STOPPING RUNAWAY CLIMATE CHANGE IN THE NORTHERN HEMISPHERE THANKS TO THE POLAR VORTEX

With the Montreal Protocol in 1987, the STATES unanimously banned the use of chlorofluorocarbons (CFCs) in everyday objects that destroyed the ozone layer and the hole in this layer began to fill in 1990.
We have a problem of the same type to solve, but for the moment there is no unanimity on the cause(s) of runaway climate change.

1-THE NASA/GISS/GISTEMP V4 CURVE, reveals THE RUNAWAY CLIMATE limited to the northern hemisphere, and gives the temperature variation of the two hemispheres from 1880 to 2024.
1880-1910, over the period there is COOLING of the planet but the southern hemisphere is less cold than the northern hemisphere. The major climatic event of this period, on August 27, 1883, occurred the explosion of the Krakatoa volcano in Indonesia (Latitude 6° South) which was characterized by fiery clouds and a volume of ash emitted into the atmosphere of 20 km3.

These ashes will cool the world climate for a period of 4 years from 1883 to 1887 like any terrestrial volcano explosion, the temperature drop that can be measured on this curve is 0.23°C.

1910-1966, over the period carbon dioxide CO2, a greenhouse gas emitted by human activities using fossil fuels (coal, gas and oil) is the driving force behind the initial GLOBAL WARMING that can be dated back to 1910.

The major historical event was the First World War of 1914-1918, which caused the world thermometer to rise by 0.3°C. From 1922 onwards, the Northern Hemisphere was warmer than the Southern Hemisphere.

1966-1990, during this period the Southern Hemisphere is warmer than the Northern Hemisphere but the difference is insignificant.

1990-2025, sees the CLIMATE RUNAWAY of the Northern Hemisphere (see page 6) take off on a parabolic trajectory while the Southern Hemisphere continues on its linear trajectory. This very marked difference in trajectory clearly indicates that another greenhouse gas is to blame. Carbon dioxide CO2 is not responsible for this runaway climate, which is only located in the Northern Hemisphere and the decarbonization of human activities is insufficient to stop it.

We are beginning to read that carbon neutrality is impossible to achieve in 2050 (VACLAV SMIL latest book: 2050, Why a carbon-free world is almost impossible).

In the northern hemisphere, the war in UKRAINE is causing the thermometer to rise by 0.22°C.

But on January 15, 2022, the major climatic event of the period was the explosion of the Honga Tonga submarine volcano in the Central Pacific of the Southern Hemisphere.

The volume of ash sent into the stratosphere up to 58 km altitude is 6.5 Km3, much less than for Krakatoa 23 Km3, the only difference, being an underwater volcano, is that 140 MILLION TONS OF WATER VAPOR were also propelled into the stratosphere.

Scientists expected the climate to cool down as with the Krakatoa explosion, but the opposite has happened.

The Southern Hemisphere has warmed abruptly by +0.23°C, which is TWENTY times more than its historical average, and the melting of the extent of the Antarctic sea ice has been phenomenal (see table A3 format on the website). And this warming of the climate of the Southern Hemisphere, due to stratospheric water vapour, will last for 4 to 5 years, or more than 1500 days, because this water vapour is not eliminated in 10 days as in the lower troposphere when it falls as rain.

Stratospheric water vapour is transported by atmospheric currents to the poles, north or south, and it is the polar vortex that eliminates it. Its lifespan is unknown but can reach or even exceed 1500 days.

When the extent of Antarctic sea ice will have returned to its average value of 2021, this is what will give us the exact value of the lifespan of the water vapour that humans deposit in the stratosphere.

The only human activity that deposits water vapour, 300 million tonnes in the stratosphere between 10 and 13 km above sea level, is Air Transport. The very significant proportions are 93% of flights in the Northern Hemisphere and only 7% in the Southern Hemisphere.

This is the cause of the runaway climate of the Northern Hemisphere. Every year in the Northern Hemisphere, the deposition of water vapor from high-altitude jet aircraft is more than TWICE that injected by the Honga Tonga explosion. It's untenable.
The only solution to make this water vapor neutral for the climate is to IMPERATIVELY limit the cruising level of World Air Transport to less than 8000 meters.
In this way, runaway warming will be stopped and global warming in the northern hemisphere will be brought back to the level of that of the southern hemisphere +0.8°C at the end of 2027 or at the latest in 2030, by gently decarbonizing human activities without disrupting economic growth.

