

Environmental Science, Climate Science, Earth Physics. Remarks from Hungary

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Freedom of scientific research is related to freedom of expression, freedom of association, the freedom of movement and the right to education, among other rights. It encompasses the right to freely define research questions, choose and develop theories, gather empirical material and employ sound academic research methods, to question accepted wisdom and bring forward new ideas. It entails the right to share, disseminate and publish the results

Bonn Declaration on Freedom of Scientific Research, 2020

„Visiting card”: publications related to environmental /climate science

Research in solid-earth EM geophysics (Sopron, 1977-2010)

Research Administration and Research (Hung. Acad. Sci., 2010-15, 2016-18)

Retired from 2019

Geophysics+Environmental Science (1988)

Geophysical aspects of man-made electromagnetic noise in the earth—A review

[László Szarka](#)

[Surveys in Geophysics](#) 9, 287–318(1988) | [Cite this article](#)

Environmental Science+Geophysics+Biology (1999)

C.R. Acad. Sci. Paris, Sciences de la vie / Life Sciences 323 (2000) 559–563
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S0764446900001797/FLA

Plant biology and pathology / Biologie et pathologie végétales

Annual fluctuation in amplitudes of daily variations of electrical signals measured in the trunk of a standing tree

András Koppán^a, László Szarka ^{*a}, Viktor Wetztergom^a

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Received 3 December 1999; accepted 12 May 2000

Communicated by Jean-Louis Le Mouél

Climate Science (2021):



Advances in Space Research

Volume 67, Issue 1, 1 January 2021, Pages 700–707



How the astronomical aspects of climate science were settled? On the Milankovitch and Bacsák anniversaries, with lessons for today

László Szarka ^a, Willie W.-H. Soon ^b, Rodolfo G. Cionco ^c

Climate Science (2021):

Research in Astronomy and Astrophysics

INVITED REVIEWS • **FREE ARTICLE**

How much has the Sun influenced Northern Hemisphere temperature trends? An ongoing debate

Ronan Connolly^{1,2}, Willie Soon¹, Michael Connolly², Sallie Baliunas³, Johan Berglund⁴, C. John Butler⁵, Rodolfo Gustavo Cionco^{6,7}, Ana G. Elias^{8,9}, Valery M. Fedorov¹⁰, Hermann Harde¹¹ [+ Show full author list](#)

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[Research in Astronomy and Astrophysics](#), Volume 21, Number 6

Citation Ronan Connolly et al 2021 *Res. Astron. Astrophys.* 21 131

+ Several papers, so far only in Hungarian

The Hungarian „EIKE”:

Hungarian Energy Policy 2000 Society (Energiapolitika 2000 Társulat) , enpol2000.hu

Sep 13, 2021: Conference on the Future of Europe:

[210.. ENERGIAPOLITIKAI HÉTFŐ - Hétfő esték - Enpol Hétfő \(enpol2000.hu\)](http://enpol2000.hu)

Márton Járosi (engineer, president): Energy Union - bureaucratic irresponsibility

László Szarka (geophysicist, scientist): Climate and Energy

Pál Kovács (nuclear engineer, State Secretary): Nuclear energy in the EU

Károly Lóránt (engineer, economist and journalist): Consequences of EU energy policy.

Message:

„A subordination of energy policy to climate policy is irrational and wasteful.”

The overall situation in climate- and energy issues in Hungary:

Conflicting views: oikophila driven - global ideology driven (~in the „patriot-globalist” context)

The World Conservation Forum (WCF 2021) in Budapest demonstrated the strengthness of the oikophilia driven (I think, the „normal”) approach (e.g. with Naomi Seibt and without the Greenpeace).

Contents:

I. Ambiguities in basic terms:

Environmental Science

Climate

Climate Change (including scams, distortions and tricks)

II. Ambiguities (scams, distortions and tricks) in climate science data:

Total Solar Irradiance, Albedo, Temperature, CO₂ etc.

III. Earth Physics (Quantitative Imaging in Time and Space)

Examples

IV. Earth and Man

A personal view

Environmental science

Its goals:

- to learn how the natural world works,
- to understand how we as humans interact with the environment,
- to determine how we affect the environment,
- to solve environmental problems.

BUT

1. Natural world \neq Environment
2. Definition of „Environment“ (especially the selection and classification of „environmental problems“) is not independent of human values and/or human interests.
3. While environmental science is influenced from the outside, natural scientists are not allowed to cross the border toward social issues. (*„Schuster bleib bei deinem Leisten!“*) Revealing systemic connections is discredited, stigmatizing it as „conspiracy theory“.

**Fact: Environmental science has been formed since its birth
by the same group of interest.**

From the American Square Deal to the European Green Deal

A list of events shaping environmental attitude and -science

1905: Theodore Roosevelt's Square Deal

...

1961: World Wildlife Fund (WWF, : **Maurice Strong**)

1962: Rachel Carson: Silent Spring (a start of modern environmental movement)

1968: Club of Rome (**Maurice Strong**); Paul Ehrlich: The Population Bomb

1970: Earth Day (April 22)

1971: Greenpeace, Friends of the Earth International (FoEI: „Think globally, act locally!“)

1971: **M Strong**, B Ward, R Dubos: Only One Earth: The Care and Maintenance of a Small Planet

1972: „Limits to growth“

1972: Stockholm UN Environmental Congress (leading role: **Maurice Strong**)

1974: Founding of Worldwatch Institute (WWI)

1984: The first „State of the World“ Report (WWI)

1987: The Brundtland Report (UN “Our Common Future”)

1988: Precautionary Principle („Vorsorgeprinzip“)

1988: UN IPCC (UNEP+WMO; **Maurice Strong**)

1992: UN Earth Summit, Rio de Janeiro (leading role: **Maurice Strong**)

2005: Kyoto Protocol (leading role: **Maurice Strong**)

2015: Paris Climate Summit („*He shepherd global environmental governance processes*“)

2019: „Climate Emergency“ (UN Climate Summit, 2019.09.23-30.), EU Green Deal

2020: COVID

2021: „Fit for 55“, Google Censorship etc.

Definitions of the term „climate”

The Greek Klima = „inclination”, „slope”, referring to the geographical latitude zones

WMO: „average weather” for a particular location

AMS: global system

Bothe O, 2018, Geosci. Commun. Discussion (manuscript),
<https://gc.copernicus.org/preprints/gc-2018-11/gc-2018-11.pdf>

A collection of definitions, with conclusion: „**lack of a clear definition**”

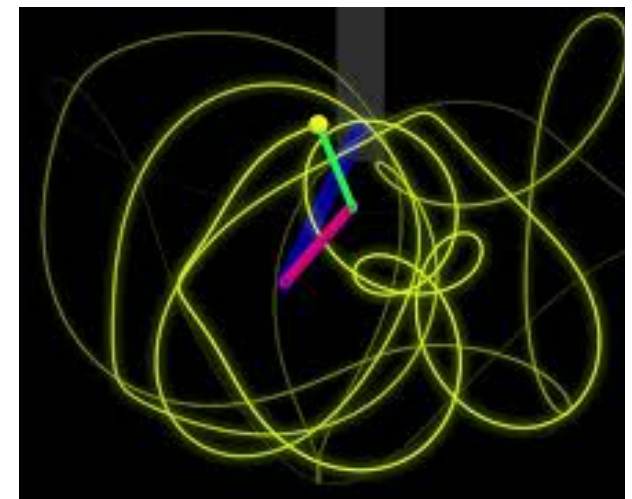
Koutsoyiannis D, 2021, Water 2021, 13(6), 849:

Collection and analysis of definitions. Conclusion: „**The current definitions of climate do not highlight its nonstatic nature**”.

