

# What if 2 C isn't enough to cap global warming?

November 22 2015, by Marlowe Hood

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A dead tree is seen on a dried section of the New Melones reservoir which is now at less than 20 percent capacity as a severe drought continues to affect California

Locking in an action plan to cap global warming at two degrees Celsius will be the ultimate yardstick for success or failure at the Paris climate summit that opens in a week.

Under the UN flag, the 2 C (3.6 Fahrenheit) target has been embraced by 195 countries, most of whose leaders will descend upon France's terror-struck capital on November 30.

But is that goal truly adequate to shield humanity from record heat waves, superstorms engorged by rising seas, and other devastating impacts?

Is two degrees, in other words, good enough?

The consensus view of thousands of [climate](#) scientists who have huddled on this question over the last six years is: "probably".

The fuzzy answer stems in part from the target's confused heritage.

It emerged from the nearly collapsed 2009 Copenhagen climate summit, where world leaders cobbled together a face-saving, non-binding "accord" with 2 C as its centerpiece.

"The traceability to the science is not clear," Peter Cox, a professor at the University of Exeter in England, told AFP. "It is definitely a political target."

Which does not mean it is arbitrary—science says that reaching this goal will stave off worst-case scenarios.

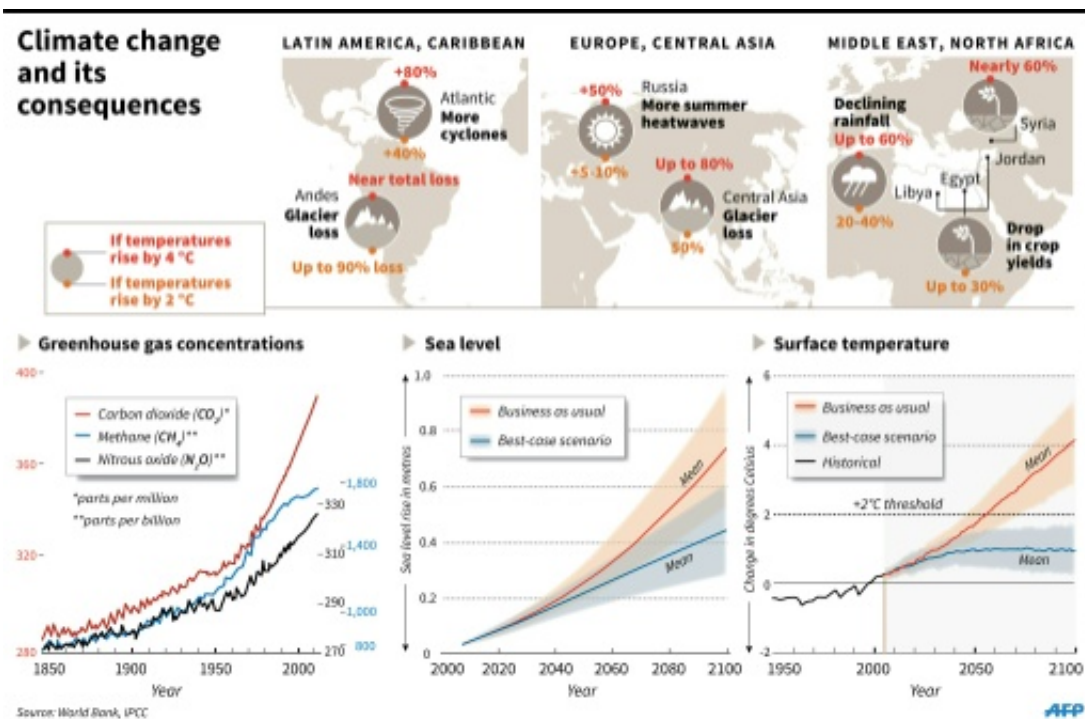
Keeping the mercury from going up by more than two notches, the UN's climate science panel has concluded, will help prevent mass migration, water wars, and expanding vectors of disease and poverty.

It's certainly better than the 4 C world we are headed for if we do nothing to curb [fossil fuel emissions](#).

But the 2 C boundary is best seen as an "upper limit" and not a "guardrail," cautions a scientific report published by the UN's climate body in June.

"In some regions and vulnerable ecosystems, high risks are projected even for warming above 1.5 C (2.4 F)," the report says.

## Adapt or die



How global warming has affected different regions and what is forecast to happen if temperatures rise by 2 or 4°C. 180 x 119 mm

For many, this comes as no surprise.

Indeed, 43 nations home to a billion people banded together this month

in a bloc called the Climate Vulnerable Forum, which is pushing for a 1.5 C cap over pre-Industrial Revolution levels, instead of 2 C.

At the very least, they want to see the lower threshold included in the Paris agreement as an option.

It is not hard to see why.

The global thermometer has so far risen one degree, but already many nations are living a climate-addled nightmare.

"Today we experience extreme weather, have floods on some of our islands and drought on others, and have severe erosion, coral bleaching and salt-inundation in our food crops and ground water," Tony de Brum, Foreign Minister for the Marshall Islands, told AFP.

"Can you imagine what it would be like if we get another degree?"

Low-lying river deltas in Bangladesh, Vietnam, China and Egypt face similar threats, while people in Sub-Saharan Africa are already retreating from expanding deserts.

Ultimately, it is money, and not just extreme weather, that will determine who can best adapt to these changes.

A subsistence farmer in the Sahel—an arid zone that stretches across the African continent—is far more vulnerable than his counterpart in California's Central Valley, even if both are confronting historic drought.

**Highly dangerous**



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Adaptation needs "will induce inequalities," former US Energy Department official and New York University professor Steven Koonin recently commented in the New York Times.

"The rich can adapt more easily than the poor," he said, arguing that preparing for climate impacts should trump what he called failed efforts to curb greenhouse gases.

But on a longer time scale, even bastions of wealth may be hit hard.

A study published this month found that a 2 C jump would—perhaps in 200 years or 2,000—submerge land currently occupied by 280 million people, including in New York and Shanghai.



Feeding those rising seas will be a continent-sized block of ice atop Greenland with enough frozen water to lift seas seven metres (23 feet).



Keeping the mercury from going up by more than two notches, the UN's climate science panel has concluded, will help prevent mass migration, water wars, and expanding vectors of disease and poverty

"If we stay at 2 C for very long, there's a risk the ice sheet will melt," said Jean Jouzel, a former vice chairman of the UN's Intergovernmental Panel on Climate Change (IPCC).

Three IPCC reports since 2001 have successively lowered the temperature at which severe impacts—including species loss and [extreme weather](#)—were predicted to occur.

US scientist James Hansen—whose warnings of [climate change](#) to the US Congress in 1988 made world headlines—recently concluded in a study on sea levels that "2 C [global warming](#) above the pre-industrial level... is highly dangerous".

With carbon-cutting pledges made by some 170 countries in the run-up to the Paris meeting, scheduled to close on December 11, the rate of emissions still increases but on a less sharp curve.

Even if the promises are met, we are on track for a 3 C world.

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