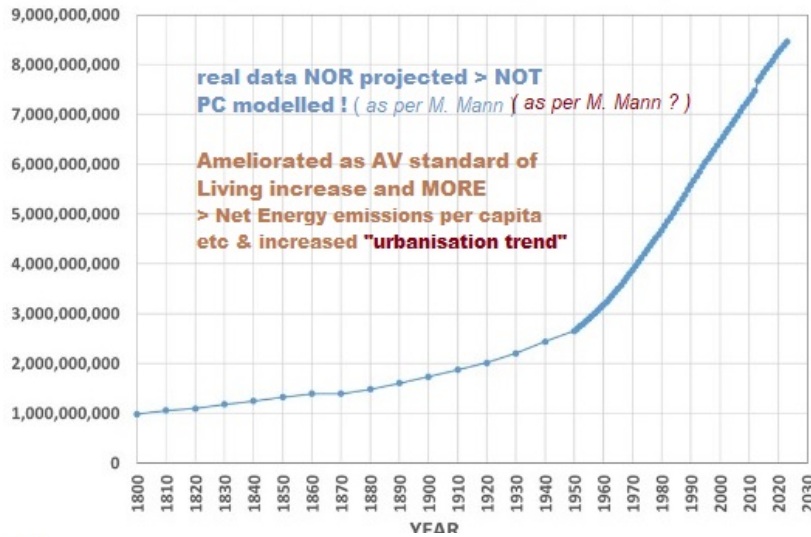


**Actual "recent" World Population Growth 1800-2023+**

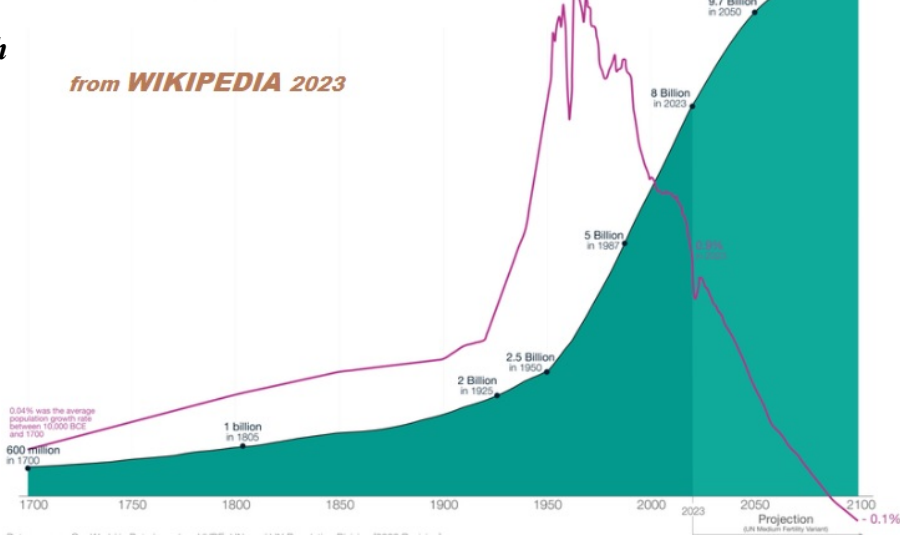
RoySpener NASA>Heartland Institute  
Global Population from the HYDE v3.3 Population Density Dataset



Our World in Data

**World population growth, 1700-2100**

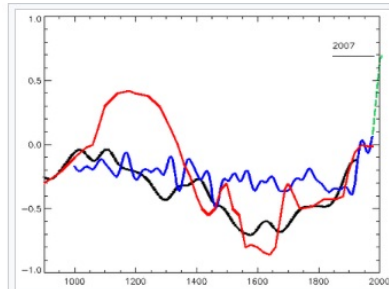
Annual growth rate of the world population  
World population



from WIKIPEDIA 2023

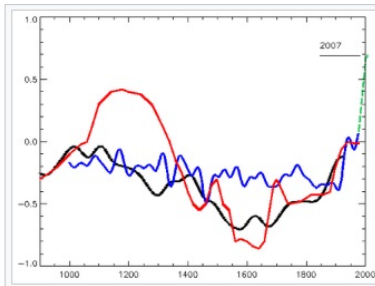
**World Population Growth actual 1700-2100 (projected!)**

**"Other" GW Hockey Sticks form WIKEPEDIA link > 2023-11**



Red line: the IPCC 1990 Figure 7.1(c) schematic diagram (based on Lamb 1965) closely follows central England temperatures; green dashed line shows central England temperatures to 2007.<sup>[17]</sup> The blue line is the Mann, Bradley & Hughes 1998 40 year average from the IPCC TAR 2001 "hockey stick", the black line is the Moberg et al. 2005 low frequency signal.

