperatures in New York City had soared a dozen degrees, if our oaks and maples were being replaced by palm trees, if sea levels had risen half a dozen feet - chances are the public would not be so indifferent to our warming world and many

politicians would not be denying that the climate is changing because of human activity.

But the warming outside of the poles and the world's mountain ranges is more subtle, and so we carry on as if nothing is happening, as if the stable climate that has given rise to human civilization was not in a state of rapid flux.

The rate of change along the Antarctic Peninsula is shocking. Over the last few years, I have spent a total of six months at a 40-person U.S. science base, Palmer Station, on the western Antarctic Peninsula. On my first visit in 2004, a gaping hole opened up in a section of the retreating Marr Ice Piedmont, connecting two bays that probably hadn't been linked for thousands of years. Scientists who have been at Palmer since the mid-1970s have seen the Marr glacier withdraw 1,500 feet behind the station. The disappearing sea ice has caused populations of ice-dependent Adelie penguins near the station to plummet from more than 30,000 breeding pairs in 1975 to roughly 5,000 pairs today.

Why should we care? First, although much has rightly been made of warming in the Arctic, the mother lode of ice on the planet is Antarctica, where ice as deep as three miles covers a continent 1 1/2 times the size of the United States. The warming of the [Antarctic Peninsula](#) represents the first breach in this enormous, frozen citadel. Already, rising air and sea temperatures are nibbling away at the Western Antarctic Ice Sheet, the loss of which could boost global sea levels by 16 to 20 feet. And should we continue to pour greenhouse gases into the atmosphere, the far larger ice sheets of eastern Antarctica will begin to melt. If you live anywhere near the world's coastlines, you don't want to contemplate that eventuality.

But the melting of Antarctica's ice is disturbing for another reason. The presence of vast amounts of ice at the poles and in the mountains has

been a fixture of this planet since the dawn of civilization. Even as explorer Ernest Shackleton's ship, *Endurance*, was trapped in the ice of the Weddell Sea, the men's fate uncertain, photographer Frank Hurley was overcome by the beauty of his surroundings. "There were times," he wrote, "when the sky was a rainbow, flaming with radiant mock suns, and one's very heart and soul cried out in rapture, 'These things are not earthly; this is heaven.'"

More information: Fen Montaigne is senior editor at the online magazine *Yale Environment 360* and the author of "*Fraser's Penguins: A Journey to the Future in Antarctica*." This article was written for the *Los Angeles Times*.

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