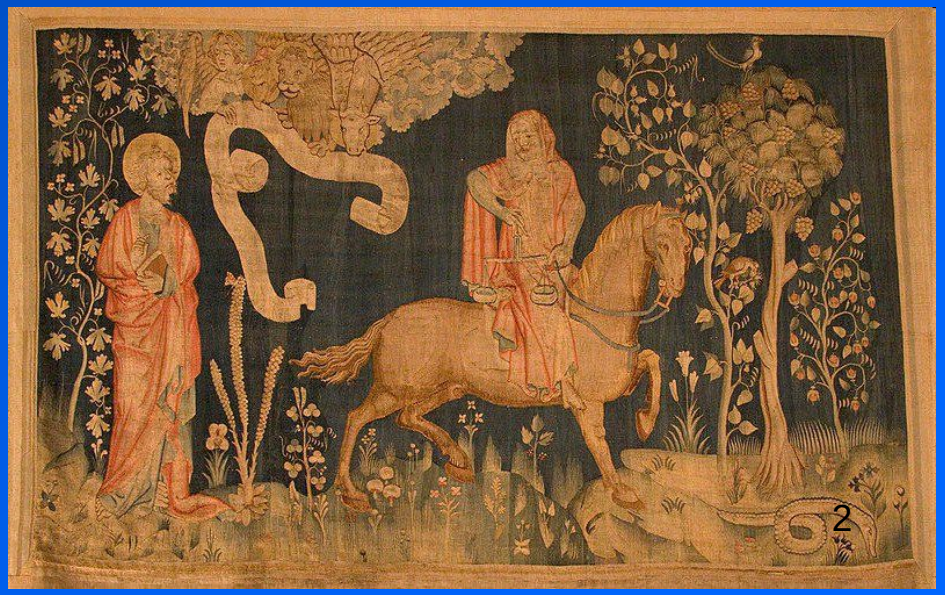
The Four Horsemen of the Apocalypse

© February 2012

The Third Horseman

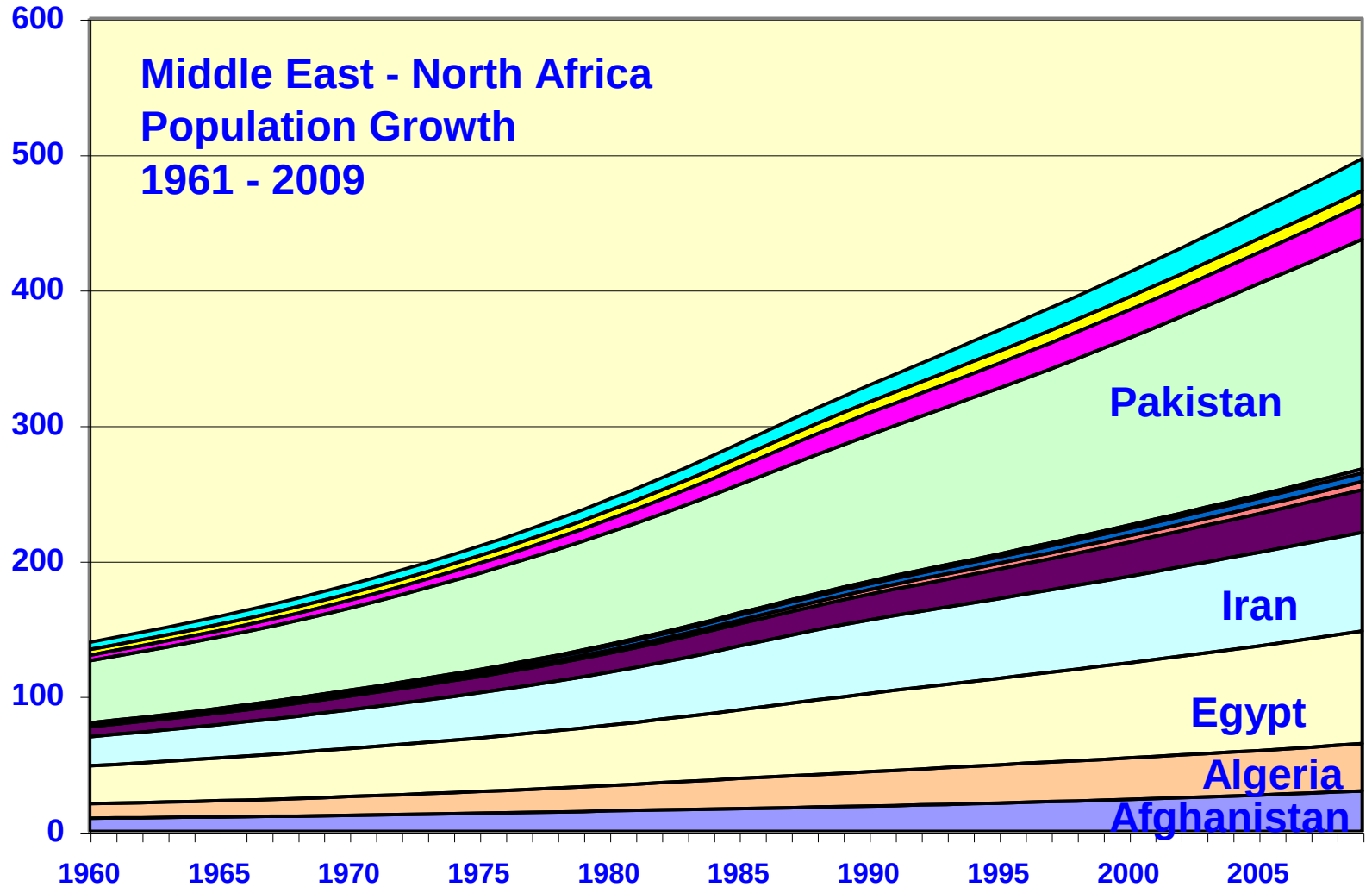
When the Lamb opened the third seal, I heard the third living creature say, "Come and see!" I looked, and there before me was a black horse! Its rider was holding a pair of scales in his hand. Then I heard what sounded like a voice among the four living creatures, saying, "A quart of wheat for a day's wages, and three quarts of barley for a day's wages, and do not damage the oil and the wine!"

