

Cutting Carbon Emissions Could Seriously Change the Course of Sea Level Rise

There are many good reasons to cut carbon pollution now, but perhaps none is more important than slowing sea level rise. A new study unveiled at the AGU's (American Geophysical Union) annual meeting on Wednesday quantifies just how much better off we could be and how many people would be saved from inundation.



In the U.S. alone, 39 percent of the population lives in coastal counties already. At the same time, creditors are warning of an impending sea level rise-induced economic crisis for some ocean-side communities.

Ominous research published last year shows that sea level rise could be much more extreme than previously thought due to unstable ice in Antarctica.

Bob Kopp, a Rutgers sea level rise researcher, said at the AGU conference that all carbon pollution roads lead to higher seas through mid-century. No matter how much carbon dioxide humans emit, we're looking at about 12 inches (# 30 cm) of sea level rise by 2050.

But the roads start to diverge by mid-century, depending on how carbon emissions play out. If we cut emissions dramatically, the world is only looking at 22 inches (# 55 cm) of sea level rise by century's end. Continuing our carbon polluting ways means the oceans could rise an average of 58 inches (# 1,47m).



In human terms, we're talking about a difference between 97.4 million people being flooded out of their homes if we cut emissions and 152.5 million people facing inundation if emissions continue on their current trends.

Because of regional geology and **which glaciers melt fastest**, some areas would be much more impacted than others. The *Gulf Coast*, for example, faces up to 121 inches (# 3,07 m) of sea level rise by 2100 because much of the region is sinking according to **researchers at Climate Central** who co-authored the new study. The researchers **also created maps** that show the choices we face.

The sea level rise disparities between high and low carbon emissions scenarios only get more extreme into the next century, underscoring that cutting carbon pollution now has some major intergenerational justice benefits.

The number is much higher than the most recent *Intergovernmental Panel on Climate Change's* estimates because the research takes into account a relatively new model of ice shelf instability. *Grist's* Eric Holthaus has dubbed the scenario **the "ice apocalypse"** and with good reason. The basic idea is that as icebergs break off Antarctica's floating glaciers, the new cliff face they expose will be taller and less stable.

That means it's more likely to collapse, causing more icebergs to break off and sparking runaway glacier retreat. That process will unlock more ice trapped on land and send it into the sea.

It's a cutting edge theory still being poked and prodded by scientists. This new study is part of that prodding process.

"What it [the theory] shows us is what we still have left to learn," Kopp said. "Our questions are if this is reasonable, physical plausible model, what does it tell us about what's possible."

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