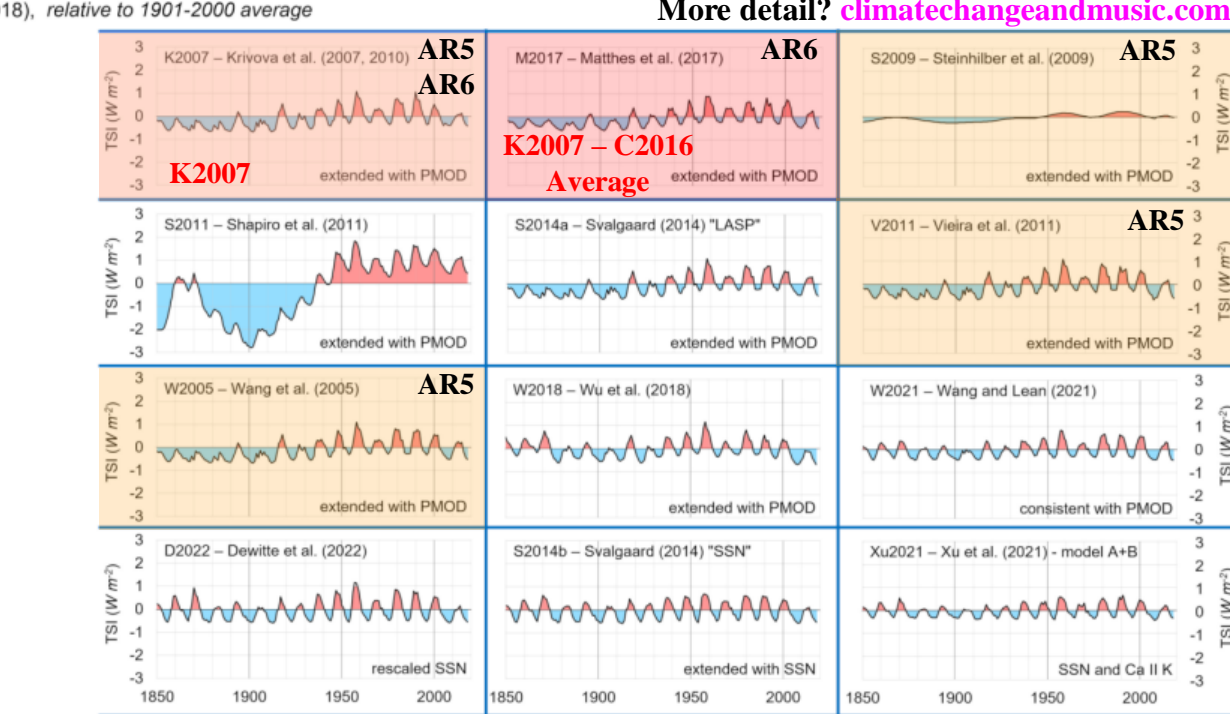
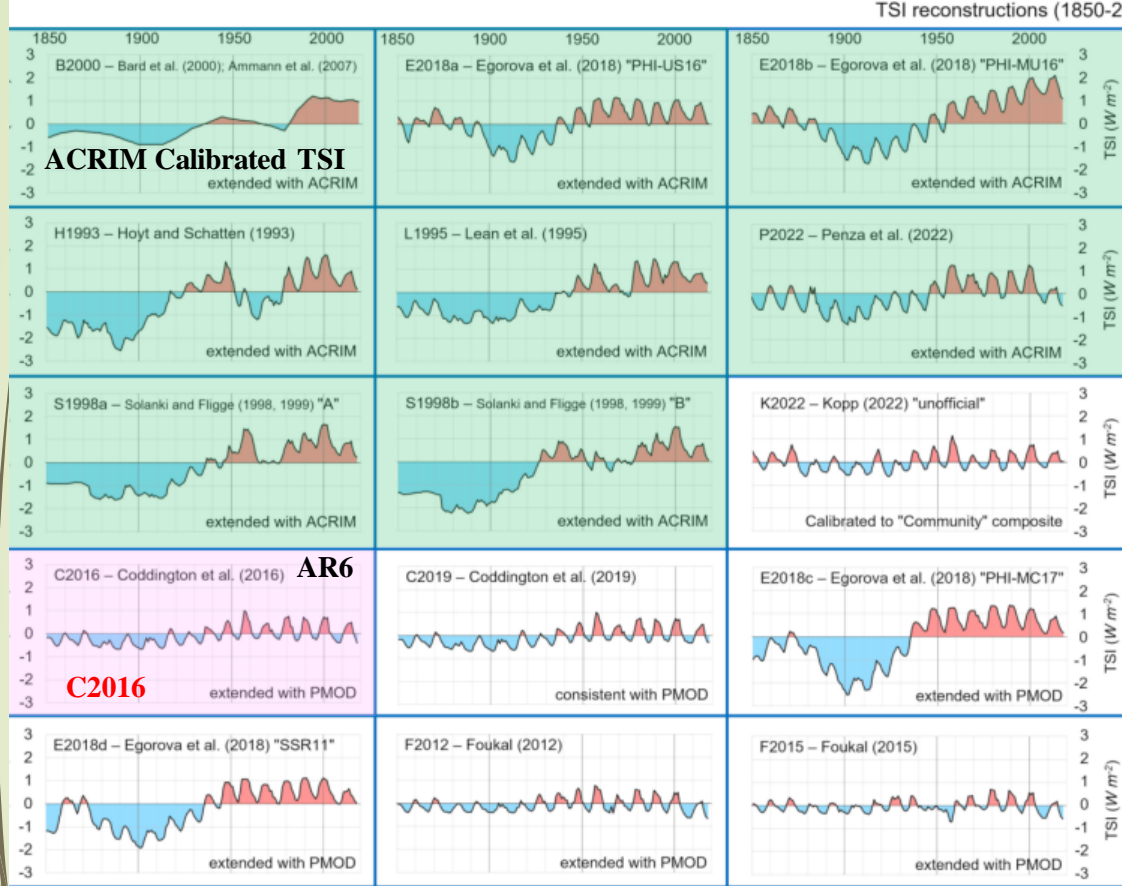