Tél et al. 2020, J Stat Phys 179, 1496–1530:

Concept of „parallel states of the climate”.

We observe one single state at a given time instant,
but many others would be plausible.



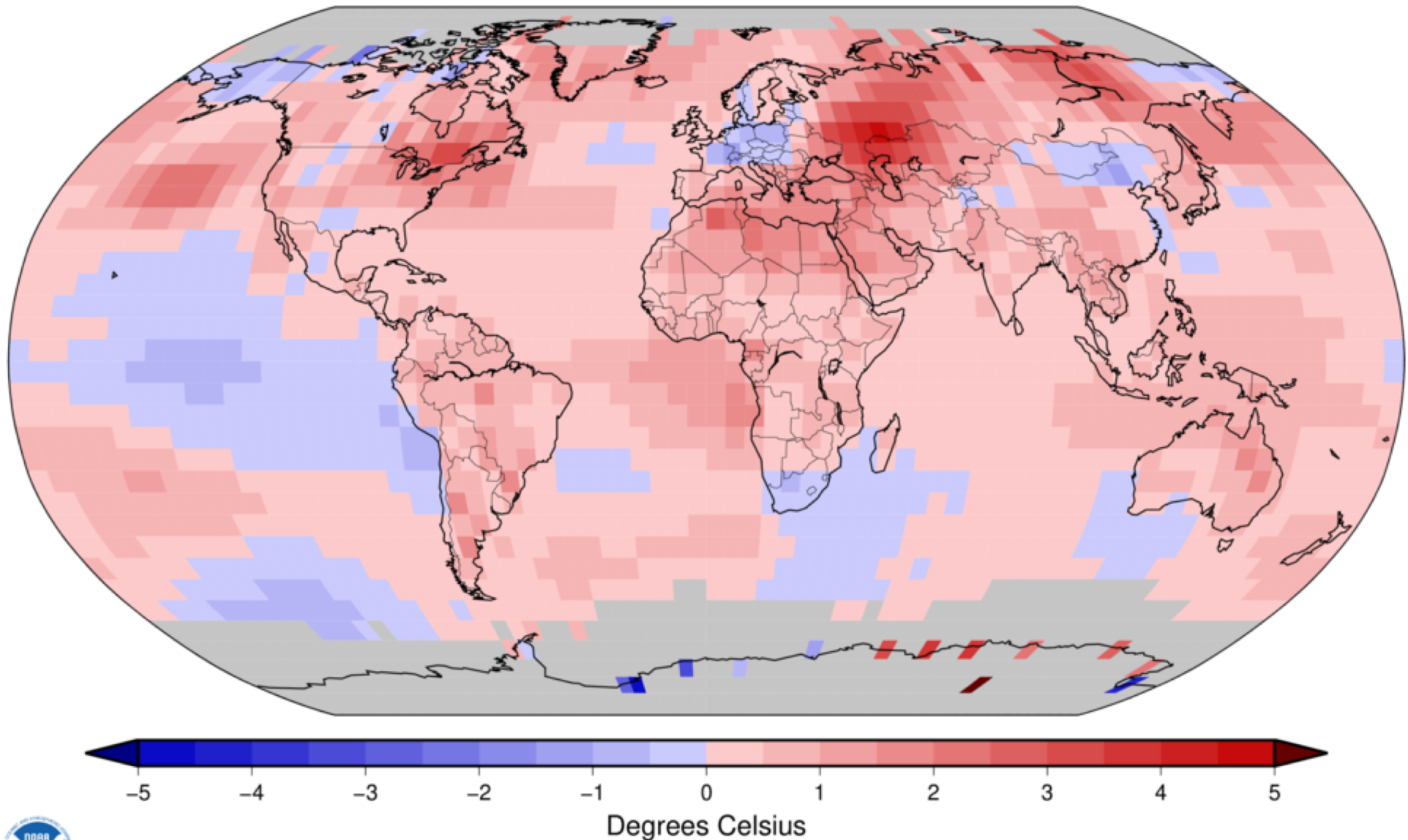
Triple pendulum

<http://msuarezgenart.blogspot.com/2014/11/triple-pendulum.html>

Space-time clusters in weather

Land & Ocean Temperature Departure from Average Aug 2021 (with respect to a 1981–2010 base period)