Revelation 6: 5-6



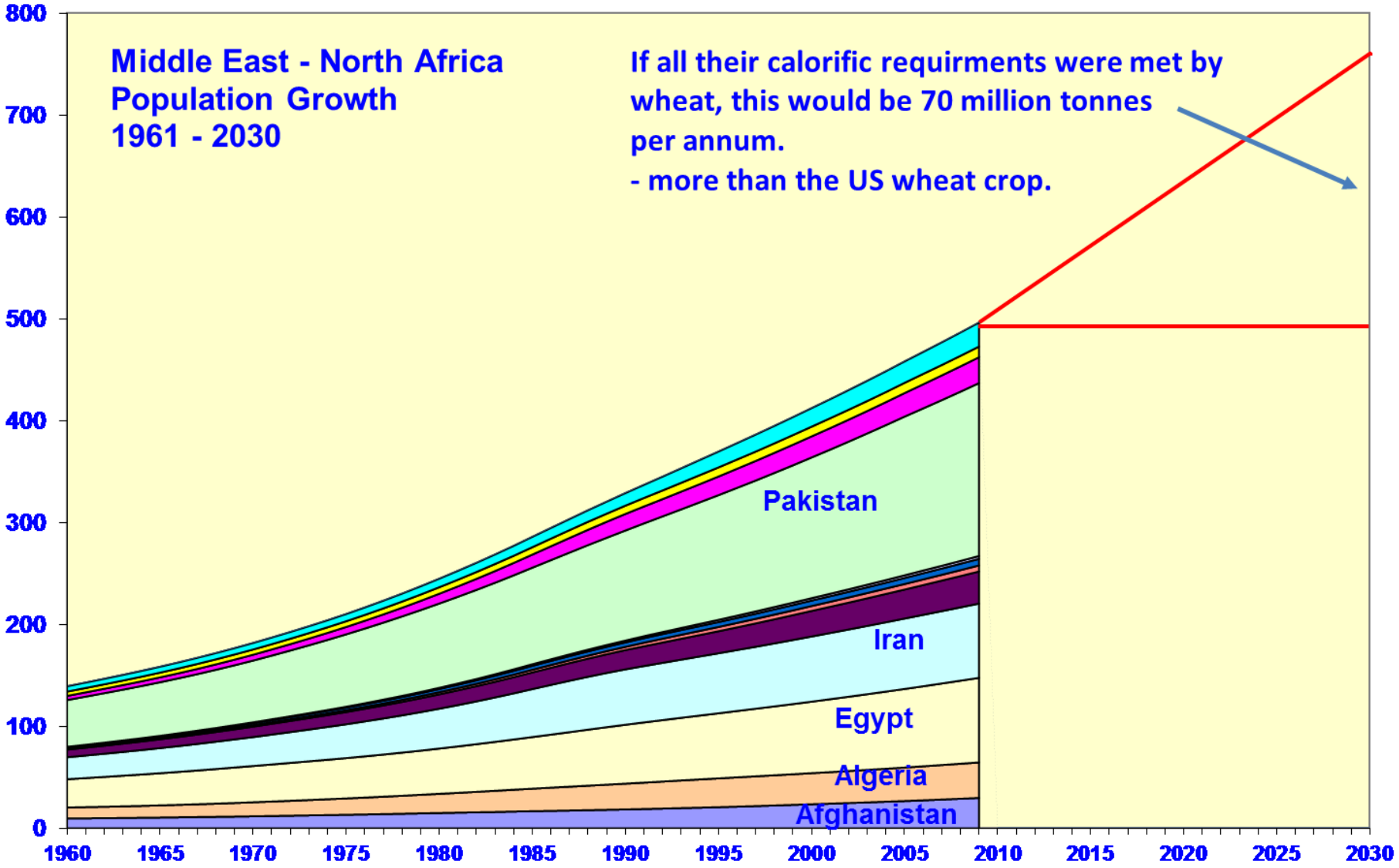
Famine:
MENA Population Growth

Middle East – North Africa

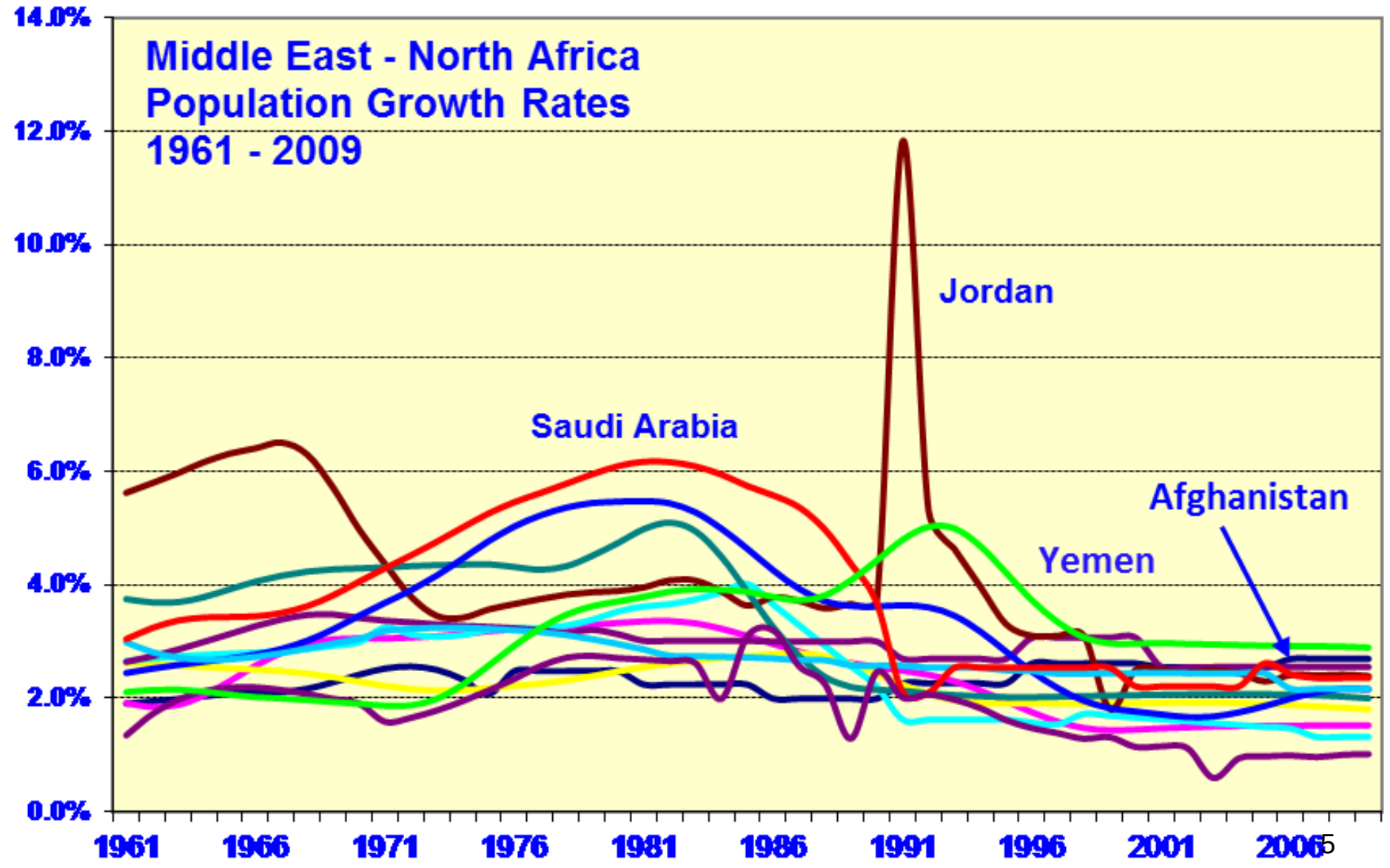


At 2% per annum growth, MENA population will be up by 250 million by 2030.