2-WATER VAPOR,

We have to face the facts, it is the most important greenhouse gas that accelerates global warming. It is also the one that amplifies violent and destructive weather phenomena. If decarbonization is ineffective, there is an urgent need to dehydrate the atmosphere A LOT.

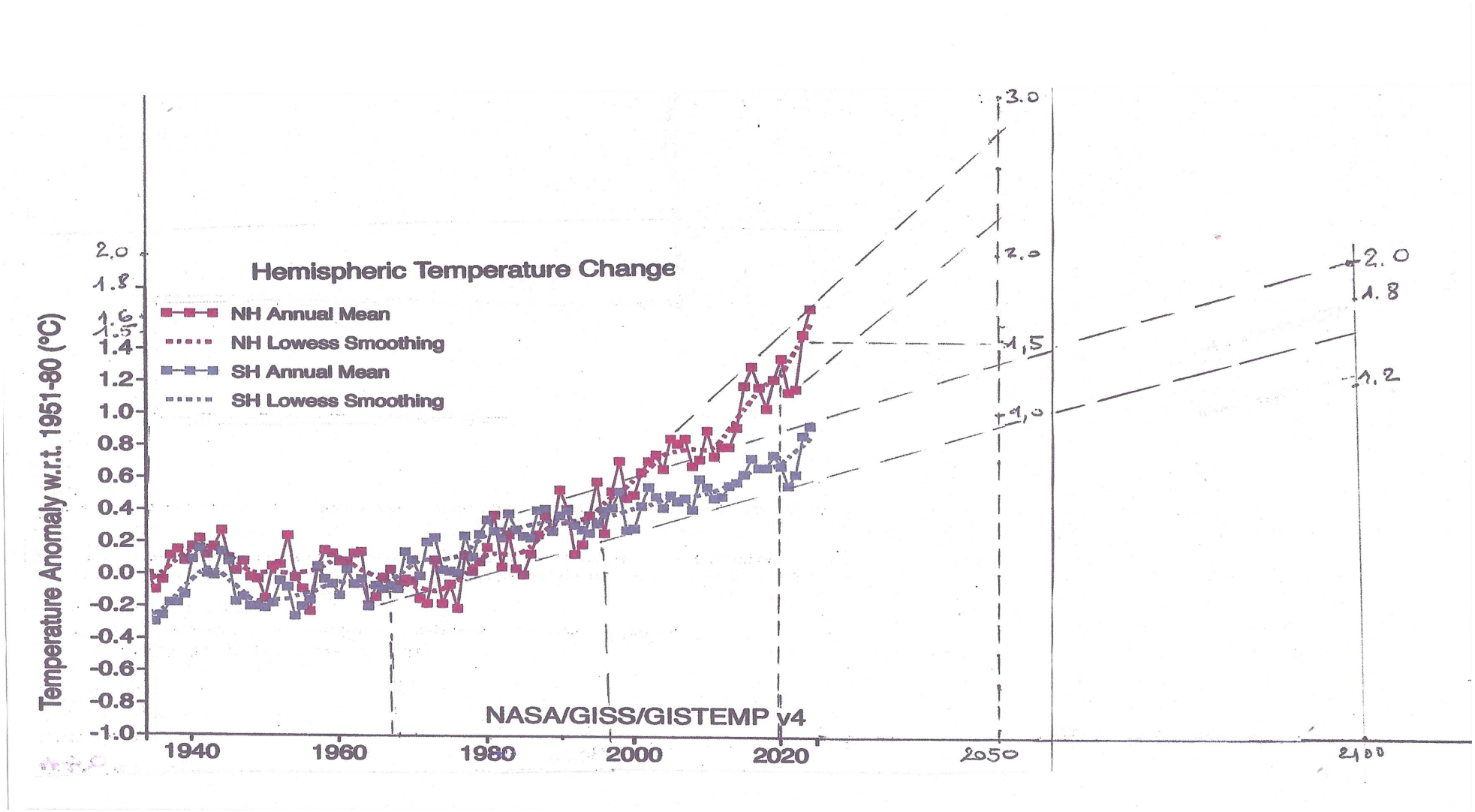
The figures speak for themselves, the century-old variation between 1922 and 2022 in CO2 (26% contribution to the greenhouse effect) is 759 billion T, that of Water Vapor (60% contribution to the greenhouse effect) over the same period is 939.4 billion T, i.e. 180 billion T.