Data Source: NOAA GlobalTemp v5.0.0–20210908

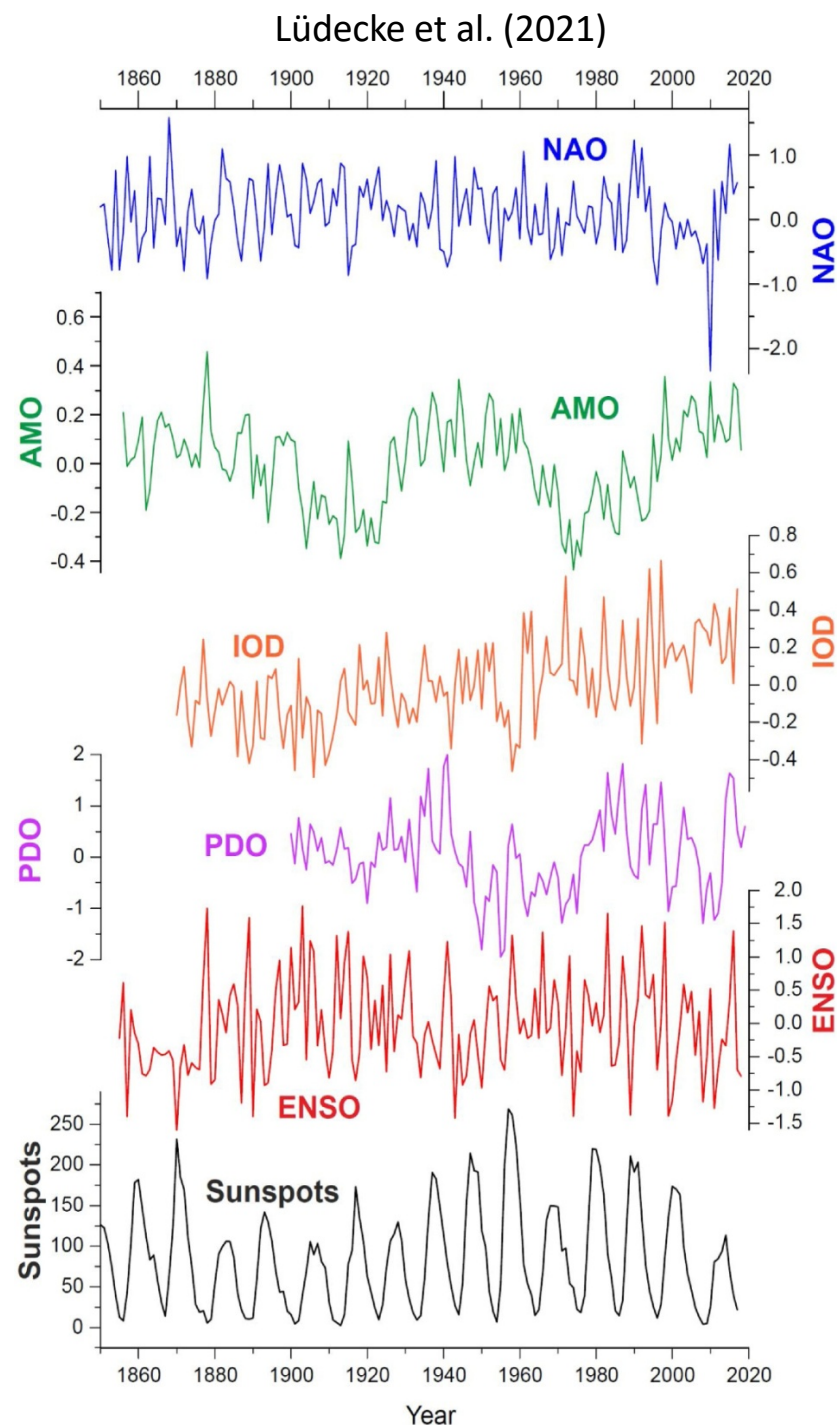


National Centers for Environmental Information
GHCNM v4.0.1.20210907.qfe

Please Note: Gray areas represent missing data
Map Projection: Robinson

An alphabetic list of teleconnections and related phenomena

Antarctic Circumpolar Wave	ACW
Arctic Dipole aAomaly	ADP
Arctic Oscillation/Northern Annular Mode	AO/NAM
Atlantic Equatorial Mode	AEM
Atlantic Multidecade Oscillation	AMO
Atlantic Meridional Over-Turning Circulation	AMOC
Brewer-Dobson Circulation	BDC
Cold Ocean-Warm Land	COWL
El Niño-Southern Oscillation	ENSO
Equatorial Indian Ocean Monsoon Oscillation	EQUINCO
European Wind storms	
Gravity waves	
Indian Ocean Dipole	IOD
Interdecadal Pacific Oscillation	IPO
Jet streams	
Madden-Julian Oscillation	MJO
North Atlantic Oscillation	NAO
North Pacific Gyre	NPG
North Pacific Oscillation	NPO
Northern Annular Mode /Pattern	NAM
Pacific North-American Pattern	PNA
Pacific Decadal Oscillation Pattern	PDO
Pineapple Express	
Planetary Waves	
Polar Vortex	
Quasi-Biennial Oscillation	QBO
Seasonal lag	
Semiannual Oscillation	SAO
Southern Annular Mode/Antarctic Oscillation	SAM/AAO
Southern Oscillation Index	SOI
Stratospheric Variability	
Sudden Stratospheric Warmings SSW	SSW
Walker circulation	



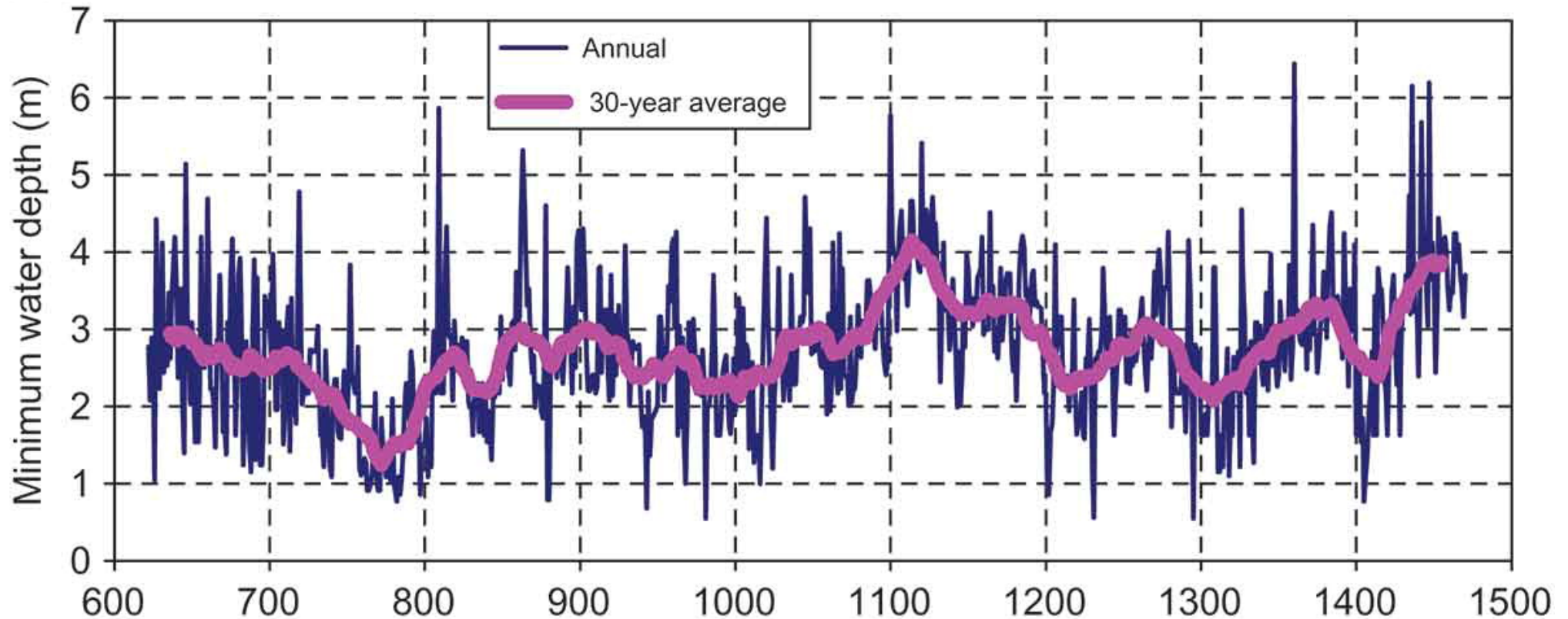
„Weather drives weather.” ???

