

AMR AG has Developed a Technical Solution to Cool the Global Climate by 0.5 - 1.0 °C within 20 - 25 Years

Swiss AMR AG plans to cool the climate with a new technology. Planes would disperse nanoparticles of ferric chloride 2,000 - 4,000 m above subtropic oceans.

KREUZLINGEN, SCHWEIZ, April 15, 2024 /EINPresswire.com/ -- [AMR AG](#) (Atmospheric Methane Removal AG, Kreuzlingen, Switzerland) has developed a technical solution to cool the global climate by up to 0.5 °C within 20 - 25 years



Plane dispersing ferric chloride over the ocean

This is made possible by combining three known methods into one single action, called the [GeoRestoration](#) Action Plan (GRAP). The GRAP consists of the dispersion of Iron(III) chloride (or ferric chloride, chemical formula FeCl_3) at an altitude of 2,000 - 4,000 meters above subtropical, iron-poor oceans. The material is dispersed in its gaseous state from the engines of small jet airplanes. 40-60 planes will each undertake several flights per day from multiple locations worldwide to disperse the total of 200,000 – 300,000 tonnes of ferric chloride per year.

GRAP will happen in three phases. The first phase will be a field test, where one plane will distribute small amounts of ferric chloride over the ocean. The field test will demonstrate the technical solution, evaluate the atmospheric impact and determine the basis for moving towards to operational mode, which could bring methane levels back to 0.7 ppm by 2050. In the 3rd phase the operation will be confined to keeping methane at a sustainable level.

AMR is a science-based company. All along research teams will observe, measure and evaluate the results of the operation. AMR observes the [EU precautionary principle](#).

3 "CoolTasks"

The main CoolTask is the oxidation of methane (chemical formula: CH_4). Methane decomposes

into CO₂ and H₂O under the influence of the catalyst Iron(III) chloride and the sun's UV light. Since CH₄ has 120 times the thermal effect of CO₂ the conversion has an immediate cooling effect. Methane in the atmosphere today, at 1.9 ppm, which is around 2.5 times the pre-industrial concentration, contributes ~30% of current global warming. The potential cooling effect for Atmospheric Methane Removal is ~0.5 °C with an upward trend - the atmospheric methane concentration is rising fast. Methane oxidises naturally after ~10 years, hence removing one tonne of methane for the coming 100 years is equivalent to removing 10 tonnes of methane today.

Secondarily the gas from the jet engines condenses in the cold ambient air within seconds to form solid nanoparticles, which attract atmospheric moisture and turn into small droplets. In this state, they fulfill their second "CoolTask" as so-called Cloud Condensation Nuclei (CCN) - reflecting some of the sun's rays back into orbit.

Thirdly, iron is essential for the metabolism of plants. Once the particles fall on ocean or land, Iron(III) chloride is converted into plant-available iron compounds, which significantly increase photosynthesis in algae / plants and hence removes CO₂ from the air.

3 Reasons

Firstly, the method is natural, as it has been occurring in nature for millions of years. Nature "uses" desert dust for this purpose, the dust's red colour signalling its high iron content. Since humans are adding more methane nature cannot cope anymore. Polluting the atmosphere is a human crime - cleaning it up is a human responsibility.

Secondly, the method is safe. There are no toxic effects of ferric chloride, if used wisely. The chemical is in use worldwide to make wastewater drinkable, its effect on the environment and human health is well documented.

Thirdly, the method is efficient, as all the energy for the chemical processes comes from wind, sun and waves. Only the dispersion requires some airplane fuel, the CO₂ footprint of which is offset thousands of times by the method itself.

Low Cost

AMR AG estimates the cost of the GeoRestoration Action Plan at under 10 \$ billion / year. Over 20 years approx. 3 Gt (static) methane equivalent to 360 Gt of CO₂ would be removed. This results in a price of less than \$1.00 per tonne of CO₂e.

Finance / Investment

Up to now AMR has been financed by its shareholders and the generous support of the Dutch organization Carbonfix, which supports ambitious climate innovations in their earliest stage.

AMR AG welcomes all investors who want to participate in solving the greatest crisis of mankind. Please beware however that our primary focus is making a positive climate impact, with profit only considered a secondary objective.

Compare <https://amr.earth/literature> for further information.

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