

CMIP6 Climate Models

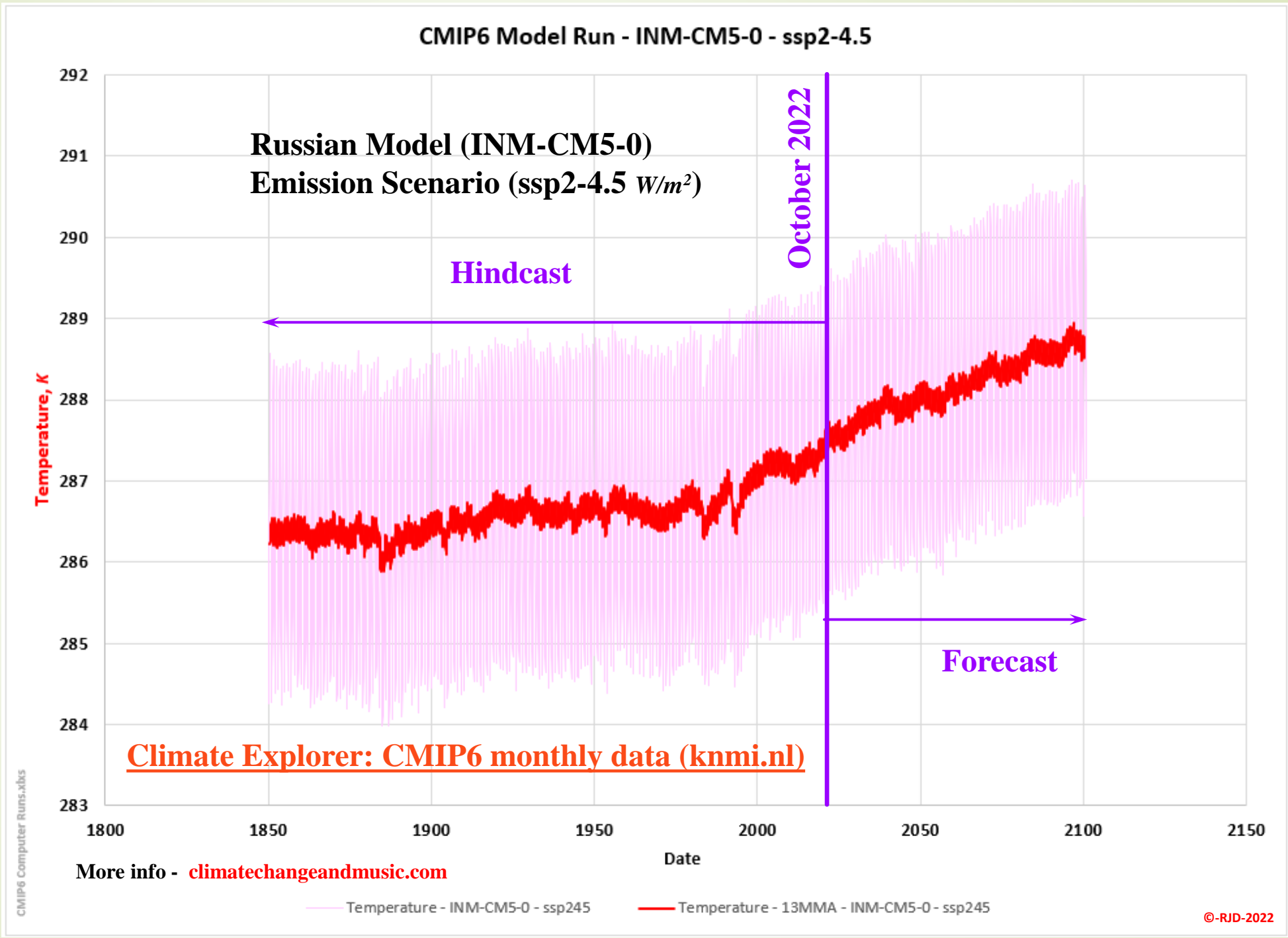
Russian INM-CM5-0

ssp2-4.5

For those that really love to mess with data files, you can find a full set of data runs for 35 CMIP6 computer simulation runs at the World Meteorological Organization (WMO) Climate Explorer website. Each of the data files contains the generated monthly temperature estimates from 1850 to 2100. Each of these General Circulation Models (GCM) are run at a variety of emission scenarios (ssp1-2.6, ssp2-4.5, ssp3-7.0 and ssp5-8.5). The graph to the right is provided as an individual data file example (the Russian model – INM-CM5-0, ssp2-4.5).

Russians INM-CM5-0 ssp2-4.5

Shared Socioeconomic Pathways (SSP) reflect the expected additional radiative forcing (W/m^2) to the year 2100. A SSP discussion can be found at this [DKRZ website](#). This discussion will focus on the 4.5 W/m^2 emission scenarios. The 7.0 and 8.5 W/m^2 scenarios have been labeled implausible by the IPCC (links available in my [OPS-55 – The State of Climate Science](#) post).



GSM - Grand Solar Minimum. You really should do the Research!

CMIP6 Climate Models Russian INM-CM5-0

Satellite Period

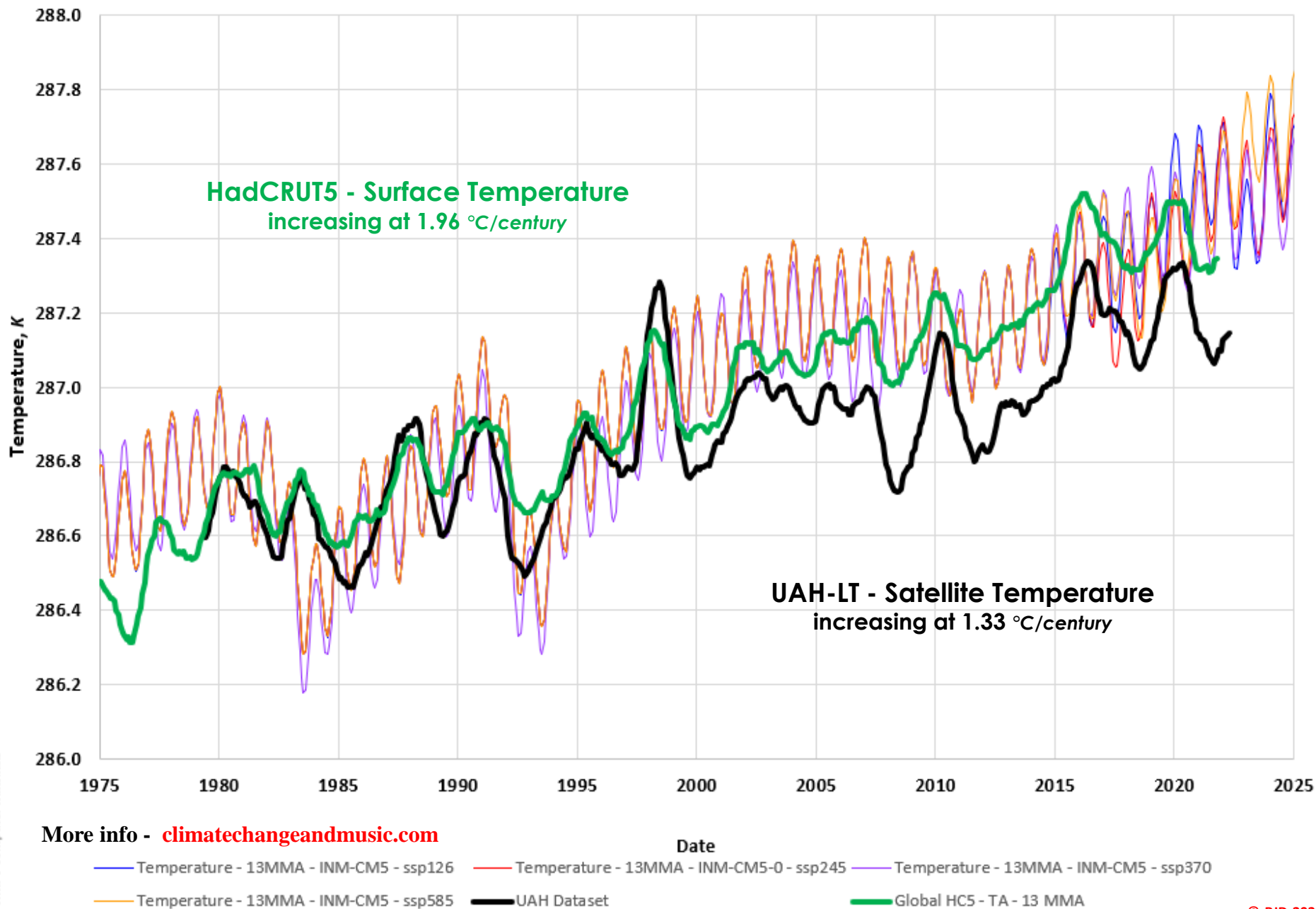
This chart just takes all of the average Russian INM-CM5-0 SSP projections (2.6, 4.5, 7.0 and 8.5 W/m²) and plots them together with the HadCRUT5 surface temperature and UAH satellite Lower Troposphere temperature data sets. The UAH and HadCRUT5 data have been normalized to December 1978 and were laid over the INM-CM5-0 data so that they roughly correlate over the satellite data period. Note that Lower Troposphere and surface temperatures can be different and they are increasing at different rates. The correlation is

