Statements you can make about climate change and extreme weather events

EXTREME WEATHER TYPE	KEY MESSAGE	STATEMENTS YOU CAN MAKE	RESOURCES
 **Extreme heat**	Hundreds of scientific studies have shown that climate change is increasing the frequency and intensity of extreme heat events around the world. Virtually every heat wave is hotter, longer, and more dangerous because of climate change. It's not just extreme heat — climate change influences unseasonably warm temperatures year-round. An attribution analysis can help you make statements about whether and how much climate change influenced the **likelihood or severity** of the unusually warm temperatures or duration of a heat wave.	**Extreme heat is now made hotter, longer, and more likely because of human-caused climate change.** **Climate change is not only influencing extreme or record heat, but also unusual warmth year-round.**	• Climate Shift Index quantifies how much climate change influences daily local temperatures worldwide. • Get ready-to-use graphics, quick facts, and more data in the Extreme Weather Toolkit: Extreme Heat.
 **Less cold**	As average temperatures rise due to global warming, every instance of extreme cold around the world is less likely and intense. This is supported by hundreds of scientific studies from around the world. An attribution analysis can help you make specific statements about whether and how much climate change influenced the **likelihood or severity** of the unusually cool temperatures or duration of a cold snap.	**While extreme cold is still possible, it's now less likely and less intense due to human-caused climate change.**	• Climate Shift Index quantifies how much climate change influences daily local temperatures worldwide. • Explore daily updates for record high and low temperatures in 247 U.S. cities.
 **Marine heat waves**	Climate change is causing the oceans to warm, rise, and acidify. Warming oceans are causing widespread marine heat waves and severe coral bleaching — harming ecosystems, fisheries, wildlife migration, and more. Global sea surface temperatures have been consistently hotter the last three decades than any period of record. An attribution analysis can help you make statements about whether and how much climate change influenced the **likelihood or severity** of the unusually warm (or cool) sea surface temperatures and duration of a marine heat wave.	**Marine heat waves are now made stronger, longer, and more likely because of human-caused climate change.**	• Climate Shift Index: Ocean quantifies how much climate change influences daily sea surface temperatures. • Generate graphics of daily sea surface temperatures.
 **Extreme rainfall**	A warmer atmosphere can hold more moisture, increasing the possibility of heavier downpours. Extreme rainfall is more common and intense across parts of the world because of climate change. Increases in heavy rain can bring more or worse flooding, although flood risk depends on a number of other factors such as topography, land use, and infrastructure. Studies about specific events can often help you make statements about whether and how much climate change influenced the **likelihood or intensity** of heavy rain or subsequent flooding.	**The intensity and likelihood of heavy rain can often be linked to human-caused climate change — although resulting floods can also be influenced by topography, land use, and other human factors.**	• Get ready-to-use graphics, quick facts, and more data in the Extreme Weather Toolkit: Heavy Rain and Flooding. • World Weather Attribution: Extreme rainfall studies
 **Drought**	As temperatures rise, the atmosphere gets thirstier and pulls more water from streams, soils, and plants — causing or worsening drought in some regions. Research shows that, in our warming climate, the atmosphere's growing demand for water is an increasingly important cause of drought. Studies about specific events can often help you make statements about whether and how much human-caused climate change influenced the **likelihood or severity** of a drought.	**Human-caused climate change is increasing the hot, dry weather conditions that make droughts more common and severe.**	• Get ready-to-use graphics, quick facts, and more data in the Extreme Weather Toolkit: Drought. • World Weather Attribution: Drought studies

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 **Fire weather**	Climate change increases the frequency and intensity of hot, dry fire weather that sparks and spreads dangerous wildfires. However, fuel availability (such as dry vegetation) and land use also significantly influence the likelihood and severity of wildfires. Studies about specific events can often help you make statements about whether and how much human-caused climate change influenced the **likelihood or intensity** of a wildfire.	**Human-caused climate change is increasing the hot, dry fire weather conditions that help wildfires start and spread.**	• Get ready-to-use graphics, quick facts, and more data in the Extreme Weather Toolkit: Wildfires. • World Weather Attribution: Wildfire studies
 **Hurricane intensity and frequency**	While the overall number of tropical cyclones (like hurricanes) per year hasn't changed, studies show that the most intense and destructive storms occur more often due to warming oceans. Studies show that climate change is increasing both the maximum wind speeds of hurricanes and the fraction of storms that undergo rapid intensification. In our warming climate, hurricanes bring heavier rainfall and higher storm surge when they make landfall. Studies about specific events can often help you make statements about whether and how much human-caused climate change **strengthened or intensified** a hurricane.	**Warming oceans are causing more hurricanes to reach the most severe categories, but climate change is not increasing the overall frequency of tropical storm systems.**	• Climate Shift Index: Ocean quantifies the influence of climate change on daily sea surface temperatures. • Climate Shift Index: Tropical Cyclones quantifies the influence of climate change-driven ocean warmth on tropical cyclone intensity. • Climate Central: Studies of past Atlantic Basin storms
 **Severe storms**	As our climate warms, certain conditions favorable to thunderstorms and tornadoes are occurring more often, and severe weather activity is expanding into historically less-active seasons and regions. Overall trends indicate that some severe storm hazards — including straight-line winds, hail, and tornado outbreaks — are increasing in intensity or frequency. Severe storms are localized, short-lived events with limited historical records, and the level of detail in most climate models doesn't yet allow scientists to accurately simulate such events. At this time, studies can rarely help you make direct statements about the role of climate change in an isolated storm.	**While overall trends show that some severe storm hazards may be increasing in intensity and frequency, we can rarely — at this time — make statements about the direct influence of climate change on specific severe weather events.**	• Get ready-to-use graphics, quick facts and more data in the Extreme Weather Toolkit: Severe Weather

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