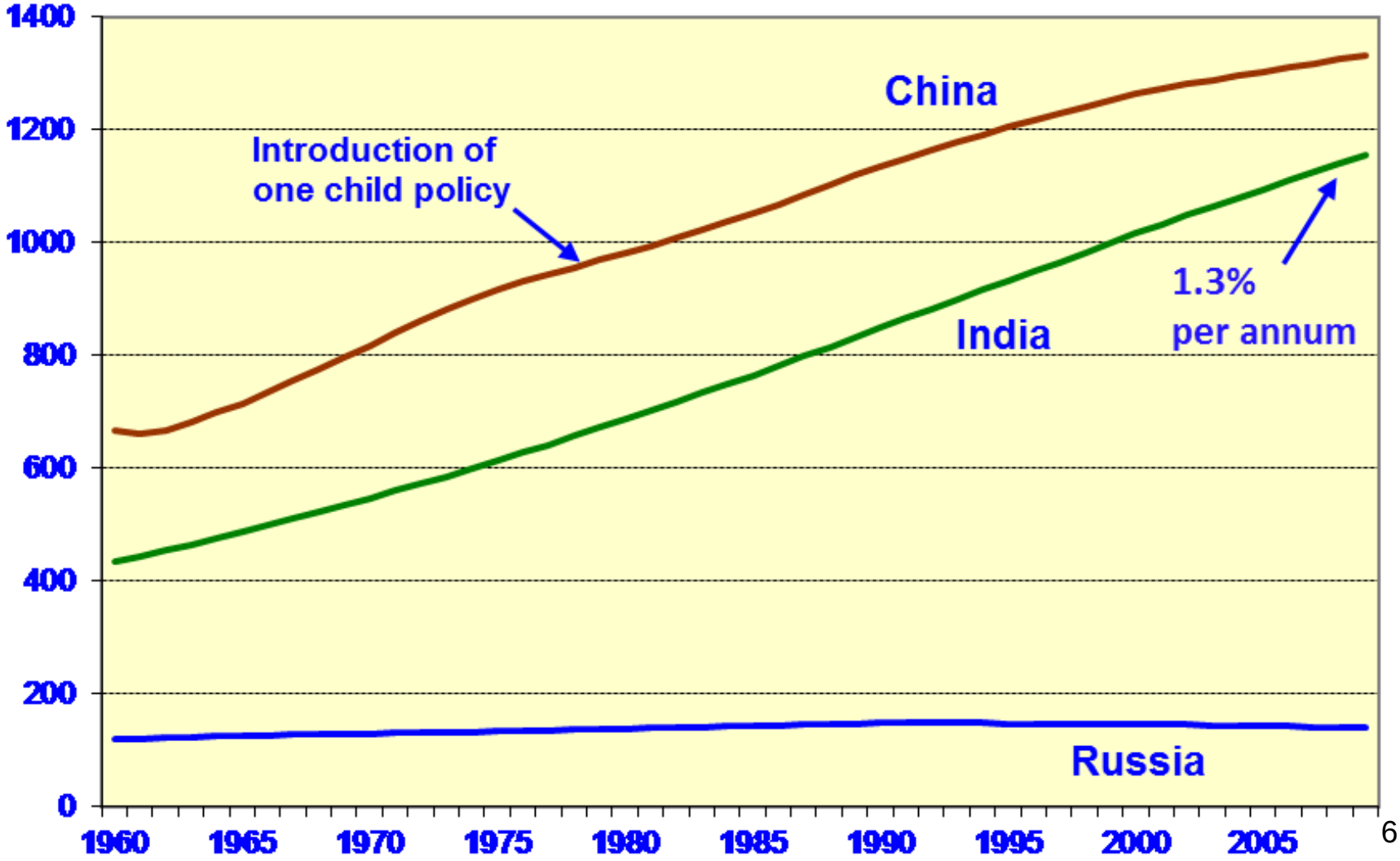
Extending that to 2030



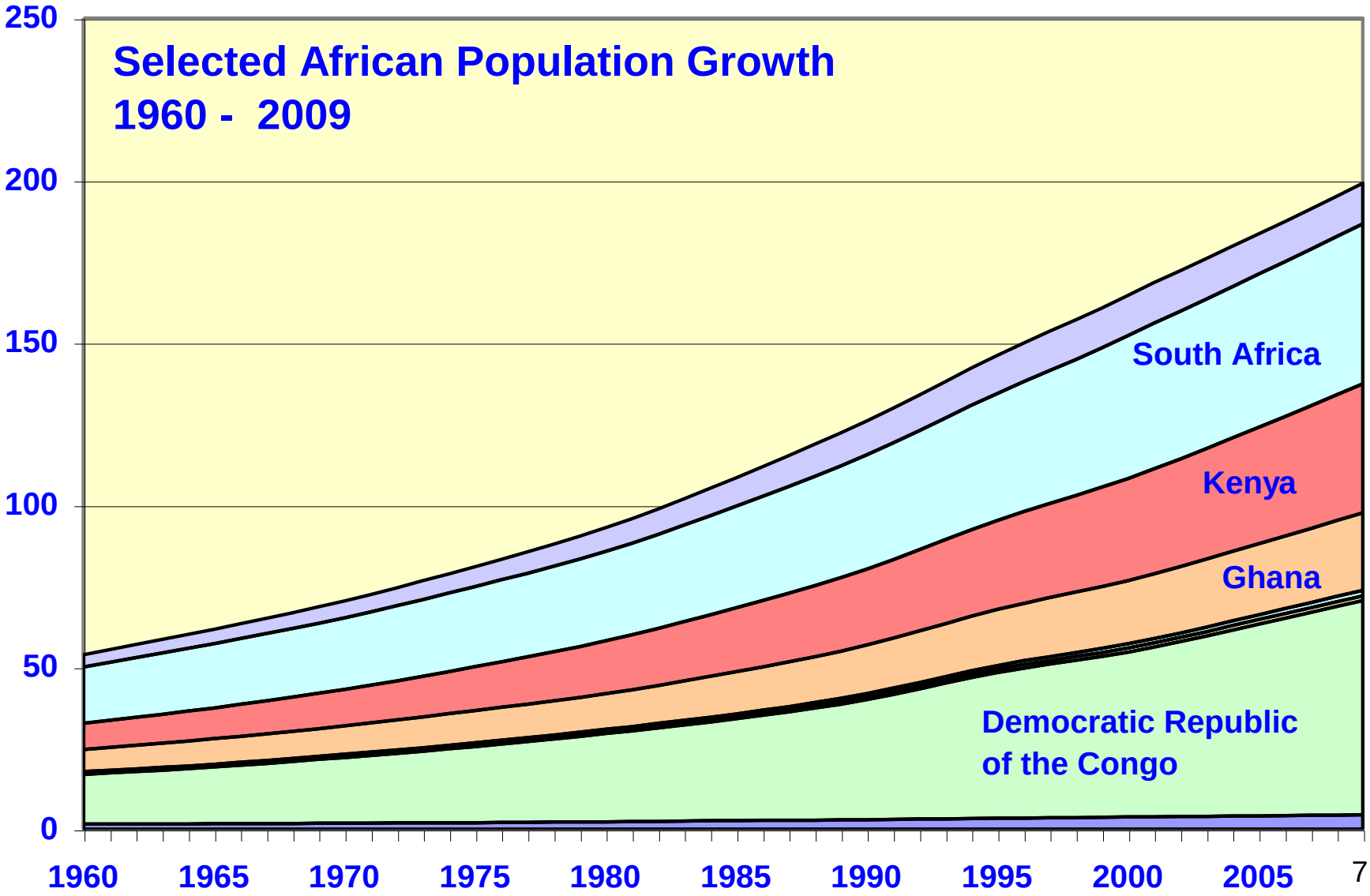
3% growth is doubling every 25 years.