better with HadCRUT5 than the UAH. You might ask how much of that

UAH/HadCRUT5 difference is due to the homogenization process? If you are a CAGW alarmist you might not ask, even though you should. Some additional discussion on the UAH and HadCRUT5 relationship is available in my [CSS-25 - Incremental Homogenization - HadCRUT4 to HadCRUT5](#) post.

Russian INM-CM5-0 Satellite

CMIP6 Model Runs - Russia - INM-CM5-0 - Satellite Period (December 1978 - October 2022)



CMIP6 Computer Runs.xlsx

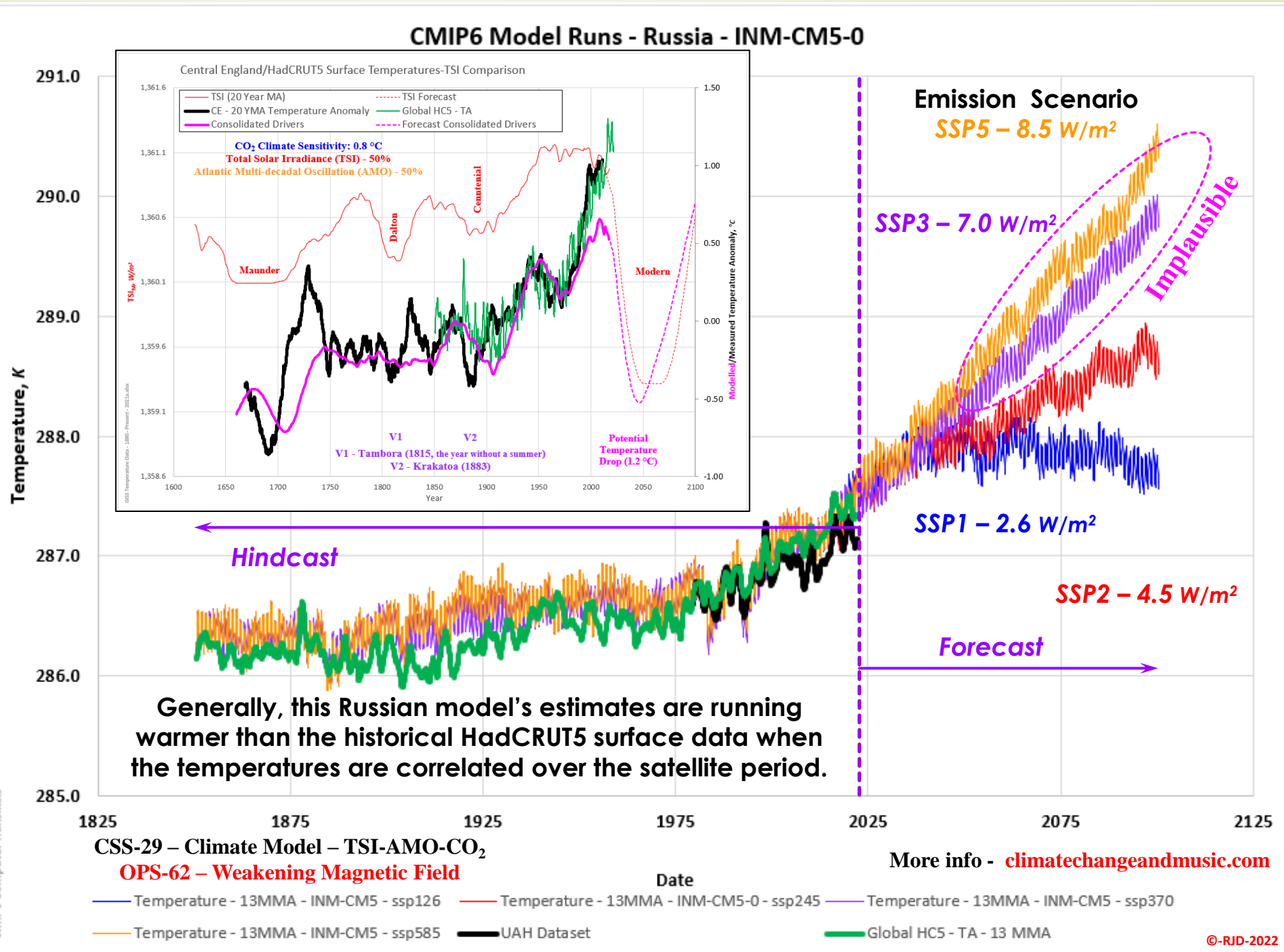
GSM - Grand Solar Minimum. You really should do the Research!

CSS-30c CMIP6 Climate Models Russian INM-CM5-0 Hindcasts/Forecasts

This is the same data shown in CSS-30b. The time scale has just been expanded out to show the 1850 - 2022 Hindcast and the 2022 - 2100 Forecast. This plot is included to show the general relationship between the different emission scenario SSPs used in the computer simulations. The Russian models have historically been the closest to reality so a Russian model was chosen as a representative example. As mentioned earlier, the SSP3 - 7.0 and SSP5 - 8.5 W/m² scenarios are self acknowledged as implausible. Although the SSP1 - 2.6 W/m² case would be closer to reality, the rest of the discussion will focus on the SSP2 - 4.5 W/m² case. Note that although the SSP1 - 2.6 W/m² case is closer to reality, this SSP1 (like every other IPCC projection) ignores most of the important solar forcings. The Grand Solar Minimum (GSM) specifically. The GSM will generate colder temperatures (as shown in the inset). More discussion, larger plots are in my [CSS-29](#) and [OPS-62](#) posts.