GSM - Grand Solar Minimum. The real "Climate Change" existential threat is right around the corner. Do the Research!



More detail? climatechangeandmusic.com

The IPCC AR5 Report used an average of 4 TSI Reconstructions – (K2007, S2009, V2011, and W2005)
 The IPCC AR6 Report used 1 TSI Reconstruction – (an average of C2016 and K2007)
 Soon-Connolly2 et al used an average of 8 ACRIM calibrated TSI Reconstructions – (B2000, E2018a, E2018b, H1993, L1995, P2022, S1998a, and S1998b)

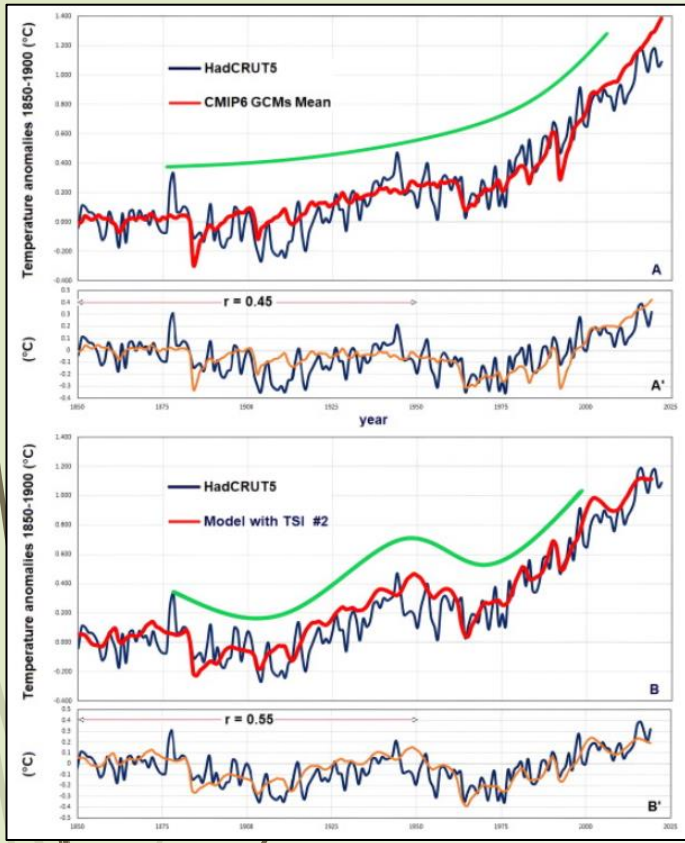
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[Soon et al. 2023](#), [Connolly et al. 2023](#), [Connolly et al. 2021](#)

