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Headline: Global warming to worsen further – study

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PARIS: Even if humanity stopped emitting greenhouse gases tomorrow, Earth will warm for centuries to come and oceans will rise by meters, according to a controversial modeling study published on Thursday (Friday in Manila).

Natural drivers of global warming — more heat-trapping clouds, thawing permafrost, and shrinking sea ice — already set in motion by carbon pollution will take on their own momentum, researchers from Norway reported in the Nature journal Scientific Reports.

“According to our models, humanity is beyond the point-of-no-return when it comes to halting the melting of permafrost using greenhouse gas cuts as the single tool,” lead author Jorgen Randers, a professor emeritus of climate strategy at the BI Norwegian Business School, told Agence France-Presse.

“If we want to stop this melting process we must do something in addition — for example, suck CO₂ out of the atmosphere and store it underground, and make Earth’s surface brighter.”

Using a stripped-down climate model, Randers and colleague Ulrich Goluke projected changes out to the year 2500 under two scenarios: the instant cessation of emissions and the gradual reduction of planet warming gases to zero by 2100.

In an imaginary world where carbon pollution stops with a flip of the switch, the planet warms over the next 50 years to about 2.3 degrees Celsius above pre-industrial levels — roughly half-a-degree above the target set in the 2015 Paris Agreement — and cools slightly after that.

Earth’s surface today is 1.2-C hotter than it was in the mid-19th century, when temperatures began to rise.

But starting in 2150, the model has the planet beginning to gradually warm again, with average temperatures climbing another degree over the following 350 years and sea levels going up by at least 3 meters.

Under the second scenario, Earth heats up to levels that would tear at the fabric of civilization far more quickly, but ends up at roughly the same point by 2500.

The core finding — contested by leading climate scientists — is that several thresholds, or “tipping points,” in Earth’s climate system have already been crossed, triggering a self-perpetuating process of warming, as has happened millions of years in the past.

One of these drivers is the rapid retreat of sea ice in the Arctic.

Since the late 20th century, millions of square kilometers of snow and ice — which reflects about 80 percent of the Sun’s radiative force back into space — have been replaced in summer by open ocean, which absorbs the same percentage instead.

Another source is the thawing of permafrost, which holds twice as much carbon as there is in the atmosphere. The third is increasing amounts of water vapor, which also has a warming effect.

Reactions from half-a-dozen leading climate scientists to the study — which the authors acknowledge is schematic — varied sharply, with some saying the findings merit follow-up research and others rejecting it out of hand.