Unique record: quantitative imaging in time



Water level time series of river Nile (Nílus, Nil) near Cairo, Egypt (Data: Hurst 1951; Figure: Koutsoyiannis 2013)

Long-term persistence, with a Hurst exponent, $H=0,87$



Ruzmaikin et al. (2007, JGR, 111, D21114) found in it 11y, 88y and >200y periodicity

Explanation: Solar activity modulates NAM

There is an eternal fluctuation in time and space.

„Climate Change” definitions:

Kotsouyiannis D (2021):

the term “climate change” would ... remain where it exactly belongs, i.e., the political vocabulary

Tél et al. (2020), referring to Bódai & Tél (2012):

climate change can be seen as the evolution of snapshot attractors (in chaotic processes)

A central problem of mainstream definitions:

WMO:

Climate change may be due to natural internal processes or external factors such as persistent changes to the atmosphere or changes in land use

UNFCCC, 1992:

"Climate change" means a change of climate which is 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.

IPCC applies the WMO definition for scientists and the UNEP definition policy makers.

Double dipping: 1. The public never knows, what is meant actually under „climate change”.
2. It is easy to attribute any climate change to „CO₂-emission impact”

II. Ambiguities (scams, distortions and tricks) in climate science data:

Total Solar Irradiance (TSI)
Temperature (ΔT)



Connolly R, Soon W, Connolly M et al. (2021):
How much has the Sun influenced
Northern Hemisphere temperature trends?
An ongoing debate. RAA 21, 131

Albedo (Reflectivity)

Net sunlight at the surface = $TSI (1-A)$ W/m^2

CO₂

Fodor (1881), Kovács et al. (2021)

INVITED REVIEWS

How much has the Sun influenced Northern Hemisphere temperature trends? An ongoing debate

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For details see presentation by Ana Elias

Milestones:

May 13: Published in journal RAA

Aug 6: Released by Publisher (IOP)

Aug 7: IPCC AR6

Aug 13: The Epoch Times article by Alex Newman

Aug 30: Censorship by „Climate Feedback”

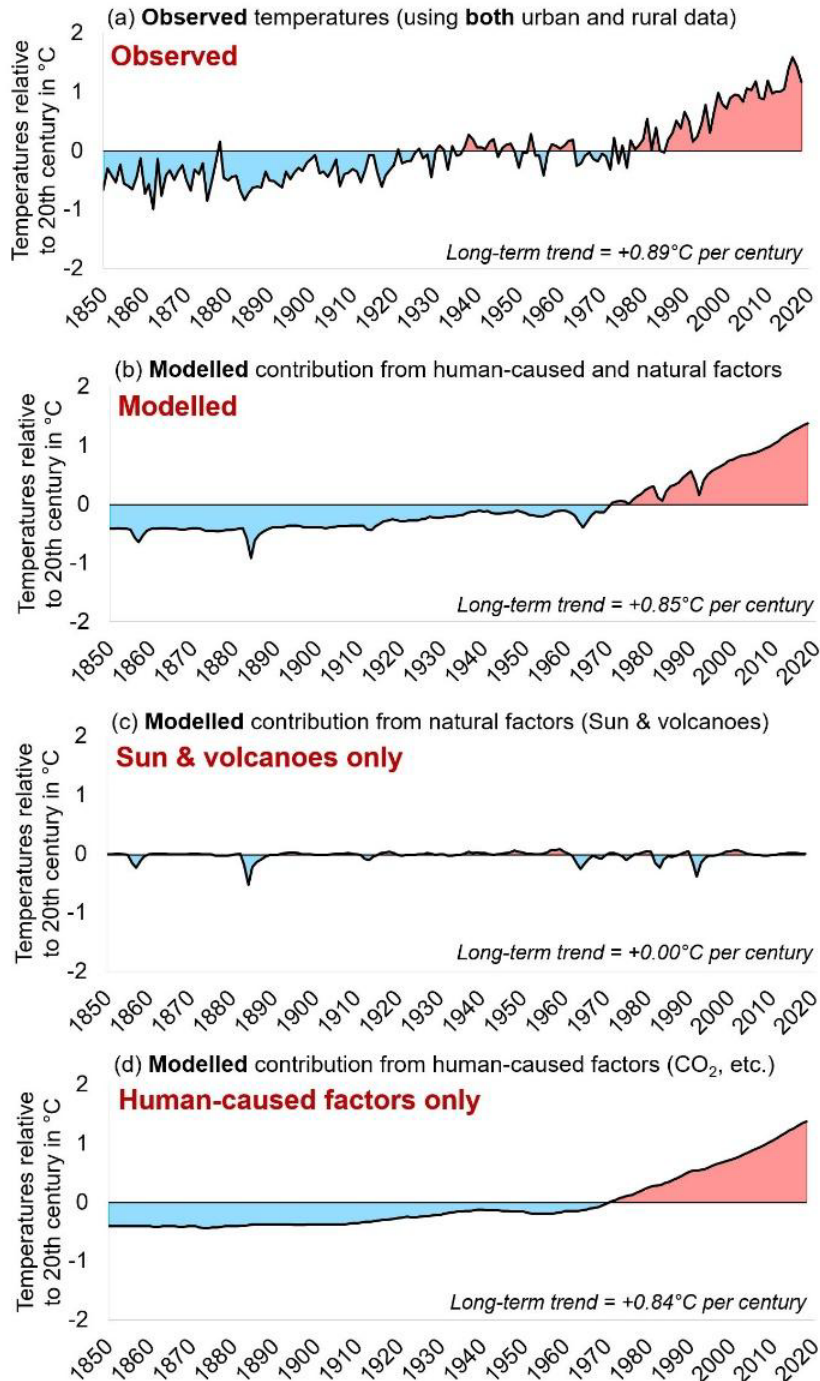
Sep 10: Open Letter to „Climate Feedback”

Oct 11: The whole paper is published in Hungarian (<https://epss.hu/research/legujabb-publikaciok/>)

The story has not ended yet...