**“Other” GW Hockey Sticks form  
WIKIPEDIA link > 2023-11**

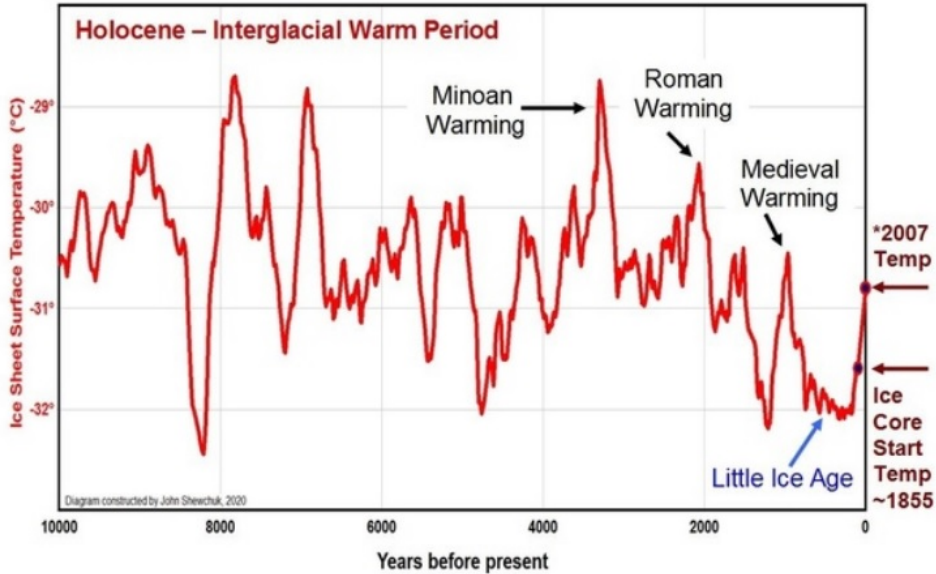


Red line: the IPCC 1990 Figure 7.1(c) schematic diagram (based on Lamb 1965) closely follows central England temperatures; green dashed line shows central England temperatures to 2007.<sup>[17]</sup> The blue line is the Mann, Bradley & Hughes 1998 40 year average from the IPCC TAR 2001 "hockey stick", the black line is the Moberg et al. 2005 low frequency signal.

**Interglacial  
Warm Period**

(previous ICES Ages > even More extreme +/- over millenia !

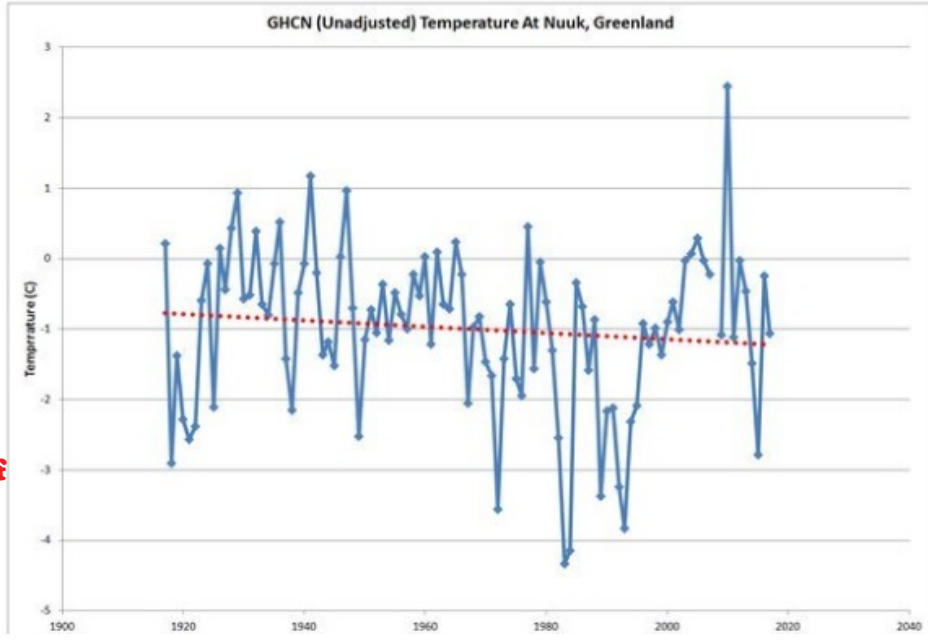
**IT's ALL Happning !**  
& will > asteroid impact within >10k years ?  
"the Universe" is expanding into "nothingness"  
>Billions of Years !  
> so watch out !



