WHAT IS CLIMATE SCIENCE?

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Grand Hall of the Hungarian Academy of Sciences

Budapest, December 8, 2025

MTA 200 ÉVES A MAGYAR TUDOMÁNYOS AKADÉMIA

What is Science?

GY KORNIS 1922
(and many other classical definitions):
...a methodological and systematic human activity aimed at learning about reality

K POPPER 1934:
Science progresses by attempting to falsify or refute hypotheses (in empiric, objective and rational way)

T KUHN 1962:
Periods of "normal science" within a shared paradigm + periodic "revolutions" where a new paradigm replaces the old one.

P. VÁN 2025:
...an everlasting self-correction

RULES

POSTMODERN
~~„SCIENCE”~~
SOPHISTRY
(P. FEYERABEND 1975):
...an „anarchic enterprise” where no single method applies and „anything goes”

„Consensus Building” is outside the rules of science.

What is Climate?

The ancient Greek „κλἰμα” means inclination, slope, latitude. The Hungarian „éghajlat” means „the bend of the sky”.

Climate is what on an average we may expect, weather is what we actually get. (A J HERBERTSON 1907)

There are about a dozen modern definitions. According to AI:
„the average weather patterns in a region over a long period, typically 30 years or more, including temperature, precipitation, and humidity”

The modern definitions of climate do not highlight its nonstatic nature.
„Climate is represented as a time average… A time average of a stochastic process (…) is not a number but a stochastic process per se.”
(D KOUTSOYIANNIS 2021)

A geophysical approach:

Ensemble of elements of the Earth System and their interactions:

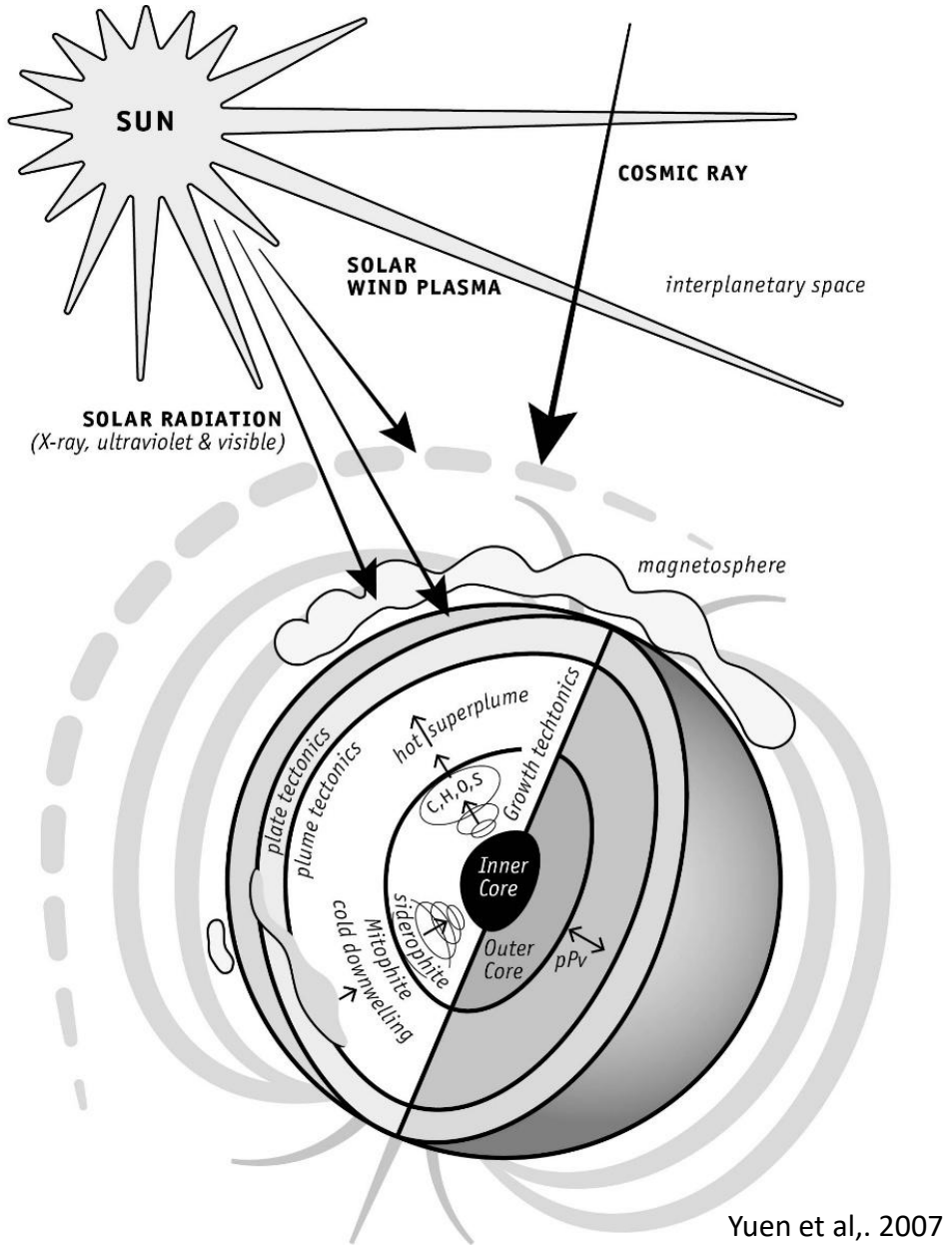
Extraterrestrial factors: Sun, Solar System, space.

