Global Warming and the Effect on the Earth’s Water System

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PROJECT SUMMARY
Industrial emissions of heat-trapping gases are causing earth’s atmosphere to heat up, a process known as the “Greenhouse Effect.” Atmospheric warming causes rapid downstream changes in global water systems. In particular, a warming atmosphere hastens melting of both freshwater and seawater ice packs. Whereas frozen ice is white and reflects sunlight, melting polar ice darkens and absorbs more sunlight than ice, further triggering cycles of melting and heating. Runoff from both freshwater and seawater ice contributes to rising sea levels.

How does a warming planet affect us?

More Extreme weather
• Storms (such as Flooding in Colorado, 2013)
• Hurricanes (such as Katrina, 2005 and Sandy, 2012)

Rising Sea Levels
• Increased coastal flooding
• Droughts in California
• Wildfires in Montana

Warming Oceans
• Warmer, contributing to melting ice, glaciers
• Soak up 90% of extra heat in atmosphere
• Expansion & higher sea levels more extreme weather

Human Health and Economic Burden
• Rising energy demands and costs
• Loss of tourism revenue for coastal destinations
• Poor air quality \(\rightarrow\) respiratory illnesses

REFERENCES

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Lake Erie
• Current water level is below average
• Potential 4-5 foot drop by end of 21st Century

Great Lakes
• Warming water decreases oxygen levels
• Reduced oxygen results in dead zones
• Native cold-water fish species cannot survive warming lake water

• Warming lakes increase invasive species
• Decreased water levels, and increased contamination threaten water supply