Scientists warn of crop failure uncertainties as Earth heats up

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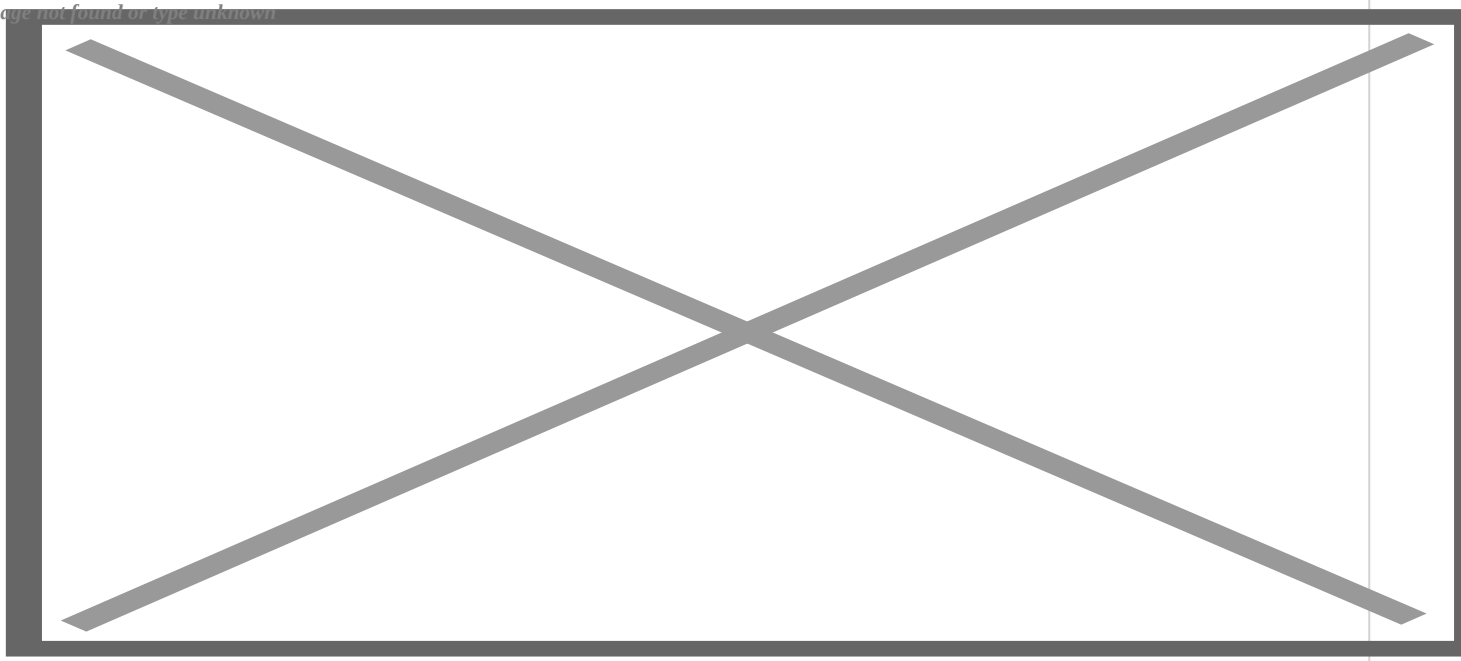

Increasing concentration of greenhouse gas in the atmosphere is putting the planet in 'uncharted waters' as weather extremes intensify.

New York, July 8 (RHC)-- A new study has highlighted the possibility of major harvest failures caused by climate change in multiple global breadbaskets as the United Nations warned of a "dystopian future" without immediate action. Scientists said on Tuesday their report should be a "wake-up call" about the threat climate change poses to our food systems.

In the new research published in Nature Communications, scientists in the United States and Germany looked at the likelihood that several major food-producing regions could simultaneously suffer low yields. These events can lead to price spikes, food insecurity, and even civil unrest, said lead author Kai Kornhuber, a researcher at Columbia University and the German Council on Foreign Relations.

By "increasing the concentration of greenhouse gasses, we are entering this uncharted water where we are struggling to really have an accurate idea of what type of extremes we're going to face", he said. "We show that these types of concurring events are really largely underestimated."

The study looked at observational and climate model data between 1960 and 2014, and then at projections for 2045 to 2099. Researchers first examined the impact of the jet stream -- the air currents that drive weather patterns in many of the world's most important crop-producing regions.

They found a "strong meandering" of the jet stream, flowing in big wave shapes, has particularly significant impacts on key agricultural regions in North America, Eastern Europe and East Asia, with a reduction in harvests of up to seven percent.

The researchers also found this was linked to simultaneous crop failures in the past. One example was in 2010, when the fluctuations of the jet stream were tied to both extreme heat in parts of Russia and devastating floods in Pakistan, which both hurt crop yields, Kornhuber said.

The study also looked at how well computer models assess these risks and found while they are good at showing the atmospheric movement of the jet stream, they underestimate the magnitude of the extremes this produces on the ground.

Kornhuber said the study should be "a wake-up call in terms of our uncertainties" of the impacts of climate change on the food sector, with more frequent and intense weather extremes and increasingly complicated combinations of extremes.

"We need to be prepared for these types of complex climate risks in the future and the models at the moment seem to not capture this," he said.

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