Terrestrial factors: phenomena of the atmosphere, geosphere, hydrosphere, cryosphere, biosphere (incl. human)

Interactions: not precisely known or unknown.

(L SZARKA 2023)

What is Climate System?



Yuen et al,. 2007

The atmosphere is like an apple peel.

UNFCCC 1992:

"Climate system" means the totality of the atmosphere, hydrosphere, biosphere and geosphere and their interactions.

It is a restrictive definition.

What is Climate Change?

GEOPHYSICAL APPROACH:
A change in characteristic climatic state of a region on decadal scale, due to the ever-changing elements of the Earth System.

WMO
(in accordance with the modern definitions for climate):
Climate change is the term used to describe changes in the state of the climate that can be identified by changes in the average and/or the variability of its properties and that persists for an extended period, typically decades or longer.

D KOUTSOYIANNIS 2021:
It is a redundancy:
The term "climate change" … is a pleonasm, as the climate, like the weather, has been ever-changing.

UNFCCC:
…attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.

The UNFCCC definition is restrictive; it is in conflict even with the WMO one.

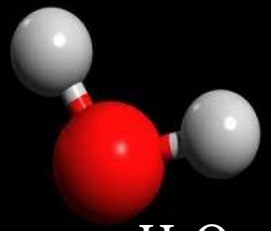
What is Climate Science?

Since its basic terms are controversial, we should look into UNFCCC 1992.

Since 1992 (United Nations Framework Convention on Climate Change), human-caused greenhouse gases (GHGs) have been in the spotlight.

Phenomena + interactions outside the UNFCCC framework are largely ignored or attributed to human.

„Space”

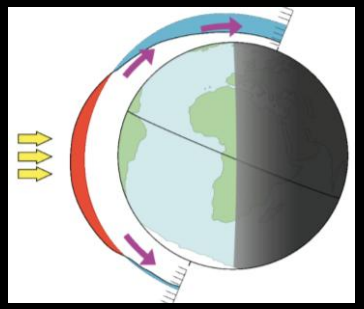


H_2O

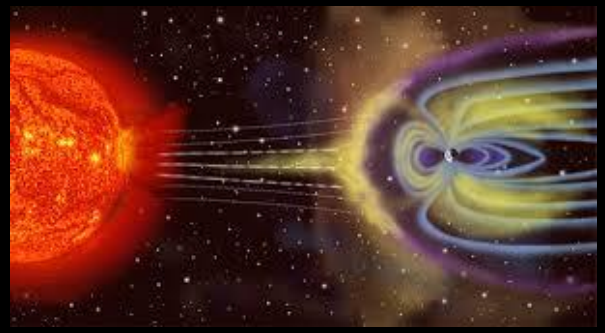
Hydrosphere, cryosphere, clouds

Solar System

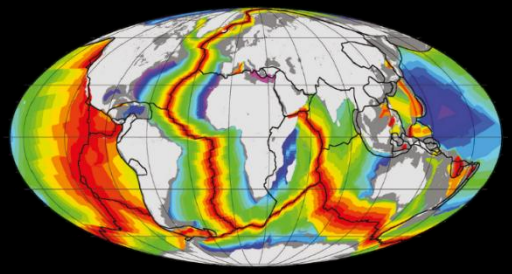
Biodynamics (greening)



