CHRONOLOGY OF CLIMATE CHANGE

5 billion years ago Birth of planet Earth

600 million years ago Last occurrence of "Snowball Earth," followed by warm era

400 million years ago Start of long-term cooling

65 million years ago Short-term climate conflagration after meteorite hit

55 million years ago Methane "megafart" from ocean depths causes another short-term conflagration

50 million years ago Cooling continues as greenhouse-gas levels in air start to diminish

25 million years ago First modern ice sheet starts to form on Antarctica

3 million years ago First ice-sheet formation in the Arctic ushers in era of regular ice ages

100,000 years ago Start of most recent ice age

16,000 years ago Most recent ice age begins stuttering retreat

14,500 years ago Sudden warming causes sea levels to rise 65 feet in 400 years

12,800 years ago Last great "cold snap" of the ice age, known as the Younger Dryas era, is triggered by emptying glacial lake in North America and continues for around 1,300 years before ending very abruptly

8,200 years ago Abrupt and mysterious return to ice-age conditions for several hundred years, followed by warm and stable Holocene era

8,000 years ago Storegga landslip in North Sea, probably triggered by methane clathrate releases that also bolster the warm era

5,500 years ago Sudden aridification of the Sahara

4,200 years ago Another bout of aridification, concentrated in the Middle East, causes widespread collapse of civilizations

1,200 to 900 years ago Medieval warm period in the Northern Hemisphere; megadroughts in North America

700 to 150 years ago Little ice age in the Northern Hemisphere, peaking in the 1690s

1896 Svante Arrhenius calculates how rising carbon dioxide levels will raise global temperatures

1938 Guy Callendar provides first evidence of rising carbon dioxide levels in the atmosphere, but findings ignored

1958 Charles Keeling begins continuous monitoring program that reveals rapidly rising carbon dioxide levels in the atmosphere

1970s Beginning of strong global warming that has persisted ever since, almost certainly attributable to fast-rising carbon dioxide emissions, accompanied by shift in state of key climate oscillations

such as El Niño and the Arctic Oscillation, and increased melting of the Greenland ice sheet

Early 1980s Shocking discovery of Antarctic ozone hole brings new fears of human influence on global atmosphere

1988 Global warming becomes a front-page issue after Jim Hansen's presentations in Washington, D.C., during U.S. heat wave

1992 Governments of the world attending Earth Summit promise to prevent "dangerous climate change" but fail to act decisively

1998 Warmest year on record, and probably for thousands of years, accompanied by strong El Niño and exceptionally "wild weather," especially in the tropics; major carbon releases from burning peat swamps in Borneo

2001 Government of Tuvalu, in the South Pacific, signs deal for New Zealand to take refugees as its islands disappear beneath rising sea levels

2003 European heat wave—later described as the first extreme-weather event attributable to man-made global warming—kills more than 30,000; a third of the world is reported as being at risk of drought: twice as much as in the 1970s

2005 Evidence of potential "positive feedbacks" accumulates with exceptional hurricane season in the Atlantic, reports of melting Siberian permafrost, possible slowing of ocean conveyor, escalating loss of Arctic sea ice, and faster glacial flow on Greenland