Climate & Snow

The Facts

The last decade has been the hottest on record. Each of the last three decades has been much warmer than the decade before it, with each one setting a new and significant record for the highest global temperature. (NOAA)

In the Lake Tahoe area, spring arrives two weeks earlier now than it did in 1961. (NASA)

In the Northeast, by 2039, the average ski season will be less than 100 days and the probability of being open for Christmas will decline below 75%.

Even though the winter of 2011 was above average in the US in terms of snowfall, it was a below average winter temperature-wise throughout the northern hemisphere, the eighth below average winter in a row. The climate trend is one of warming. (NOAA)

The Science

Climate change is a term that refers to major changes in temperature, rainfall, snow, or wind patterns lasting for decades or longer. Both human-made and natural factors contribute to climate change.

Human activities are increasing the amount of greenhouse gases in the atmosphere. Greenhouse gases is necessary for life to exist on Earth— they trap heat in the atmosphere, keeping the planet warm and in a state of equilibrium.

But this natural greenhouse effect is being amplified as human activities (such as the combustion of fossil fuels) add more of these gases to the atmosphere, resulting in a shift in the Earth's equilibrium.

Although the Earth's climate has changed many times throughout its history, the rapid warming seen today cannot be explained by natural processes alone. What is clear is that the Earth's temperature and atmospheric carbon are linked— when one is high, so is the other.

Since the Industrial Revolution about 150 years ago, people have impacted this natural rhythm. We've done this primarily by digging up long-buried carbon in the form of coal, oil and natural gas, and burning these fossil fuels releasing GHG.

Also, as our population has increased, methane from waste and agriculture has also increased dramatically. The result is that we have increased greenhouse gases in the atmosphere to the point where we are warming the globe faster than ever before and causing our climate to change.

Heat-trapping greenhouse gases are now at record-high levels in the atmosphere compared with the recent and distant past. (EPA, 2011)

The Impact on Skiing

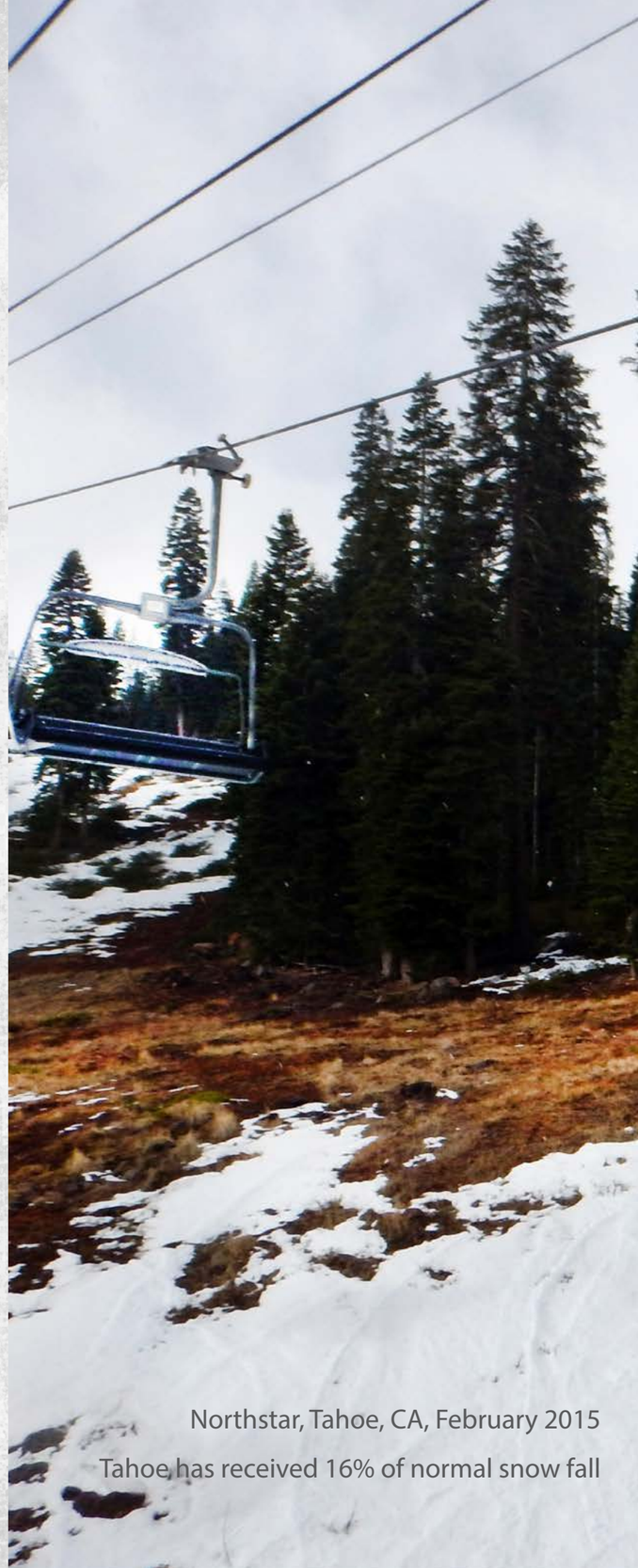
A particular year can experience record-breaking highs and lows in any given location, but, as a whole, the global climate continues to warm, following a 30-year-plus trend. The ratio of record highs to record lows has increased from 1:1 (without warming) to 2:1 between 2000 and 2010, to 3:1 in 2011.

If the climate continues to warm and more moisture is deposited in the atmosphere, we'll steadily see more extreme storms in all seasons. We're already seeing more above normal weather events— tornadoes, rain, floods, fires, wind and snow.

Extreme weather events are unavoidable, but a warmer climate with more energy and more moisture in the atmosphere causes these events to be more severe—the new "normal" in many areas of the globe.

Overall, we'll see shorter winter seasons with more precipitation in some regions, but unfortunately, with warmer temperatures, that precipitation will most likely be rain, especially at lower elevations. Skiing will be drastically changed.

Snow-based recreation in the US was estimated to contribute $67 billion annually to the US economy and support over 600,000 jobs. So when we look at the cost of inaction, it's serious business.



Northstar, Tahoe, CA, February 2015

Tahoe has received 16% of normal snow fall