

# Satellite Technology is transforming climate action

*No one needs to be told that the climate crisis gets more serious by the day. Every year is hotter than the last one. Extreme weather events are becoming commonplace.*

Temps de lecture : minute

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19 June 2024

New climate legislation aimed at quickening the green transition meets more and more resistance from businesses struggling to balance sustainability and its associated admin with the myriad demands of commercial life.

There remains a broad consensus across the West that the climate is warming up and this needs to be addressed. It's just that no one knows for sure the best way to do it. Necessity, however, is the mother of invention, and for the most part, that invention appears in the private sector. While decision-makers in politics debate the legislative side of climate action, entrepreneurs are coming up with practical solutions. Increasingly, this is happening in the space sector.

The headline threat in the global warming battle is carbon dioxide. CO<sub>2</sub>, as we all learned in school, absorbs infrared radiation from Earth and re-emits it, trapping heat in the atmosphere and warming the planet up. Bringing down carbon dioxide therefore remains our biggest climate priority. The good news is that satellites are currently reducing global CO<sub>2</sub> emissions by 1.5 billion tonnes. According to independent research by Globant, that number could rise to 5.5 billion tonnes were we to take full advantage of the satellite technology already at our disposal. It doesn't even account for advances in satellite technology – and advances are

happening all the time. This would be a massive climate victory.

Satellites can help with methane, too. For a long time, no one really understood how lethal methane was. Carbon dioxide was the villain. But in recent years, thanks to pioneering work by private companies tracking methane and global bodies like the UN and IEA, everyone knows that methane needs as much attention as CO<sub>2</sub>. Satellites are now being used to record methane 'super-emitter' events, and the resulting data is then passed on to those who can end those events, often by plugging leaks, and penalise those behind them. Satellite data on methane is also being used to guide climate policy in the EU and the US.

Then there are the rainforests, which capture carbon dioxide, cool the planet, and serve as homes for much of the world's plant, insect and animal life. Protecting these is crucial, but deforestation worldwide is rife. Using satellites we can now expose illegal deforestation while measuring the progress of reforestation projects, some of them enabled by carbon credits. That means that satellites can help to bring rigour and, in time, trust to the carbon markets: there's widespread agreement that functioning carbon markets are needed to move money from the Global North to the Global South.

Deforestation isn't the only threat to the world's forests, however. Wildfires are getting worse. These are behind around 8 billion tonnes in carbon dioxide emissions each year. They take lives, destroy livelihoods, shatter ecosystems and do serious damage to property and other assets. The cost of wildfires – financial and otherwise – is extreme. But again, space is stepping in to help. Using satellites, we can now assess areas for risk of fire. We can track fires as they're happening. And we can understand in precise detail how much damage has been done in the wake of a fire. Companies are now beginning to develop the means to predict wildfires accurately and make the calls needed to avoid catastrophe.

A lesser-known but hugely important application of satellite technology is in enhancing global agriculture. Nearly half of the world's population are involved in agriculture to some degree. Yet food insecurity remains a massive global issue, with literally billions of people suffering from malnutrition. Satellites optimise agricultural practice: increasing productivity, yields and sustainability while reducing waste and minimising water use. Satellites can also identify pests and prevent losses of crops and income. Agriculture is set to consume 70% of our global budget of GHG emissions in the coming decades. Using satellites to improve agricultural practices is urgent.

In short, what satellites are doing is empowering people. In every area relevant to the climate, satellite technology gives people on the ground the power to make decisions that will benefit the climate, from halting deforestation to avoiding wildfires to boosting crop yields. Our task now, as we look nervously to the wildfires in Canada, or the floods in Armenia, is to lean in: to make full use of the powerful technology already at our disposal, and begin to wrest back control of our climate.

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