

From VOA Learning English, this is At It Is.

Welcome! I'm Caty Weaver.

This week, American scientists said carbon dioxide in Earth's atmosphere had risen to its highest level in 2.5 million years. The National Oceanic and Atmospheric Administration measured carbon dioxide at more 400 parts per million. The Scripps Institution of Oceanography recorded a similar measurement.

The announcement led to renewed fears and discussion of climate change. But the 400 level reading is not that important, scientists say. They are more concerned about the speed at which carbon dioxide levels have climbed.

On today's show we tell about some major climate change research. Two teams of scientists looked at large-scale environmental effects of rising temperatures instead of the more common study of local environments.

A new study has found that many plants and animals will disappear forever unless people take steps to stop climate change. Researchers considered how climate change might affect about 50,000 common plant and animal species. As Christopher Cruise reports, the study was the largest ever about the possible effects of a warming atmosphere.

The researchers looked at plant and animal losses in a world four degrees Celsius warmer than it was in 1800. They found that major losses are likely by the year 2100. Rachel Warren is a professor of climate research at University of East Anglia in Britain. She led the study.

“And we found that if there is no action to reduce emissions of greenhouse gases, that more than half of the plants and one-third of animals would lose more than half of their climatic range.”

She says if nothing is done to stop or slow the rising temperatures, life will be affected in almost every part of the world.

“And we found those losses were greater, although they are quite large everywhere, the biggest losses were in sub-Saharan Africa, Central America, Amazonia, Australia, North Africa, Central Asia and Southeastern Europe.”

So picture a world where common species like cocoa beans, coffee or frogs have become rare or endangered. Rachel Warren says the disappearance of even a small number of life forms can harm ecosystems. This also results in harm to the life support systems those systems provide.

“These are things like the purification of water and air, the cycling of nutrients, which is very important for our agriculture, pollination, the provision of food and fuel for societies that depend on land, Flood control and soil erosion, all of these are affected by ecosystems.”

The study also attempted to predict the effects of possible human action against climate change. The researchers considered what would happen if greenhouse or industrial gases reached a high in 2016 and then started to drop by two to five percent a year.

“In that scenario, we found that we could avoid 60 percent of these range losses. We then compared that with a situation where emissions peaked in 2030 and then were reduced at five percent yearly and found that we could still avoid 40 percent of the losses.”

However, greenhouse gas emissions keep climbing. And, more so than the rates researchers were even considering.

“The emissions are currently increasing at a rate that slightly exceeds that in our 4 degrees (warmer) scenario.”

Rachel Warren says the study makes clear the need to reduce emissions.

I’m Christopher Cruise.

Some scientists continue to debate the extent to which people have affected the environment. But others warn of planetary changes comparable to the glacial snow and ice melt of more than 11,000 years ago. These scientists say the world’s water systems are seriously threatened.

Researchers have been debating the issue at a meeting this week in the German city of Bonn. Jim Tedder has our report.

The scientists are considering whether to add an epoch to the World Geological Scale. The scale divides Earth's physical history into main epochs, or periods, of change. Scientists say the Anthropocene epoch would represent the major planetary changes caused by human activity.

Anik Bhaduri is executive officer of the Global Water Systems Project, based in Bonn.

"For nearly a decade, the Global Water Systems Project has been coordinating and supporting the broad research to study the complex water systems with interactions between natural and human components. And what we found is human activities play a very central role in inducing and influencing the changes in the global water systems."

Traditionally, scientists use information about local environments to study human effects on water systems. But, the Global Water Systems Project takes a worldwide look at how human activity affects such systems. Mister Bhaduri calls that is a game changer in environmental research.

“Humans are impacting the global water systems by building dams, through land use changes, and it influences the global water cycle. As a consequence, the global water systems is vulnerable to local-scale human-induced traces. And it has wide-scale ramifications at larger regional and continental and global scales.”

For example, one paper under discussion is from the International Geosphere-Biosphere Program. The paper says that, “on average, humanity has built one large dam every day for the last 130 years.”

It adds that tens of thousands of large dams now re-direct river flows that have supported ecosystems for thousands of years.

The paper says groundwater and hydrocarbon pumped into low-lying coastal areas have caused land to sink. This land helps to protect coastlines from storms and tsunamis.

The paper says people now move more rock and rock sediment than the forces of ice, wind and water combined. The drainage of wetlands for development also removes a natural barrier to floods.

Anik Bhaduri says the world may reach a point where damaged water systems cannot be repaired. He says international efforts to ensure water security for humans can sometimes work against the environment. And he says water security means both water availability and water quality.

Project co-chair Charles Vorosmarty says 500 billion dollars a year is spent on concrete, pipes, pumps and chemicals to deal with water problems. He says this has created, in his words, "a technological curtain separating clean water...and the highly stressed natural waters that sit in the background."

The meeting in Bonn ends on Friday. I'm Jim Tedder.



And that's As It Is for today. I'm Caty Weaver.