Subsequently, to reduce the frequency and intensity of hurricanes, it is therefore necessary to reduce the amount of water vapor produced by the evaporation of the oceans (North Atlantic, South Indian and Central Pacific) by implementing my EUROPEAN PATENT by installing PIU stations around certain tropical islands.

Filed in August 2019, the patent was granted on April 3, 2024 by the European Office in Munich, which incorporated the lessons learned from the climatic events that occurred over the period 2019-2024.

The halt of Global Air Transport in 2020 and 2021 following the COVID 19 epidemic, the suppression of the overflight of the Arctic Ocean with the war in Ukraine and the explosion of the submarine volcano which revealed the preponderant and unique influence of stratospheric water vapor in climate runaway.

A-2100 PROJECTION OF SOUTHERN HEMISPHERE TEMPERATURE CHANGE THAT RESPECTS THE 2015 COP



B-RECORDS OF VARIATIONS IN GLOBAL AIR TEMPERATURE COMPARED TO THE PRE-INDUSTRIAL PERIOD 1850-1900

Due to the cessation of funding by the federal government, NASA since August 2025 no longer updates its website.

The European COPERNICUS website takes over and directly provides monthly temperature variations from July 2023 compared to the pre-industrial period 1850-1900 and also the annual averages for the previous years. Following on pages 8 and 9, the Avg/MONTHLY 2021 to 2026 AND the AVG/YEAR from 1991 to 2020.

From 1991 to 2022 NASA provides the annual temperature variation reference period 1991-2020. To find the reference variations in the pre-industrial period 1850-1900, Copernicus requires that NASA 0.88°C be added to this variation. This is what has been done and the data is consistent.

By this method, the monthly variations from January 2021 to July 2023 were reconstructed for comparison since the Hunga Tonga explosion on January 15, 2022.

Because it is the explosion of this underwater volcano that revealed this amplifying phenomenon of water vapor, from 1.12° to 1.60° in 3 years which can be stopped by our solution after more than 1500 DAYS, by limiting the cruising altitude of World Air Transport.

REMARKS:

1-Over the period 1997-2021, the development of World Air Transport shows that temperature variations depend on the deposition of water vapor produced by the combustion of kerosene in the stratosphere
2- the variation is 0.61° in 1999 and 1.60° in 2024, i.e. an acceleration of 1° in 25 years for an average growth of O.61° in 149 years from 1850 to 1999. Looking for the mistake: responsible? Carbon dioxide or water vapour.

C- MONTHLY AVERAGES OF TEMPERATURE VARIATIONS FROM 2021 TO 2026 COMPARED TO 1850-1900

	2021	2022	2023	2024	2025	2026
January	1,07°	1,16°	1,16°	1,66°	1,75°	
February	0,87°	1,10°	1,10°	1,77°	1,59°	
March	1,08°	1,25°	1,25°	1,68°	1,60°	
April	1,02°	1,09°	1,09°	1,58°	1,51°	
May	1,09°	1,14°	1,14°	1,52°	1,40°	
June	1,12°	1,24°	1,24°	1,60°	1,30°	
July	1,24°	1,26°	1,50°	1,48°	1,25°	
August	1,11°	1,25°	1,50°	1,52°	1,29°	
September	1,25°	1,19°	1,75°	1,54°	1,47°	
October	1,28°	1,27°	1,70°	1,65°	1,55°	
November	1,16°	0,98°	1,75°	1,62°		
December	1,15°	1,08°	1,78°	1,69°		
AVG/YEAR	1,12°	1,17°	1,41°	1,60°		

D- ANNUAL AVERAGES OF TEMPERATURE VARIATIONS 1991-2020 COMPARED TO 1850-1900

	2015	2016	2017	2018	2019	2020
AVG/YEAR	1,15°	1.28°	1,13°	1,09°	1,23°	1,14°
	2009	2010	2011	2012	2013	2014
AVG/YEAR	0,96°	0,95°	1,05°	0,91°	0,94°	1,01°
	2003	2004	2005	2006	2007	2008
AVG/YEAR	0,96°	0,74°	0,90°	1,04°	0,92°	0,73°
	1997	1998	1999	2000	2001	2002
AVG/YEAR	0,68°	0,96°	0,61°	0,73°	0,75°	0,82°
	1991	1992	1993	1994	1995	1996
AVG/YEAR	0,68°	0,49°	0,49°	0,58°	0,71°	0,61°