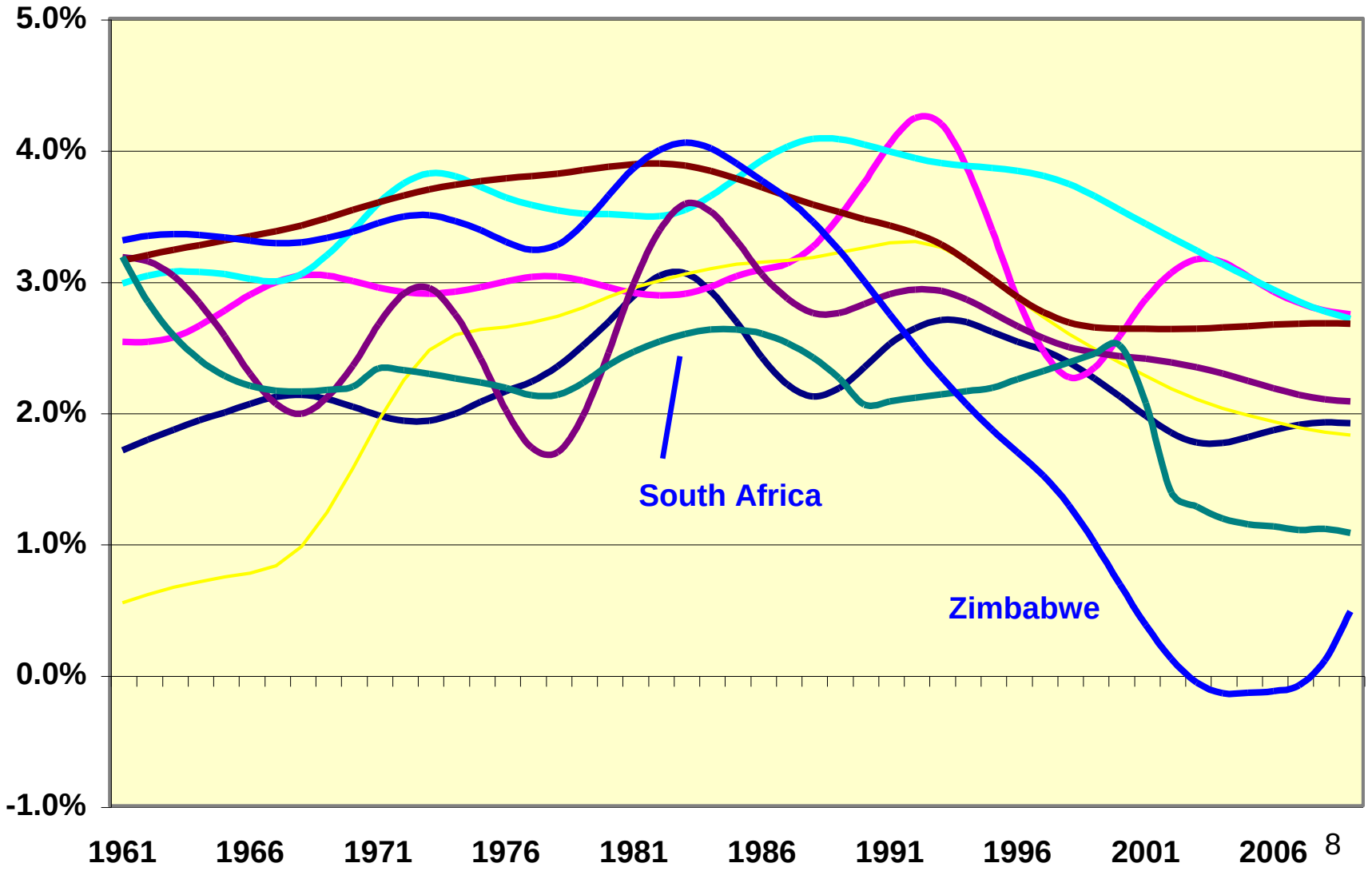
China avoided calamity, India is headed for disaster.



