



Spin

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Climate Change

EARTH SCIENCE

GAME CHANGER

Find out how a warming world is affecting sports.

 **SCHOLASTIC**

NO SNOW!
A ski slope in
Austria without
enough snow,
in 2007.

TOO HOT FOR SPORTS?

Climate change is affecting sports around the world

For some people, winter means enjoying sports like skiing and snowboarding. But as **climate change** raises the average temperature of Earth's **atmosphere**, some of these sports could melt away.

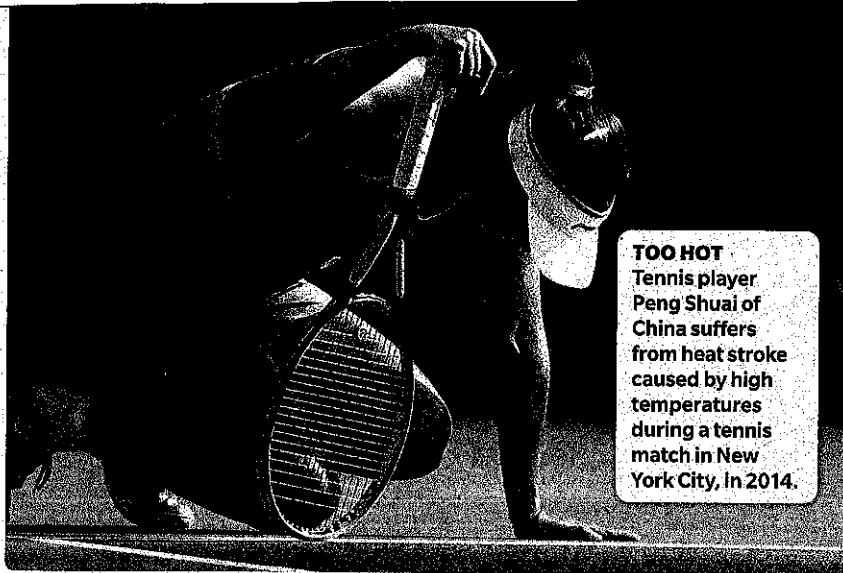
"We know the world is warming up," says **climatologist** Borja Reguero from the University of California, Santa Cruz. "And now, we are starting to see the consequences."

In recent years, winter snowfalls have arrived weeks later than usual. That has forced some ski resorts to delay opening for the season. Winter sports aren't the only ones affected. Athletes in sports like tennis and football are struggling too. They have to cope with more long periods of hot weather, called heat waves. Experts predict that the effects of climate change will only continue to get more extreme in the future.

SNOW DAYS?

Ski resorts can't open until the temperature drops below 32°F. That's the **freezing point** of water. It has to be at least that cold for ice crystals to form in a cloud and stay frozen as they fall to Earth.

To make up for warm winters, resorts try using snow-making machines. But these machines work best when temperatures are about 28°F (even lower than water's freezing point). Plus, they're very costly to run.



TOO HOT
Tennis player Peng Shuai of China suffers from heat stroke caused by high temperatures during a tennis match in New York City, in 2014.

Kelly McCusker is a climatologist at a research organization called the Rhodium Group based in New York City. She wanted to find out how climate change might affect ski seasons in the future. She counted the number of days with below-freezing temperatures at ski resorts across the U.S. from 1981 to 2010. Then she calculated the number of snowy days that would likely occur if the planet's warming trend continues.

Areas that already have mild winters will be affected the most, says McCusker. For instance, the Lake Tahoe, California, ski region currently has only 41 days a year with temperatures

that drop below freezing. In the future, that number could fall to just eight days, says McCusker.

BEAT THE HEAT

Summer sports are feeling the heat, too. Heat waves are occurring more often across the U.S. During the 1960s, most areas had an average of two heat waves per year. During the 2010s, that number jumped to more than six.

Extreme temperatures can lead to illnesses like heatstroke. This is a serious condition caused by the body overheating. Concerns about athletes' health has led officials in different sports to make new rules.

Professional tennis players may now take more breaks during hot days. The 2020 Olympic marathons in Tokyo, Japan, will start at 6 a.m., when it's cooler. In Georgia, high schools are now required to provide a tub filled with ice for football players to dunk in.

