

Six Degrees: Our Future on a Hotter Planet, by Mark Lynas
Earth QUEST Questions
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Introduction

- x) What is the IPCC?
- x) How does the author define “global warming”?
- x) Explain how the author based the temperature scale for this book.

One Degree

- x) How can dead trees talk to us?
- x) What was the planet like during the Medieval Warm Period? When was this?
- x) What happened to the Chaco Canyon Indians? Why?
- x) What happened during the Dust Bowl? Do you think it could happen again?
- x) What triggered the Younger Dryas?
- x) What was the panic with the MOC? What do we believe is going on now?
- x) How do ice cores record climate variations? Why study the oxygen and dust?
- x) Why should we be concerned about disappearing mountain glaciers?
- x) What lines of evidence show the Sahara had a wetter past?
- x) How is the Arctic being impacted by warming?
- x) Describe the Arctic sea-ice tipping point.
- x) What is the importance of Arctic sea ice?
- x) In 2003, what caused the rockfalls in the Swiss Mountains?
- x) Describe the past, present, and future timeline, in the context of the extent and locations, of coral bleaching.
- x) Why are amphibian species going extinct?
- x) Why was Hurricane Catarina considered a freak storm?
- x) With a one degree increase in temperature, summarize the impact on the anthrosphere.
- x) With a one degree increase in temperature, summarize the impact on the atmosphere.
- x) With a one degree increase in temperature, summarize the impact on the biosphere.
- x) With a one degree increase in temperature, summarize the impact on the cryosphere.
- x) With a one degree increase in temperature, summarize the impact on the hydrosphere.

Two Degrees

- x) How will a two degree increase impact the already-existing chronic shortage of water in China?
- x) What is the connection between phytoplankton and carbon dioxide?
- x) What is the likelihood of having another summer like 2003? Explain why.
- x) What will the heat waves be like in the Mediterranean?
- x) Are the articles and interviews by James Hansen helping or hurting the public in learning about climate change?
- x) Should any nation be able to enter the Arctic Circle and claim land?
- x) Why can't the polar bears survive without sea ice?

- x) What will the impact be on the Inuit people (especially their culture) due to warming climate?
- x) What would be the impacts in India if the mountain glaciers disappeared?
- x) What are the struggles faced by SEDAPAL – nature and otherwise?
- x) Why do the Colorado and San Joaquin Rivers have difficulty reaching the ocean?
- x) What crops will yield more with a two degree temperature increase? Why?
- x) Will famine increase with a two degree increase in temperature? Explain.
- x) Why will humans survive a two degree increase in temperature but natural biodiversity will face major struggles?
- x) Why can this be called the “Age of Loneliness” or “Silent Summer”?
- x) With a two degree increase in temperature, summarize the impact on the anthrosphere.
- x) With a two degree increase in temperature, summarize the impact on the atmosphere.
- x) With a two degree increase in temperature, summarize the impact on the biosphere.
- x) With a two degree increase in temperature, summarize the impact on the cryosphere.
- x) With a two degree increase in temperature, summarize the impact on the hydrosphere.

Three Degrees

- x) Why doesn't Botswana get rain?
- x) What will happen to the dune fields with warming?
- x) What are the pluses and minuses of using models to look into our future climate?
- x) What evidence can we study to learn about Pliocene climate and CO2 levels?
- x) What would be the impact if we stopped increasing atmospheric CO2 tomorrow?
- x) What are the causes and effects of El Niño?
- x) As we continue to warm, what will happen to El Niño?
- x) What is carbon cycle feedback?
- x) Why is peat dangerous with a three degree increase in temperature?
- x) Is the Amazon rain forest doomed? Explain.
- x) Why will Australia burn in a world with the three degree temperature increase?
- x) What will the combination of fire, heat, and drought do to the people of Australia?
- x) Will hurricanes be stronger or weaker in a warmer future? Why?
- x) How will the Arctic differ from what we have today?
- x) How do we know what caused the collapse of the Mayan civilization?
- x) What impact will drought have on Central America?
- x) What are the two problems associated with monsoon intensification?
- x) What is the importance of snowmelt?
- x) Will cases of malaria increase or decrease in a three degree world? Explain.
- x) What will be the crop losses with a three degree increase?
- x) With a three degree increase in temperature, summarize the impact on the anthrosphere.
- x) With a three degree increase in temperature, summarize the impact on the atmosphere.
- x) With a three degree increase in temperature, summarize the impact on the biosphere.
- x) With a three degree increase in temperature, summarize the impact on the cryosphere.
- x) With a three degree increase in temperature, summarize the impact on the hydrosphere.

Four Degrees

- x) What will be the pressures placed on inland cities with coastal flooding?

- x) Are scientists keeping a close eye on West or East Antarctica? Why?
- x) Why is China “on a collision course with the planet”?
- x) With a four degree increase in temperature, summarize the impact on the anthrosphere.
- x) With a four degree increase in temperature, summarize the impact on the atmosphere.
- x) With a four degree increase in temperature, summarize the impact on the biosphere.
- x) With a four degree increase in temperature, summarize the impact on the cryosphere.
- x) With a four degree increase in temperature, summarize the impact on the hydrosphere.

Five Degrees

- x) What will happen to deserts in a world with a five degree increase in temperature? Why?
- x) What will be the role of underground aquifers?
- x) How can one explain the presence of new animals in North America at the Paleocene/Eocene boundary?
- x) What triggered a deep-sea extinction at the Paleocene-Eocene transition? What died out and why?
- x) What triggered the 55 million year old gas blast? Could volcanism have played a role?
- x) How might one go about planning to survive?
- x) With a five degree increase in temperature, summarize the impact on the anthrosphere.
- x) With a five degree increase in temperature, summarize the impact on the atmosphere.
- x) With a five degree increase in temperature, summarize the impact on the biosphere.
- x) With a one degree increase in temperature, summarize the impact on the cryosphere.
- x) With a one degree increase in temperature, summarize the impact on the hydrosphere.

Six Degrees

- x) Describe the Cretaceous world.
- x) Where did carbon get trapped during the Cretaceous?
- x) What caused the ocean anoxic event?
- x) What went extinct at the end of the Permian Period? What are the possible causes?
- x) How is our current world different from the Permian world?
- x) What is the lesson of the end Permian, as stated by the author?
- x) With a six degree increase in temperature, summarize the impact on the anthrosphere.
- x) With a six degree increase in temperature, summarize the impact on the atmosphere.
- x) With a six degree increase in temperature, summarize the impact on the biosphere.
- x) With a six degree increase in temperature, summarize the impact on the cryosphere.
- x) With a six degree increase in temperature, summarize the impact on the hydrosphere.

Choosing Our Future

- x) Why does the IPCC use the term “scenarios” rather than “predictions”?
- x) What are the unknowns in these scenarios?
- x) What are various forms of denial by people in attitudes towards climate change?
- x) How does an oil field form?
- x) What is the good and bad of wind turbines?
- x) What do you think... should be invest in wind turbines on the continental shelf?

- x) What do you think of biofuels?
- x) What is carbon rationing? Would it work?