

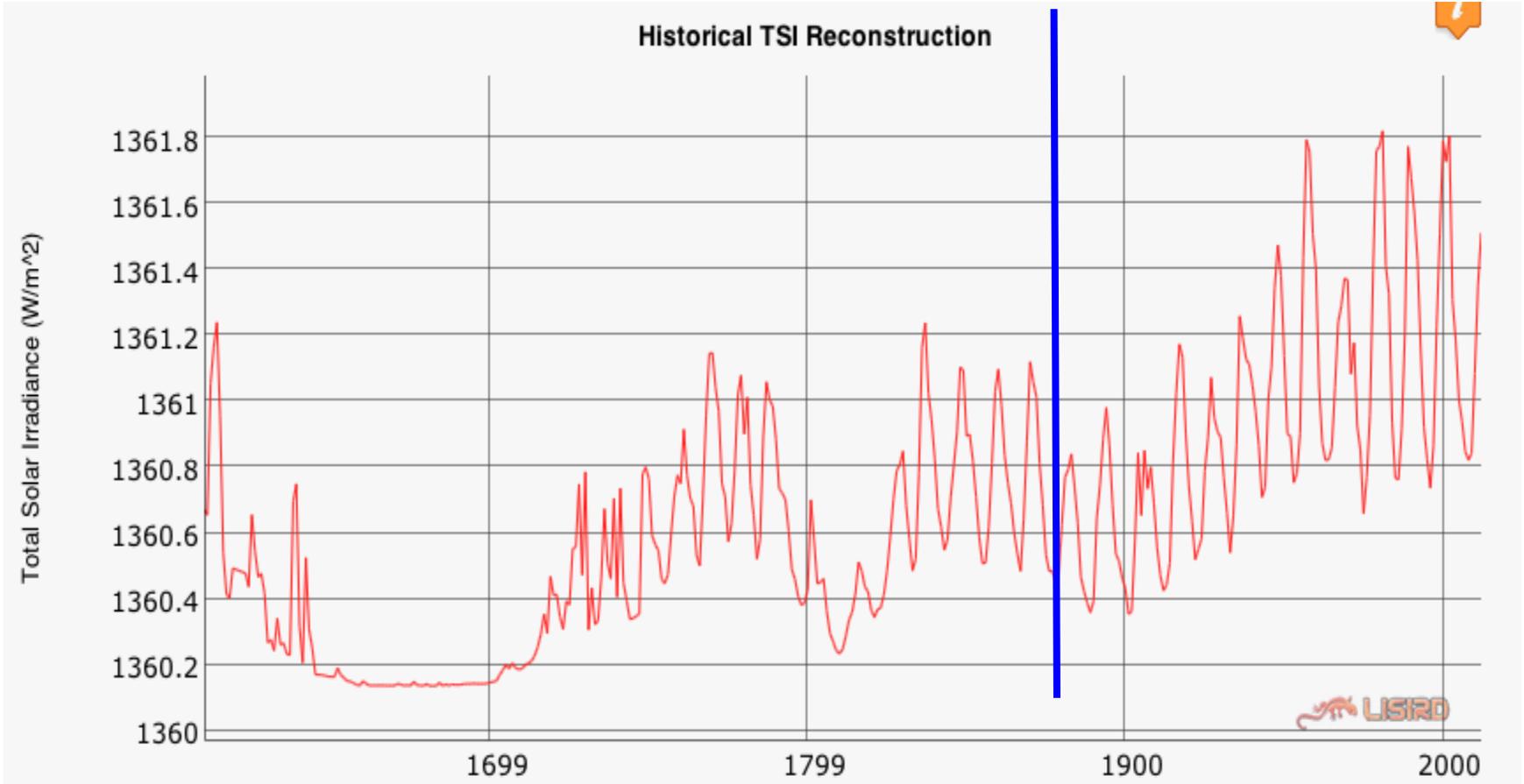
Official Sunspot Numbers

Source: NASA/Marshall Space Flight Center

Solar Irradiance: Laboratory for Atmospheric and Space Physics

- Matches Sunspot Data

- Right Side of the Blue Line is the 'Solar Constant'