Russian INM-CM5-0 Hind/Forecasts

of the discussion will focus on the SSP2 - 4.5 W/m² case. Note that although the SSP1 - 2.6 W/m² case is closer to reality, this SSP1 (like every other IPCC projection) ignores most of the important solar forcings. The Grand Solar Minimum (GSM) specifically. The GSM will generate colder temperatures (as shown in the inset). More discussion, larger plots are in my [CSS-29](#) and [OPS-62](#) posts.



CMIP6 Climate Models All Absolute ssp2-4.5 Emission Scenarios

The next step is plotting all 35 runs together. Very few of these projections come anywhere close to the HadCRUT5 or the UAH temperature datasets. The historical temperature spread on these runs is roughly 2.8 K (°C). So much for settled science. We cannot get much out of this plot, other than the poor application of scientific methods on display by the IPCC modelers. You might

also ask why

**All Absolute
CMIP6 ssp2-4.5
Hind/Forecasts**

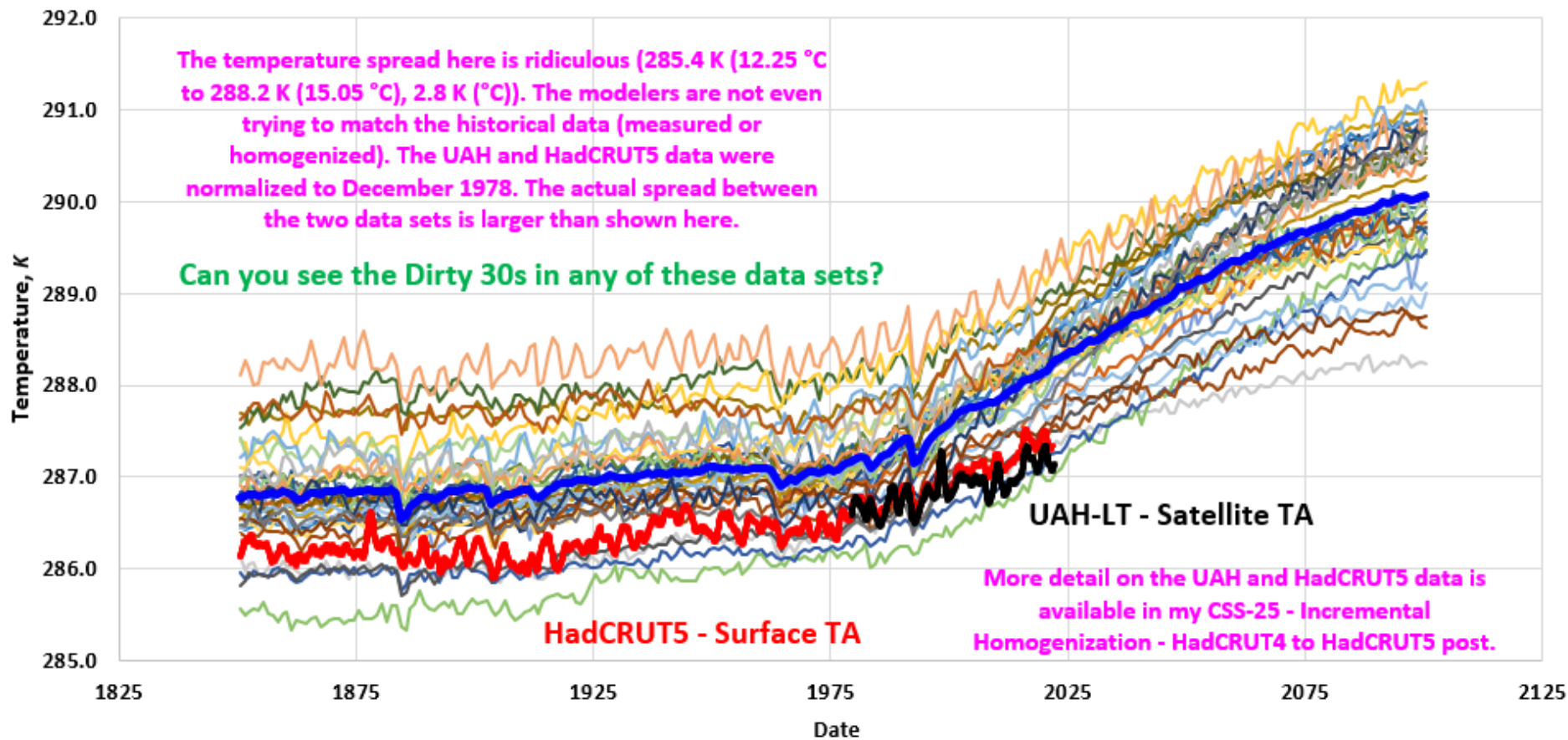
so many different models are required.

One group would be sufficient, a few groups might be justified (for verification and redundancy), but 35 groups are overkill and not worth the taxpayer's billions of dollars wasted on them every year.

GSM - Grand Solar Minimum. You really should do the Research!

CMIP6 Model Runs - ssp2-4.5 - Yearly Average

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CMIP6 Computer Runs.xls

- Arizona - MCM-UA-1-0 - ssp245
- CSIRO - ens - ssp245
- Canada - CanESM5-p1 - ssp245
- China - CIESM - ssp245
- China - FIO-ESM-2-0 - ssp245
- France - CNRM-CM6-1-HR-f2 - ssp245
- France - IPSL-CM6A-LR - ssp245
- Italy - CMCC-CM2-SR5 - ssp245
- Max Planck - MPI-ESM1-2-HR - ssp245
- NCAR - CESM2-WACCM - ssp245
- Norway - NorESM2-LM - ssp245
- UK - HadGEM3-GC31-LL-f3 - ssp245
- UAH Dataset
- Australia - ACCESS-CM2 - ssp245-8
- CSIRO - mod - ssp245
- Canada - CanESM5-p2 - ssp245
- China - FGOALS-f3-L - ssp245
- China - NESM3 - ssp245
- France - CNRM-CM6-1-f2 - ssp245
- Germany - AWI-CM-1-1-MR - ssp245
- Japan - MIROC-ES2L-f2 - ssp245
- Max Planck - MPI-ESM1-2-LR - ssp245
- NCAR - CESM2 - ssp245
- Russia - INM-CM4-8 - ssp245
- UK - UKESM1-0-LL-f2 - ssp245
- Australia - ACCESS-ESM1-5 - ssp245
- Canada - CanESM5 - ssp245
- China - BCC-CSM2-MR - ssp245
- China - FGOALS-g3 - ssp245
- EC Earth Consort - EC-Earth3-Veg - ssp245
- France - CNRM-ESM2-1-f2 - ssp245
- GISS - E2-1-G-p3 - ssp245
- Korea - KACE-1-0-G - ssp245
- Max Planck - MPI-ESM2-0 - ssp245
- NOAA - GFDL-ESM4 - ssp245
- Russia - INM-CM5-0 - ssp245
- Global HC5 - TA - 13 MMA
- CMIP6 Average