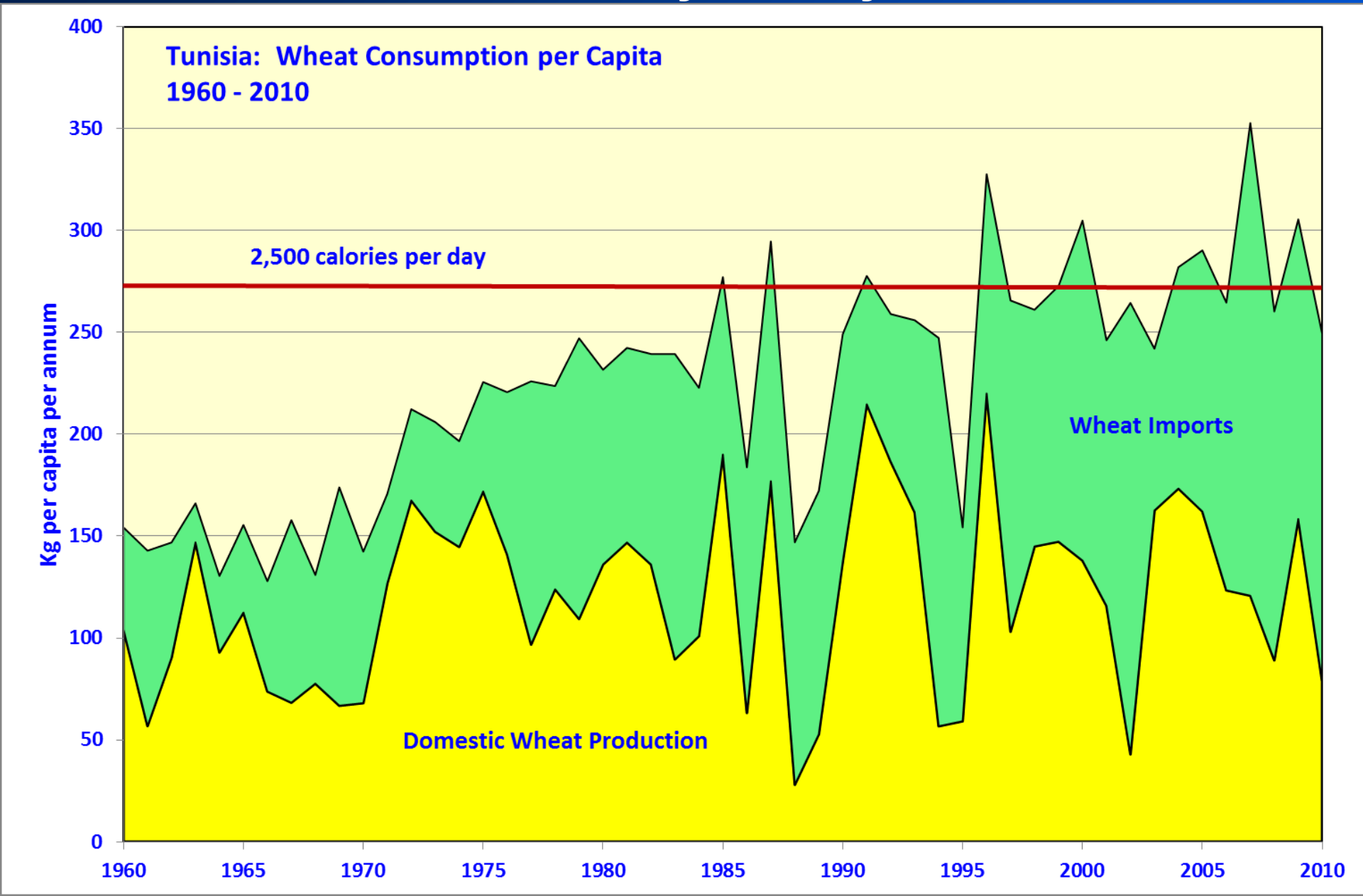
Africa is also headed for trouble.