Soon-Connolly Solar Forecasts

CSS-51a Soon-Connolly² et al - Solar Forecasts

There are a lot of mistakes made by the Catastrophic Anthropogenic Global Warming (CAGW) alarmist crowd (assuming they are not made intentionally). The simplistic, unscientific choice to base all "Climate Changes" on one parameter (a trace gas called CO₂ (0.04% of the atmosphere) would be one place to start. But this post will focus on the ludicrous idea that the sun (and its main related influences (ocean cycles, cloud interactions, etc.)) plays no measurable role in the fate of our climate. So, how do they justify that ideological position? Easy, they seemed to have arbitrarily picked one (M2017 – Matthes et al. (2017)) out 27 possible historical Total Solar Irradiance (TSI) reconstructions (completely ignoring 24 of the 27 options). M2017 is an average of C2016 (Coddington et al. (2016)) and K2007 (Krivova et al. (2007, 2010)). The 27 TSI reconstructions shown here were pulled from the recent Soon, Connolly, Connolly et al. (SC²) 2023 paper "*The Detection and Attribution of Northern Hemisphere Land Surface Warming (1850–2018) in Terms of Human and Natural Factors: Challenges of Inadequate Data*". SC² used the average of the 8 ACRIM Calibrated TSI reconstructions in their paper (shaded green in the upper left panel). Like the discussion on CO₂ climate sensitivity, this is not a settled aspect of climate science. The IPCC uses a CO₂ Climate Sensitivity (Equilibrium Climate Sensitivity (ECS)) range of 1.8 to 5.7 °C when the value is more likely in the 0.8 to 1.0 °C range when all the data is considered. The IPCC uses a TSI reconstruction (and a higher ECS) that essentially sets the solar forcing to near zero and then arbitrarily assigns any remaining forcing to CO₂. And you can certainly argue that SC² takes the opposite approach with TSI reconstructions. On the next slides we will look at how well the anthropogenic and natural forcings match the observed (or more accurately the "homogenized" surface temperature estimates). This is just one of [many papers](#) by these authors addressing this lapse in the alarmist judgement.



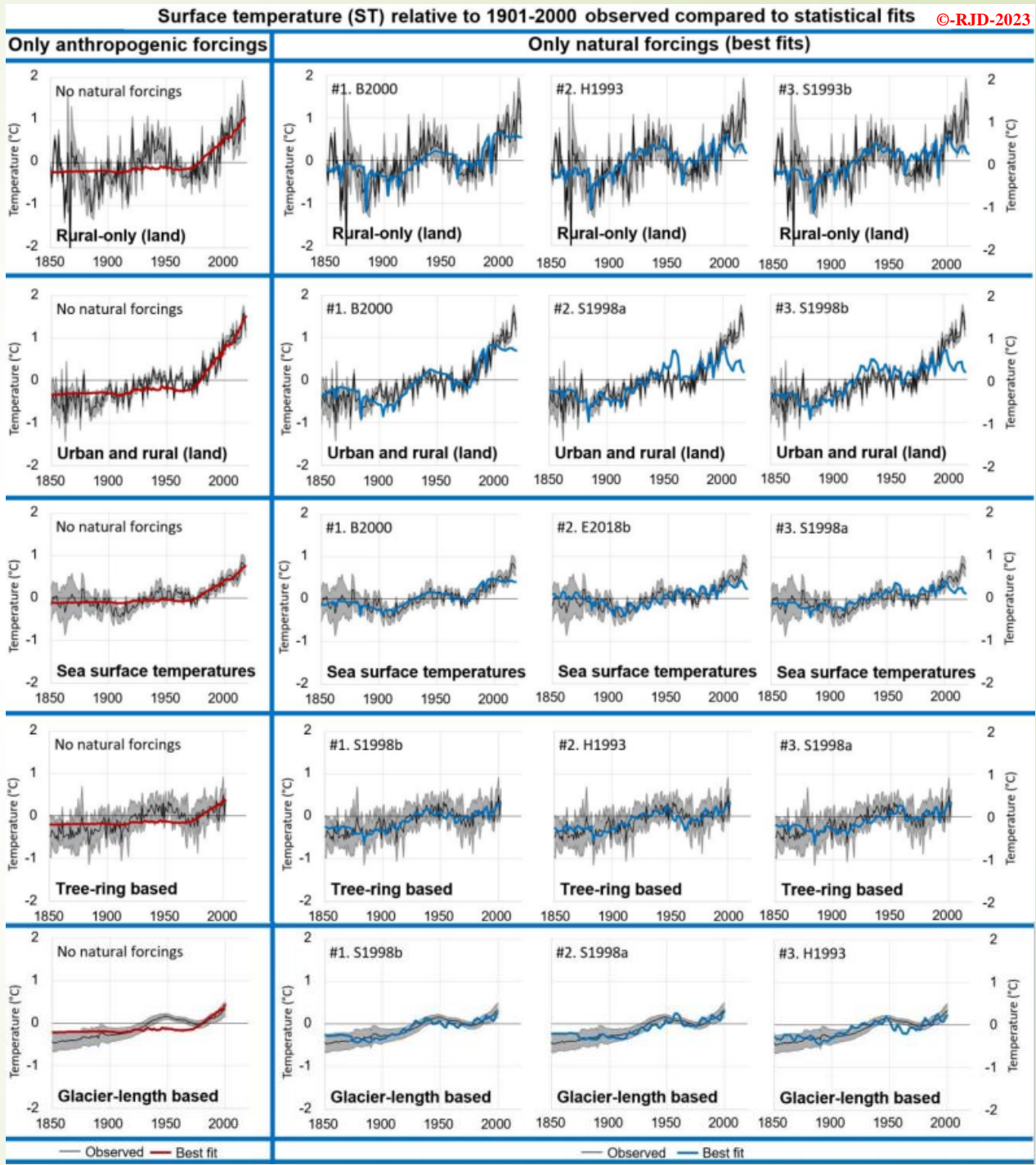
Soon-Connolly² et al Temperature Correlation

