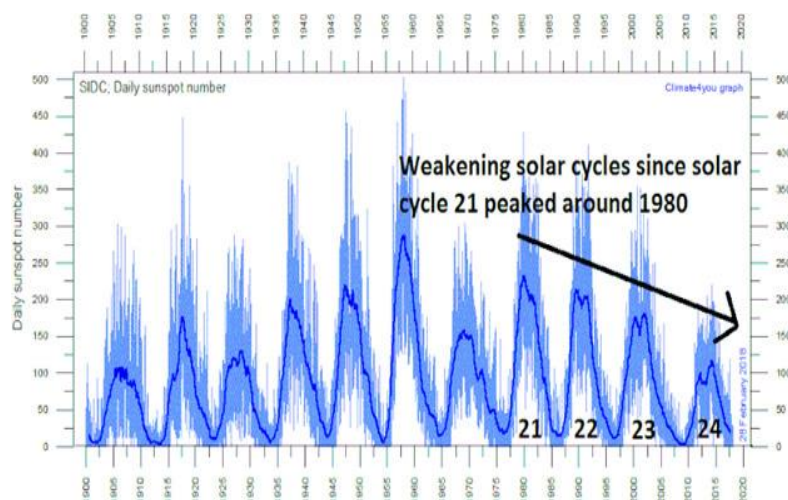


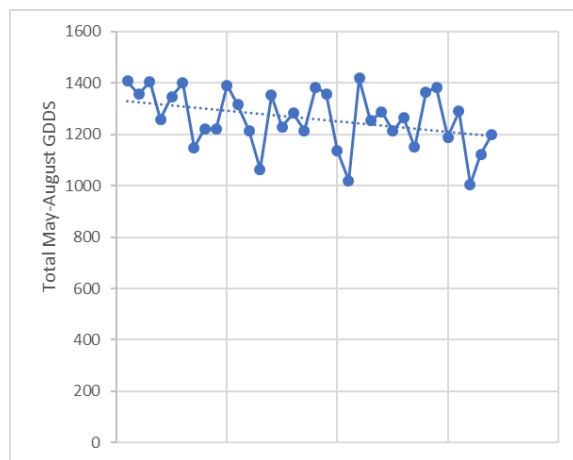
THE CANADIAN PRAIRIES ARE COOLING

A loss of 70 Growing Degree Days (GDDs) on the Canadian Prairies 1985-2019

A recent study of sunspot activity for the period 1985-2019 shows there has been a loss of close to 70 Growing Degree Days (GDDs) (a measure of solar heat units required to bring a plant to maturation) in the months of June through August linked to diminishing solar activity and large-scale atmospheric oceanic drivers. Falling GDDs are a feature of a cooling climate – if there is insufficient GDDs plants will not mature leading to crop failures and billions in lost economic incomes and output. Fluctuations in solar activity are correlated closely with global temperatures. Less solar activity (i.e. fewer sunspots) means cooler global temperatures.



- The chart above plots sunspot activity back to 1900. It reveals that solar activity has weakened since 1980 when the world entered what is known as solar cycle 25.¹
- A solar cycle is a periodic fluctuation of dark patches on the surface of the sun - the most common of which is the 11-year sunspot cycle which has been numbered since 1750.
- The Dalton Minimum (1795-1850) was one of four solar minimums that occurred during the "Little Ice age" of 1280-1850 during which planet earth became cold.² This diminished solar activity caused London's Thames River to freeze over winter.
- The decline in May through August Growing Degree Days (GDDs) corresponds with falling June-August sunspot activity over the Canadian prairies for the period 1985-2020.
- The graph to the right shows a loss of 70 GDDs for the period 1985-2019 that corresponds with a decline of average June-August sunspot activity for the period 1985-2019.³
- Archibald cautions that a 2°C. cooling trend over the Canadian prairies during present times would keep the crop from ripening before the first frost.⁴



Sources:

¹ . Agro-Climatic Consulting Sunspot data base 1949-present

² Plimer, I. 2009. Heaven and Earth: Global Warming the Missing Science. Connor Court Publishing Ltd., Ballan, Victoria, Australia. 503 pp

³ Garnett, E.R, Khandekar, M.L. and Kaur R.2020. Is Diminishing Solar Activity Detrimental to Canadian Prairie Agriculture. Earth & Environmental Science Research and Reviews ISSN:2639-7455

⁴ Archibald, D. 2014. Twilight of Abundance: Why Life in the 21st century will be Nasty, Brutish and Short. Regency Publishing Washington D.C. 208 pp