Extent of Arctic sea ice from 2005 to 2025-Since the annual low in 2020 of 10.15 million Km2, Arctic sea ice is recovering in 2021 by the cessation of water vapor deposition produced by the overflight of the Arctic Ocean to serve the Far East following the covid 19 pandemic. But the outbreak of the war in Ukraine in February 2022 is once again increasing the melting of the sea ice. In 2023 and 2024, its extent will return to its 2007 value.

	January	February	March	April	May	June	July	August	Septem	Octob	Novem	Decem		Annual
2005	13,661	14,373	14,687	14,09	12,911	11,162	8,649	6,301	5,504	7,352	10,216	12,228		10,907
2006	13,466	14,325	14,421	13,906	12,517	10,92	8,46	6,496	5,862	7,541	9,659	11,955		10,773
2007	13,703	14,513	14,542	13,845	12,78	11,22	7,943	5,342	4,267	6,04	9,76	12,034		10,474
2008	13,887	14,953	15,179	14,352	12,974	11,208	8,678	5,913	4,687	7,35	10,343	12,359		10,978
2009	13,914	14,812	14,984	14,496	13,187	11,32	8,465	6,136	5,262	6,92	9,772	12,2		10,932
2010	13,739	14,581	15,137	14,659	12,866	10,585	8,075	5,875	4,865	6,984	9,614	11,831		10,711
2011	13,464	14,363	14,546	14,108	12,681	10,749	7,724	5,503	4,561	6,465	9,772	12,154		10,483
2012	13,729	14,553	15,196	14,626	13,012	10,674	7,672	4,723	3,566	5,886	9,388	12,006		10,406
2013	13,703	14,723	15,032	14,299	12,997	11,36	8,132	6,014	5,208	7,455	9,939	12,184		10,897
2014	13,648	14,418	14,758	14,088	12,701	11,033	8,108	6,078	5,22	7,232	10,115	12,353		10,79
2015	13,602	14,401	14,37	13,893	12,468	10,879	8,378	5,599	4,616	6,966	9,846	12,045		10,566
2016	13,457	14,203	14,4	13,681	11,924	10,413	7,938	5,371	4,528	6,082	8,658	11,459		10,163
2017	13,19	14,12	14,29	13,753	12,631	10,756	7,939	5,481	4,822	6,767	9,493	11,743		10,393
2018	13,077	13,967	14,298	13,696	12,232	10,778	8,268	5,615	4,785	6,134	9,823	11,862		10,355
2019	13,567	14,394	14,574	13,434	12,186	10,594	7,589	5,026	4,364	5,735	9,353	11,903		10,201
2020	13,636	14,642	14,73	13,621	12,343	10,593	7,294	5,07	4,001	5,334	8,985	11,729		10,15
2021	13,501	14,39	14,658	13,792	12,682	10,765	7,647	5,715	4,952	6,816	9,83	12,152		10,552
2022	13,872	14,612	14,586	13,986	12,879	10,875	8,287	5,95	4,897	6,657	9,725	11,892		10,661
2023	13,364	14,189	14,43	13,924	12,822	10,987	8,207	5,514	4,381	6,412	9,682	11,978		10,469
2024	13,917	14,607	14,868	14,041	12,735	10,854	7,87	5,13	4,351	5,934	9,146	11,408		10,391
2025	13,11	13,745	14,119	13,829	12,494	10,405	7,66	5,413	4,747	6,317				

Extent of Antarctic sea ice from 2005 to 2025- Between 2005 and 2021, fluctuations around 11.5 million Km2 but since the explosion on 15/02/2022 of the submarine volcano HUNGA TONGA, there has been a sudden decrease in this extent of more than 1 million Km2 (-7.5% in 2022 and -15% in 2023) and a very marked warming of the southern hemisphere which is not linked to CO2 but to the 140 million tons of water vapor propelled into the stratosphere.