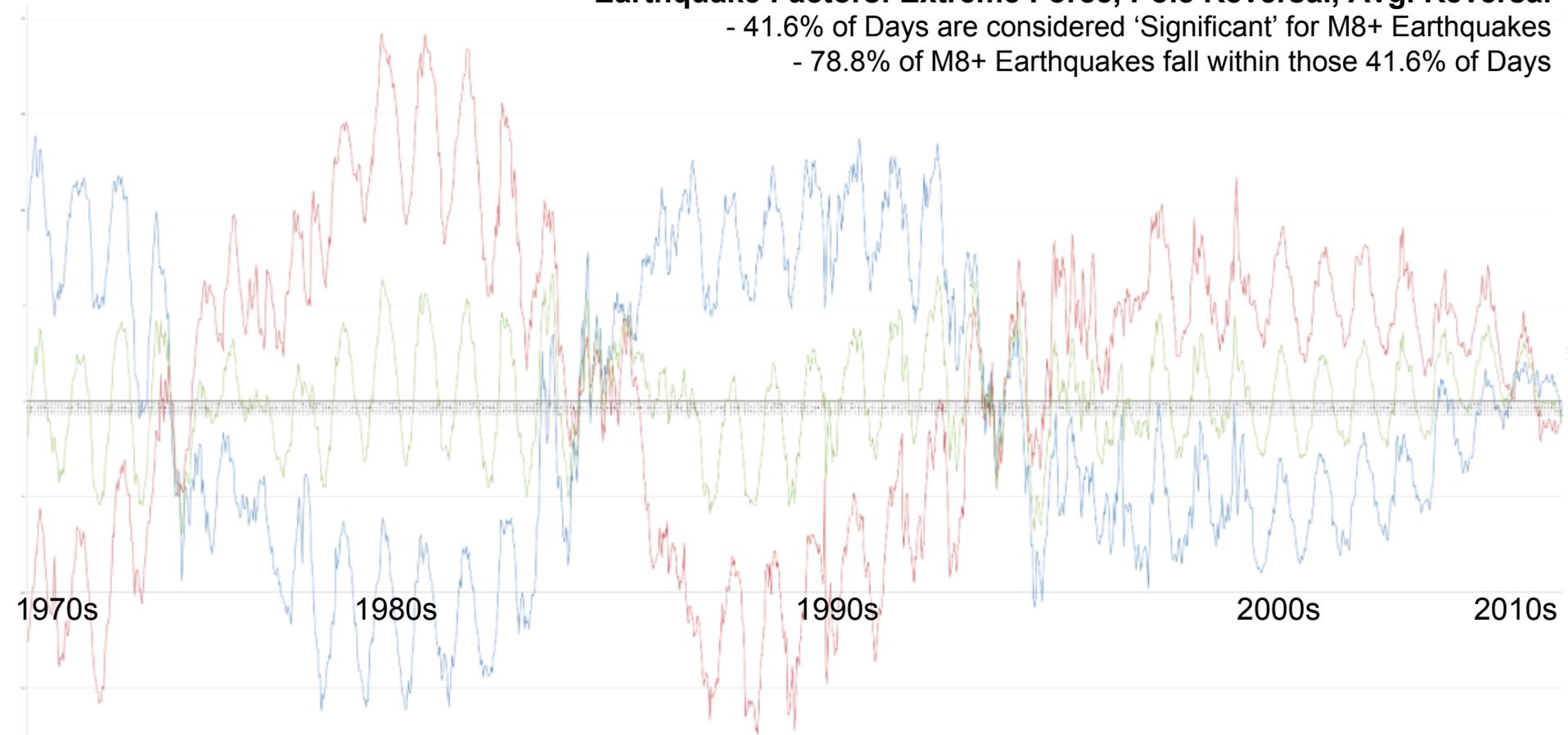


Solar Polar Fields: Wilcox Solar Observatory

Earthquake Factors: Extreme Force, Pole Reversal, Avg. Reversal

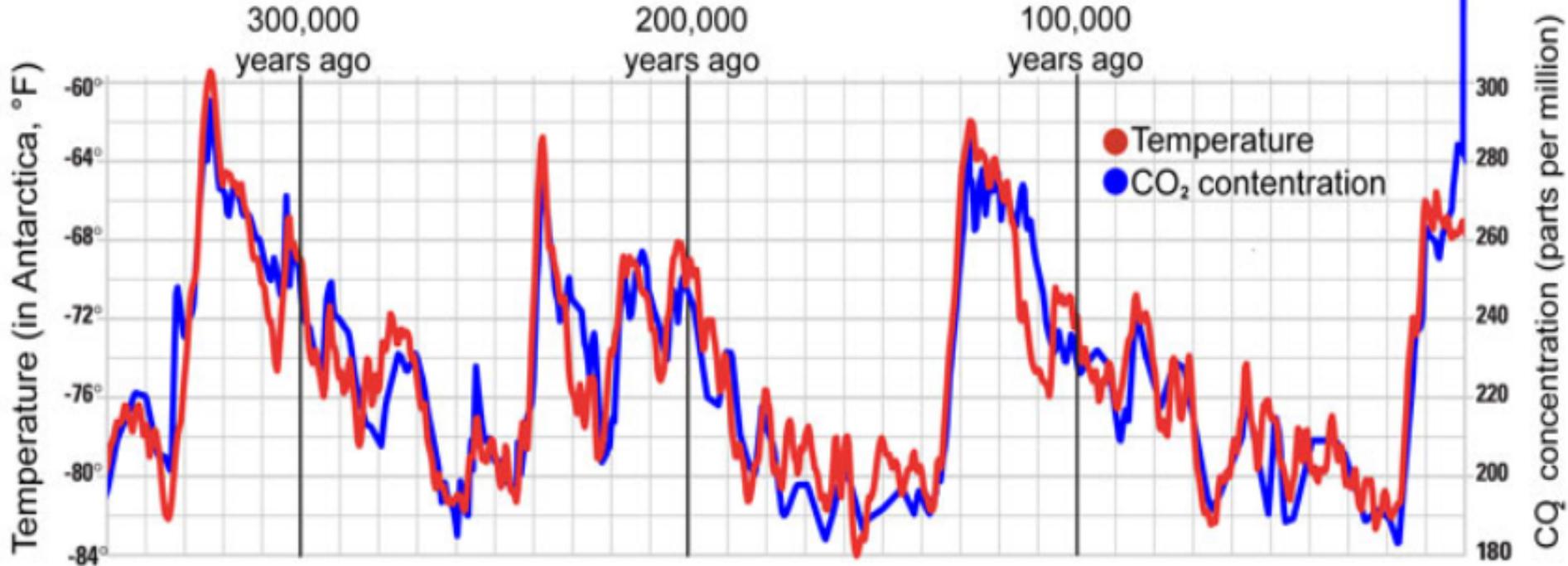
