

Discussing The Five Meter Wall

Bill Menke, August 30, 2022

The Twenty-Second Century society in my fictional but well-informed account of the future, *The Five Meter Wall*, uses euphemisms for what climate scientists call the “managed retreat” response to climate change. Nobody panics. Technology is used to offset the deleterious effect of climate change until it is no longer practical to do so, and then everyone edges back from the worst-affected regions. Walls, flood gates and pump stations are used to mitigate flooding until the expense of becomes prohibitive, and then everyone moves to a-little-higher ground.

The question important to us in the Twenty-First Century is whether managed retreat will become the motif of the future, or whether climate change can be stopped decisively. Nobody knows the answer to this question for sure, both because there’s much we don’t know about the Earth’s climate system and because we’re not sure how far the people of the world, including ourselves, are willing to go to stop climate change. Everyone has a different take on these issues. Here, I’ll give you mine, which is from the prospective of an environmental scientist.

Some managed retreat will be necessary, because the climate system has not yet caught up to the changes we have already made to the atmosphere. We all know that a house will continue to warm after the furnace is turned off, because the water in the radiators is already hot. The world’s climate system is not so different. I think that it’s pretty clear that a One Meter Wall will need to be built sometime during this century, and that it will be abandoned in favor of a Two Meter Wall sometime during the next.

However, whether Walls Three, Four, Five and so forth will be necessary depends upon what we do – and what we do now – as contrasted to what we do a hundred years from now.

Suppose that a baby is cold in her bed, and that a parent adds one baby-blanket per hour to warm her up. At some point she is going to be too hot. The parent can’t just say, “From now on, I just won’t add blankets faster than one per hour”, or even, “From now on, I’ll add a blanket every two hours”. The parent, at the very least, needs to stop adding blankets, or preferably, to take some of the blankets off. Something similar is true for the climate system. Global temperature depends on the amount of carbon dioxide in the atmosphere – and not on how fast we’re adding it. Stemming global warming means our not adding any more, period.

This is what makes mitigating climate change so daunting. But if we are to avoid indefinite managed retreat, we must do it nonetheless. We must stop adding carbon dioxide to the atmosphere. Either we must stop burning fossil fuels, or we must work out a technology to capture all the carbon dioxide released by their burning before it reaches the atmosphere. If we do this, indefinite managed retreat can be avoided.

Of the many impacts of climate change, I believe that sea level rise is the one that will have the most impact on eastern United States, for its coastal land is both low lying and heavily populated. The basic science is this:

The worlds glaciers (and especially those in the Greenland and Antarctica) contain enough water that, were they were to melt, sea level would rise 60-70 meters (196-230 feet).

Glaciers already are melting, worldwide, because they are responding to global warming that has already occurred. Of these, the ones in Greenland are especially problematical, because they are so large. This will cause a meter (3 feet) of sea level rise over the next century.

At the current rate of burning fossil fuels, by 2075, atmosphere carbon dioxide will reach a level where about thirty meters (98 feet) of sea level rise is inevitable, and by 2150, where all glaciers will melt.

Even so, the glaciers will not melt instantaneously, any more than the big pile of snow in a supermarket parking lot melts on the first warm spring day. Melting takes time. Judging by what happened at the end of the Ice Age, when the huge North American and European ice sheets melted, sea level will rise a few centimeters per year – for 2500 years.

Now a word of caution: Innovative approaches to are going to be needed. People need to begin to think out-of-the-box. However, we must be careful not to do things that are crazy or that do more harm than good, just because we're in a hurry.

For instance, I can image people calling for the resumption of whaling, because whale oil is a bio-fuel that doesn't contribute to atmospheric carbon dioxide levels.

Give me a break!