From: **Douglas Grandt** answerthecall@mac.com
Subject: Re: Open letter to COP26: "URGENT ACTION FOR A HEALTHY CLIMATE"
Date: October 30, 2021 at 5:20 PM
To: CA Assemblymember Al Muratsuchi assemblymember.muratsuchi@assembly.ca.gov, CA Assembly Speaker Anthony Rendon assemblymember.rendon@assembly.ca.gov, CA Senator Bob Wieckowski senator.wieckowski@senate.ca.gov, Carol.Tate@cdfa.ca.gov Carol.Tate@CDFA.ca.gov, Angelica Romo-Ramos Adm. Asst. to CEC Chair David Hochschild Angelica.Romo@energy.ca.gov, CA ARB Clerk - for Chair Liane Randolph cotb@arb.ca.gov, CA Assemblymember Eduardo Garcia assemblymember.garcia@assembly.ca.gov, CA Assemblymember Isaac Bryan assemblymember.bryan@assembly.ca.gov, CAL EPA Secty. Jared Blumenfeld SectyBlumenfeld@CalEPA.ca.gov, CA Senator John Laird senator.laird@senate.ca.gov, CA Senator Josh Becker senator.becker@senate.ca.gov, Secretary.Ross@cdfa.ca.gov Secretary.Ross@CDFA.ca.gov, CA Assemblymember Laura Friedman assemblymember.friedman@assembly.ca.gov, CA Senator Lena Gonzalez senator.gonzalez@senate.ca.gov, CA Assemblymember Lisa Calderon assemblymember.calderon@assembly.ca.gov, CA Assemblymember Luz Rivas assemblymember.rivas@assembly.ca.gov, CA Assemblymember Mark Stone assemblymember.stone@assembly.ca.gov, CA Senator Robert Herzberg senator.hertzberg@senate.ca.gov, CA Assemblymember Tasha Boerner Horvath assemblymember.boernerhorvath@assembly.ca.gov, CA Natural Resources Secty. Wade Crowfoot secretary@resources.ca.gov, CA Assemblymember Christopher Ward assemblymember.ward@asm.ca.gov
Cc: Brett Hailey Leg. Aide to CA Senator Bob Wieckowski Brett.Hailey@sen.ca.gov, Nathaly Peran (Lus Rivas) Nathaly.Peran@asm.ca.gov, Samantha Samuelsen Leg. Aide to CA Senator John Laird Samantha.Samuelsen@sen.ca.gov

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Dear members of California's COP26 delegation, (Please forward to Eleni Kounalakis)

Hearing the news that Governor Newsom will not be attending COP26 in person, I take this opportunity to share the information in my October 27 email with Lt. Governor Eleni Kounalakis, and supplement it with recommended targets and timeframe for all of you.

The following is extracted from a an earlier (October 10) version of the open letter that was finalized October 25 as a shortened version:

All intervention options must be on the table for the emergency program. Techniques must be quickly evaluated for effectiveness, feasibility, equity, safety, timeframe, and the potential for unintended consequences. **An effective plan must be developed on an emergency basis so that implementation can start as soon as possible.**

Having the best possible project management and leadership is critical. Management should quickly produce a critical path analysis to minimise the time for choosing technologies and getting their deployment up to full scale. This would minimise the real risk that the program does too little too late to reverse the accelerating trends in the Arctic. There must be absolute determination to succeed, when so much is at stake. Future generations will not forgive the COP26 Parties if they did not pull out all the stops to try to prevent disastrous climate change and sea level rise.

The emergency program should run in coordination with the parallel program with the goal of restoring the planet to a healthy state for the well-being of all humanity, with measurable short-term, medium-term and long-term targets.

The two programs should together:

1. Protect and regenerate Arctic and Himalayan ice.
2. Slow sea level rise.
3. Prevent runaway feedback loops by lowering temperatures everywhere to safer levels.
4. Reduce emissions of GHGs including methane and other short-lived warming agents.
5. Remove legacy [CO2], [CH4], and other GHG [emissions] from the atmosphere.
6. Improve food productivity while boosting biodiversity.

We propose that there should be a set of targets to be jointly achieved by the two programs:

Arctic and Himalayan targets:

- Halt temperature rise by 2025; return temperature below today's by 2030; refreeze to 1980 levels by 2050.
- Halt the increase in the rate of sea level rise from cryosphere melt by 2025; halt the sea level rise from cryosphere melt by 2030.