- 41.6% of Days are considered 'Significant' for M8+ Earthquakes

- 78.8% of M8+ Earthquakes fall within those 41.6% of Days

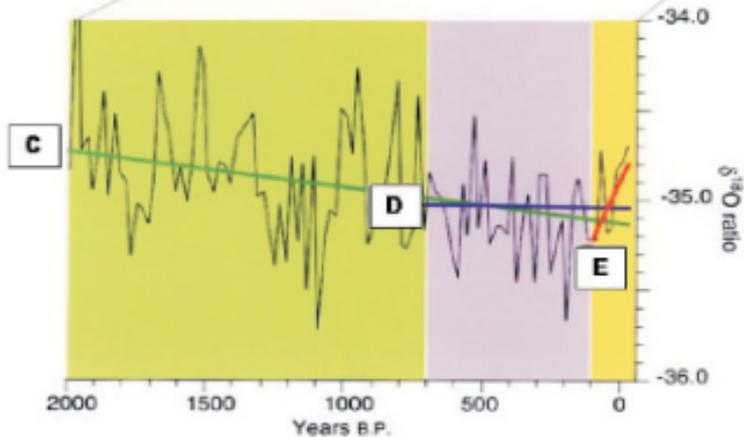
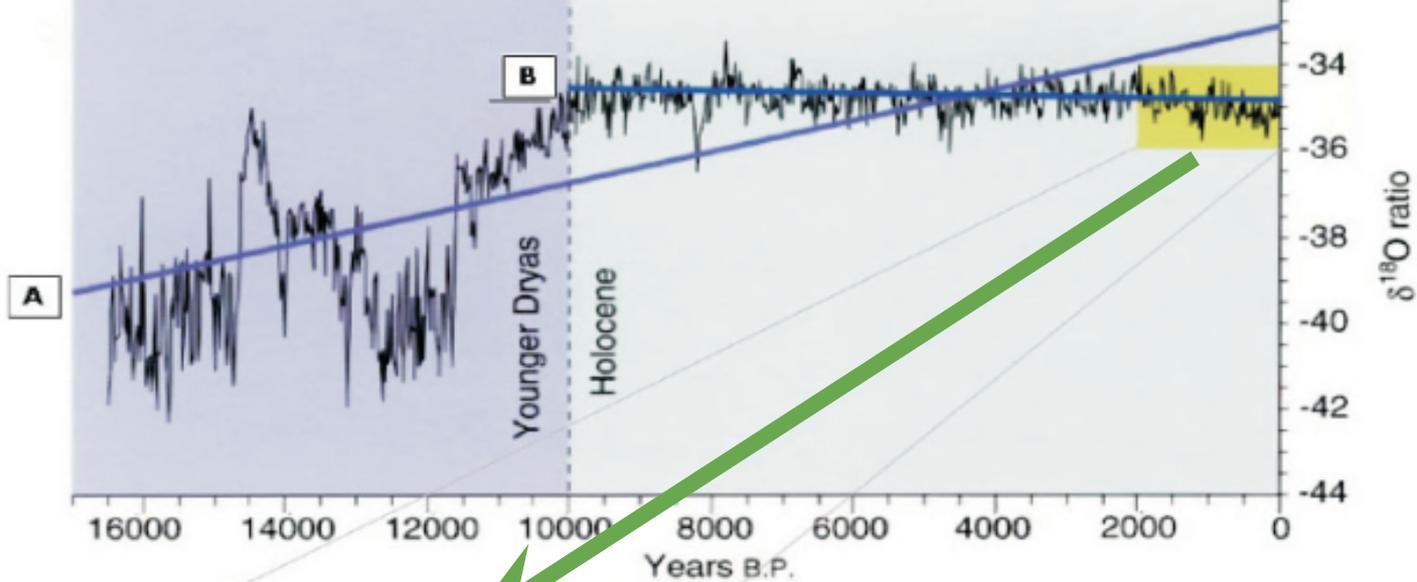


