



Breaking Records in 2007 – Climate Change

Record breaking events during 2007 will have serious impacts on the entire planet.

Least Icy Arctic Ever:

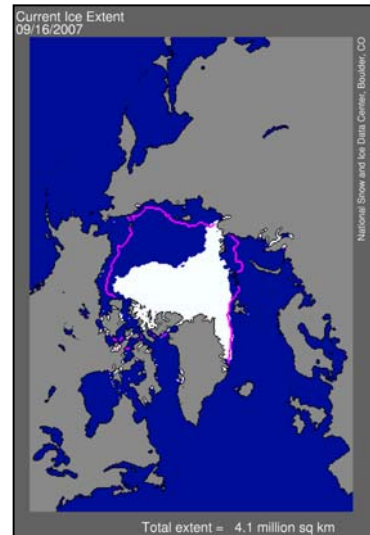
September 16, 2007 marks the lowest sea ice extent (area covered) in the Arctic ever, smashing the standing record low recorded in 2005. The sea ice extent was smaller than that of 2005 by 2.61 million square kilometers (one million square miles), an area approximately equal to the size of ten United Kingdoms. Consequently, the loss of Arctic sea and rising sea levels will have drastic impacts including the flooding of coastal cities around the world, the loss of critical habitat, the extinction of some species, such as the polar bear, and the complete loss of ice's ability to reflect the sun's warming ultraviolet rays. Because water absorbs ultraviolet light more than land surfaces, global warming will speed up considerably as the ice melts.

Record Droughts and Fires:

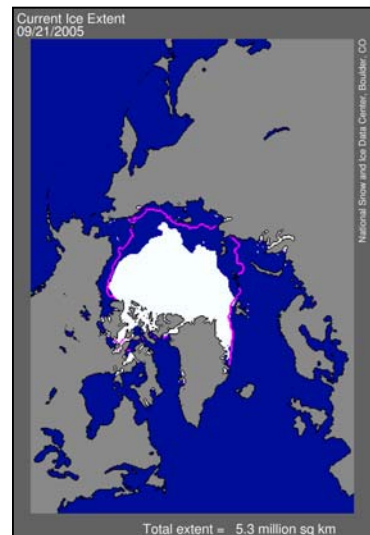
2007 saw the continuation of severe droughts in many parts of the world, such as Australia, Europe, North America, Africa, and Asia. Unfortunately, these droughts have led to water shortages and massive forest fires, some of the worst ones on record. These forest fires have devastated areas in southern and eastern Europe and western North America. Forest fires pump millions of tons of carbon back into the atmosphere creating a dangerous feedback loop that further accelerates global warming.

Extreme Flooding:

Ironically, climate change causes more flooding as well as more droughts, and 2007 saw extreme flooding in cities throughout Europe, Asia, and Africa, the worst seen in 60 years. One of the most notable examples of this extreme flooding occurred in Jakarta, Indonesia. Torrential rainfall in February 2007 led to the worst flooding in recent history and paralyzed the city, inundating more than 70,000 houses, displacing 420,440 people, killing 69 people, and costing an estimated Rp 4.1 trillion (US\$ 450 million). *And now, at the time of this publication, severe tidal flooding is wreaking havoc on Jakarta.* Sea level rise caused by climate change will increase the severity and frequency of tidal flooding events.



Sea Ice Extent 2007. Magenta line is median sea ice edge. Adapted from the National Snow and Ice Data Center, Boulder, CO, USA



Sea Ice Extent 2005. Magenta line is median sea ice edge. Adapted from the National Snow and Ice Data Center, Boulder, CO, USA



Xinhua/Reuters Photo
An elderly woman stands amongst burnt cars in the village of Artemida in Peloponnese peninsula, southwest of Athens, Greece August 25, 2007.



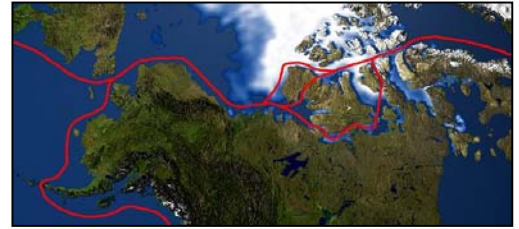
ACHR.net 2007
Flooding in Jakarta, Indonesia, February 2007



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Northwest Passage Opening:

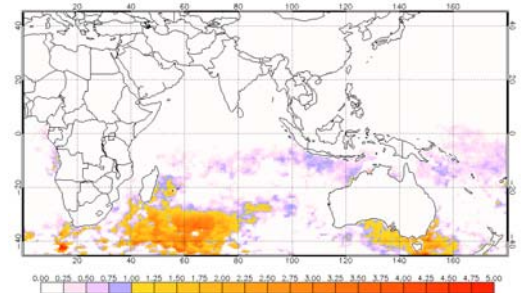
According to the National Snow and Ice Data Center, in September 2007, Arctic sea ice shrunk 4.28 million square kilometers (1.65 million square miles) since record-keeping began. This year was the first time in human memory that the Northwest Passage has opened to standard shipping. This event defines a new era in global commerce and global climate change. Climate scientists suggest that we could experience an Arctic ice-free summer as soon as 2030. While the opening of the Northwest Passage may be a boon to shipping and commerce, it will have severe ecological and cultural consequences for the species and people that live in the Arctic.



The Northwest Passage, opened for the first time in human memory in 2007. Image adapted from NASA.

Disease:

South and Central America and the South Pacific have all experienced upsurges in the outbreak of dengue fever in 2007. One of the major causes is warming temperatures and increased precipitation. Dengue fever is a viral disease transmitted by mosquitoes, which pick up the virus when they feed on the blood of an infected person, and infect other people when they bite them. Symptoms include fever, headache, and severe muscle pain that earns dengue the name 'breakbone fever.' Dengue can also lead to a potentially fatal hemorrhagic fever. Global warming, which results in increased rainfall in some regions, can create additional habitat for mosquitoes. Global warming also speeds up the development of the virus, and has extended the range of the mosquitoes that carry it. This makes the disease prevalent in areas where it has been uncommon before.



Coral Bleaching Hotspots, early 2007. NOAA.

Coral Bleaching:

Widespread bleaching of coral reefs continued this year and mass bleaching events have become an increasingly common phenomenon affecting reefs around the world. "Hotspots" included regions off the coast of southeast Africa, southeast Australia and the Red Sea (see image). Coral bleaching is a phenomena where stressed coral expel their symbiotic algae, leaving the coral in an energy deficit and without color. If the coral is re-colonized by the algae in a timely manner, the coral will likely recover. If not, the coral may die. Coral bleaching can be caused by increases in ocean temperature of as little as 1-2°C above average annual maximum temperatures.

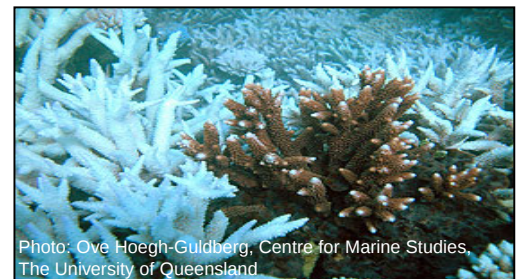


Photo: Ove Hoegh-Guldberg, Centre for Marine Studies, The University of Queensland.
Bleached coral (left) and non-bleached coral (right).

Time to Take Action!

Events like these stress the need to focus more attention on taking decisive action on climate change. Limiting climate change to less than a 2 degrees C (3.6° F) global average increase is key to limiting dangerous climate impacts such as those that punctuated 2007.

For More information

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