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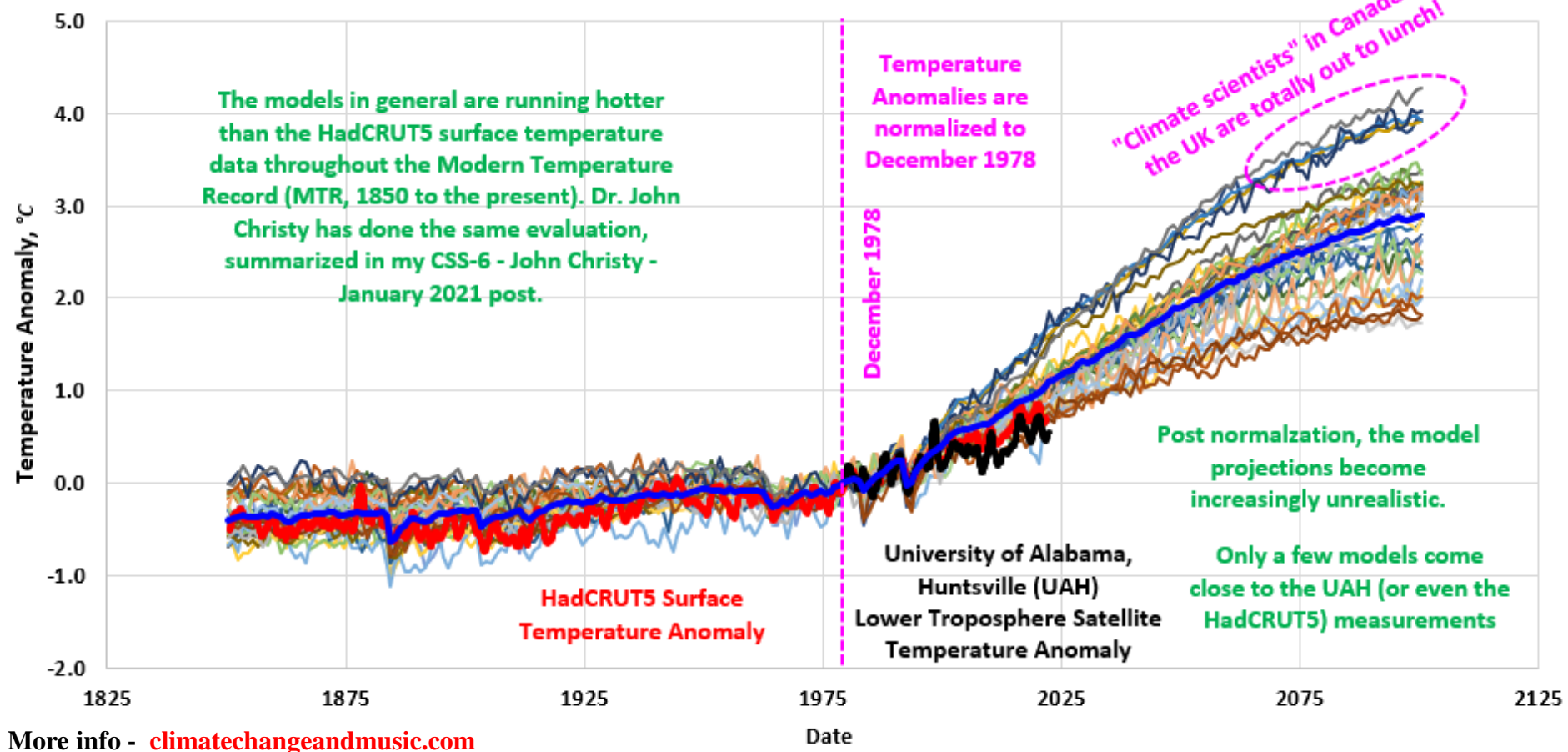
CSS-30e CMIP6 Climate Models Normalized ssp2-4.5 Emission Scenarios

The next step, normalize the projections and the "observed" temperature datasets. This will allow us to compare the projections and the "observed" temperature changes more effectively. The data is normalized to December 1978 (the first month of satellite data). These plots begin to resemble the plots put out by Dr. John Christy (summarized in my [CSS-6](#) post). The main differences, I am including the HadCRUT5 surface data and I have included the full data range (1850 to 2100). Normalizing the data tightens the plot up, but there

is still a 2.4 °C spread in the projections by 2100. The average curve is generally higher than the HadCRUT5 data throughout the hindcast period. The quick takeaway from this plot, the Canadian and UK climate modelers should be defunded (and fired) immediately. If you are going to follow "the science", you should try to make the science resemble reality (or at least the homogenized HadCRUT5 data).

Normalized CMIP6 ssp2-4.5 Hind/Forecasts

CMIP6 Model Runs - ssp2-4.5 - Yearly Average Normalized (1979) Temperature Anomaly



More info - climatechangeandmusic.com

- Arizona - MCM-UA-1-0 - TA
- Australia - ACCESS-CM2 - TA-8
- Australia - ACCESS-ESM1-5 - TA
- CSIRO - ens - TA
- Canada - CanESM5 - TA
- Canada - CanESM5-p1 - TA
- Canada - CanESM5-p2 - TA
- China - BCC-CSM2-MR - TA
- China - CIESM - TA
- China - FGOALS-f3-L - TA
- China - FGOALS-g3 - TA
- China - FIO-ESM-2-0 - TA
- China - NESM3 - TA
- EC Earth Consort - EC-Earth3-Veg - TA
- France - CNRM-CM6-1-HR-f2 - TA
- France - CNRM-CM6-1-f2 - TA
- France - CNRM-ESM2-1-f2 - TA
- France - IPSL-CM6A-LR - TA
- Germany - AWI-CM-1-1-MR - TA
- GISS - E2-1-G-p3 - TA
- Italy - CMCC-CM2-SR5 - TA
- Japan - MIROC-ES2L-f2 - TA
- Korea - KACE-1-0-G - TA
- Max Planck - MPI-ESM1-2-HR - TA
- Max Planck - MPI-ESM1-2-LR - TA
- Max Planck - MPI-ESM2-0 - TA
- NCAR - CESM2-WACCM - TA
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- NOAA - GFDL-ESM4 - TA
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- Russia - INM-CM5-0 - TA
- UK - HadGEM3-GC31-LL-f3 - TA
- UK - UKESM1-0-LL-f2 - TA
- Global HC5 - TA - 13 MMA
- UAH Dataset
- CMIP6 Average