Can you find where humans began polluting?

CO₂ Concentrations and Temperature Have Tracked Closely Over the Last 300,000 Years



WARM
↑
-9°C
↓
COLD

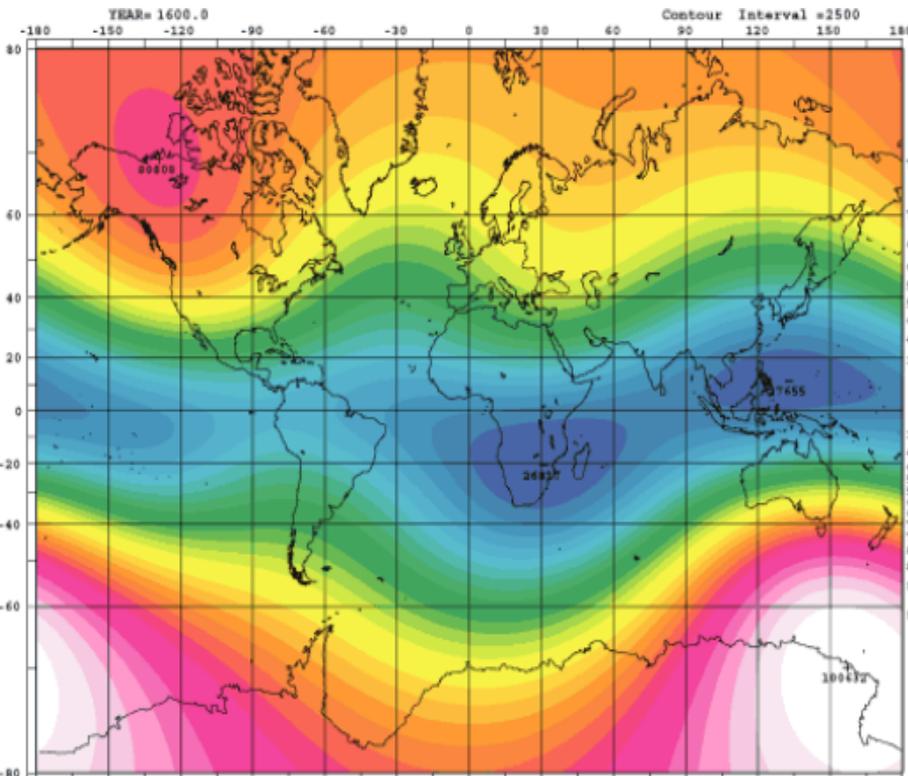


The **Red** Line Is
"Global Warming"

