Limiting Global Mean Surface Temperature to 2 Degrees Centigrade by 2100: An Investigation Using the C-ROADS World Climate Model

In this investigation, the C-ROADS World Climate model was used to examine a scenario in which global mean surface temperature (GMST) is limited to less than or equal to 2 degrees centigrade by 2100. The scenario was based on the assumption that significant policy action is taken to reduce greenhouse gas emissions and limit climate change.

The results of the simulation indicate that by 2100, CO2 concentrations in the atmosphere will be 450 parts per million (ppm). This is a significant reduction from current concentrations, which are around 414 ppm as of 2021. The reduction in CO2 concentrations is a result of a combination of measures aimed at reducing emissions, including the increased use of renewable energy, the implementation of carbon pricing mechanisms, and improvements in energy efficiency.

Another important finding of the simulation is that sea-level rise is projected to be 0.56 meters by 2100. This is a relatively low increase compared to other projections and is a result of the reduced emissions and corresponding decrease in global warming.

Emissions per capita, measured in tonnes of CO2 per year and per person, are projected to be 0.03 by 2100. This represents a significant reduction in emissions per capita compared to current levels, which are around 4.5 tonnes of CO2 per person per year.

The scenario and results presented in this investigation are based on the assumption that significant policy action is taken to reduce emissions and limit climate change. The results of the simulation provide an estimate of the likely range of future greenhouse gas emissions and temperature increases under this scenario. The findings of this investigation demonstrate that it is possible to limit GMST to less than or equal to 2 degrees centigrade by 2100 if significant policy action is taken.

It is important to note that the C-ROADS model is a simplified representation of the real world and the actual outcome may vary. Additionally, the scenario presented in this investigation is based on a specific set of assumptions, and other scenarios and assumptions may yield different results. Nevertheless, this investigation provides valuable insights into the potential benefits of taking significant policy action to reduce emissions and limit climate change.

In conclusion, the results of this investigation using the C-ROADS World Climate model show that it is possible to limit GMST to less than or equal to 2 degrees centigrade by 2100 if significant policy action is taken. The model simulation suggests that by 2100 CO2 concentrations will be 450 ppm, sea-level rise will be 0.56 meters, and emissions per capita will be 0.03 tonnes of CO2 per year and per person. These results are important for informing policy decisions and guiding efforts to mitigate climate change.

use the C-ROADS World Climate model to investigate a scenario of you own creation that results in GMST less than or equal to 2 degrees centigrade by the year 2100. then write a report of 1100 words to describe your investigation and its findings.

This is the result of the investigation of the C-ROADS World Climate model:

Co2 concentration by 2100 will be 450 part per million
sea-level rise will be 0.56 meters
emissions per capita by 2100 will be 0.03 tones of Co2 per year and per person

1 I want you to write a report of 1100 words to describe this imaginary investigation and its findings. Make it sound like it is factual