Global targets:

- Halt the increase in the rate of mean global surface temperature rise by 2025; halt/peak the temperature rise below 1.5C by 2030; return temperature below today's by 2035; return the mean surface temperature to below the 1980 level by 2050.
- Slow the rise in sea level to below the 1980 rate (~2mm per year) by 2050.
- Halt the increase in the rate of CO2e rise by 2025; halt/peak the rise below 530 ppm by 2030; return below 1980 level by 2050.
- Halt ocean acidification by 2030; return the pH to above the 1980 level by 2050.
- Halt biodiversity loss by 2030; regenerate soil carbon and ocean biomass to above 20th century levels by 2050.

By 2050 the planet should be in a healthier state than it was in 1980. It will be *safer* because dangerous trends will have been reversed, feedback loops (aka tipping points) avoided, storms and other weather extremes reduced, and sea level rise minimised. It will be more *sustainable* because there will be less dependency on fossil fuels, less climate forcing from GHGs and less ocean acidification. It will be more *biodiverse* by restoration of habitats, e.g. in the Arctic. And it will be more *productive* because the regeneration of soil carbon and ocean life will have improved crop and fish production respectively.

This is what we should all want for humanity's future wellbeing: the planet returned to a safe, sustainable, biodiverse and productive state. And we think this is just about possible by 2050, if the world leaders grasp the opportunity and pull out all the stops for activating the two programs we have proposed ASAP. There is no time to lose if 2025 targets are to be met.

The October 10 version from which the above was extracted is attached as a PDF

This is admittedly a lot to ask, and it is understood that COP26 likely will not consider or adopt these targets However, I ask each of you to consider these as guidelines for further efforts by California and that you will lead the other world leaders in future plan development.

Very best regards,

Douglas Grandt
Putney, VT
510-432-1452

FINAL SHORTENED OCTOBER 25 LETTER TO COP26

HPAC COP26 Letter...ion.pdf

EARLIER LONGER OCTOBER 10 VERSION LETTER TO COP26

HPAC CHOICE B - 10 Oc...v3.pdf

> On Oct 27, 2021, at 4:23 PM, Douglas Grandt <answerthecall@mac.com> wrote:
>
> Dear members of Governor Newsom's delegation to COP26, (Faxed to Gavin Newsom and Lauren Sanchez)
>
> I would like to share with you critical information that is likely not familiar to you.
>
> Attached is a PDF of a short letter, a list of signatories, a visual diagram and concise explanation for your consideration and expanded knowledge as you prepare for your roles at COP26 next week.
>
> What is presented in the short letter and diagram is an urgent call for expanding the singular focus of COP (which can be likened to a one-legged-stool) to a three-pronged approach (likened to a three-legged-stool) addressing all the necessary actions required to cool the earth effectively and quickly to ensure humanity has a chance of survival in a habitat similar to that which civilization has flourished over the past 12,000 years, namely, 1) cooling the Arctic along with 2) reducing carbon dioxide and methane emissions and 3) removing future and past (legacy) emissions from the atmosphere.
>
> Three google groups (Healthy Climate Alliance, Planetary Restoration Action Group and Healthy Planet Action Coalition) with a wide international assemblage of scientists, engineers, and other climate experts and activists have published a letter signed by 46 of our members which is intended to explain to the COP26 delegates **why it is important to urgently initiate discussions about cooling the Arctic and removing greenhouse gases from the atmosphere.**
>
> I hope you and other appropriate staff of California's COP26 delegation take time to read and understand the key issues that are being ignored by the general consensus who are focusing all attention on emissions reduction and energy efficiency as means to cool the planet.
>
> **My hope is that a few of you will meet and talk with John Kerry personally** about this serious oversight by the IPCC and COP.
>
> **What we need at minimum is for COP26 to adopt a resolution acknowledging the need to cool the Arctic and to bless and encourage international engagement** by scientists, engineers, inventors and entrepreneurs to urgently research and test at small scale all the plausible means to cool the Arctic that are already under consideration in laboratories and on zoom calls and email threads.
>
> **I believe California's delegation and Special Envoy John Kerry are the ones to make this happen.**
>
> Very best regards,
>
> Douglas Grandt
> Putney, VT
> 510-432-1452
>
> I am a former Californian and employee of Air Resources Board (retired 2012).
> I was on a team which drafted one of the first regulations in the implementation of ***California's Global Warming Solutions Act of 2006*** (so-called "co-benefits')
> <HPAC COP26 Letter FINAL (10.25.21) with diagram & explanation.pdf>