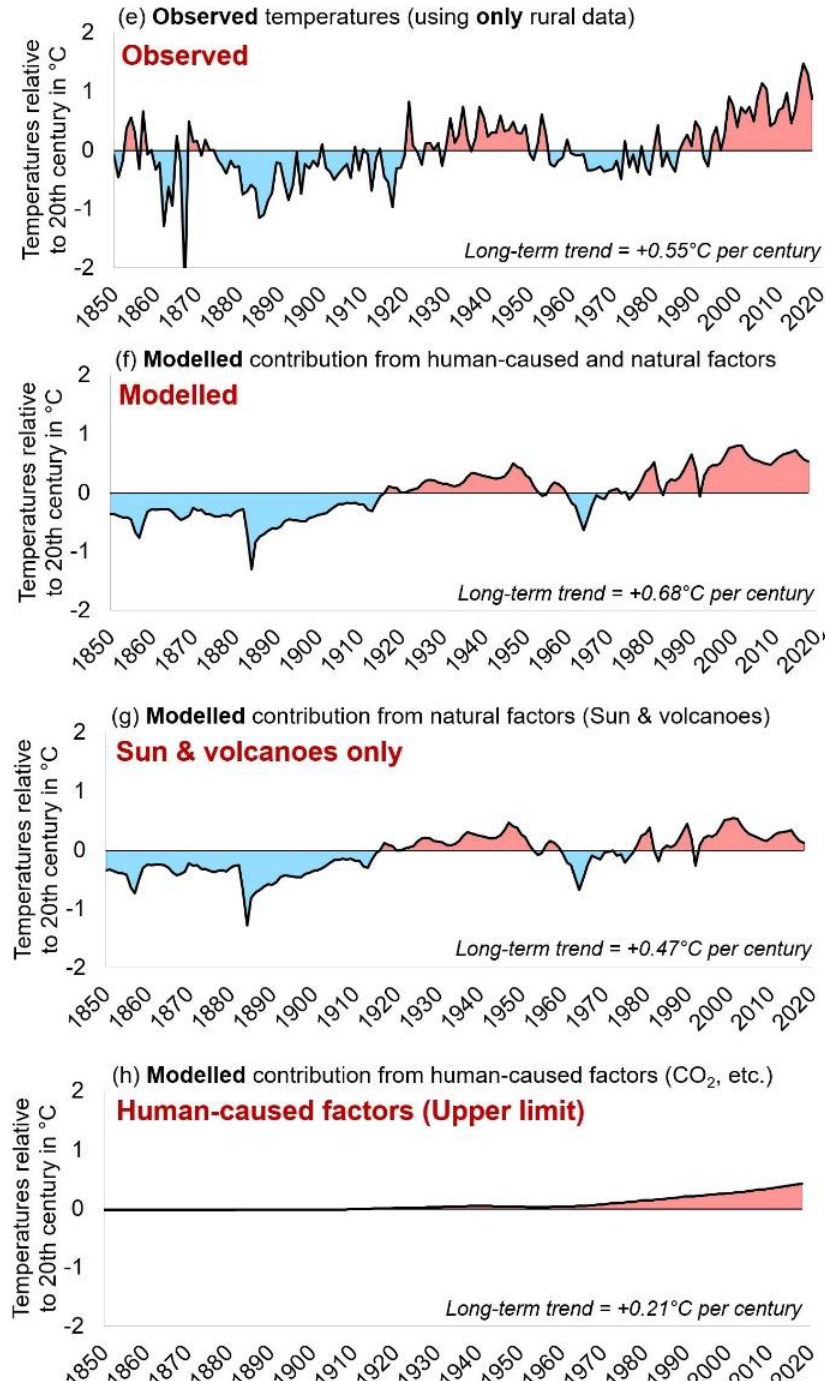
IPCC

Theory 1: Climate change is mostly human-caused



Connolly et al. (2021)

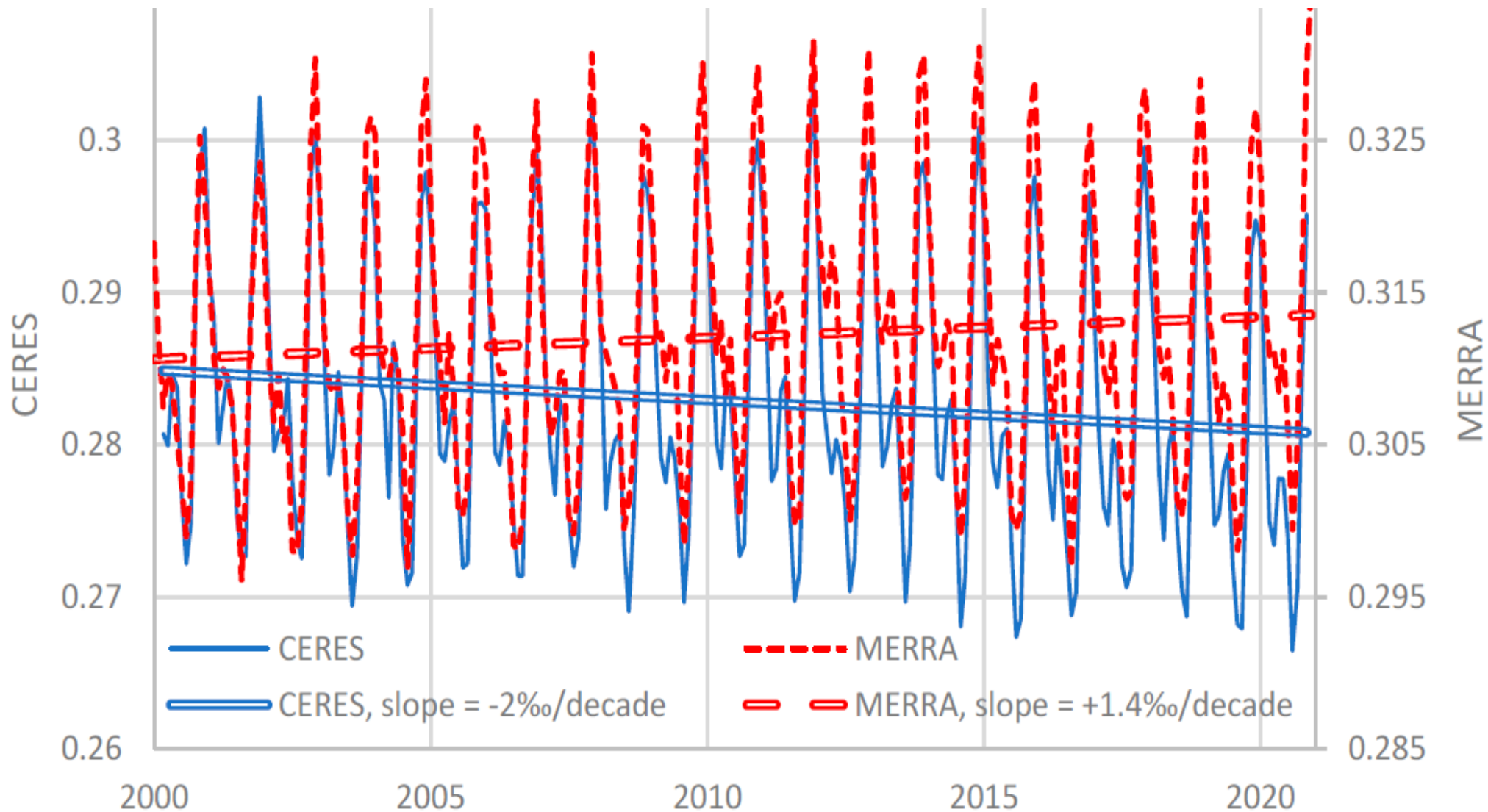
Theory 2: Climate change is mostly natural



The conclusion depends on the data considered.