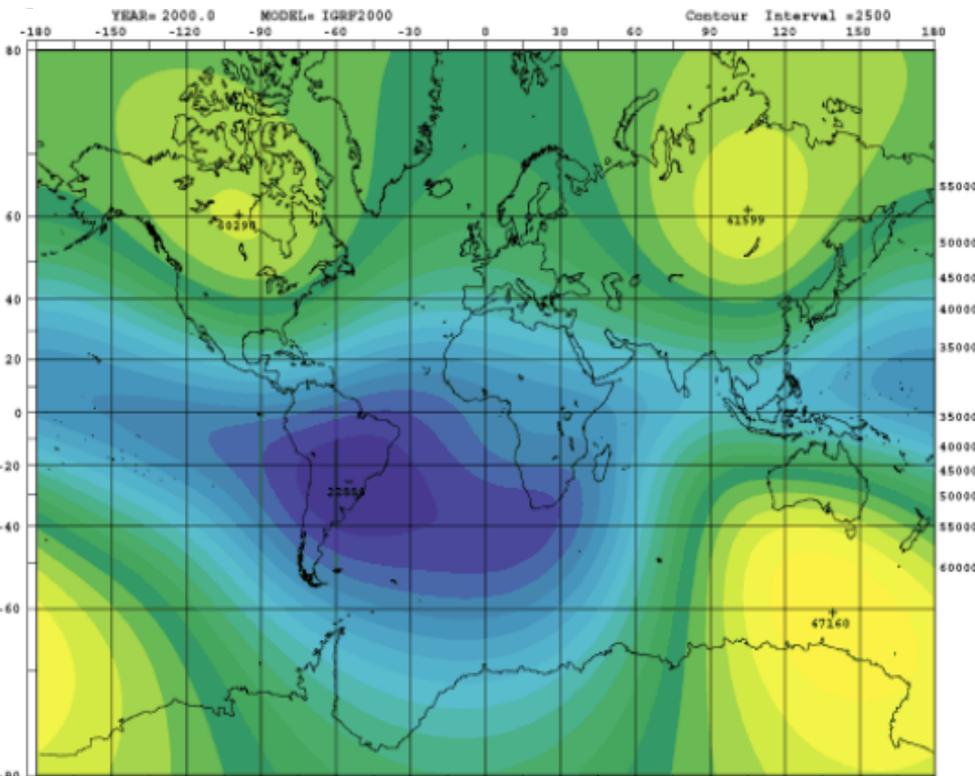
Published by Robert Carter, combining
data from GIPS2 and NSIDC