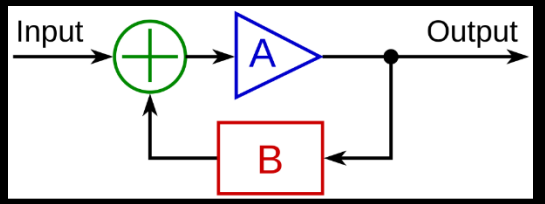
Energy transport



Sun



Geodynamics, incl. volcanos



Feedbacks: Le Chatalier’s Principle

It is guaranteed that

RESTRICTIVE DEFINITIONS
+
RESTRICTED FOCUS

} **BIASED CONCLUSIONS**

Since 1992, the UNFCCC has been leading science to wrong conclusions.

The „Climate Consensus" is more than 40 years old.

ID Card Data of the Consensus:

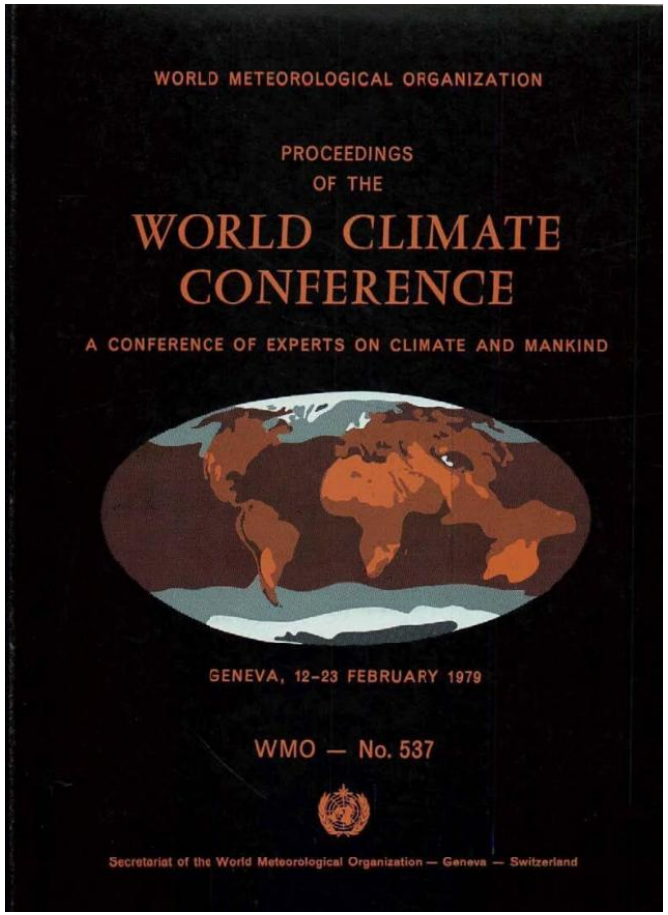
Name: International Conference on the Assessment of the Role of Carbon Dioxide and of the Other Greenhouse Gases in Climate Variations and Associated Impacts
Parentage: UNEP, ICSU, WMO
Place of birth: Villach (Austria)
Date of birth: October 9-15, 1985
Birth document: WMO-No. 661, WMO (1986)
(Between two climate science conferences: Geneva, 1979 and 1990)

Lu J 2021

Photo

Let's look at them!

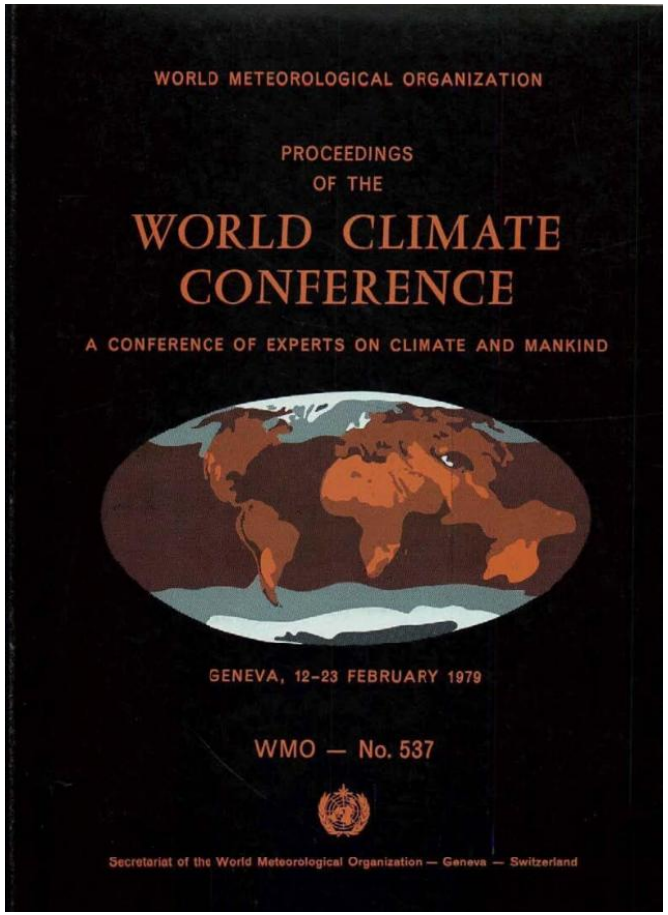
Geneva 1979: MOSTLY PURE CLIMATE SCIENCE



