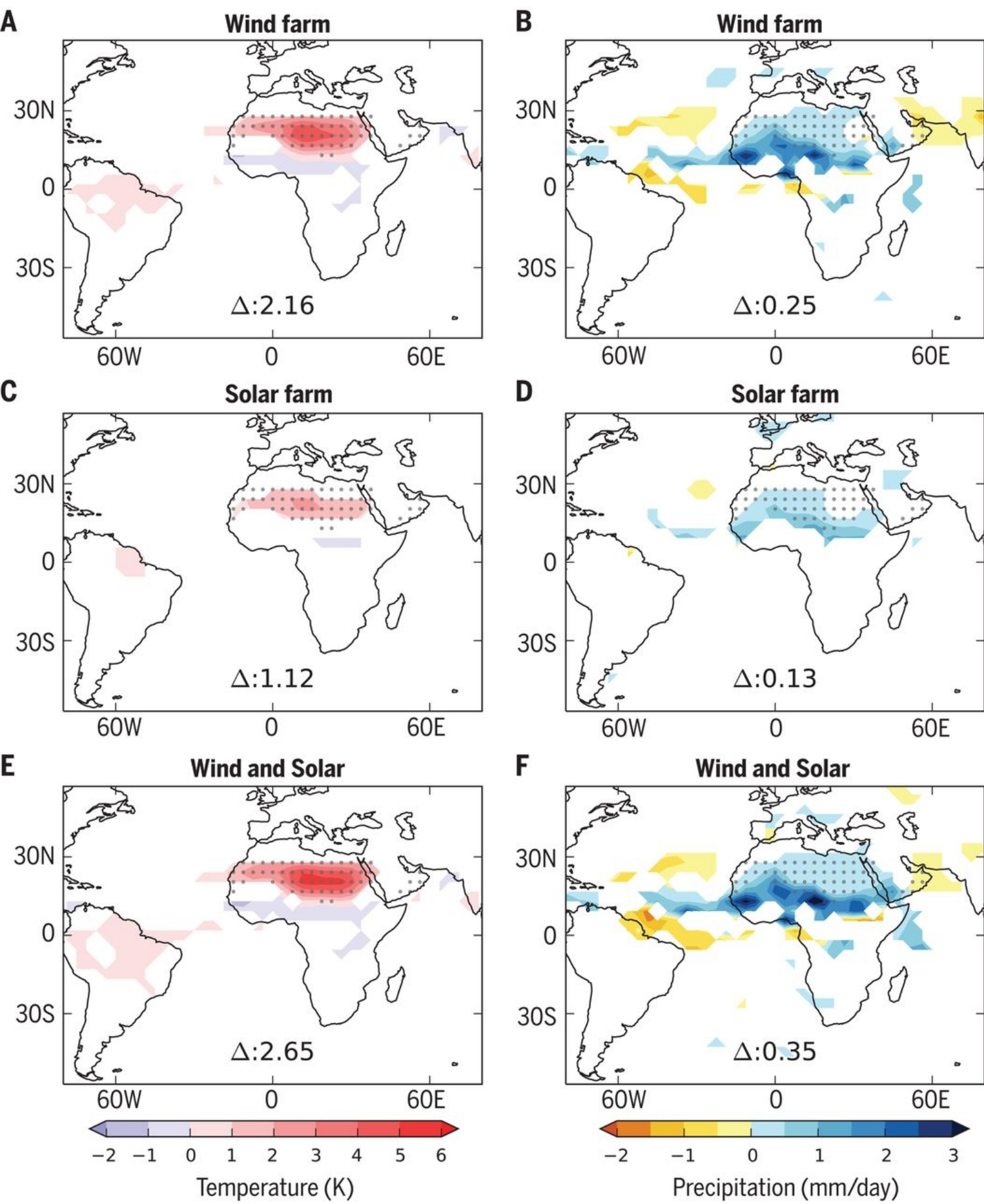


Science



Filling Sahara with solar and wind farms would double local rainfall



Rain on the way?
FADEL SENNA/Getty

By Michael Le Page

Covering the entire Sahara desert in solar panels and wind farms would not only help power the world, it would also improve the local climate. Rainfall would more than double and there would also be a modest increase in vegetation cover.

“There would be a slight greening of the Sahara,” says Fred Kucharski of the Abdus Salam International Centre for Theoretical Physics in Italy. This would not be nearly enough to return the Sahara to the much greener state it was in as recently as 6000 years ago, but at least the overall impact would be beneficial. And the greening effect could be amplified by other measures, such as tree planting.

The Sahara desert is seen as prime real estate for solar and wind farms because of its plentiful sun and wind, sparse population and closeness to Europe. Morocco is already building large solar plants. But any changes made to land surfaces – from cutting down forests and building

According to a climate model used by a team including Kucharski, covering the entire desert in either solar or wind farms would lead to more air rising up above the Sahara and thus to more rainfall. Doing both would have an even greater effect.

The reasons are complex and rather counterintuitive, and connected to changes in the brightness of the ground surface by installing dark solar panels, and changes in drag by installing turbines.

As rainfall increases there is also a big positive feedback from increased growth of vegetation, which increases evaporation and also warms the surface leading to even more air rising up above the Sahara because plants are darker than the bare ground.

If only part of the Sahara was covered, the effect would be much smaller, Kucharski says. And the team's model suggests covering other deserts in solar and wind farms would have little effect. This may be because they are smaller than the Sahara.

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