Considering all data correctly, the conclusion differs from that by IPCC

ALBEDO:
Contradicting (CERES and MERRA)
satellite-based trends
(Koutsoyiannis 2021)



Nicht so gleichwerthig ist die Kohlensäure an von einander entfernten Orten. Zur leichteren Uebersicht stelle ich hier die an verschiedenen Orten und zu verschiedenen Zeiten ausgeführten Analysen zusammen:

	CO ₂	%o
Thenard (Paris)		0,391
Th. Saussure (Genf etc.)		0,415
Boussingault (Paris)		0,400
Léwy (Süd-Amerika)	0,300 bis	0,400
Gilm (Innsbruck)	0,380 bis	0,460
Smith (Manchester)		0,369
„ (London)		0,349
De Luna (Madrid)	505 ppm	0,505
Schultze (Rostock)	292 ppm	0,292
Truchot (Clermont-Ferrand)		0,378
Fodor (Klausenburg)	380 ppm	0,380
Fittbogen und Hasselbarth (Dahne)		0,334
Claesson (Lund)		0,297
Farsky (Tabor)		0,343
Lévy (Paris, Montsouris) 1877 bis 1879		0,340
Reiset (Dieppe)		0,294
? (Glasgow)		0,366
Wolffhügel (München)	376 ppm	0,376
Macagno (Palermo)		0,360
Fodor (Budapest)	389 ppm	0,389

CO₂ concentration in the atmosphere (József FODOR 1881)

Kohlensäure: old name of CO₂

An almost forgotten paper.

Not included even in a
non-IPCC review
by Beck (2007)

HYGIENISCHE UNTERSUCHUNGEN
ÜBER
LUFT, BODEN UND WASSER,
INSBESONDERE
AUF IHRE BEZIEHUNGEN
ZU DEN
EPIDEMISCHEN KRANKHEITEN.
IM AUFTRAGE
DER
UNGARISCHEN AKADEMIE DER WISSENSCHAFTEN
AUSGEFÜHRT UND VERFASST
VON
Dr. JOSEF FODOR,
Professor der Hygiene an der Universität Budapest,
AUS DEM UNGARISCHEN ÜBERSETZT.
MIT TAFELN UND ABBILDUNGEN.
ERSTE ABTHEILUNG: DIE LUFT.
BRAUNSCHWEIG,
DRUCK UND VERLAG VON FRIEDRICH VIEWEG UND SOHN.
1881.

Carbon Pools	GtC (PgC)
Atmosphere	~830
Terrestrial ecosystems	~3 000
Ocean	~37 000
Earth's crust (sedimentary rocks)	~75 000 000
Earth's mantle	? (heterogeneous)
(Diamond in the Earth's mantle	~10 000)
Outer core*(5,5-36,8 ×10 ²¹ kg)	~20 000 000 000
	*Bajgain et al. (2021)

Carbon concentration of the solid Earth: 600-6000 ppm.

CO₂ concentration in the atmosphere: ~420 ppmV.

A malicious question. Comparing the two values, what is the problem?

In the atmospheric carbon budget, the deep inner Earth is not taken into account as a possible pool, because it is assumed that the mineral factory at depth is completely isolated from the surface.

„...in the cooling asthenosphere, formation of pargasite can lead to CO₂ emission”

(Kovács et al. 2021)

Thinking of volatile CO₂ and faults at depths, geodynamics might play some role in the dynamic variation of the CO₂ concentration in the atmosphere.

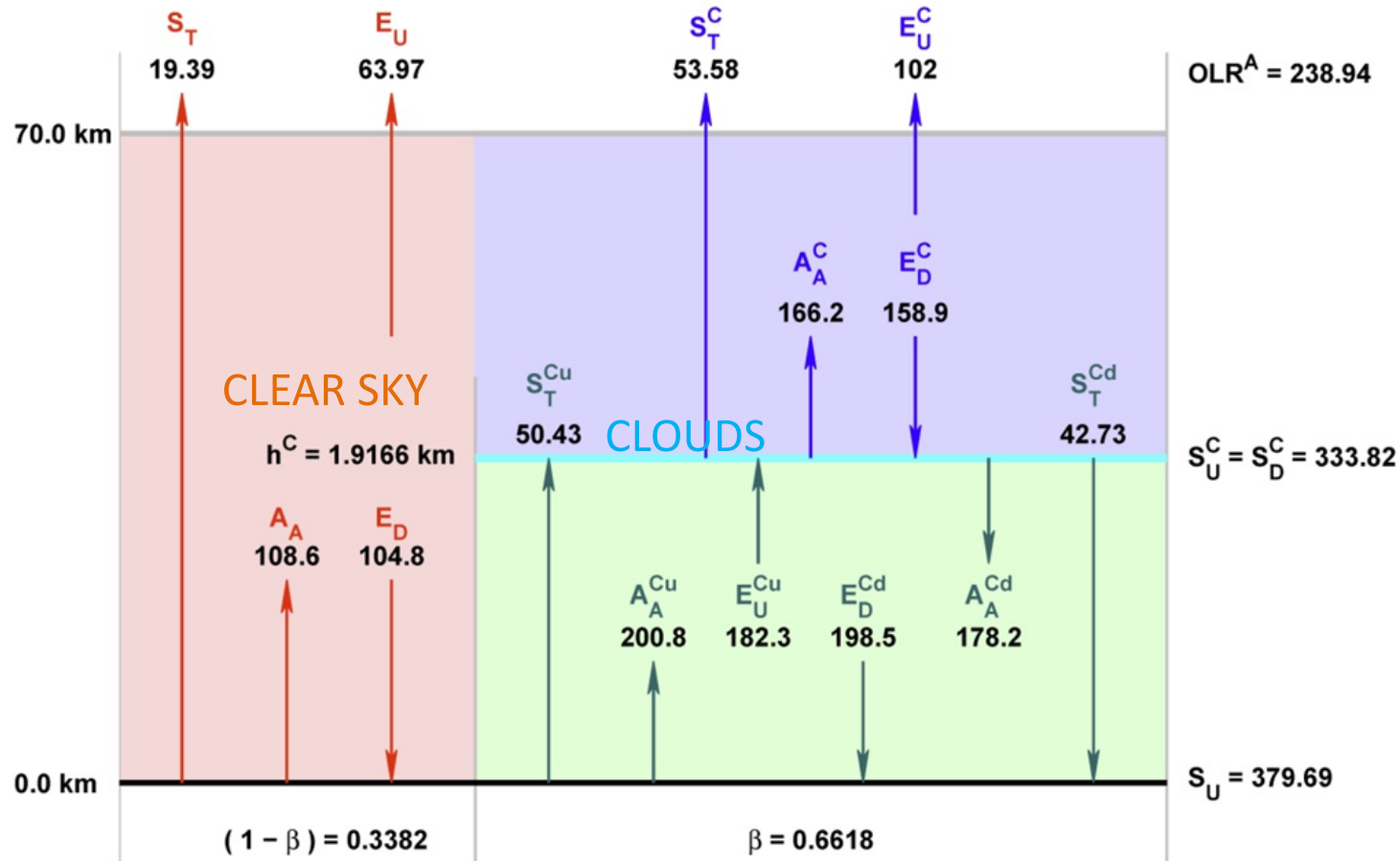
III. Earth Physics

Radiative transfer: Miskolczi (2007), Barcza (2017)

Interactions among space ranges

Ground-based geophysical observatories

The Miskolczi (2007) hypothesis



GAT mean flux values (Wm^{-2}). Transmitted, absorbed, upward and downward fluxes in the three regions

I. Experimental results based on his HARTCODE software and on radiosonde measurements.

II. Four laws are suggested as theoretical results:

„Atmospheric Kirchhoff Law”

„Atmospheric Virial Law”


„Conservation of Energy of Atmospheric Radiation”

„Radiation Balance Law”

The hypothesis is falsifiable, i.e. further tests with real data would be needed.