BUT: „*...the position of the great powers ...*
was that climate change is a political issue. We ourselves felt ... who understand it better than us take charge of stirring up the international public's interest in the climate issue. (With this, we strayed onto somewhat swampy ground.)”

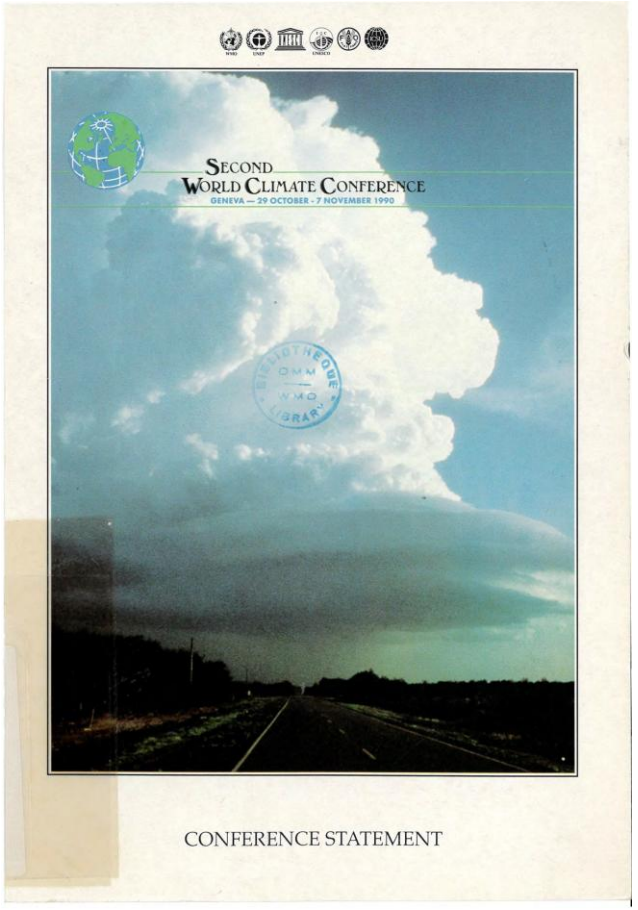
R Czelnai (1932-2025), Assistant/Deputy Secretary-General of WMO (Czelnai, 2006)

Geneva 1979:
MOSTLY
PURE CLIMATE
SCIENCE



„BAKERY"

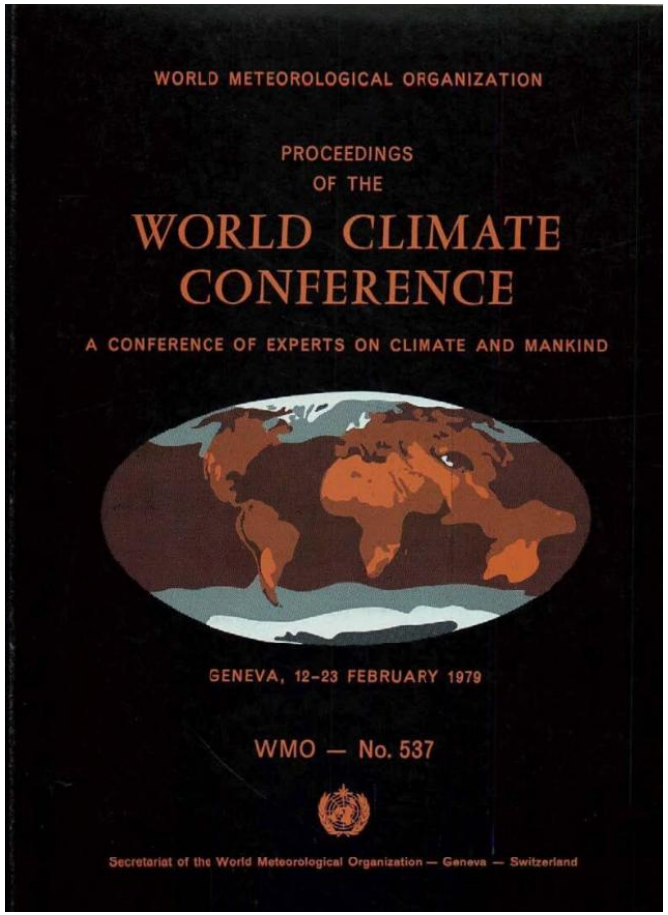
Geneva 1990:
MIXED
QUALITY
„CLIMATE SCIENCE"