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CMIP6 Climate Models

CanESM5 ssp2-4.5

HadCRUT5 Matching

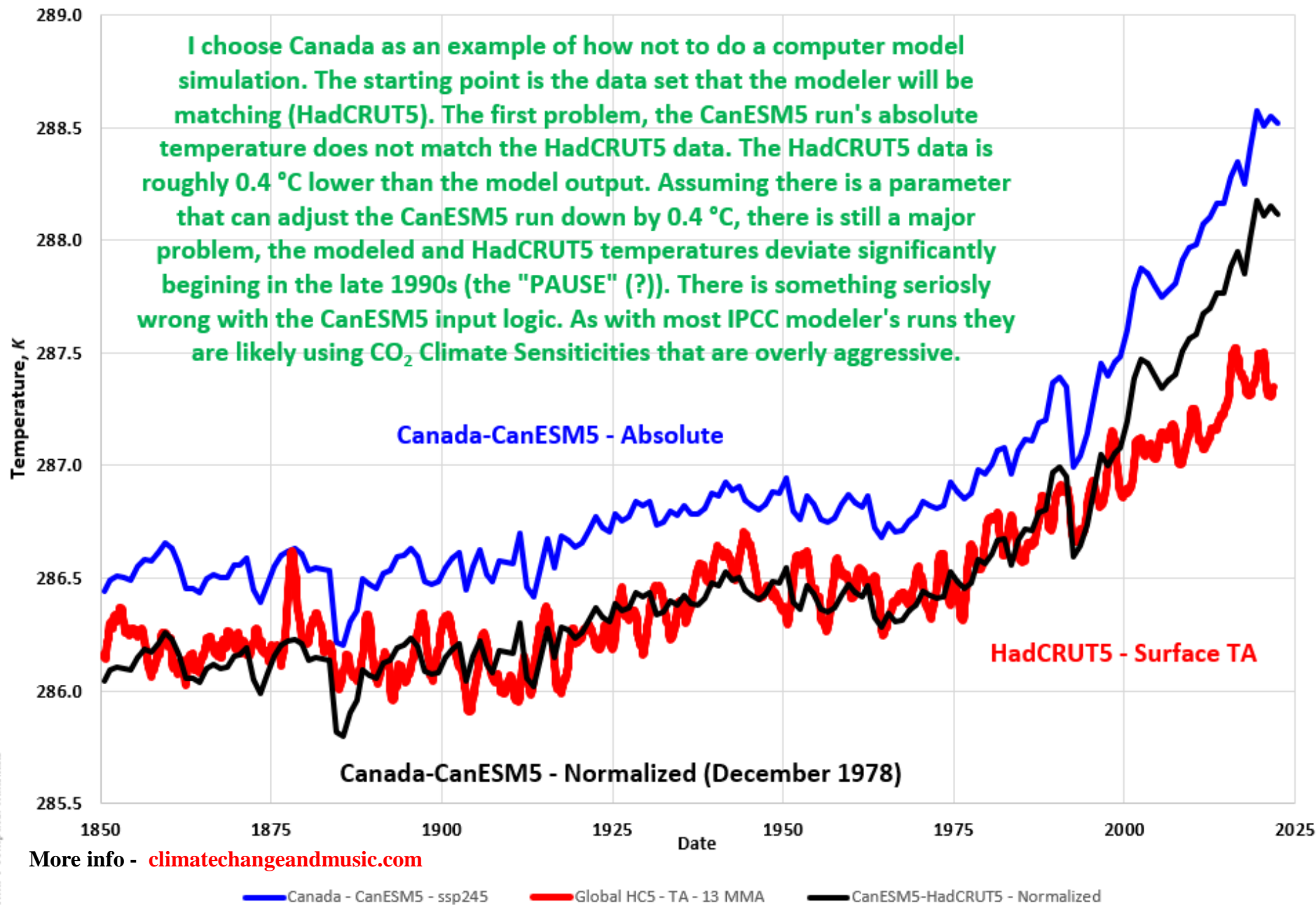
Before going further, a look at one of the individual runs might help to explain the optimization processes that play out on the next few slides. Model runs like those from Canada, are obviously not representing the real world. They do not even depict the HadCRUT5's homogenized world correctly. The Canadian team is an embarrassment (not surprising given their "leadership"). The fact that they are still part of the process, shows that the IPCC is not serious about climate science. Using and/or averaging in data or evaluations that are obviously

wrong is not science. Yet here we are. Ideology is driving "the

CanESM5 CMIP6 ssp2-4.5 HC5 Matching

science". These unrealistically exaggerated temperature projections help drive the Catastrophic Anthropogenic Global Warming (CAGW) alarmist narrative. They should, but are not likely going to remove them anytime soon. They have no empirical data, they ignore solar forcings and their models run too hot.

CMIP6 Model Runs - ssp2-4.5 - Example - Absolute versus Normalized Comparison



GSM - Grand Solar Minimum. You really should do the Research!

CSS-30g CMIP6 Climate Models Normalized ssp2-4.5 Satellite Period

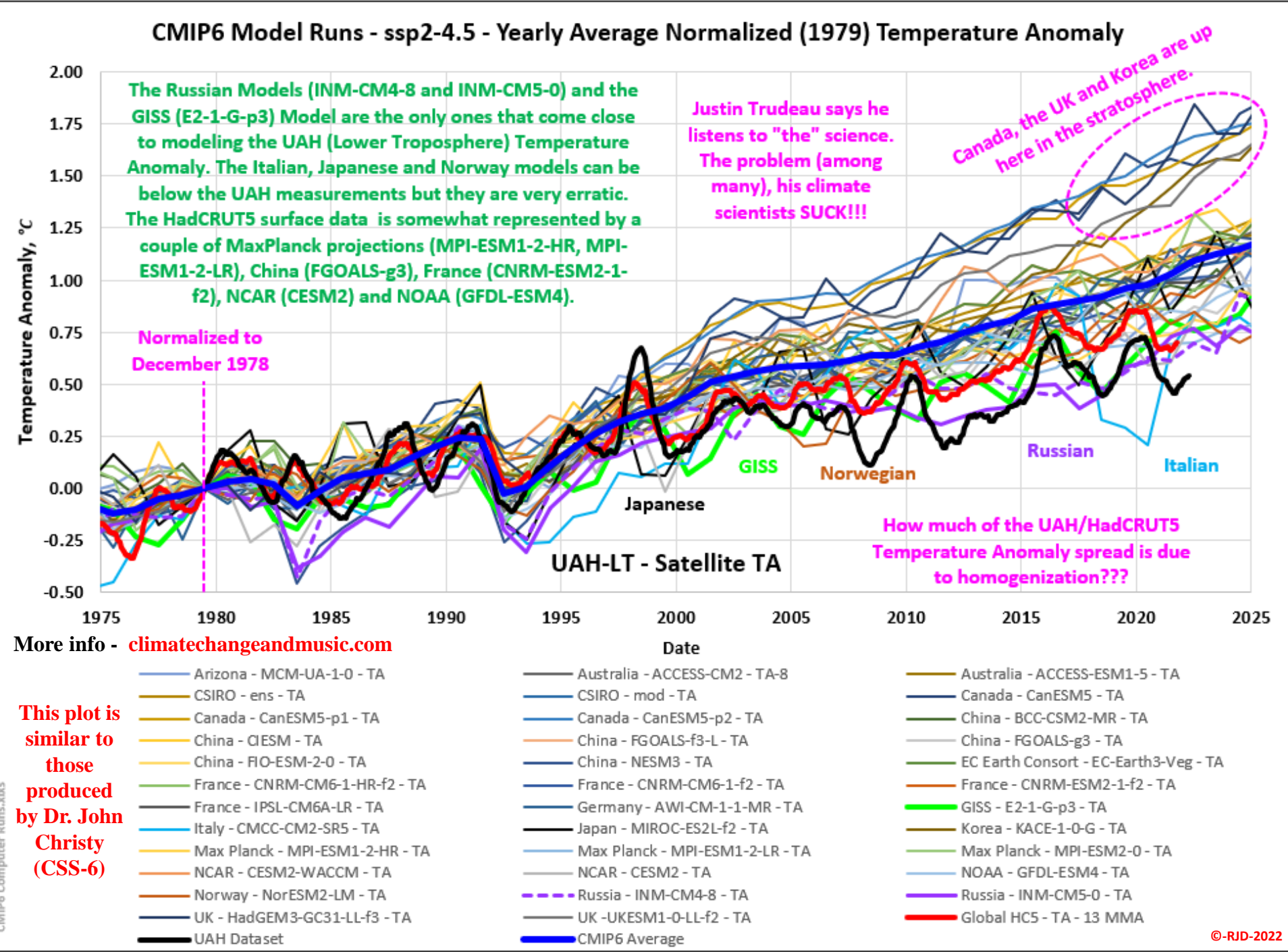
This plot refocuses on the satellite data period. The projections (in general) start deviating from both the HadCRUT5 surface and the UAH-LT Satellite Temperature data sets in the late 1990s. As mentioned on the previous slide, the Canadian and UK modelers are not even trying to use the Scientific Method. You can also throw the Korean group into that mix. I am not surprised to see aggressive projections from the Canadian and the UK groups, given the unnecessary, over responsive policies that our idiotological "leaders" have and will continue to

thrust upon us. But there is a simple solution. Stop funding the obviously

incompetent groups. There would immediately be billions of dollars saved and we would be one step closer to relying on science, rather than "the science" our idiotological "leaders" keep referring to. First step, 17 of these CMIP6 runs can quickly be dismissed. They are not even close to matching the HadCRUT5 data.

