



**ARCTIC CIRCLE**

There are about 25,000 polar bears left in the coldest parts of Canada, Russia, Alaska and Greenland. Scientists think these animals may survive in parts of Canada and Greenland till the end of the century, but they remain at risk of extinction if warming continues. If all the ice sheets of Greenland were to melt they would release enough water to raise world sea levels by about 7m. This is unlikely to happen in the next few hundred years, but satellite photos show that the ice is starting to melt around the edges.

**NORTH AMERICA**

• **New York, Chicago, Philadelphia and St Louis** are expected to get hotter and suffer heat waves more often. The amount of ozone in the air is also likely to increase and cause a noticeable increase in asthma and other lung diseases by 2050. Some cities will also be more at risk from higher sea levels and violent sea storms.

• **Canada:** Warmer temperatures will mean bigger harvests of some food plants, while trees will be able to grow in places which were once too cold for forests, but the risk of forest fires will also increase in many places.

• **Texas and New Mexico:** Water from springs and groundwater is expected to dry up in parts of Texas and more planes from Dallas-Fort Worth Airport are likely to be delayed or carry less passengers and cargo because of very hot weather.

• **In New Mexico, more trees are expected to die** because of hot weather and from insect pests which survive better in warm temperatures.

• **Louisiana:** Parts of New Orleans are below sea level and the risk of flooding from rising seas will increase. This region also contains almost 30% of the country's oil and gas refineries, which can also be damaged by hurricanes.



**SOUTH AMERICA**

• **The Amazon jungle, home to 20% of the world's plants and animal types, has already been damaged** by deforestation and farming and is expected to suffer more damage from forest fires. Climate experts predict that more than 40% of about 70 tree species will be extinct by the end of the century in Amazonia.

• **Peru:** Melting snow and ice provides water for millions of Peruvians, but as these glaciers melt there's less water available to drink and grow crops and there's a bigger risk of flooding. For example, more than 18,000 people died in 1970 after an avalanche of mountain ice, triggered by an earthquake.

• **Bolivia:** The Chacaltaya glacier melted away completely in 2009, causing major water shortages in the cities of El Alto and La Paz. The disappearance of mountain water could also reduce electricity from hydro-electric dams.

• **Many animals, birds, frogs, snakes and butterflies face extinction in the next 40 years** due to rising temperatures.



**PLANET IN PERIL**

How global warming will change our world



**EUROPE**



• **France:** Bordeaux is one of France's most famous wine regions, producing about one third of the country's quality red wines. This area is expected to get gradually hotter and drier, reducing the quality and volume of top wines from this area.

• **Northern Europe:** Several migratory birds are arriving up to 11 days earlier during the spring season because of warmer temperatures. New leaves and flower buds are also blooming earlier and these changes could alter the complex food chain and ecology. On the plus side, warmer temperatures could allow people to grow a wider variety of food crops.

• **Portugal, Spain and Italy** are likely to get hotter and drier, causing longer droughts and a bigger risk of fires.

• **The Swiss and Austrian Alps:** The tourism and ski industries will be affected if the snow season shortens. If temperatures increase by 2°C, some studies predict that the ski season could be shortened by 50 days each year in the Swiss Alps.

• **United Kingdom:** London is already vulnerable to flooding from the Thames river and the sea. More floods are likely along the coast because of wetter winters, rising sea levels and sea storm surges. Warmer temperatures in the North Sea are predicted to alter the food chain in the sea and harm the fishing industry.

**AFRICA**



• **Nearly 600 million Africans may not have enough water** just 40 years from now and the risk of food famines will get worse in some countries.

• **By the 2000s large parts of Africa will be too hot to grow wheat.**

• **Between 25-40% of animals in the national parks of Southern Africa may be critically endangered or locally extinct** by the end of this century.

• **Southern Africa is likely to have 30% less winter rain** by the turn of the century, although summer rain might increase over the Drakensberg mountains and in KwaZulu-Natal.

• **South Africa:** Western Highveld - The temperature is expected to get much hotter (4-7°C by the end of this century) and harvests of maize are expected to drop by 10-20% by 2050.

• **South Africa:** Western Cape - 20% to 40% of protea plants may disappear because of hotter temperatures.

• **Tanzania** - Mt Kilimanjaro's snow and ice cap is expected to vanish completely within the next 20 years.

• **Egypt** - Up to 6 million people could lose their homes and crop fields by 2100 if sea level rises by 1m.

• **Nigeria** - More than 3 million people could lose their homes in Lagos and the Niger Delta by 2100 if the sea level rises by 1m.

**ASIA**



• **Vietnam:** Almost half of the rice in Vietnam is grown in the vast Mekong River Delta area. A sea level rise of just 45cm would flood about 60% of the delta at certain times of the year.

• **Siberia:** Large parts of northern Siberia store massive volumes of methane gas, which is trapped underground because the soil is permanently frozen. The temperature is rising much faster here than in other parts of the world, and as the frozen soil melts it releases more methane and other greenhouse gases, which speeds up the process of global warming.

• **Himalayas:** Hotter temperatures are causing mountain glaciers to melt, providing some of the clearest evidence that global warming has already started. Even a small temperature increase of just 0.1°C over ten years can increase the melting rate of glaciers. If they disappear entirely, millions of people will be left without water in Tibet, China and other mountain areas.

• **Bangladesh:** More than 100 million people live in the Ganges-Brahmaputra river delta where the sea-level is already rising. Apart from flooding rice and wheat fields, the sea water is making the soil and water too salty to grow food. Within 40 years, this could affect nearly 3 million people and under a worst-case prediction by scientists, almost 25% of the delta could be flooded by 2100.

**SMALL ISLANDS**



Several tiny island nations could be abandoned or disappear under the sea. Kiribati is one of the most vulnerable nations, with its capital city sitting less than 3m above the current sea level. Many roads, houses and airports on the small island are just above the present sea level.

**AUSTRALIA**

• **Australia is one of the world's driest continents** and has suffered several droughts in recent times. People have also been forced to use less water. Scientists think it will get even hotter and drier over the next few decades, increasing the risk of severe droughts, bush fires and dust storms.

• **The Great Barrier Reef** is the largest coral reef in the world and one of the seven wonders of the natural world. It supports a wide variety of fish and animals like humpback whales and dolphins, as well as rare turtles and dugongs. But the coral reef is already getting sick from warmer seas and is expected to suffer more damage as the temperature and sea acidity rises. Nearly one third of the world's coral reefs have already been destroyed by human actions.

**ANTARCTICA**



At least seven large ice shelves have collapsed in the last 20 years, including the Larsen B ice shelf. If all the Antarctic ice sheets were to melt, this would raise world sea levels by more than 50m. Scientists think that sea levels will rise by between 18cm and 1.24m by the end of the century.

**THE MERCURY**

Information compiled by Tony Carmie

- SOURCES:
1. World Assessment Report: <http://www.grid.unh.edu/assessment/AR4/index.html>
  2. *Index of Concerned Scientists' Climate Hot Maps* <http://www.climatehotspots.org>
  3. *Global Outlook for Snow and Ice*, United Nations Environment Programme, 2007.
  4. *Climate in Peru*, United Nations Environment Programme, 2009.
  5. *United Nations Framework Convention on Climate Change*, <http://unfccc.int/>



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