„SUPERMARKET"

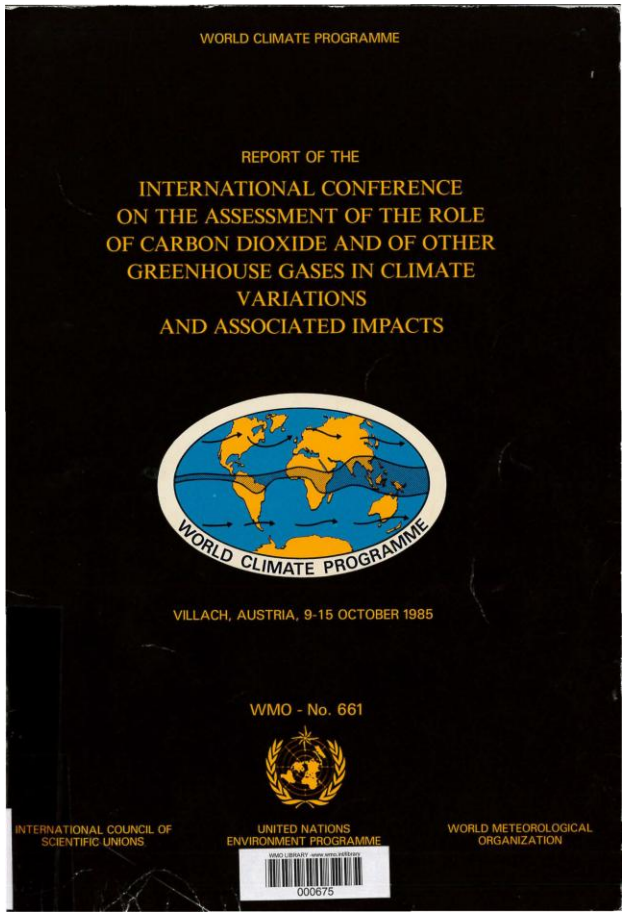
„The difference is about the same as buying bread in a small bakery or a supermarket. The latter has more bread, but the former is much better." (Czelnai 2006)

Geneva 1979: MOSTLY PURE CLIMATE SCIENCE



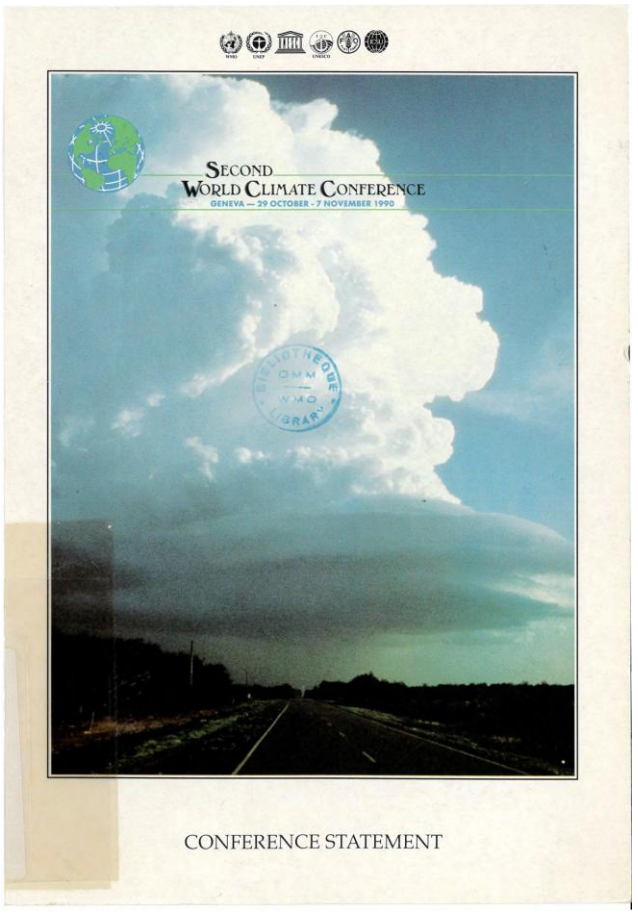
„BAKERY"