	January	February	March	April	May	June	July	August	Septem	Octob	Novem	Decem		Annual
2005	4,752	2,97	4,082	7,032	10,289	13,291	16,158	17,922	18,805	18,477	16,316	9,68		11,695
2006	4,164	2,651	3,215	6,01	9,456	13,345	16,114	18,098	19,094	18,733	16,23	9,854		11,461
2007	4,673	2,905	3,835	6,418	9,648	13,287	15,956	17,682	18,861	18,508	15,892	11,981		11,687
2008	6,414	3,895	5,284	8,242	11,049	14,062	16,095	17,645	18,145	17,994	16,248	11,512		12,239
2009	5,707	2,991	4,441	7,798	10,926	13,908	16,261	18,098	18,96	18,298	15,848	10,739		12,049
2010	4,958	3,106	3,847	6,715	10,639	14,41	16,921	18,607	18,799	18,648	16,755	11,271		12,107
2011	4,512	2,519	3,368	6,097	10,093	13,333	15,752	17,805	18,739	18,218	15,757	11,199		11,501
2012	5,654	3,553	4,55	7,309	10,457	13,547	16,298	18,097	19,208	18,594	16,11	10,394		12,004
2013	5,543	3,836	5,017	7,623	10,92	14,155	16,809	18,664	19,389	19,018	16,872	11,854		12,524
2014	6,327	3,843	4,901	8,343	11,519	14,687	17,106	18,908	19,756	19,003	16,388	11,928		12,776
2015	6,852	3,799	4,964	8,373	11,716	14,475	16,775	17,749	18,444	18,409	16,175	10,655		12,414
2016	4,689	2,79	4,069	7,222	10,102	13,242	16,024	17,892	18,15	17,46	14,223	8,279		11,202
2017	3,784	2,288	2,699	5,436	9,014	12,409	15,297	17,219	17,906	17,776	15,113	9,482		10,749
2018	4,211	2,326	3,54	6,033	9,321	12,885	15,7	17,417	17,961	17,732	15,102	9,188		11
2019	3,868	2,655	3,169	5,718	8,852	12,251	15,302	17,478	18,335	17,937	14,995	9,409		10,876
2020	4,598	2,92	4,003	6,662	9,871	13,275	15,721	17,758	18,838	18,493	16,231	10,575		11,602
2021	4,777	2,892	4,484	7,132	10,401	13,542	16,452	18,194	18,509	17,689	15,042	9,245		11,579
2022	3,935	2,213	2,859	5,948	9,418	12,218	14,986	17,05	18,062	17,474	15,159	8,839		10,726
2023	3,296	1,978	2,838	5,538	8,447	11,115	13,566	15,575	16,891	16,278	14,378	8,765		9,931
2024	4,047	2,187	3,221	6,253	9,363	11,848	14,201	16,414	17,154	16,65	14,312	9,593		10,461
2025	4,693	2,218	3,002	6,173	9,273	12,114	14,665	16,502	17,636	16,965				8,650

3-THE POLAR VORTEX, The polar vortex is an upper-level depression located in the upper troposphere and stratosphere.

The cyclone rotation in the northern hemisphere is counterclockwise while in the southern hemisphere it is clockwise.
The polar vortex intensifies in winter and weakens in summer because it depends on the thermal difference between the equator and the poles.
In other words, the intensification and decline of the polar vortex is driven by the movement of stratospheric air masses that transfer heat from the equator to the poles.
It is also noted that these polar vortices are also animated by a downward movement from the stratosphere to the middle troposphere.
And it is thanks to this downward movement that **water vapour can then be evacuated from the stratosphere and only at the poles and in winter when the polar vortex reaches its maximum intensity**.
In Antarctica, on the record of temperatures in winter (July, August and September) we see that in 2020 and 2021 the normal temperature is close to zero or negative around -1.4°. While after the explosion of the Hunga Tonga underwater volcano on January 15, 2022, which sent 140 million tons of water vapor into the stratosphere of the southern hemisphere, there is a sharp warming compared to the previous year. We recorded +0.1° at the South Pole in 2022 with a maximum for the hemisphere of 0.8°. This deviation from the South Pole rises to 1.25° in 2023 for a maximum for the hemisphere which climbs to 1.60°. This difference rises to 2.95° in 2024, which is also the maximum for the hemisphere. MORE THAN 1000 days after the explosion, the water vapor injected into the stratosphere has not been completely evacuated and the Polar Vortex is playing its role but with fluctuations. This gap continues to rise in July, August and September 2025 to 3.5° at the South Pole, which is also the maximum in the hemisphere.