The chart to the right comes from the SC² 2023 paper. The left column shows the temperature matches (red curve) where only anthropogenic forcings are used. The three columns to the right match using just natural forcings (the blue curves, anchored on three different TSI reconstructions). Five different temperature data sets are matched in this analysis. You may call me biased, but I would have to say the Only natural forcings alternative provides a much better fit than the Only anthropogenic forcings option. The plot to the left comes from a recent (2023) paper by Nicola

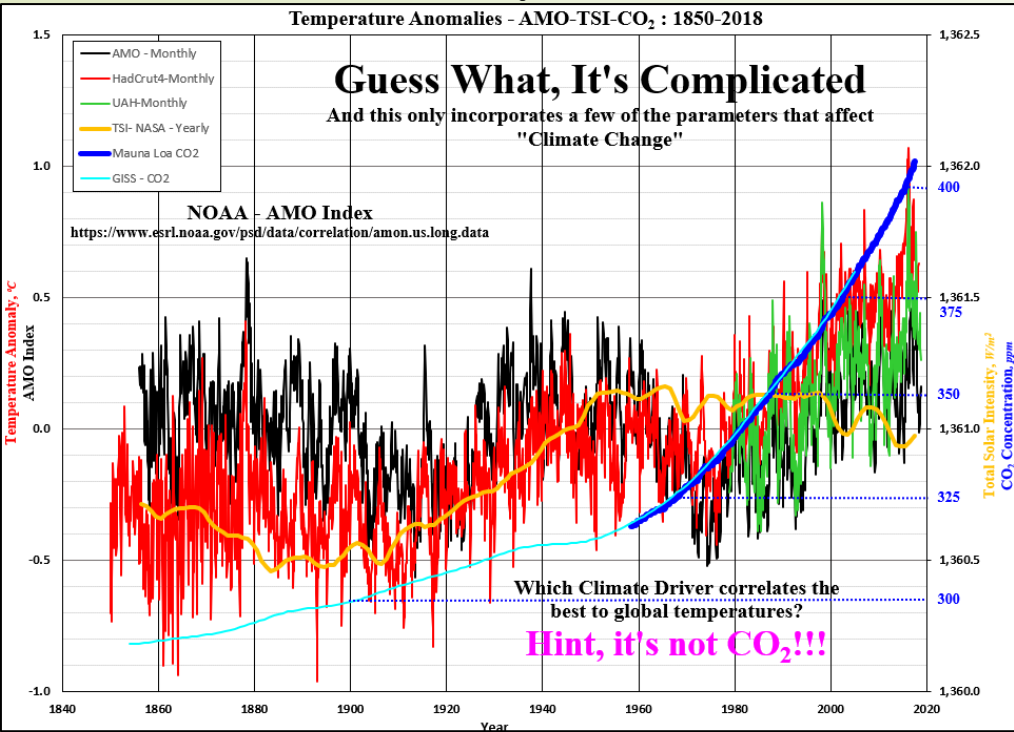
Scafetta, (*"Empirical assessment of the role of the Sun in climate change using balanced multi-proxy solar records"*). His work also shows that a match using a more realistic TSI reconstruction is statistically stronger than using just CO₂. More detail on Scafetta's paper is available in my [CSS-42 - The Role of the Sun](#)