FINAL SHORTENED OCTOBER 25

LETTER TO COP26

URGENT ACTION FOR A HEALTHY CLIMATE

COP26: October 31-November 12, 2021

Dear COP26 Delegates and Stakeholders,

We are an international network of scientists, engineers, physicists, biologists, and public policy experts active in the climate change arena. We are extremely concerned about the accelerating pace of climate disruption and are calling for your leadership at the COP26 in Glasgow and thereafter to urgently mobilize an expanded global response. Immediate action must be taken to prevent further catastrophic increases in temperature, weather extremes, sea level rise, and polar ice and permafrost melt that could be leading to runaway feedbacks, making future climate stabilization almost impossible to achieve. The reduced temperature difference between the poles and tropics created by polar temperature rising three times faster than the global mean has already resulted in a deadly disruption of jet stream behaviour. This has slowed weather patterns and caused increasingly extreme weather events throughout the world. We must collectively commit to restoring a healthy climate now.

The world needs broader international cooperation to protect humanity and to restore and regenerate our ecosystems. We ask you to undertake an expanded set of effective climate interventions including immediately launching an expedited, multi-disciplinary, and inclusive program to evaluate and deploy measures designed to regenerate polar ice and reduce extreme weather. All options must be on the table and evaluated for effectiveness, feasibility, equity, safety, timeframe, and the potential for unintended consequences. This program would be accompanied by rapidly scaling up efforts to prevent dangerous global heating and to reduce Greenhouse Gas (GHG) concentrations to levels at which civilization has historically developed and can flourish.

We ask that COP26 adopt a resolution committing to develop a climate restoration plan no later than 2023 to limit global warming to well below 1° C. An effective and responsible plan will need to integrate three approaches:

1. **Cooling the planet, particularly the polar regions and the Himalayas,**
2. **Reducing GHG emissions, including methane and other short-lived warming agents, and**
3. **Removing legacy CO_2, methane, and other GHGs from the atmosphere.**

The August 2021 IPCC 6th Assessment Report confirms the need for urgent global response. The previously under-estimated pace and impacts of human-caused climate change are producing rising temperatures, deadly heat waves, extreme precipitation events, spreading deserts, declining crop yields, decimated rainforests, raging wildfires, warming oceans, dying coral reefs, diminished biodiversity, and rising sea levels. Crucial regions of the cryosphere, including glaciers, sea ice, and permafrost, are melting and accelerating feedbacks. Every region of the world is affected.

Climate change impacts are exacerbating existing regional and global inequities. The communities and groups most vulnerable to climate change impacts are often least responsible for the problem and have limited capacity for mitigation, adaptation, and recovery. Food insecurity, land loss, extreme weather events, and intolerable temperatures are forcing mass migrations of people who have no alternative but to abandon their homelands.

As climate change threatens humanity and the biosphere, it exerts destabilizing forces on national security, economic sustainability, and financial and political systems throughout the world. The challenges are unprecedented in magnitude, urgency, complexity, and risk.

Although it is critical to reduce GHG emissions and remove CO2 and methane as much and as soon as possible, GHG emissions reduction and removal alone will not rescue us from the climate emergency. Continued warming from legacy emissions and ocean heat, and the lead time required to replace infrastructure will mean the transition to climate stability will not be completed for at least several decades.

The three-pronged approach to limit global warming to well below 1°C -- direct cooling, GHG emissions reduction, and GHG removal -- will prevent catastrophic and irreversible damage to critical natural and human systems and return the Earth to an enduring state that can recreate a healthy, stable, biodiverse, and productive climate. This is the legacy we owe our children, our grandchildren, current and future generations, and all life on our planet.

We are counting on you. It would be our pleasure to confer with you, your colleagues, and your staff. Do not hesitate to contact us at healthyplanetaction@gmail.com with any questions, comments, or requests for further information.

Further discussion and references for this letter are available here.

Respectfully submitted on behalf of the signatories listed below,

SIGNATORIES

Organization affiliation listed for identification only.

