

What is Geoengineering?

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Geoengineering: the basics



Geoengineering refers to large-scale interventions in the Earth's oceans, soils and atmosphere with the aim of reducing the effects of climate change, usually temporarily. It's a false solution to the climate crisis that aims to address the symptoms of climate change but ignores and in many cases enables the root causes to continue.

The two main categories of proposed geoengineering techniques are:

- **Solar Radiation Modification (SRM):** SRM techniques, which are also referred to as solar geoengineering, attempt to deal with the symptoms of climate change by reflecting sunlight away from the Earth or allowing more heat back into space. They include a range of ideas, such as installing giant mirrors that orbit the Earth, spraying sulphate aerosols into the stratosphere and modifying clouds, plants and ice to make them more reflective.
- **Carbon Dioxide Removal (CDR):** These proposals, also referred to as "removals", aim to suck carbon out of the atmosphere on a massive scale using a range of biological and mechanical methods. Proposals include burning biomass and capturing the carbon that is released, seeding the ocean with iron to create plankton blooms and creating forests of mechanical "artificial trees".

In addition, various **weather modification** techniques exist, such as cloud seeding, which aim to change weather and precipitation patterns without changing the climate more broadly. Although weather modification isn't considered to be geoengineering as such, there is overlap between many geoengineering and weather modification methods, and weather modification technologies are also important precursors particularly to solar geoengineering schemes.

Climate engineering proposals represent efforts to manipulate the climate on a global scale, but each proposed technique brings its own environmental and social impacts. While geoengineering techniques and technologies vary in scope and scale (see: [Technologies](#)), **a few important characteristics apply to all of them:**

- **They don't really exist:** To date, the claims made about geoengineering techniques are largely based on speculation and/or highly questionable carbon accounting methodologies. In effect, they are not real or viable technologies from a climate change mitigation perspective.
- **Favoured by the Global North, backed by billionaires:** Most of the political and financial support for geoengineering comes from a small group of elite engineers, a handful of billionaires and a growing group of right wing politicians (many of them former climate deniers).
- **Ecological impacts are huge:** The sheer scale of many of these proposals would have massive negative and unpredictable impacts on the environment – air, land and sea – which would be disproportionately borne

by the Global South.

Want to find out more? Here are some key resources and links to further information:

- Read our [key reasons to oppose geoengineering page](#)
- See our [geoengineering technologies page](#) for specifics on the different schemes
- Find out which geoengineering projects are underway near you with the [Geoengineering Map](#), an up-to-date source of information on hundreds of geoengineering projects

For more in-depth overviews about geoengineering, visit our [resources page](#) where you will find reports, briefings and more.

What is Geoengineering Monitor?