Villach 1985: THE BORN OF THE CONSENSUS IN VILLACH



AGENT

Geneva 1990: MIXED QUALITY „CLIMATE SCIENCE"



„SUPERMARKET"

Page 7 of the 1985 Villach Conference Report (WMO 1986)

This conference has two important tasks:

- to develop a consensus statement on the present state of our scientific knowledge of increases in CO_2 and other radiatively active gases, and the physical and socio-economic impacts, and

- to develop sound recommendations for action by countries and by international agencies, based on this scientific consensus.

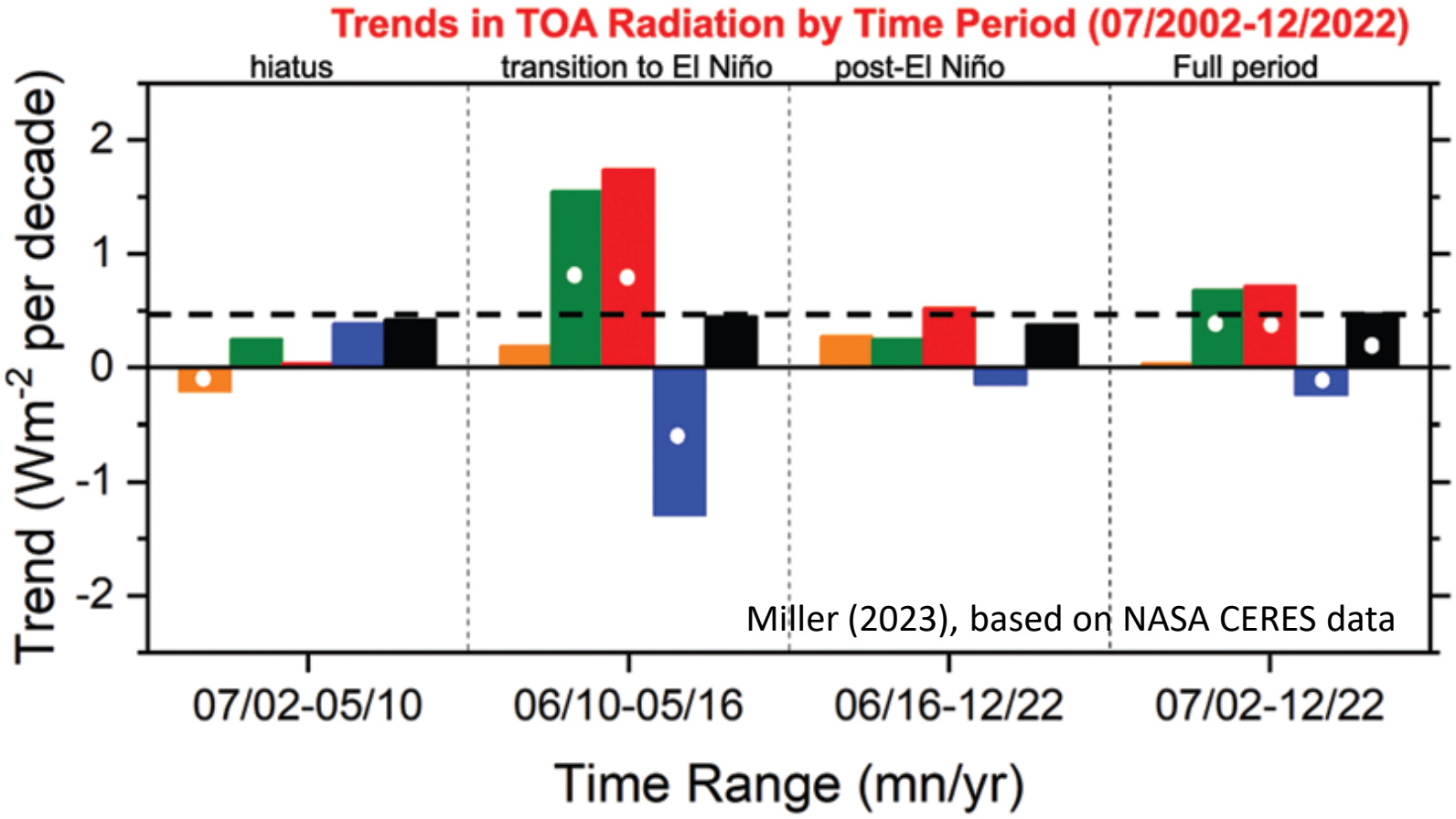
Consensus No 1 in Page 2

These conclusions are based on the following consensus of current basic scientific understanding:

o The amounts of some trace gases in the troposphere, notably carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), ozone (O_3) and chloro-fluorocarbons (CFC) are increasing. These gases are essentially transparent to incoming short-wave solar radiation but they absorb and emit longwave radiation and are thus able to influence the Earth's climate.

The 1985 Consensus statement No 1 and the reality

(The figure was presented at a H. A. S. meeting by Major 2024, discussed by Szarka 2024)



Acronyms, more precisely:

ΔSOL/Δt

-ΔSW/Δt

ΔASR/Δt

-ΔOLR/Δt

ΔNET/Δt

SOL: Incoming Solar (SW) Radiation (ISR)

SW: Reflected Solar (SW) Radiation (RSR)

ASR: Absorbed Solar (SW) Radiation

OLR: Outgoing Longwave Radiation

NET: Earth's Energy Imbalance (EEI)

TOA: Top of Atmosphere

NET=ASR-OLR

ASR=ISR-RSR (=**SOL-SW**)

1. The actual warming (**NET=ASR-OLR**>0) is due to an **increase in ASR**.
2. The trends are changing on a decadal scale.

What happened to Climate Science in Hungary?

(Faragó 1981, 2010, 2021, 2025):