Australia:

John Macdonald
Marine Permaculturist
The Climate Foundation
www.climatefoundation.org

Graeme Taylor, PhD
Author, "Evolution's Edge: The Coming Collapse and Transformation of Our World"
Coordinator, BEST Futures
https://bestfutures.org/

Robert Tulip, MA
Director, Iron Salt Aerosol Australia Pty Ltd

Sue Vink, PhD
Principal Research Fellow, Environment Centres
Sustainable Minerals Institute
The University of Queensland
https://smi.uq.edu.au/profile/2133/sue-vink

Brian von Herzen, Ph.D.
Executive Director, Climate Foundation,
http://www.climatefoundation.org/

France:

Renaud de Richter, PhD
Independent Researcher

Germany:

Franz Dietrich Oeste, Chemical Engineer
Founder, of the ISA greehouse gas depletion method gM-Ingenieurbüro
http://www.gm-ingenieurbuero.com/

India:

Soumitra Das, PhD, President,
Healthy Climate Initiative

Mr. Bhaskar V. Mallimadugula
Director, Kadambari Consultants Pvt Ltd
Hyderabad, India
(linkedin.com/in/bhaskarmv/)

Rituraj Phukan (Assam, India), Founder
Indigenous People's Climate Justice Forum
National Coordinator for Biodiversity
The Climate Reality Project India
https://www.climatereality.org.in/

Japan:

Hiroshi Mizutani
Ph. D. in Chemistry
Senior Research Scientist
Institute of Sociogeochemistry

The Netherlands:

Drs. Hans van Hilten, Programme Manager
Energy Transition and Climate Adaptation
Waddenfonds
Board member, LECO (a local energy cooperation in the city of Groningen)

Prof. Dr. Ing. Lummina G. Horlings,
Aletta Jacobs chair in Socio-Spatial Planning
Faculty of Spatial Sciences
University of Groningen

Switzerland:

Oswald Petersen
AMR - Atmospheric Methane Removal AG
www.amr.earth

Samuel Zak, MSc
European Lead, Climate Foundation
https://www.linkedin.com/in/sam-z-501882150/

Turkey:

Ahmet Ağir, Assistant Professor
Hasan Ali Yücel Education Faculty
Computer and Instructional Technology Education
İstanbul University-Cerrahpaşa
https://avesis.istanbulc.edu.tr/agir

Dr. Mustafa Aykut
Chairman, Futurists Association, Turkey
Author, 'What is left until 2040'

Cem Kirazoğlu, PhD.
An adult educator and critical pedagogist
İstanbul Aydın University – Education Faculty
LinkedIn

Fulya Sari, PhD. Candidate in Education Policy + Voice / Information Architect /
Science in Public Places
Bogazici University

United Kingdom:

Clive Elsworth, BSc, Scientific Consultant, Restore Our Climate, Methane Action, Co-Founder, Citizens Climate Lobby UK

Stuart Haszeldine OBE FRSE C.Geol
Professor of Carbon Capture and Storage
School of GeoSciences
University of Edinburgh
https://www.research.ed.ac.uk/en/persons/stuart-haszeldine

Mark Hibbert, CivEng
Technical Director, LiveEco CIC

Daniel Kieve, MSc
Planetary Restoration Action Group (PRAG)
Restore Our Climate (ROC)

John Nissen, MA, Founder and Chair,
Arctic Methane Emergency Group (AMEG)
Planetary Restoration Action Group (PRAG)

Bru Pearce, Managing Director
Envisionation Ltd
www.Envisionation.org

Stephen Salter, Emeritus Professor of Engineering Design, School of Engineering
University of Edinburgh
https://www.youtube.com/watch?v=ZBB6WtH_Ni8

Peter Wadhams, ScD, Prof. Emeritus
Dept of Applied Maths and Theoretical Physics
Cambridge University

United States:

Andrew Cameron Bailey, CEO and Founder
Sacred Earth Enterprises

Ron Baiman, PhD.
Associate Professor of Economics
Benedictine University
Founder and leader
Chicago Political Economy Group

Leslie Field, PhD.
Founder and CTO
Arctic Ice Project
Stanford University, Adjunct Lecturer

Gene Fry, PhD.
Northeast Utilities and Massachusetts Department of Public Utilities (ret.)
(linkedin.com/in/gene-fry-a80a377

Thomas J. F. Goreau, PhD.
President, Global Coral Reef Alliance
Chief Scientist, Blue Regeneration SL
President, Biorock Technology Inc.
Technical Advisor, Blue Guardians Programme
SIDS DOCK
www.globalcoral.org

Doug Grandt, BS, Industrial Engineering
CalEPA−Air Resources Board (retired)
Healthy Climate Alliance (HCA)
Planetary Restoration Action Group (PRAG)

Wilson Hago, PhD., Founder
Hago Energetics, Inc.

