

Read the articles to the left and take notes, on the right side, focusing on three different questions:

1. How strong is the evidence that the earth is warming due to human activity?
2. What needs to be done to prevent worst case scenarios?
3. What are the results of climate change?

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## Humans have pushed the climate into 'unprecedented' territory,

Brady Dennis, Sarah Kaplan

**On Monday [August 9] . . . the Intergovernmental Panel on Climate Change . . . described how humans have altered the environment at an “unprecedented” pace and detailed how catastrophic impacts lie ahead unless the world rapidly and dramatically cuts greenhouse gas emissions.**

The landmark report states that there is no remaining scientific doubt that humans are fueling climate change. That much is “unequivocal.” The only real uncertainty that remains, its authors say, is whether the world can muster the will to stave off a darker future than the one it already has carved in stone. The sprawling assessment, compiled by 234 authors relying on more than 14,000 studies from around the globe, bluntly lays out for policymakers and the public the most up-to-date understanding of the physical science on climate change. Released amid a summer of deadly fires, floods and heat waves, it arrives less than three months before a critical summit this November in Scotland, where world leaders face mounting pressure to move more urgently to slow the Earth’s warming.

. . .  
U.N. Secretary General António Guterres called the findings “a code red for humanity” and said societies must find ways to embrace the transformational changes necessary to limit warming as much as possible. “We owe this to the entire human family,” he said in a statement. “There is no time for delay and no room for excuses.”

**Humans can unleash less than 500 additional gigatons of carbon dioxide — the equivalent of about 10 years of current global emissions — to have an even chance of limiting warming to 1.5 degrees Celsius (2.7 Fahrenheit) above preindustrial levels.**

But hopes for remaining below that threshold . . . are undeniably slipping away. The world has already warmed more than 1 degree Celsius (1.8 degrees Fahrenheit), with few signs of slowing, and could pass the 1.5-degree mark early in the 2030s. “Unless we make immediate, rapid and large-scale reductions in greenhouse gas emissions, limiting warming to 1.5C will be beyond reach,” said Ko Barrett, vice chair of the IPCC and senior adviser for climate at the National Oceanic and Atmospheric Administration. . . .

**Already, we are living on a changed and changing planet.**

Each of the past four decades has been successively warmer than any that preceded it, dating to 1850. . . . To find a time when the

level of carbon dioxide in the atmosphere changed this much this fast, you would need to rewind 66 million years to the end of the age of the dinosaurs. Carbon dioxide in the atmosphere has risen to levels not seen in 2 million years, the authors state. The oceans are turning acidic. Sea levels continue to rise. Arctic ice is disintegrating. Weather-related disasters are growing more extreme and affecting every region of the world. Psychological research shows that climate change can alter an individual's mental health both directly and indirectly, impacting how we respond to this crisis.

If the planet warms much more than 2 degrees Celsius above preindustrial levels — a scenario all but certain at the current pace of emissions — such change could trigger the inexorable collapse of the Greenland ice sheet and more than six feet of sea-level rise that could swamp coastal communities. Coral reefs would virtually disappear. Heat waves that are already deadly will become as much as 5 degrees Fahrenheit hotter. . . .

Equally important are the unmistakable real-world effects of climate change. Last year rivaled the hottest year in recorded history. Communities around the world have been battered by heat waves, droughts, hurricanes and wildfires so extreme that they cannot be explained by mere natural variability.

Using sophisticated computer models, researchers are increasingly able to pinpoint the role of climate change in particular natural disasters, sometimes within days or weeks of the event. Storms such as Houston's Hurricane Harvey in 2017 and Tropical Cyclone Idai, which killed hundreds of people in Mozambique two years later, bore the unmistakable fingerprints of human-caused warming. The additional heat in the oceans provides more energy for storms, the report says, making intense Category 4 and 5 hurricanes more likely. Warmer air holds more moisture, increasing the amount of rain that falls during these events. Likewise, scientists say the intense fires and blistering heat waves that have become summertime fixtures in both hemispheres would be almost impossible in a world unaltered by human activities. . . .

Monday's report generated an avalanche of similar reactions, with scientific groups, elected officials and activists from around the world saying leaders can no longer wait to act, given that the scientific evidence about the risks of worsening climate change are clearer than ever. For low-lying islands, rising seas present an ongoing and existential threat. Crippling floods have led to deaths and displacement for hundreds of thousands of people, from Sudan to Uganda. People who are unhoused, impoverished or sick are disproportionately likely to suffer in weather extremes. These disparities will only intensify as the planet continues to warm.