Planned Harvard balloon test in Sweden stirs solar geoengineering unease

by Alister Doyle | @alisterdoyle | Thomson Reuters Foundation

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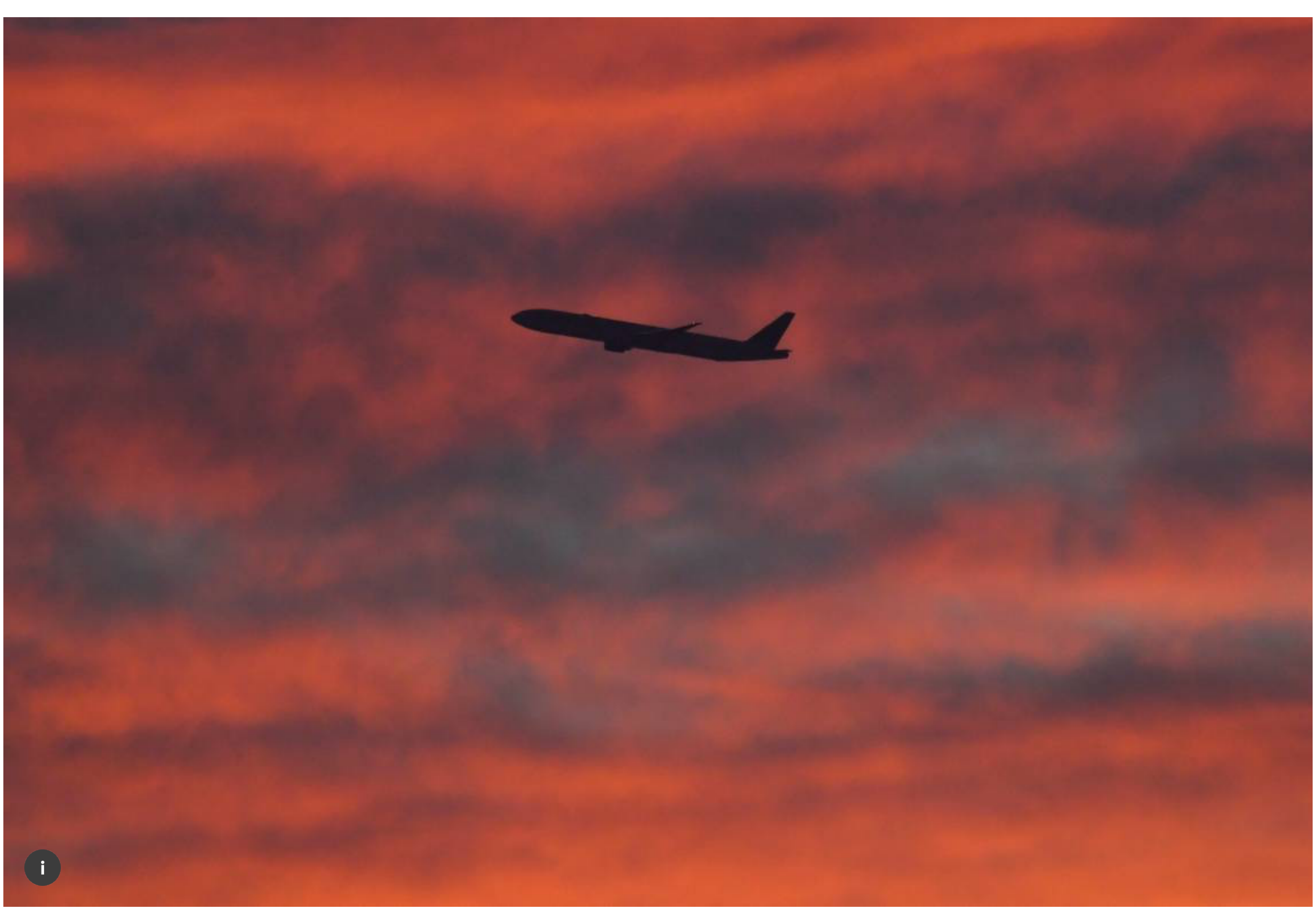

An early experiment toward using sun-dimming technology to cool global warming has opponents fearing a slippery slope toward engineering the climate

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(Removes typo in paragraph 11)

By Alister Doyle

OSLO, Dec 18 (Thomson Reuters Foundation) - Harvard University scientists plan to fly a test balloon above Sweden next year to help advance research into dimming sunlight to cool the Earth, alarming environmentalists opposed to solar **geoengineering**.

Open-air research into spraying tiny, sun-reflecting particles into the stratosphere, to offset global warming, has been stalled for years by controversies - including that it could discourage needed cuts in greenhouse gas emissions.

In a small step, the Swedish Space Corporation agreed this week to help Harvard researchers launch a balloon near the Arctic town of Kiruna next June. It would carry a gondola with 600 kg of scientific equipment 20 km (12 miles) high.

"There are very many real concerns" about the risks of climate change and solar geoengineering, said David Keith, who is involved in the project and is a professor of applied physics at the Harvard School of Engineering and Applied Sciences.

"Understanding them requires a range of activities including experiments," said Keith, who is also a professor of public policy at the Harvard Kennedy School.

The unmanned flight had originally been planned for the United States but was moved, partly because of U.S. restrictions caused by coronavirus.

