



Impacts of a warming Arctic

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Earth's climate is changing, with the global temperature now rising at a rate unprecedented in the experience of modern human society. While some historical changes in climate have resulted from natural causes and variations, the strength of the trends and the patterns of change that have emerged in recent decades indicate that human influences, resulting primarily from increased emissions of carbon dioxide and other greenhouse gases, have now become the dominant factor.

These climate changes are being experienced particularly intensely in the Arctic. Arctic average temperature has risen at almost twice the rate as the rest of the world in the past few decades. Widespread melting of glaciers and sea ice and rising permafrost temperatures present additional evidence of strong arctic warming. These changes in the Arctic provide an early indication of the environmental and societal significance of global warming.

Over the next 100 years, climate change is expected to accelerate, contributing to major physical, ecological, social, and economic changes, many of which have already begun. Changes in arctic climate will also affect the rest of the world through increased global warming and rising sea levels.

The main issues are as follows: Arctic climate is now warming rapidly and much larger changes are projected. Arctic warming and its consequences have worldwide implications. Arctic vegetation zones are very likely to shift, causing wide-ranging impacts. Animal species' diversity, ranges, and distribution will change. Many coastal communities and facilities face increasing exposure to storms. Reduced sea ice is very likely to increase marine transport and access to resources. Thawing ground will disrupt transportation, buildings, and other infrastructure. Indigenous communities are facing major economic and cultural impacts. Elevated ultraviolet radiation levels will

affect people, plants, and animals. Multiple influences interact to cause impacts to people and ecosystems.