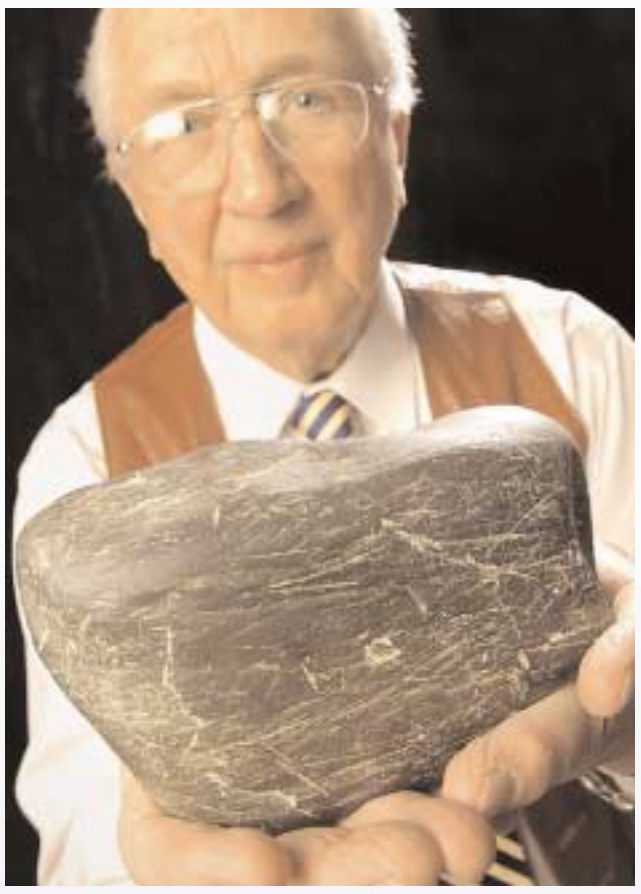
OUR CHANGING WORLD




Images from "Our Changing World": Researchers recover ice cores in Greenland (top left); state climatologist Greg Zielinski (top center) weathers a November storm at his home in Bangor; Bubble Rock (top right) represents a well-known "glacial erratic" at Acadia National Park; Dr. Harold Borns (bottom left), professor emeritus and founder of the Climate Change Institute at the University of Maine, holds a piece of mudstone he found in Maine, scratched with the evidence of glacial movement; and an Inupiat hunter, Karlin Itchoak, retrieves his gear after landing a beluga whale last year near Nome, Alaska, where the effects of climate change can already be felt by the Arctic region's subsistence gatherers.

Climate surrounds us from the day we're born until the day we die.

Yet, unless you're being pounded by a nor'easter or broiled in a heat wave, it fades into the background of catching that bus, making that call, getting dinner to the table on time.

It's all too easy to forget that changes in Earth's climate and the wild weather patterns that follow can wipe away our narrow worlds in an instant.

This is a world where a dust storm in the Sahara can darken Miami's golden coast. It's a place where a volcanic eruption in Southeast Asia can usher in cold weather to steal a summer from Americans, where water from a melting glacier in Antarctica can swamp an island in the South Pacific.

While we slog through the fog of our daily lives, the rain, the heat, the oceans and the air we breathe are in constant communion, precisely calibrated in ways scientists still don't completely understand. Climate always has changed, and it always will.

As Paul Mayewski, director of the University of Maine Climate Change Institute, likes to say, "You can't escape climate."

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About 'Our Changing World'

The debate is less about whether the climate is capable of great change — the scientific record bears sufficient proof of that — but rather about how such change occurs and how human activities are affecting naturally occurring cycles and events.

In this special section, Bangor Daily News reporter Misty Edgecomb, Graphics Editor Eric Zelz, Assistant Graphics Editor Jonathan Ferland and photographer John Clarke Russ present information about climate change as seen through the eyes of researchers and scholars, written and illustrated in a way that is easy to understand.

An awareness of the numerous factors that influence climate seems particularly important given the devastating reminders of nature's power demonstrated for us in the hurricanes, earthquakes and tsunami of the last several months. Such dramatic natural events also serve to fuel debate about global warming, greenhouse gases, pollution and human impact on climate change.

By working with the University of Maine's Climate Change Institute and many other sources, the Bangor Daily News strives here to present a broad picture of how climate has changed and how piecing together the history of natural phenomena may help us predict the future of "Our Changing World."

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SPECIAL THANKS to Paul Mayewski, Harold Borns, Dave Smith, George Jacobson, Gordon Hamilton and the faculty of the Climate Change Institute, University of Maine; Robert Kates, National Academy of Sciences; Woody Thompson, Maine Geological Survey; Greg Zielinski, Maine State Climatologist.

Our world through the ages

Editor's Note: Science is a world of theories and factions in which the truth ultimately emerges from vigorous debate. The events cited in this timeline are intended to paint a picture of Earth's long history and how climate changes large and small have helped transform the planet. The dates and details here represent the general scientific and historical consensus, as supported by available data in 2005.

4.6 billion years ago
Earth forms as bits of space debris begin to accumulate, eventually growing large enough to develop a gravitational pull and an atmosphere.

600 million years ago
The world finally emerges from a series of tremendous glaciations known as the "snowball earth" period, in which even the equator was icebound. Some scientists espouse a controversial theory that the alternating cycles of global ice and volcanic activity somehow sparked the "Cambrian explosion" — the sudden evolution of thousands of new species between 570 million and 510 million years ago.

300 million to 280 million years ago
Earth experiences a major glaciation, characterized by very low concentrations of carbon dioxide in its atmosphere.

250 million years ago
A mass extinction, recorded in fossils, marks the beginning of the Mesozoic Era. Scientists believe that 90 percent of the species living at the time disappeared, to be replaced by new creatures — dinosaurs and small mammals.