ORIGINAL STUDY

Greenhouse effect from the point of view of radiative transfer

S. Barcza¹ 

BARCZA Szabolcs (1944-2021)

Radiative contribution of the greenhouse gas CO₂ cannot be more than 21±7%

Received: 25 February 2016 / Accepted: 19 September 2016 / Published online: 28 September 2016
© Akadémiai Kiadó 2016

Abstract Radiative power balance of a planet in the solar system is delineated. The terrestrial powers are transformed to average global flux in an effective atmospheric column approximation, its components are delineated. The estimated and measured secular changes of the average global flux are compared to the fluxes derived from the Stefan–Boltzmann law using the observed global annual temperatures in the decades between 1880 and 2010. The conclusion of this procedure is that the radiative contribution of the greenhouse gas CO₂ is some $21 \pm 7 \%$ to the observed global warming from the end of the nineteenth century

„Spheres” with infinite number of interactions, influencing Earth’s climate

Atmosphere

Outer Space

Biosphere (incl. Man)

Sun

Cryosphere

(Heliosphere)

Solar System
(Planets, Moon)

Hydrosphere (Ocean, Continental waters)

Geosphere: from Inner Earth to Magnetosphere, including Atmosphere
(+Biosphere, Cryosphere and Hydrosphere) = Earth System

Imaging of observed data is needed. (Imaging=mapping+transformation +visualization)

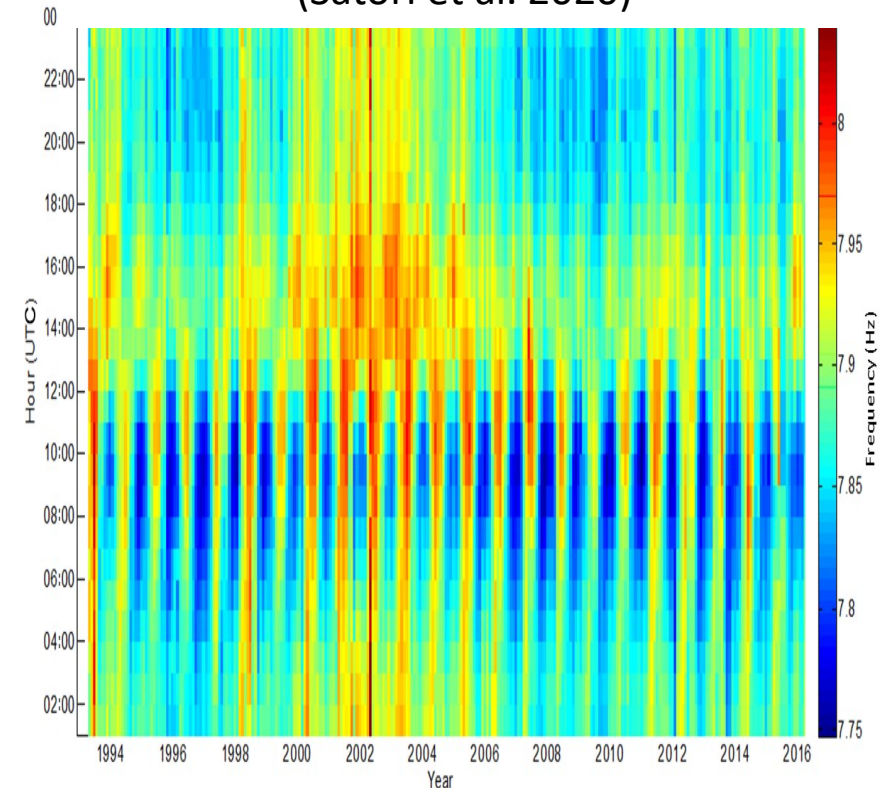
Let the data speak! (Berkhout, 2021 clintel.org/clintel-proposes-a-new-way-to-analyze-climate-data/)

Example: a ground-based geophysical observatory

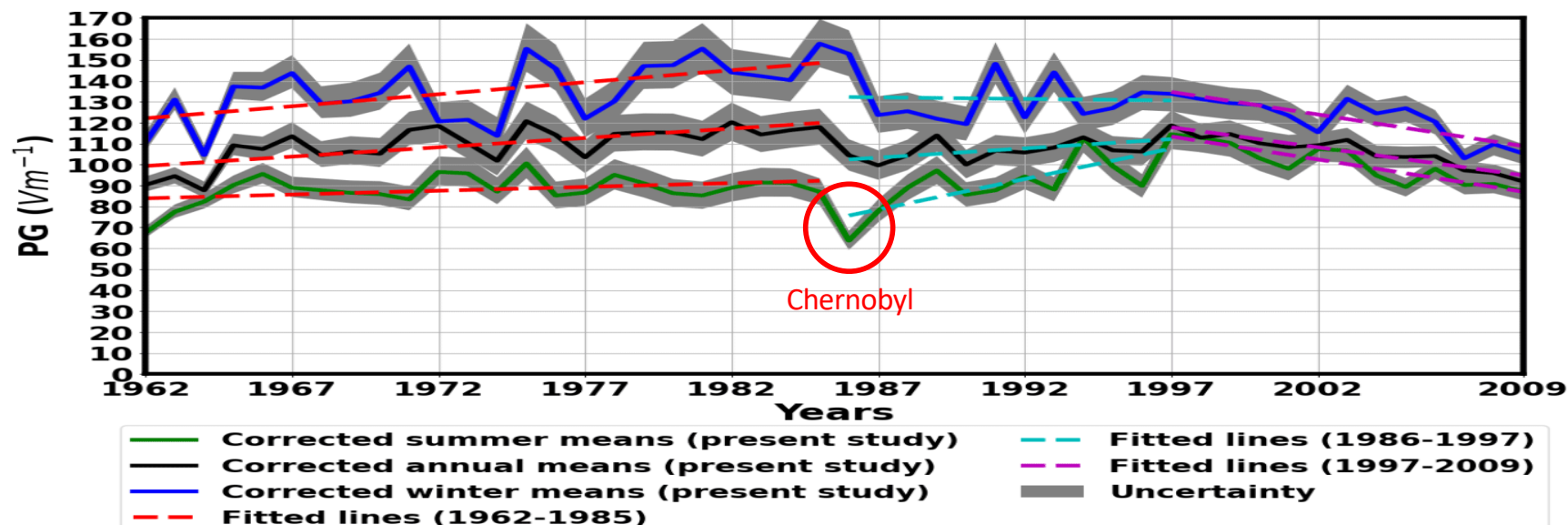
Institute of Earth Physics and Space Science
(Sopron, Hungary) has
electromagnetic, geodynamic and seismological
observatories.