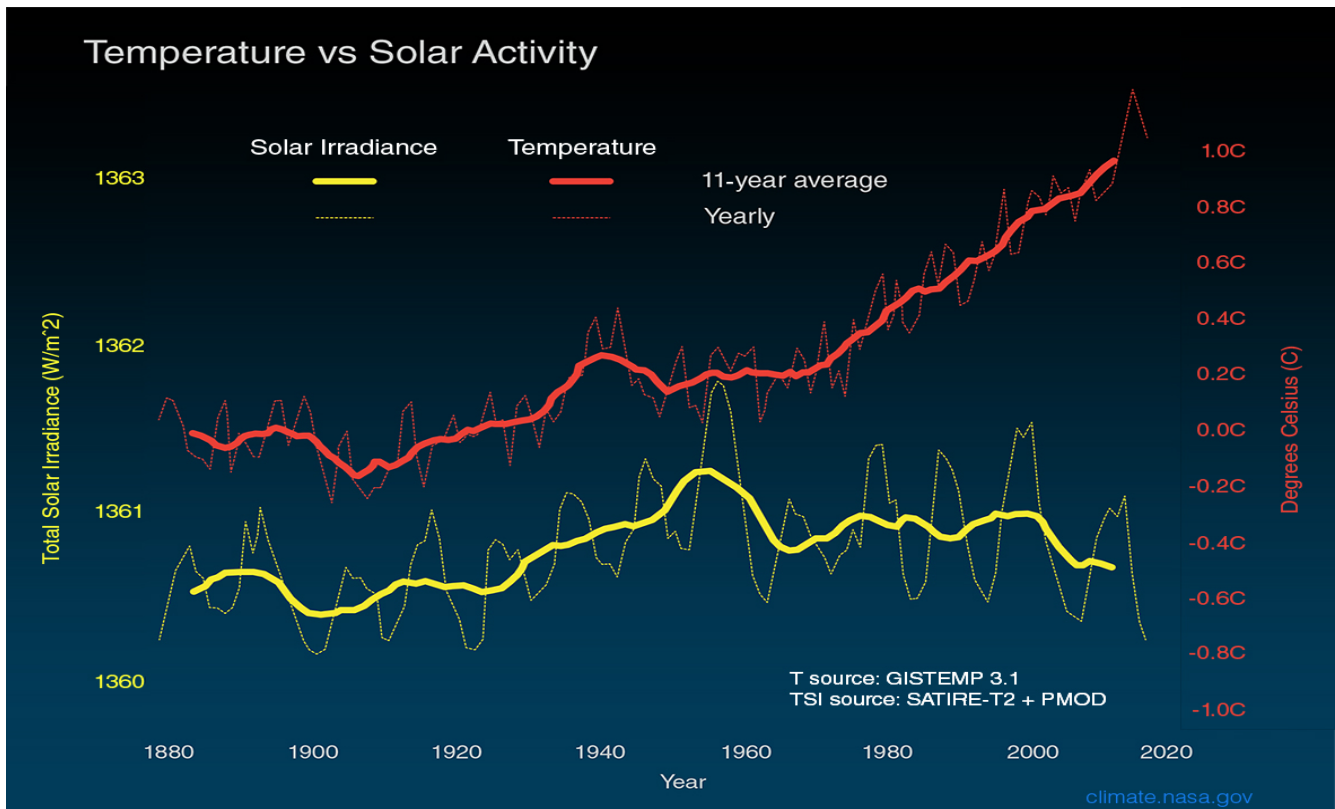
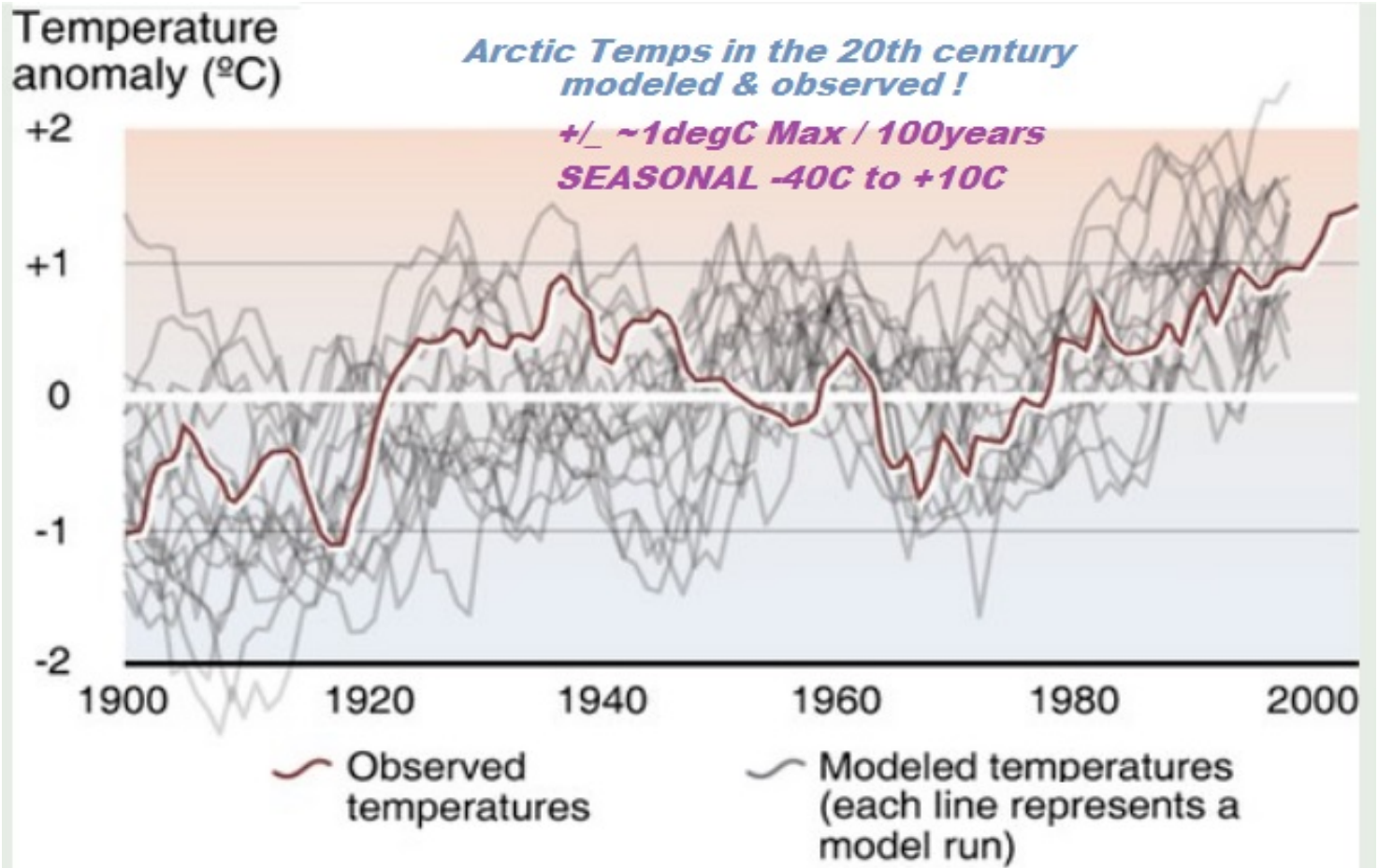
Alley R.B. 2004. GISP2 Ice Core Temperature & Accumulation Data. IGBP PAGES/World Data Center for Paleoclimatology, Data Contribution Series #2004-013. NOAA/NGDC Paleoclimatology Program, Boulder CO. \*2007 Temp: Jox JE, Yang L, Bromwich DH, Gal, (2007) Greenland Ice Sheet Surface Air Temperature Variability: 1840-2007. American Meteorological Society, Journal of Climate Vol 22, pp 4029-4049.

**Greenland  
Surface Temps  
( recent ) !**

**anomalous ?  
probably effect of  
ocean temp  
variation  
Sea Current  
variation**



## Arctic Temps 20thC modeled & observed



## Global Temp vs Solar Irradiance 1880 to 2010

*Antarctic "Average" Surface Temp*  
<https://agupubs.onlinelibrary.wiley.com/doi/full/>

*Antarctic "Average" Surface Temps >*

*(from "select" R&D Stations)*