Normalized CMIP6 ssp2-4.5 Satellite

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This plot is similar to those produced by Dr. John Christy (CSS-6)

CMIP6 Computer Runs.xls

GSM - Grand Solar Minimum. You really should do the Research!

CSS-30h

CMIP6 Climate Models

First Optimization ssp2-4.5 (Satellite)

This slide focuses in on the satellite period using just the 18 projections shown in the legend. The **Optimized CMIP6 Projections average** fits reasonably well. Certainly better than the **All CMIP6 Projections average**. You could stop at this point and say you have a match. But ultimately you need to look at the bigger picture. How do the projections compare to the extrapolated temperatures

(both the HadCRUT5 and UAH datasets)? Is some additional optimization warranted? For the HadCRUT5 data, we need to look at the expanded time scale. For the UAH data, there is only a few projections (the Russians and maybe GISS) that correlate on this time scale.

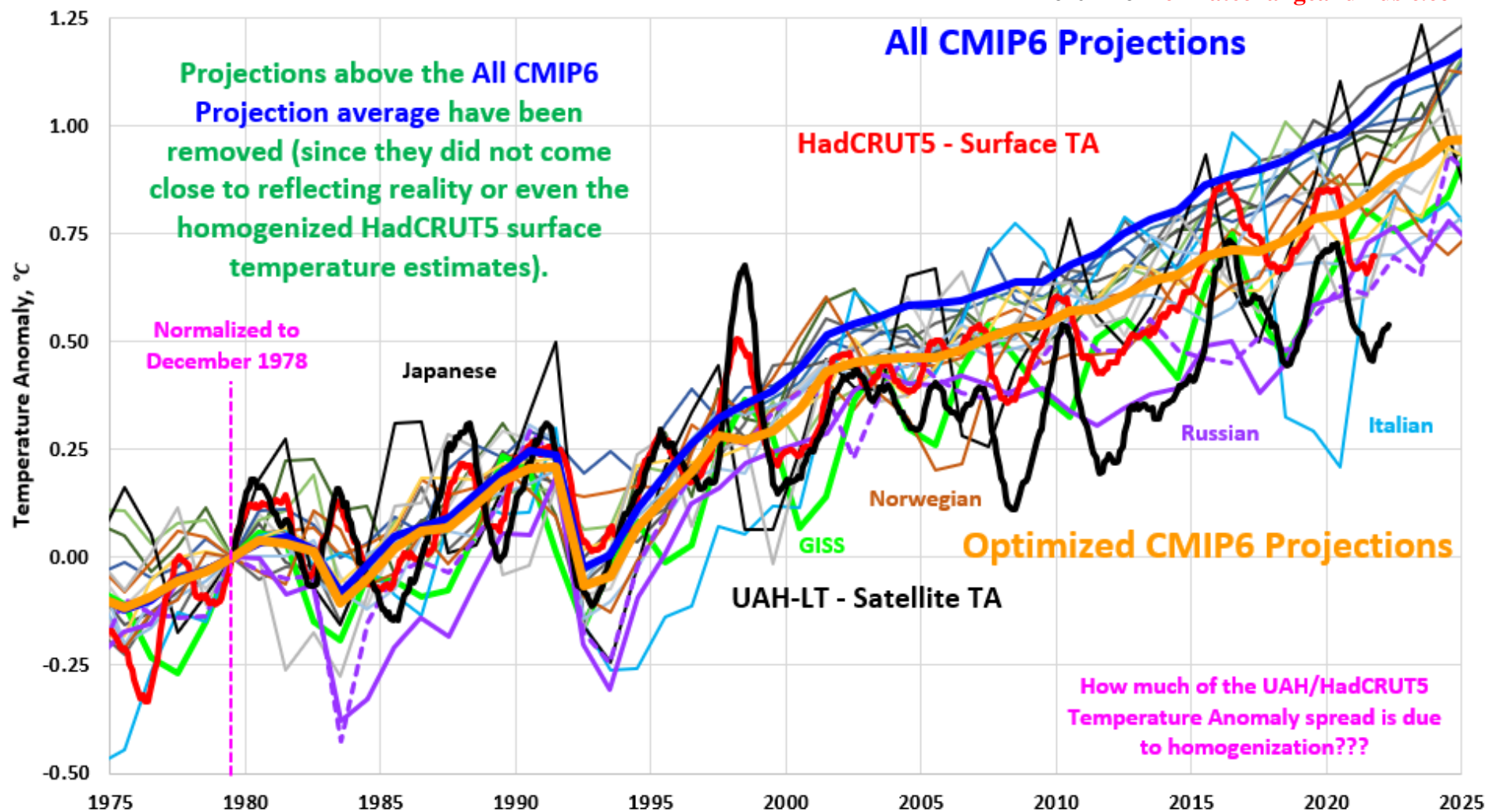
N-Satellite CMIP6 ssp2-4.5 1st Optimization

some additional optimization warranted? For the HadCRUT5 data, we need to look at the expanded time scale. For the UAH data, there is only a few projections (the Russians and maybe GISS) that correlate on this time scale.

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CMIP6 Model Runs - ssp2-4.5 - Yearly Average Normalized (Dec-1978) Temperature Anomaly

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- | | | | |
|-----------------------------------|-------------------------------|--------------------------------|-----------------------------------|
| — Australia - ACCESS-CM2 - TA-8 | — CSIRO - mod - TA | — China - BCC-CSM2-MR - TA | — China - FGOALS-g3 - TA |
| — France - CNRM-CM6-1-HR-f2 - TA | — France - CNRM-CM6-1-f2 - TA | — France - CNRM-ESM2-1-f2 - TA | — France - IPSL-CM6A-LR - TA |
| — GISS - E2-1-G-p3 - TA | — Italy - CMCC-CM2-SR5 - TA | — Japan - MIROC-ES2L-f2 - TA | — Max Planck - MPI-ESM1-2-HR - TA |
| — Max Planck - MPI-ESM1-2-LR - TA | — NCAR - CESM2 - TA | — NOAA - GFDL-ESM4 - TA | — Norway - NorESM2-LM - TA |
| — Russia - INM-CM4-8 - TA | — Russia - INM-CM5-0 - TA | — Global HC5 - TA - 13 MMA | — UAH Dataset |
| — CMIP6 Average | — Optimized CMIP6 Average | | |