In the future, any sport that is already impacted by high heat is going to face problems," says Reguero. Unless people take steps like reducing the amount of **fossil fuels** we burn to slow climate change, it might be game over for some sports.

—Stephanie Warren Drimmer

WORDS TO KNOW

climate change: shifts in Earth's average temperatures and weather patterns

atmosphere: a protective layer of gases that surrounds a planet

climatologist: a researcher who studies weather patterns over a period of time

freezing point: the temperature at which a liquid turns into a solid

fossil fuels: fuels—oil, coal, and gas—that are made of decayed plants and animals



COOLING DOWN
A high school football player pours water on himself during a hot day to prevent heatstroke.

Name: _____

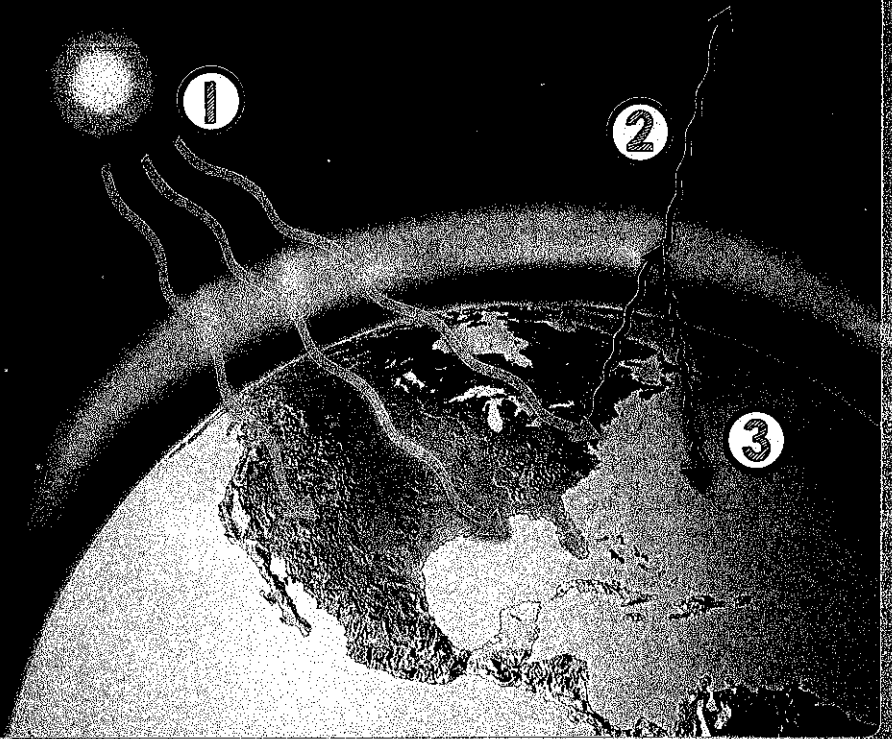
WARMING WORLD

You just read about how climate change is affecting sports around the world. Now review this diagram to find out more about how the greenhouse effect is causing Earth to warm.

1 Energy from the sun reaches Earth's surface. It gives us light and heat.

2 Clouds and Earth's surface reflect a lot of the energy back toward space.

3 Greenhouse gases trap some of the reflected energy in the atmosphere. That energy returns to Earth, warming the planet.



QUICK QUIZ: Answer the following questions using what you learned from the article and the diagram (above).

1 What's the freezing point of water?

- Ⓐ 0°F Ⓒ 32°F
Ⓑ 28°F Ⓓ 100°F

2 From where does Earth get light and heat?

- Ⓐ the sun Ⓒ oceans
Ⓑ weather Ⓓ plants

3 Greenhouse gases _____ energy from the sun in the atmosphere.

- Ⓐ make Ⓒ block
Ⓑ reduce Ⓓ trap

4 What are some sports officials doing to protect athletes from extreme heat?

- Ⓐ giving them more breaks
Ⓑ starting races earlier in the morning
Ⓒ giving them access to ice-filled tubs
Ⓓ all of the above

5 How do clouds help keep Earth's atmosphere from warming?

- Ⓐ by trapping cool air in the atmosphere
Ⓑ by creating shadows on the ground
Ⓒ by reflecting energy back toward space
Ⓓ by creating cool rainfall