The flight, which requires approval from a Harvard project advisory committee, will test how to manoeuvre the balloon and check communications equipment and other systems. It would not release any particles into the stratosphere.

Still, if successful, it could be a step towards an experiment, perhaps in the autumn of 2021 or spring of 2022, to release a tiny amount – up to 2 kg - of non-toxic calcium carbonate dust into the atmosphere, Keith said.

Studying that material's effects on high-altitude sunlight could help advance understand of how solar geoengineering might work.

A SLIPPERY SLOPE?

But opponents see the Swedish balloon as a step on a slippery slope towards engineering the climate with an artificial sunshade - something with potentially large and hard-to-predict risks, such as shifts in global rain patterns.

"There is no merit in this test except to enable the next step. You can't test the trigger of a bomb and say ‘This can't possibly do any harm'," said Niclas Hällström, director of the Swedish green think-tank WhatNext?

"Swedish society is increasingly calling for real, immediate solutions to climate change," he said - such as a rapid transformation away from fossil fuels and toward a zero-carbon society.

He said the Harvard project "represents the polar opposite", as it could create the impression that continuing use of fossil fuels is possible.

Lili Fuhr, head of the international environmental policy division at the Heinrich Böll Foundation in Germany, also said the plan was "crossing an important political red line."

"They don't want to stop at this small experiment. The reason is to get bigger experiments," she said.

She and Hällström said the plan would violate **a global 2010 moratorium on geoengineering** under the U.N. Convention on Biodiversity.

That non-binding moratorium, however, allows exemptions for small-scale scientific research studies.

Officials of the Harvard project, the Stratospheric Controlled Perturbation Experiment (**SCoPEx**), said they did not believe it needed any special approval from Sweden for the flight.

SCoPEx said about 300 similar stratospheric balloons were launched worldwide in 2019. Backers of SCoPEx include Microsoft founder Bill Gates.

Anni Bolenius, spokeswoman for the Swedish Space Corporation, also said "We comply with all applicable international and national legislations."

Janos Pasztor, executive director of the Carnegie Climate Governance Initiative, praised the openness of the Harvard step-by-step approach.

"Let's not exaggerate and over-react on the critical negative side," he urged, saying the Swedish test could help society debate and understand the urgency of addressing climate change.

The Carnegie project says it is impartial about the potential use of climate-altering technologies but wants to ensure robust governance.

Proponents of solar geoengineering, also known as solar radiation modification, say deployment of the technology could be a shortcut to slow a rise in global temperatures that is stoking more heatwaves, wildfires, droughts and rising sea levels as billions of tonnes of greenhouse gases build up in the atmosphere.

But opponents fear that it could undermine commitments to act under the 2015 Paris climate agreement and could have unwanted side-effects.

It would also, for instance, do nothing to slow a build-up of carbon dioxide in the atmosphere that is turning the world's oceans increasingly acidic.

Keith said that it made sense to study solar geoengineering.

"There is a long history of people doing research on things that were socially unpopular at the time that we now see as important," he said, such as birth control.

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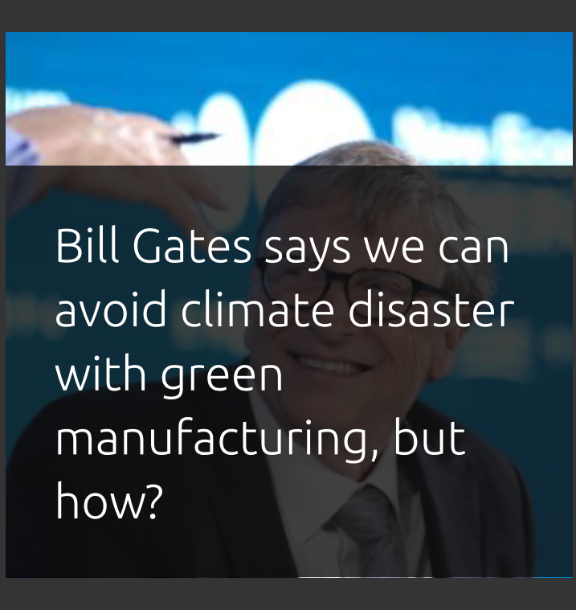

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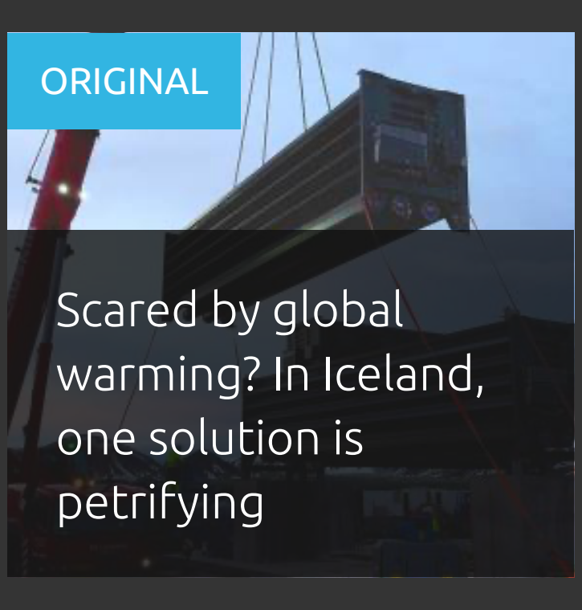

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