Below has been reconstructed a table of the surface temperatures of the two polar vortexes. Thanks to the NASA GLOBAL TEMPERATURE GISS (GISTEMP v4) readings by clicking on World Maps, with choice as a temperature reference 1991-2020. It is enough to add 0.88°C to these differences to directly find the temperature differences compared to the reference of the pre-industrial period 1850-1900 (Copernicus Method already described above). HN= Northern Hemisphere. HS= Southern Hemisphere.

year	Temp 1 st tri NORTH POLE	VORTEX (Jan max HN	A R Feb, Tue)	C T 3rd Sorting North Pole	I C Jul,Aug,Sep max HN	temp globe winter RF1850-1900	temp globe winter RF1991-2020	Temp 3rd Quarter SOUTH POLE	VORTEX (Jul max HS	A N T Aug, Sept	A R C 1 st South Pole	T I C ja,fe, ma max HS	temp globe summer RF1850-1900	temp globe summer RF1991-2020
1991	-1,1	-0,1		0	pole	0,65	-0,23	2,5	pole		-0,3	0,1	0,76	-0,12
2007	1,15	pole		0,05	0,7	1,03	0,15	*-0,2*	0,85		0,7	1,4	0,91	0,03
2014	2,8	pole		0	0,3	0,92	0,04	1,5	pole		-0,9	0,03	1,05	0,17
2015	1,4	pole		0,45	0,5	1,13	0,25	-1,7	0,6		-0,2	0,3	1,06	0,18
2016	*4,5*	pole		1,7	pole	1,52	0,64	-0,25	0,5		-1	1	122	0,34
2017	2,5	pole		-0,2	0,4	1,33	0,45	-1	0,3		1	pole	1,1	0,22
2018	3,5	pole		0,25	0,65	1,07	0,18	-0,9	0,55		0,85	pole	1,11	0,23
2019	0,8	1,7		0,13	pole	1,24	0,36	0,9	1,3		1,4	pole	1,22	0,34
2020	0,35	17		O,7	1,2	1,41	0,53	0,1			-0,2	0,8	1,2	0,32
2021	3,5	pole		1	pole	1,01	0,13	-1,4	*0,9*		-0,95	0,4	1,2	0,32
2022	2,4	pole		0,7	1,2	1,17	0,29	*0,1*	*0,8*		0,2	0,8	1,23	0,35
2023	3,2	pole		1,25	pole	1,24	0,36	*1,25*	*1,6*		-1,2	0,8	1,6	0,72
2024	2	pole		-1,5	1	158	0,7	*2,95*	pole		-1,5	1	1,56	0,68
2025	*4,4*	pole		0,5	1,2	1,56	0,68	3,5	pole		-0,3	0,9	1,5	0,57

NASA, due to a lack of federal budget, no longer updated its site, which was very unfortunate for the follow-up, but fortunately since November 14 it has resumed its updates. The Antarctic sea ice seems to be on the right track to return to normal, we have to wait for the next surveys to see this.
The lifespan of water vapor in the lower troposphere is only 10 days and then falls back as rain. The lifespan of water vapor in the stratosphere is of the order of more than 1500 days, or ONE HUNDRED FIFTY times more and only evacuating through the polar vortex in winter, it is the main cause of the planet's runaway climate.

This is what we see in the ARCTIC with a virtual blockage and maximum and abnormally high temperature differences at the North Pole since 2007. The last year with negative temperature differences is 2000, in other words the polar vortex played its role fully until the early 2000s and then it was insufficient to evacuate all the stratospheric water vapor. There are five more or less normal years with deviations of less than 2°, and include the two covid years 2019 (+0.8°) and 2020 (+0.35°), which saw the halt of global air transport. Since 2014, there have been nine years with an Arctic climate runaway equal to or greater than 2°C. The records are in 2016 with +4.5°, in 2025 +4.4° followed by 2021 and 2018 with +3.5°. ACTING FOR THE ARCTIC MEANS ACTING FOR EVERYONE. The Arctic is a global regulator. By protecting it, we are acting for the planet.

To stop the runaway climate of the ARCTIC Ocean, it is time to stop the war in Ukraine and the stratospheric water vapor deposition of the World Air Transport which in the northern hemisphere is equivalent to TWO annual explosions of an underwater volcano of the Hunga Tonga type.