Representatives of Hungary have been involved in the activities of international environmental organizations from the very beginning, including ***cooperation in climate science and climate policy*** (Faragó 2021). There was a Hungarian in WCED (Brundtland Committee), and also in its Programme Council.

One of the conclusions of a huge "climate science" project („VAHAVA" 2003-2006, led by the former WCED member): ***A comprehensive domestic climate policy*** *is also necessary in Hungary (*Faragó 2021). It was even added that

...the conclusions of the scientific community's analyses have been and are being taken into account in policy programs „more or less", depending on other aspects and priorities.

Climate policy fatally embraced climate science, in Hungary, too.

Recent disclosures:

1. In an international publication: ***Climate science requires a methodological shift away from its initial „physics-first" orientation toward one of usability-centered science-for-policy.*** *(*Jebeile, Roussos 2023)

Physical science's „value-free ideal" can hamper the production of usable science-for-policy (Jebeile, Roussos 2023)

2. In many publications. e.g.: ***we have known the determining cause for a long time*** (Haszpra 2022)

3. UN: Melissa Fleming (Under-Secretary-General for Communication) about the science of climate change at the WEF event of October 2022: ***We own the science*** (Fenton 2023)

Finally, what is Climate Science?

Climate Science:
is a methodology
aimed at learning about climate
Rules of Climate Science:
things that are God's and not Caesar's.

Physics-oriented Climate Science
is considered as Climate Science,
as far as the rules of sciences are
strictly followed.

Climate Science is far to be settled.
Questions are always welcome.

R U L E S

Sophistry
„~~Science~~"-For-Climate-Policy

„The end justifies the means."

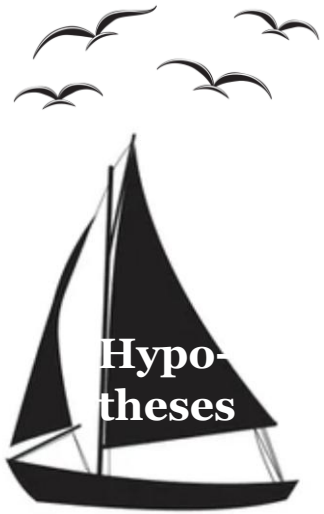
„anything goes"

„Consensus Building"