Soon-Connolly Temperature Correlation

- Scafetta 2023 post. To this point in the post, I have focused on the Modern Temperature Record (MTR, 1850 to the present). My [CSS-43 - Modeling Over the Holocene](#) post is an add on to the CSS-42 post that expands the discussion to the pre-MTR Holocene where somehow temperatures still seem to fluctuate despite a virtually flat atmospheric CO₂ profile. The CAGW alarmist community continues to ignore the very real natural forcings that have acted on our planet in the past, were acting on our planet throughout the MTR and will continue to be active in the near future. CO₂'s minor influences are lost in the historical data because they are easily overpowered by a wide range of natural forcings. Those natural forcings that will drop temperatures over the next few decades.



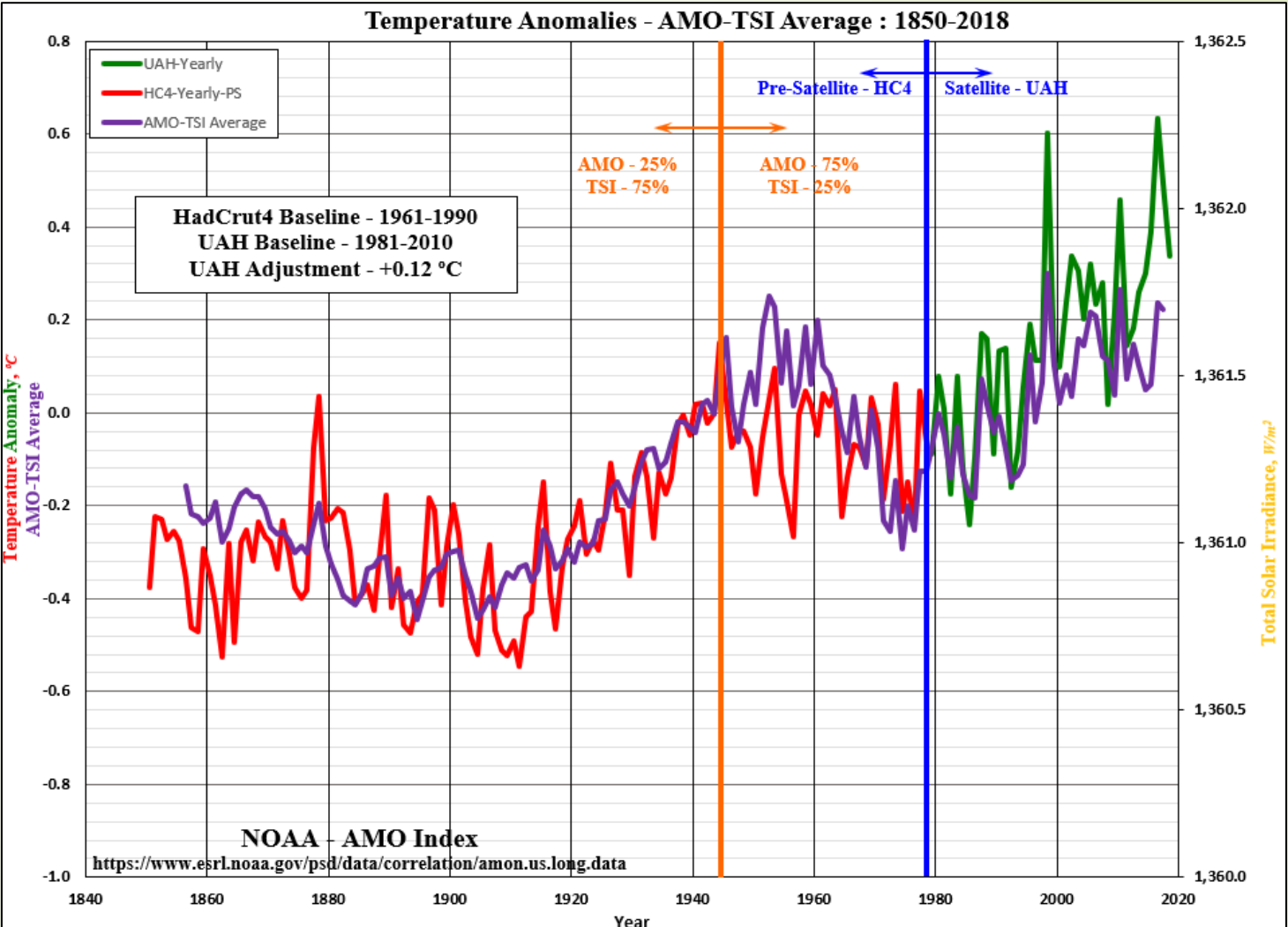
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This slide will just tie some of my early work to the SC2 and Scafetta papers. I took a slightly different approach. Instead of just using Total Solar Irradiance (TSI, as a proxy), I also rolled in the Atlantic Multi-decadal Oscillation (AMO). The process was discussed in more detail in my Open Letter Addendum and my OPS-8 - Basic Climate Model post. Obviously, there are more forcings acting on our climate than just the TSI and AMO. But this simple model (no CO₂) produces a better match to the HadCRUT4 surface temperature data than just CO₂. On the previous slide, the Only anthropogenic forcings temperature match was pretty much limited to the 1975 to the present period. A significant portion of human emissions (over 70%) has occurred over that period. So, if we are the problem that is