United States (cont'd):

Nadia Soraya Kock
Carbon Management Consultant
Point Arena, California

Ronal W. Larson, PhD.
Board Member, United States Biochar Initiative
https://biochar-us.org/
Coordinator, "biochar.io" internet list

Michael C. MacCracken, PhD.
Chief Scientist, Climate Change Programs
Climate Institute

Beyhan T. Maybach, PhD.
Restoration Ecologist
Great Ecology
https://greatecology.com/

Aria McKenna, Founder
Global Cooling Productions

David Mitchell, PhD.
Associate Research Professor
Desert Research Institute
Division of Atmospheric Sciences
https://www.dri.edu/

Suzanne Reed, MFS, Founder
The Collaboration Connection
https://www.linkedin.com/in/suzanne-reed-095611120/

Herb Simmens, MPAUP
Author, 'A Climate Vocabulary of the Future'
Founder, Planetphilia herbsimmens.com

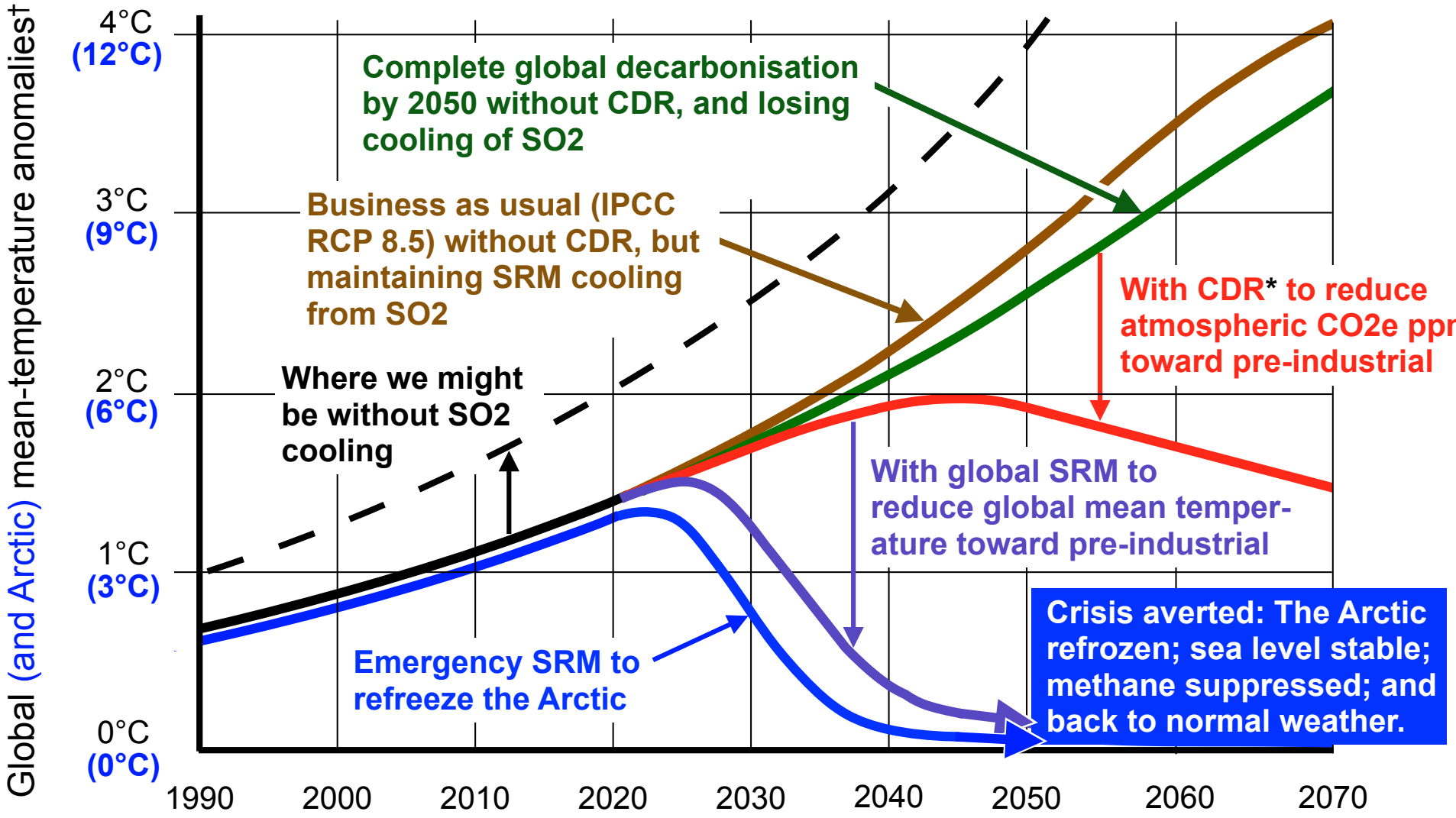
Barbara J. Sneath PhD.
Deputy Director
The MEER:ReflEction Framework
meerreflection.com

