

Reduce greenhouse gas emissions...

**Mitigation!**

Adapt to the effects of climate change...

**Adaptation!**

Intervene in the climate system...

**Climate Engineering?**

**Risks and unresolved questions**



Can it be ethically justified?



Who takes part in the debate, and how?



Who pays? Who profits?



Climate effects and environmental risks?

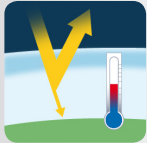


Who negotiates? Who decides? Who is liable?



How can decisions be made?

**Reflect solar radiation?**



To reduce atmospheric warming  
**Radiation Management**

**Increase the albedo of earth's surface**

Mirrors or artificially lightened surfaces could reflect solar radiation

**Inject aerosols into the stratosphere**

Sulphur particles could generate reflective atmospheric particles

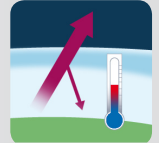
**Increase cloud formation over the ocean**

Spraying sea water over the ocean could promote the formation of reflective clouds



**Remove CO<sub>2</sub> from the air?**

To reduce the greenhouse effect  
**Carbon Dioxide Removal**



**Erect artificial trees**

CO<sub>2</sub> from the air could be chemically bound and stored or used as a resource

**Afforestation / biochar production**

Trees could photosynthetically bind CO<sub>2</sub>, which could be sequestered long-term as biochar

**Ocean fertilization**

Algal blooms could absorb large quantities of CO<sub>2</sub>, which would sink to the bottom of the sea when the algae die off