where our influence would be most noticeable. But you cannot just accept any correlation without considering all the information. The ocean cycles routinely overpower the rather weak warming provided any CO₂ rise. The Atlantic Multi-decadal Oscillation Index (AMO) was also rising from 1975 to around 2000 (and is just now moving into its cold phase). The AMO can easily move global temperatures up and down by roughly 1 °C over the 60-year cycle (i.e.: not all the post-1975 warming is due to CO₂). There are of course other ocean cycles that also act on our planet. The Pacific Decadal Oscillation (PDO) and the ENSO (El Niño Southern Oscillation) are two other ocean cycles that have noticeable influences on global temperature. The current record high temperature anomalies (TA, 0.90 °C (September) and 0.93 °C (October) from the UAH satellite data) can be attributed to the current El Niño, the Hunga-Tonga volcanic eruption, reduced aerosol emissions from ocean shipping and increased solar activity. The TA was -0.04 in January, CO₂ is not the driver.

Soon-Connolly MTR History Match



GSM - Grand Solar Minimum. The real "Climate Change" existential threat is right around the corner. Do the Research!

Soon-Connolly² et al Central England Temperature

We do have measured temperatures going back to 1659. The Central England Temperatures (CET, black curve) while obviously localized, matches very closely with the HadCRUT5 surface temperature data (green curve). The one major deviation coincides with the massive 1883 Krakatoa volcanic eruption. As with the simple model over the MTR on the previous slide, the multi-driver match is significantly closer than the match with CO₂ alone would be. In this model, I set the CO₂ Climate Sensitivity at 1.2 °C (the IPCC's estimate without their unproven positive water vapour feedback adjustments). The TSI and

AMO forcings were then given an equal weighting. The magenta curve shows the consolidated influence of TSI, AMO and CO₂. CO₂ can simply not match the colder temperatures associated with a solar minimum (historically or in the future). The SC² TSI matches (CSS-51b) also show the same recent temperature match deviation. All the catastrophic predictions are based on unrealistically high CO₂ sensitivities, CO₂ emission scenarios and no natural causes!!!

Soon-Connolly CET Match

the consolidated influence of TSI, AMO and CO₂. CO₂ can simply not match the colder temperatures associated with a solar minimum (historically or in the future). The SC² TSI matches (CSS-51b) also show the same recent temperature match deviation. All the catastrophic predictions are based on unrealistically high CO₂ sensitivities, CO₂ emission scenarios and no natural causes!!!