Ron Swenson, President
The International Institute of Sustainable Transportation
www.inist.org

Ye Tao, PhD.
Director and Founder
The MEER ReflEction Framework
meerreflection.com

Wilvan I. Van Campen
Architect, AIA

Global-mean and Arctic temperature trajectories for various scenarios, with and without CO2 removal (CDR*) and Solar Radiation Management (SRM)



† Global temperatures (and Arctic temperatures in blue) are relative to pre-industrial norms.

* CO2 removal at x2 current emissions plus suppression of methane and black carbon.

12 Feb 2021 Temperature trajectories diagram

Updated 25 August 2021

Global-mean and Arctic temperature trajectories for various scenarios, with and without CO2 removal (CDR) and Solar Radiation Management (SRM)

Arctic temperature

The blue line is the trajectory of Arctic temperature, with scale shown in blue on the y-axis. We consider this independently of global temperature, whose scale is shown in black. The blue line is curved downward to show how cooling the Arctic might avoid catastrophes arising from continued warming and melting:

- multi-metre sea level rise from glacier and ice sheet meltwater;
- potentially irreversible loss of sea ice with associated disruption of ocean circulation (the AMOC);
- a multi-gigaton outburst of methane from permafrost potentially boosting global temperature by over 1°C.
- a reducing temperature gradient between Arctic and tropics, accelerated by albedo loss from retreating snow and sea ice, causing increasing disruption to jet stream behaviour (see below).

From 1970 to 2021 the Arctic temperature (shown in blue) has been rising 3 times faster than the global mean (shown in black). This has resulted in an ever decreasing temperature gradient between the Arctic and the tropics. This has disrupted jet stream behaviour causing the increase in extreme weather events which is now considered a climate emergency. If the Arctic temperature rise can be halted and reversed (as shown by the blue line bending downwards) the increase in extreme weather events can be halted and reversed. **This is the emergency Arctic cooling we urge G20 leaders to get done, using the most powerful cooling technology available: SRM at surface, cloud and stratospheric levels**.

Global temperature

The current strategy, espoused by IPCC and most environment activists, is to go for near 100% decarbonisation by 2050. The cooling effect of the SO2 emitted from coal and oil burning would be lost. The result, without any CDR or SRM intervention, would be catastrophic global warming (see green curve). Even business as usual would be better assuming it maintained the SO2 cooling (see brown curve). To avoid dangerous sea level rise from ocean expansion, the global mean temperature needs to be reduced to near the pre-industrial norm within two or three decades, using a combination of CDR and SRM. The diagram shows a lag of 5 years of global cooling behind Arctic cooling (see purple curve to right of blue curve). Note that CDR alone would be too slow to reduce the global temperature (see red curve). SRM without CDR would be unsustainable in the longer term; the SRM intervention could be phased out completely as CO2e ppm approaches the pre-industrial 280 ppm. By this time, planetary restoration could be complete.

EARLIER OCTOBER 10 VERSION

LETTER TO COP26

URGENT ACTION FOR A HEALTHY CLIMATE

Dear COP26 Delegates and Stakeholders,

We are an international coalition of scientists, engineers, physicists, biologists, and public policy experts, combining expertise from the Planetary Restoration Action Group (PRAG) and the Healthy Climate Alliance (HCA).

Our long-term mission is planetary restoration: returning the planet to a safe, sustainable, biodiverse and productive state. The COP26 Parties' current ambition of achieving net zero carbon emissions at some time in the future is totally inadequate to deal with the climate emergency upon us now, let alone to restore the planet to a healthy state. Something drastic has to be done to deal with the current situation in short order.

We are calling for the COP26 Parties to initiate and collaborate in an emergency program to reverse the existing trends towards catastrophic increases in weather extremes, sea level rise and permafrost thaw, any one of which could potentially lead to runaway feedbacks and irreversible climate change. These trends arise from accelerated warming and melting in the Arctic. The Arctic needs to be cooled as a top priority for international climate action. (See diagram and explanation page attached**.)**

Cooling the Arctic can reduce weather extremes. It is now understood that the unexpected and unprecedented growth in extreme weather, at the heart of the climate emergency, is due to a disruption of jet stream behaviour. The reduced temperature gradient between the Arctic and tropics, created by polar temperature rising three times faster than the global mean, has resulted in a reduction of the energy driving jet stream waves eastward round the planet. This has slowed the movement of weather systems, exacerbating extreme weather events such as deadly floods, droughts and fires in the Northern Hemisphere. (A different form of jet stream disruption is in operation in the Southern Hemisphere.)