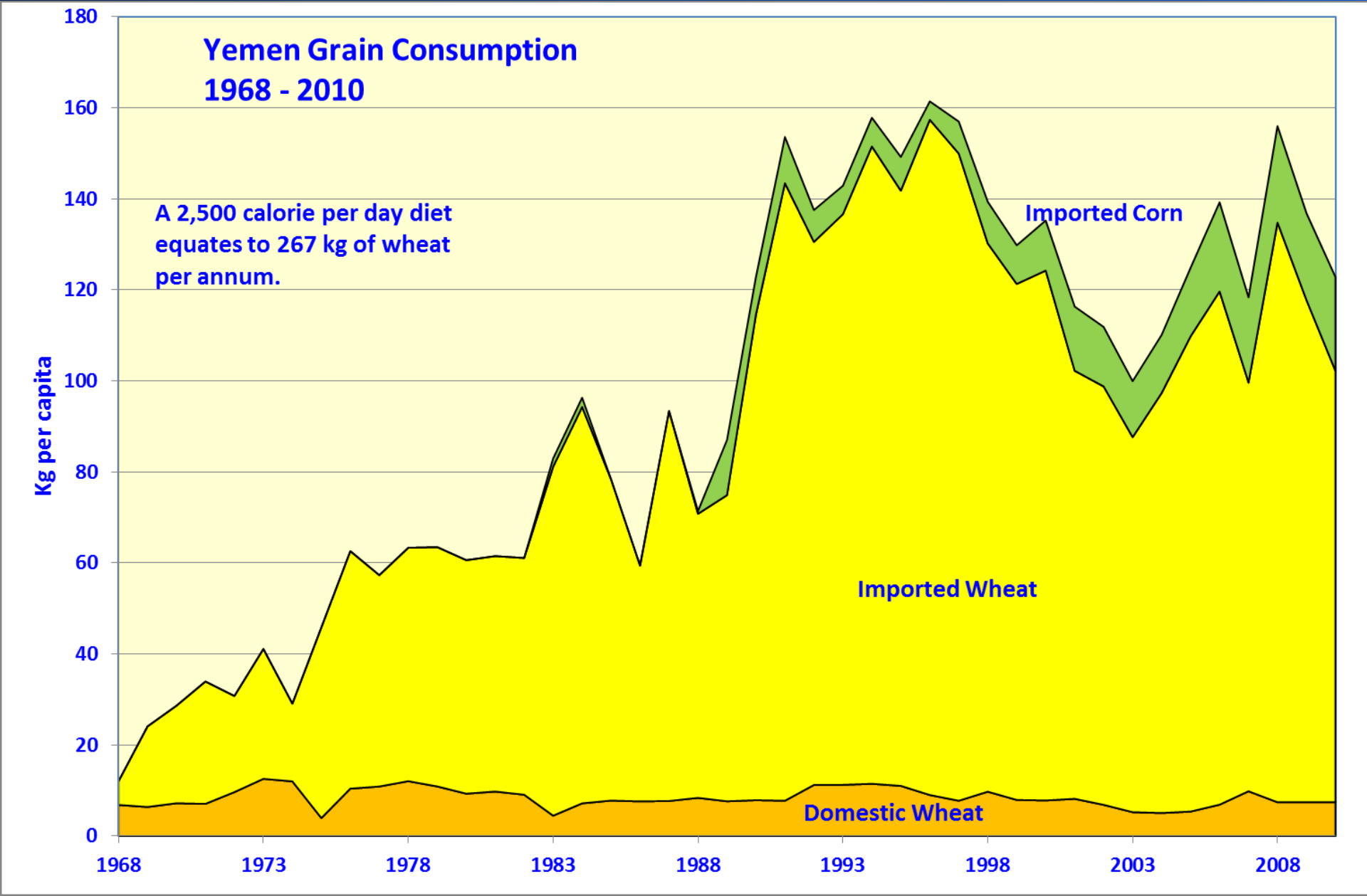
Some African Population Growth Rates



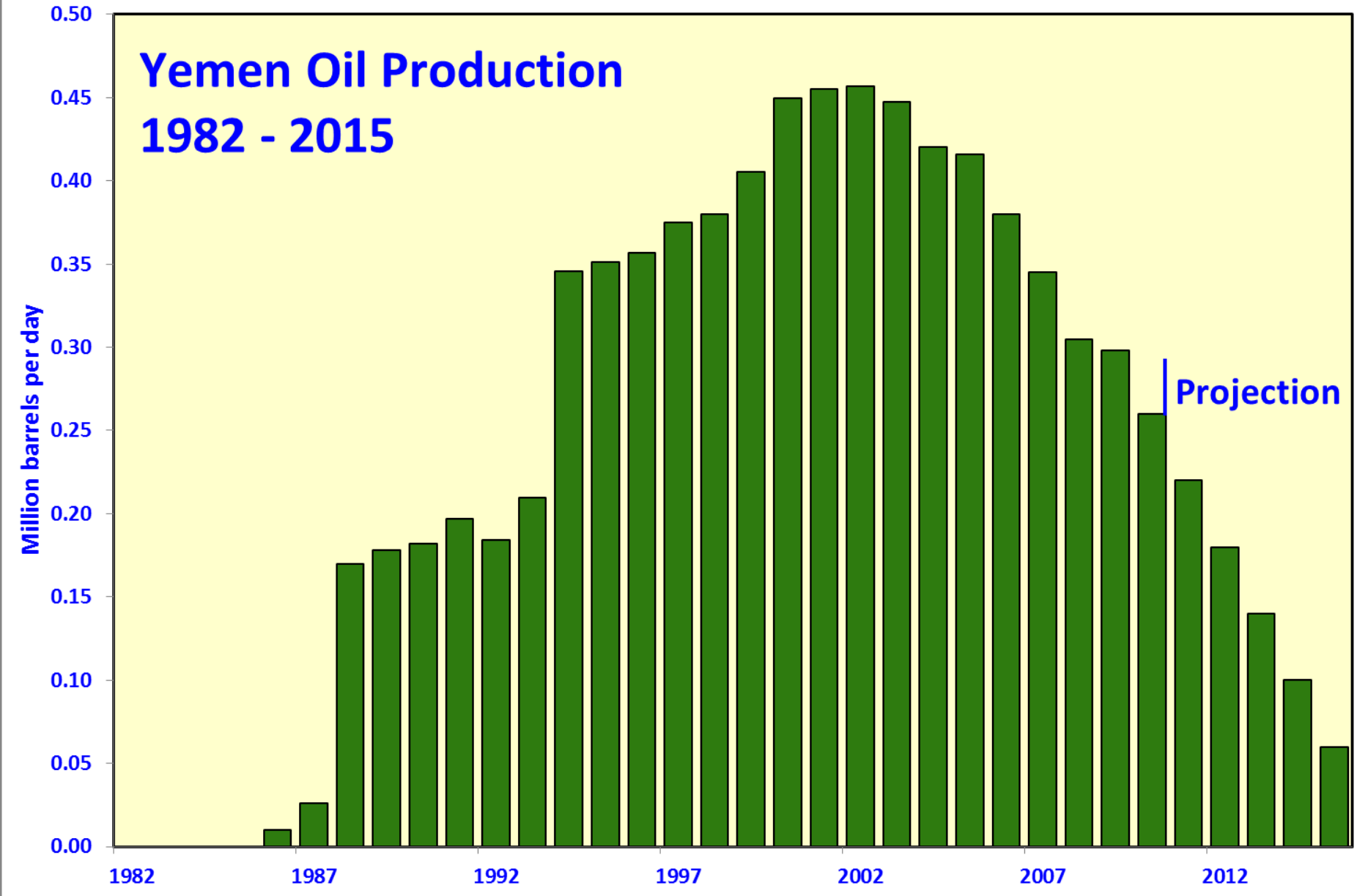
Tunisia: The Arab Spring began with a vegetable vendor, but what they mainly eat is wheat.