Earth's Magnetosphere +15% Weaker

White/Pink = Strong
Blue/Violet = Weak

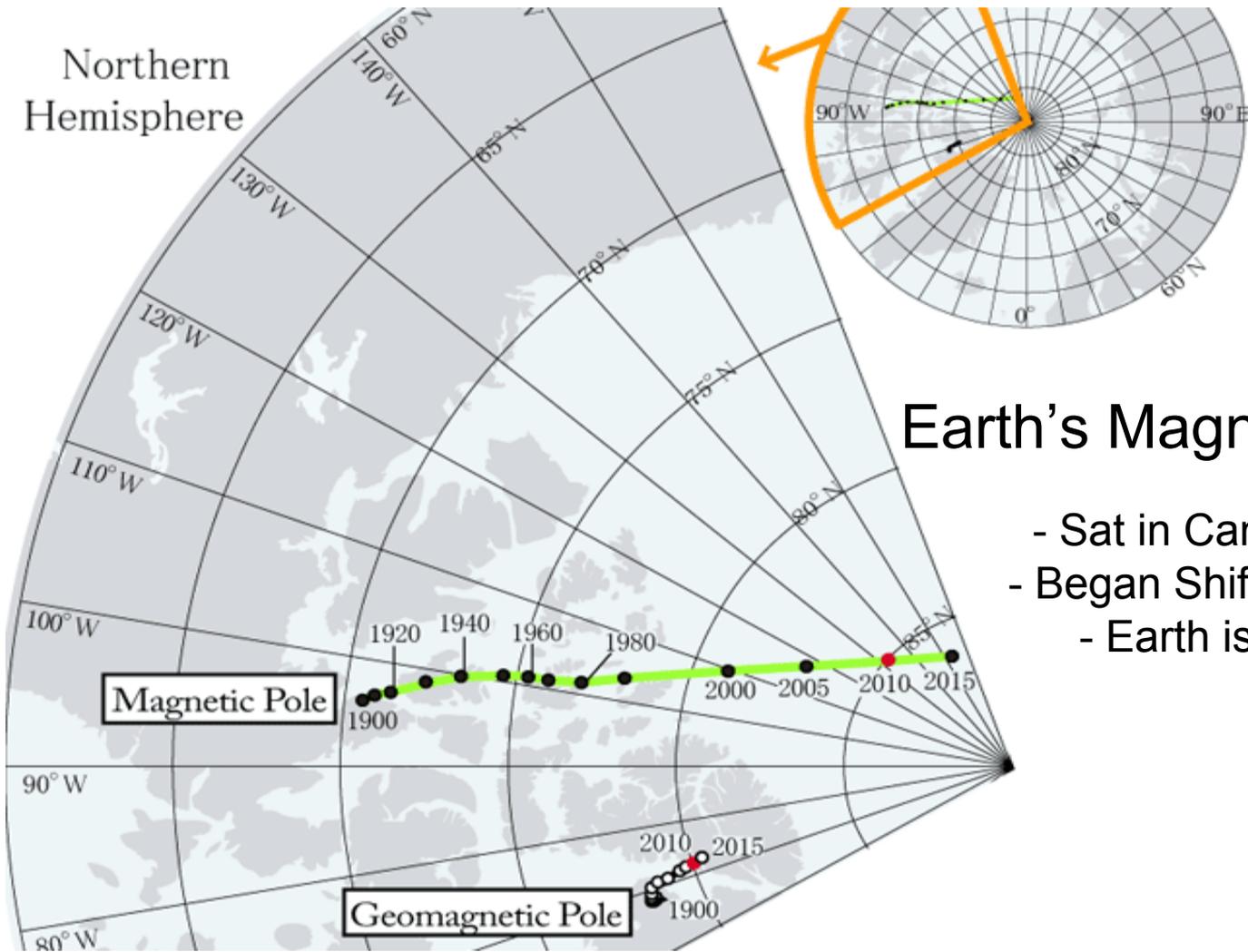


1600s



2000

Northern Hemisphere



Earth's Magnetic North Pole

- Sat in Canada for 100s of Years
- Began Shifting in the Early 1900s
- Earth is Overdue for Reversal

Proof that Climate Change Exists

The Sun had its strongest activity in +400 years just a few decades ago, but is now weakening rapidly, and may enter a period called 'grand minimum.'

Venus' fastest wind have recently increased their speed by 33%. Venus is also spinning more slowly now.

Earth's last ice age occurred during a solar grand minimum, global warming was terrible a few decades ago, and just experienced a major 'warming pause.'

Mars' is experiencing significant warming, and signs of large 'Marsquakes.'

Jupiter's red spot is weakening, and another mega-storm appeared around the time an entire stripe was disappearing. Jupiter is also emitting new radio signals.

Saturn's cyclical superstorm broke, with an overly-intense storm appearing 10 years early, and lasting longer than usual. Saturn is also spinning more slowly now.

Uranus' auroras were recently strong enough to be visible from Hubble for the first time ever.

Where is Water?

- Every Planet has Water; Even Pluto is 75% Water Ice.
- Most Moons have Water; Some are *Mostly* Water Ice.
- Chariklo, Centaur Asteroid, has a Ring of Water Ice.
- Multiple Moons in our Solar System have Liquid Oceans.
- In Sunspots, Pre-Planetary Nebulae, Black Holes...
- On Space Dust, Asteroids, Exoplanets...

Earth's Water?

- Solar Wind (mostly H⁺) can break Oxygen atoms from rocks.
- The Oxygen is proven to combine to make water.
- Earth erupts Oxygen and charged particles to meet CMEs.
- The H and O interact in Earth's electric layers.
- Earth has been Oxygen-rich for 3 billion years.
- How much of Earth's water came from solar wind?

Food For Thought

- 22% of Sun-like Stars have Earth-sized planets in their habitable zones.
- Almost every red dwarf star has at least one planet.
- Gas giants and super-earths outnumber earth-sized planets, and each are likely to have moons.

Take a fraction of water bodies in our solar system as a model:

300B Stars x 10 Watery Planets/Moons = 3 Trillion Water Bodies

...just in our galaxy.

There could 100M Planets similar to Europa or Better ([doi:10.3390/challe5010159](https://doi.org/10.3390/challe5010159))