We also ask for a parallel program to reverse global warming and reduce concentrations of greenhouse gases (GHGs) sufficient for long-term sustainability: reducing their heating effect and reversing ocean acidification from CO2 which will help shelled creatures such as corals to recover. This will involve massive drawdown of CO2 and suppression of emissions of methane and other climate forcing agents. The program should coordinate and supplement existing national and international programs.

All intervention options must be on the table for the emergency program. Techniques must be quickly evaluated for effectiveness, feasibility, equity, safety, timeframe, and the potential for unintended consequences. **An effective plan must be developed on an emergency basis so that implementation can start as soon as possible.**

Having the best possible project management and leadership is critical. Management should quickly produce a critical path analysis to minimise the time for choosing technologies and getting their deployment up to full scale. This would minimise the real risk that the program does too little too late to reverse the accelerating trends in the Arctic. There must be absolute determination to succeed, when so much is at stake. Future generations will not forgive the COP26 Parties if they did not pull out all the stops to try to prevent disastrous climate change and sea level rise.

The emergency program should run in coordination with the parallel program with the goal of restoring the planet to a healthy state for the well-being of all humanity, with measurable short-term, medium-term and long-term targets.

The two programs should together:

1. Protect and regenerate Arctic and Himalayan ice.
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6. Improve food productivity while boosting biodiversity.

We propose that there should be a set of targets to be jointly achieved by the two programs:

Arctic and Himalayan targets:

- Halt temperature rise by 2025; return temperature below today's by 2030; refreeze to 1980 levels by 2050.
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Global targets:

- Halt the increase in the rate of mean global surface temperature rise by 2025; halt/peak the temperature rise below 1.5C by 2030; return temperature below today's by 2035; return the mean surface temperature to below the 1980 level by 2050.
- Slow the rise in sea level to below the 1980 rate (~2mm per year) by 2050.
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- Halt biodiversity loss by 2030; regenerate soil carbon and ocean biomass to above 20th century levels by 2050.