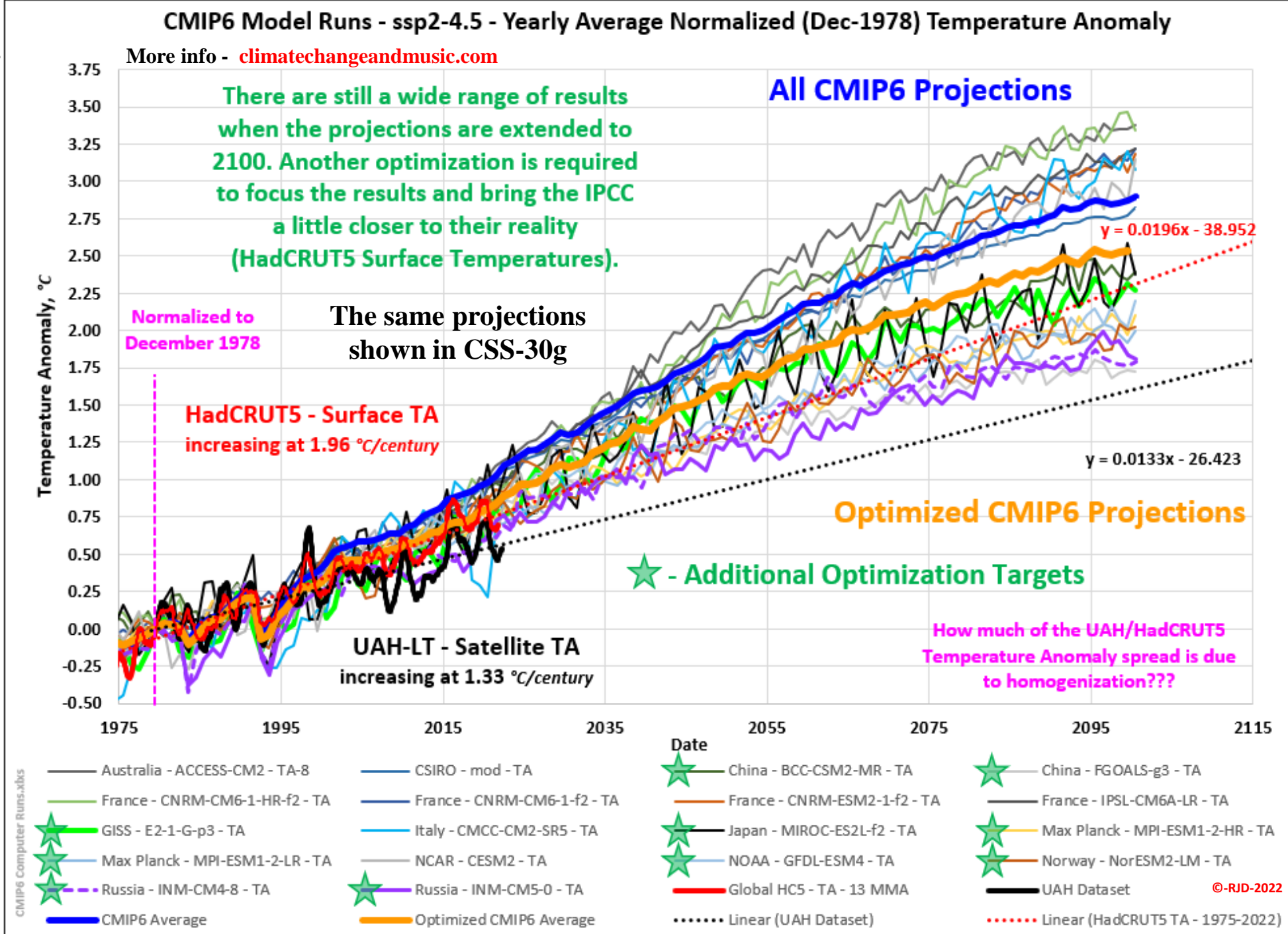
GSM - Grand Solar Minimum. You really should do the Research!

CSS-30i CMIP6 Climate Models First Optimization ssp2-4.5

This plot has the 17 totally unrealistic temperature projections removed. I have added linear regressions for the HadCRUT5 (1975 to 2022) and UAH(1978 to 2022) temperature data to show their trend in relation to the projections. UAH temperatures have been trending higher at 1.33 °C/century. The HadCRUT5 temperatures are trending higher at 1.96 °C/century. The UAH trend is noticeably lower than any of the projections. The HadCRUT5 trend is at the lower end of the projections. The average projection (based on the 18 runs shown here) is still noticeably higher than the HadCRUT5 trend, but lower than the original 35 group average (All CMIP6 Projections). Another optimization appears to be warranted. The next slide will do just that. The models highlighted with the green stars in the legend are those projections essentially below the 18 run average projection (Optimized CMIP6 Projections).

Normalized CMIP6 ssp2-4.5 1st Optimization

than the original 35 group average (All CMIP6 Projections). Another optimization appears to be warranted. The next slide will do just that. The models highlighted with the green stars in the legend are those projections essentially below the 18 run average projection (Optimized CMIP6 Projections).



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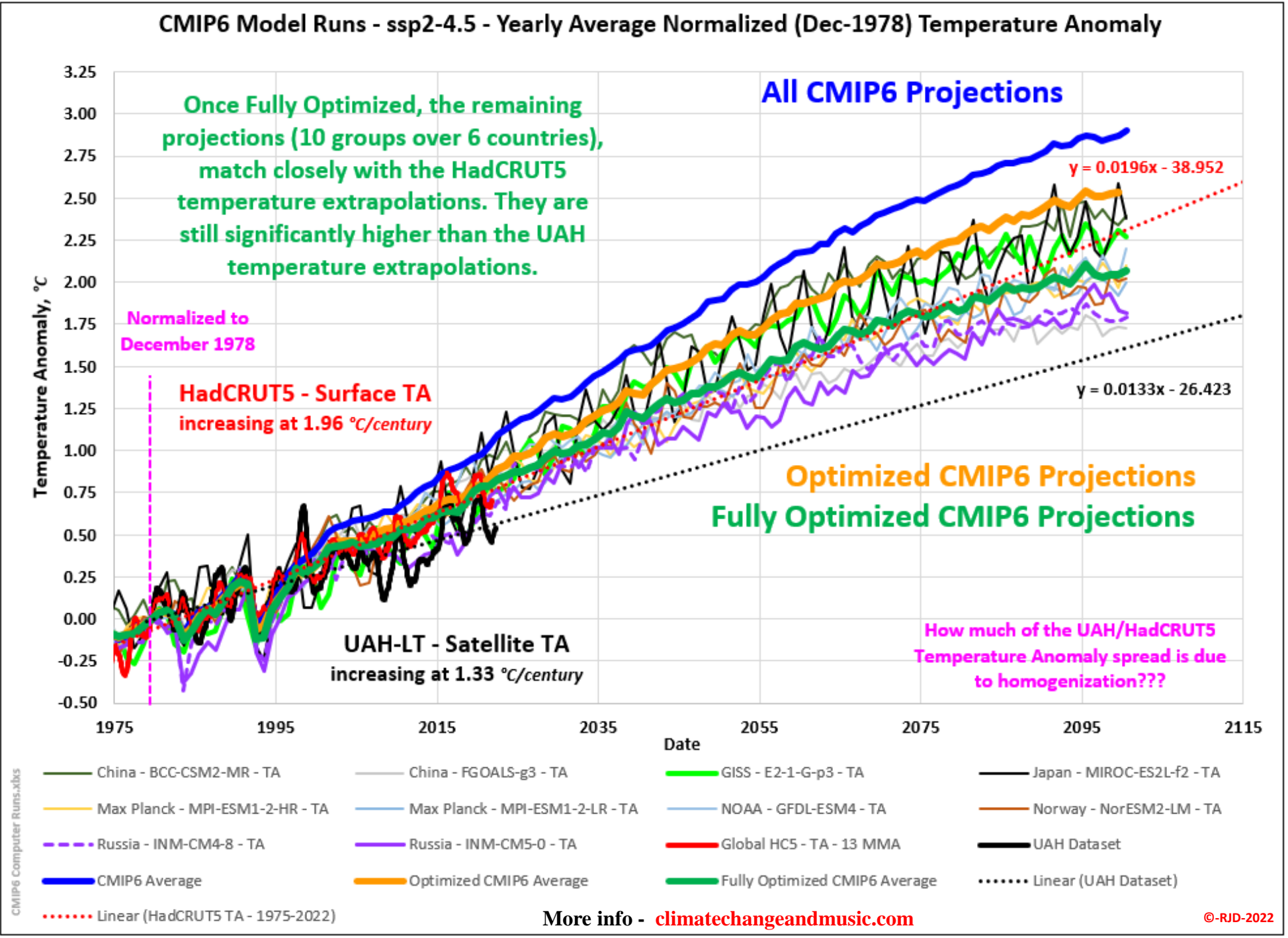
CSS-30j CMIP6 Climate Models Second Optimization ssp2-4.5