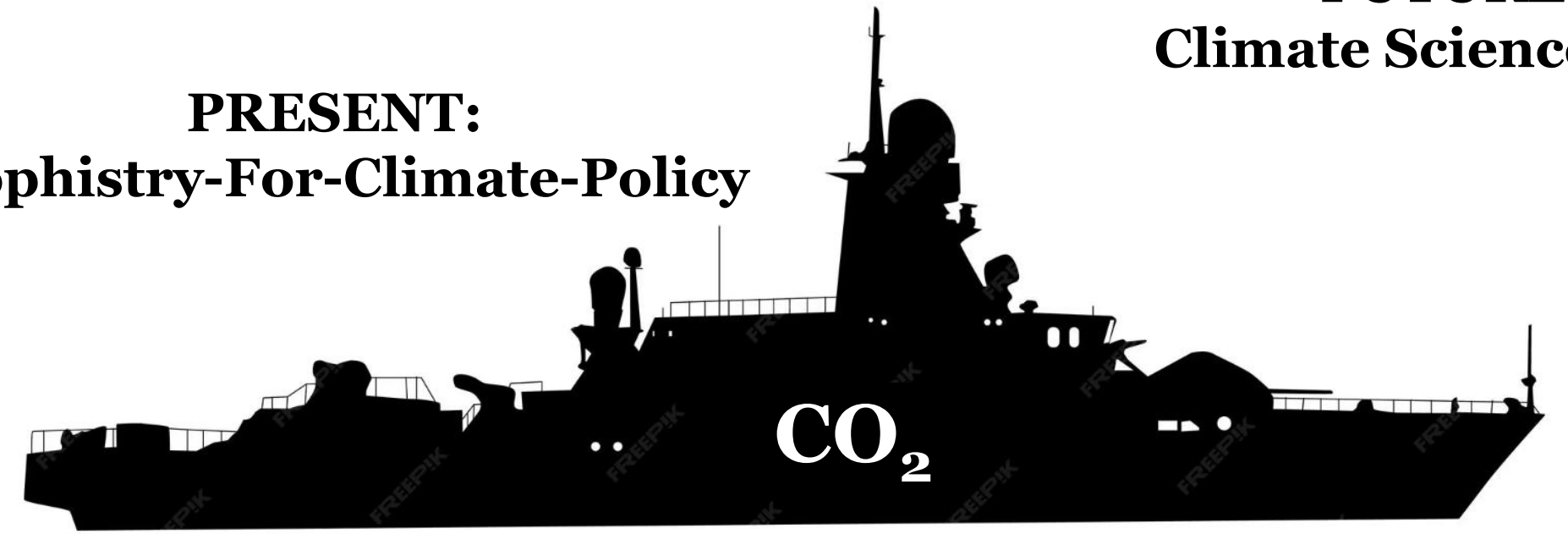
Dogmatic adherence to a frozen view
based on the 1985 consensus: not science

It is time to rigorously reexamine
each and every climate claim.

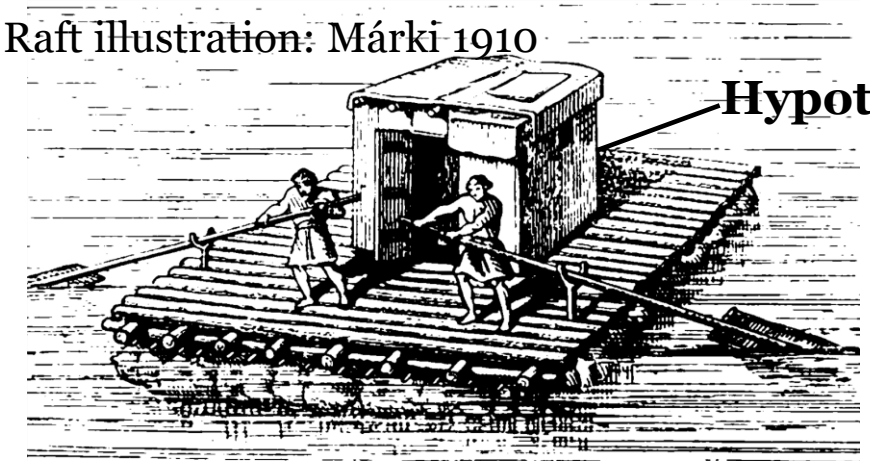
FUTURE:
Climate Science



PRESENT:
Sophistry-For-Climate-Policy



Raft illustration: Márki 1910



PAST:
science

Thank you
for understanding that
there is a need for a
healthy and honest,
physics-oriented climate science.