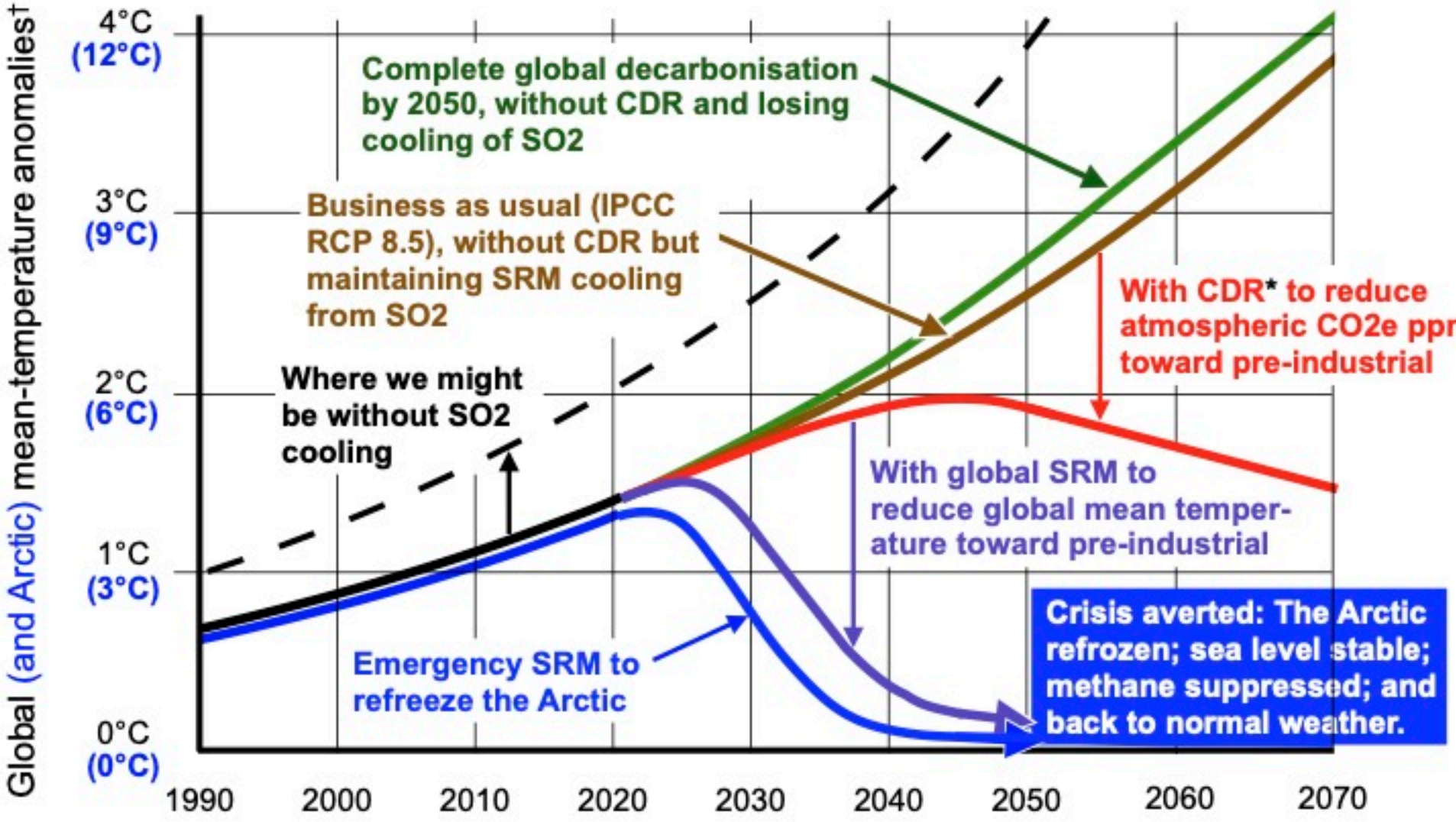
By 2050 the planet should be in a healthier state than it was in 1980. It will be *safer* because dangerous trends will have been reversed, feedback loops (aka tipping points) avoided, storms and other weather extremes reduced, and sea level rise minimised. It will be more *sustainable* because there will be less dependency on fossil fuels, less climate forcing from GHGs and less ocean acidification. It will be more *biodiverse* by restoration of habitats, e.g. in the Arctic. And it will be more *productive* because the regeneration of soil carbon and ocean life will have improved crop and fish production respectively.

This is what we should all want for humanity's future wellbeing: the planet returned to a safe, sustainable, biodiverse and productive state. And we think this is just about possible by 2050, if the world leaders grasp the opportunity and pull out all the stops for activating the two programs we have proposed ASAP. There is no time to lose if 2025 targets are to be met.

We are counting on you. It would be our pleasure to confer with you, your colleagues, and your staff. Do not hesitate to contact insert your name at insert your email address with any questions, comments, or requests for further information.

Further discussion and references for this letter are available here.

Global-mean and Arctic temperature trajectories for various scenarios, with and without CO2 removal (CDR*) and Solar Radiation Management (SRM)



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Updated 26 August 2021

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- potentially irreversible loss of sea ice with associated disruption of ocean circulation (the AMOC);
- a multi-gigaton outburst of methane from permafrost potentially boosting global temperature by over 1°C.
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From 1970 to 2021 the Arctic temperature (shown in blue) has been rising 3 times faster than the global mean (shown in black). This has resulted in an ever decreasing temperature gradient between the Arctic and the tropics. This has disrupted jet stream behaviour causing the increase in extreme weather events which is now considered a climate emergency. If the Arctic temperature rise can be halted and reversed, as shown by the blue line bending downwards, the increase in extreme weather events can be halted and reversed. **This is the emergency Arctic cooling we urge G20 leaders to get done, using the most powerful cooling technology available: SRM at surface, cloud and stratospheric levels**.

Global temperature

The current strategy, espoused by IPCC and most environment activists, is to go for near 100% decarbonisation by 2050. The cooling effect of the SO2 emitted from coal and oil burning would be lost. The result, without any CDR or SRM intervention, would be the green curve: catastrophic global warming. Even business as usual would be better if it maintained the SO2 cooling; see brown curve. To avoid dangerous sea level rise from ocean expansion, the global mean temperature needs to be reduced to near the pre-industrial norm within two or three decades, using a combination of CDR and SRM. The diagram shows a lag of 5 years of global cooling behind Arctic cooling; see purple curve. CDR alone would be too slow to reduce the global temperature; see red curve. SRM without CDR would be unsustainable in the longer term; the SRM intervention could be phased out completely as CO2e ppm approaches the pre-industrial 280 ppm.