Electromagnetic monitoring (for decades):
*Geomagnetism, Earth's currents (tellurics), Atmospheric
electric potential gradient, Schumann resonance (ELF range),
VLF radio waves (spherics and whistler),
E and F layers of the ionosphere.*

Schumann resonance E_z frequency -time
(Sátori et al. 2020)



Atmospheric electric potential gradient time series (Buzás et al. 2021)



Progress in climate science depends on progress in quantitative imaging of various phenomena in space and time

Quote from a former PhD disciple of Kirchhoff, Helmholtz and Bunsen (Heidelberg, 1867-1870):

No matter how much our physical theories evolve, however, they will always rely on assumptions that can no longer be proven.

The real researcher knows he has to give up on learning about the ultimate causes of nature. But he is not discouraged like Faust, who demands an infinite reward for finite work, but moves forward relentlessly: toward an unattainable goal, and finds joy in the research itself and in the results it exerts to promote the material well-being of mankind.

After all, we must rest assured that science does not necessarily give a true explanation of natural phenomena, but only leads closer to the limit where the elusive begins.

Roland Eötvös, 1877

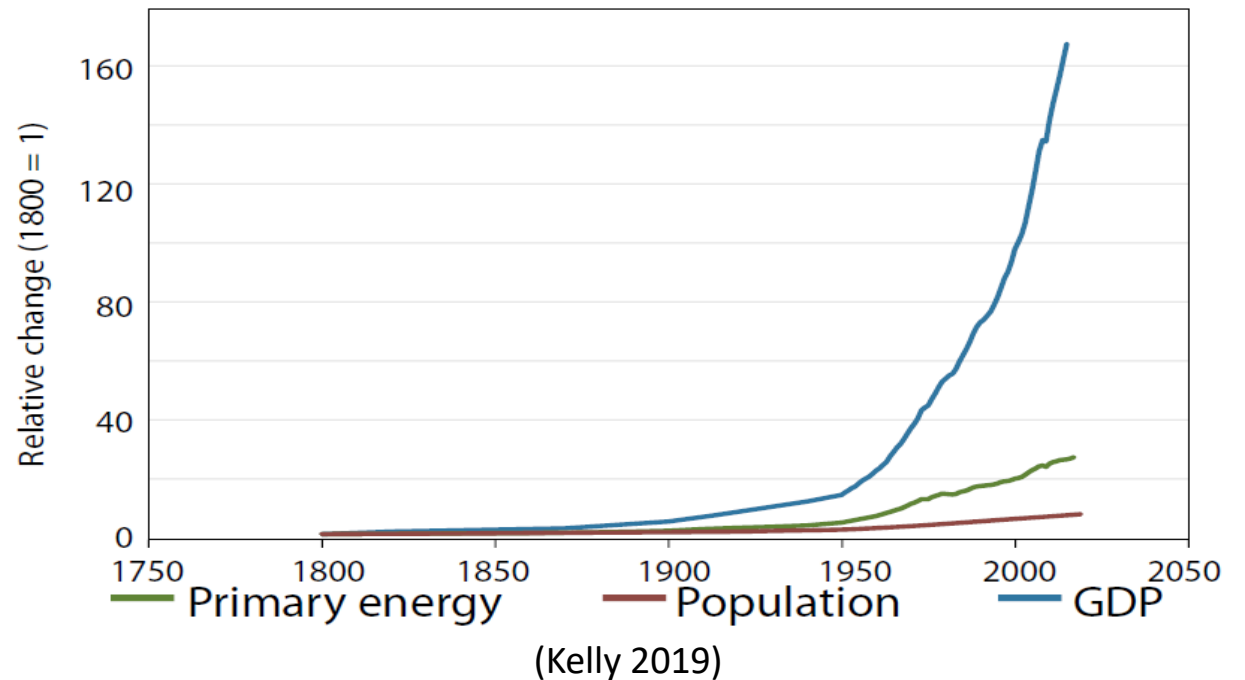
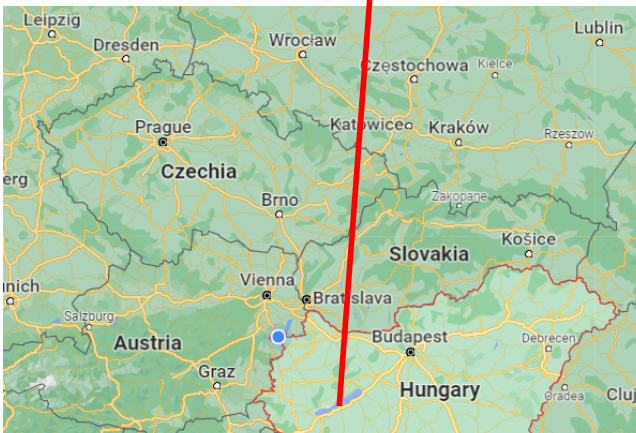
IV. Earth and Man

A personal view

World population



Human biomass corresponds to the mass of Badacsony hill at Lake Balaton, Hungary.



Mankind has used a total of 40 ZJ (1 zetajoule = 10^{15} J) of energy since the Industrial Revolution, which is a lot. On December 26, 2004, the total energy of the large Indian Ocean earthquake was about 40 ZJ.

LOGICAL

Humanity's Top Ten Problems for next 50 years (Smalley, 2003)

I. Energy (+raw materials*)

II. Water

III. Food

IV. Environment

V. Social issues

Poverty

Terrorism and War

Disease

Education

Democracy

Population

*Added by
Szarka and
Brezsnyánszky
(2009)

ILLOGICAL

UN Sustainable Development Goals (SDG, 2015-2030)

1. No poverty.
2. Zero hunger (No hunger).
3. Good health and well-being.
4. Quality education.
5. Gender equality.
6. Clean water and sanitation.
7. Affordable and clean energy.
8. Decent work and economic growth.
9. Industry, Innovation and Infrastructure.
10. Reduced inequality.
11. Sustainable cities and communities.
12. Responsible consumption and production.
13. Climate action.
14. Life below water.
15. Life on land.
16. Peace, justice and strong institutions.
17. Partnership for the goals.

How Man Thinks: three types for the Earth-Man relationship

„prey”



„gift”



„taboo”



Selfish-Selfless Spectrum

(Sonne, Gash, 2018) Psychopathy to Altruism: Neurobiology of the Selfish–Selfless Spectrum, Front. Psychol., 19 April 2018)