This slide adds in the **Fully Optimized CMIP6 Projections average**. This curve fits the extrapolated HadCRUT5 temperature data (1975 to 2022) much better than the **1st Optimization average**. Every modeling group on the planet should have had a final curve that looks similar to the **Fully Optimized CMIP6 Projection average** curve. The model results need to match the historical data or the projected temperatures cannot possibly be correct (i.e.: if you cannot hindcast, you cannot forecast). As shown earlier, most

Normalized CMIP6 ssp2-4.5 2nd Optimization

of the model runs do not even match the HadCRUT5

historical data, let alone the UAH historical data. Even the 10 individual projections shown here, still have a range of ± 0.75 °C. That is a significant difference given that temperature rise over the last 170 years was only 1.07 °C (as per the IPCC AR6 Report). Not a strong argument for the "science is settled"?



GSM - Grand Solar Minimum. You really should do the Research!

CSS-30k

CMIP6 Climate Models ssp2-4.5 Optimization

GSM musings

This chart takes out the final individual projections (taking out the scatter). Although the Fully Optimized CMIP6 Projections average correlates to the HadCRUT5 temperature extrapolation, that does not mean the model is correct. In fact, the models are very likely wrong for several reasons. Not the least of which is the modeler's recent admission that their models run too hot ([OPS-55 - The State of Climate Science](#)). The other problem, every model included in this discussion ignores most of the solar forcings on our climate to remain focused

on the simplistic, unscientific narrative that CO₂ is the only

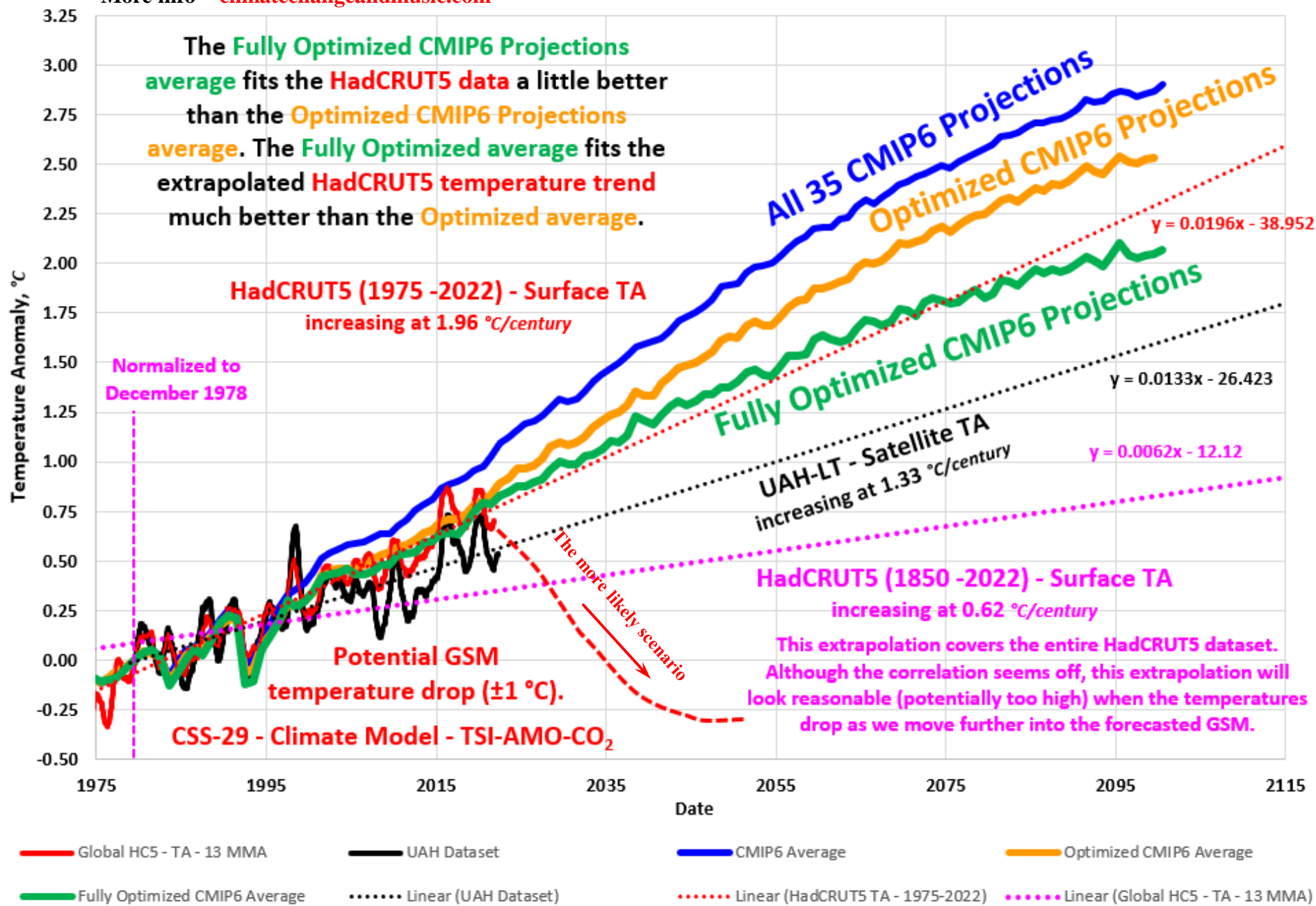
significant climate driver. The more likely scenario, temperatures are going to drop significantly over the next few decades. This will severely compound the energy, food, fiscal, environmental, medical and supply chain crises we are already experiencing. Our "leaders" are ignoring the real threat to our lives.

GSM Musings CMIP6 ssp2-4.5 Optimization

CMIP6 Model Runs - ssp2-4.5 - Yearly Average Normalized (Dec-1978) Temperature Anomaly

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