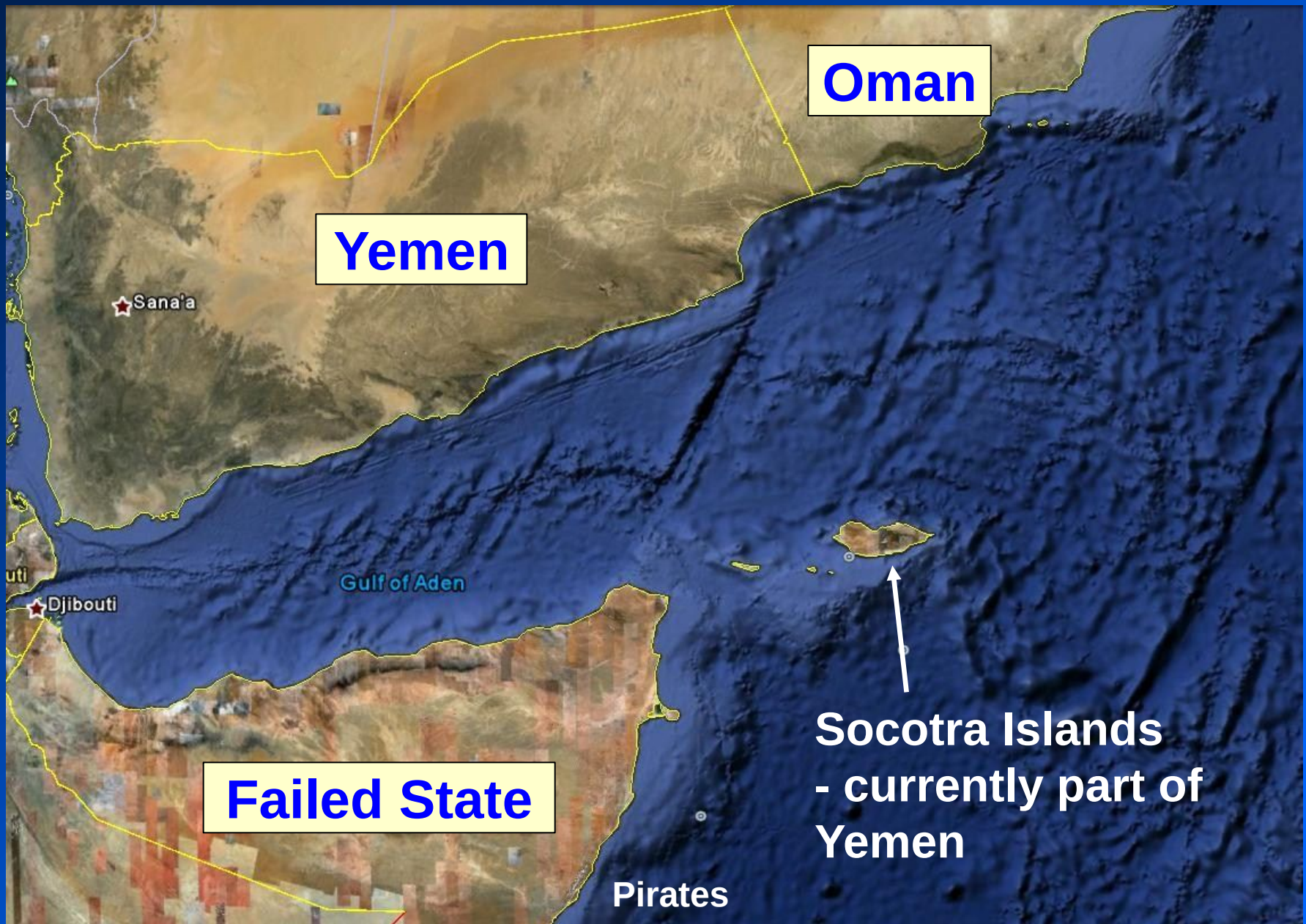
Yemen is on its way to being a failed state.



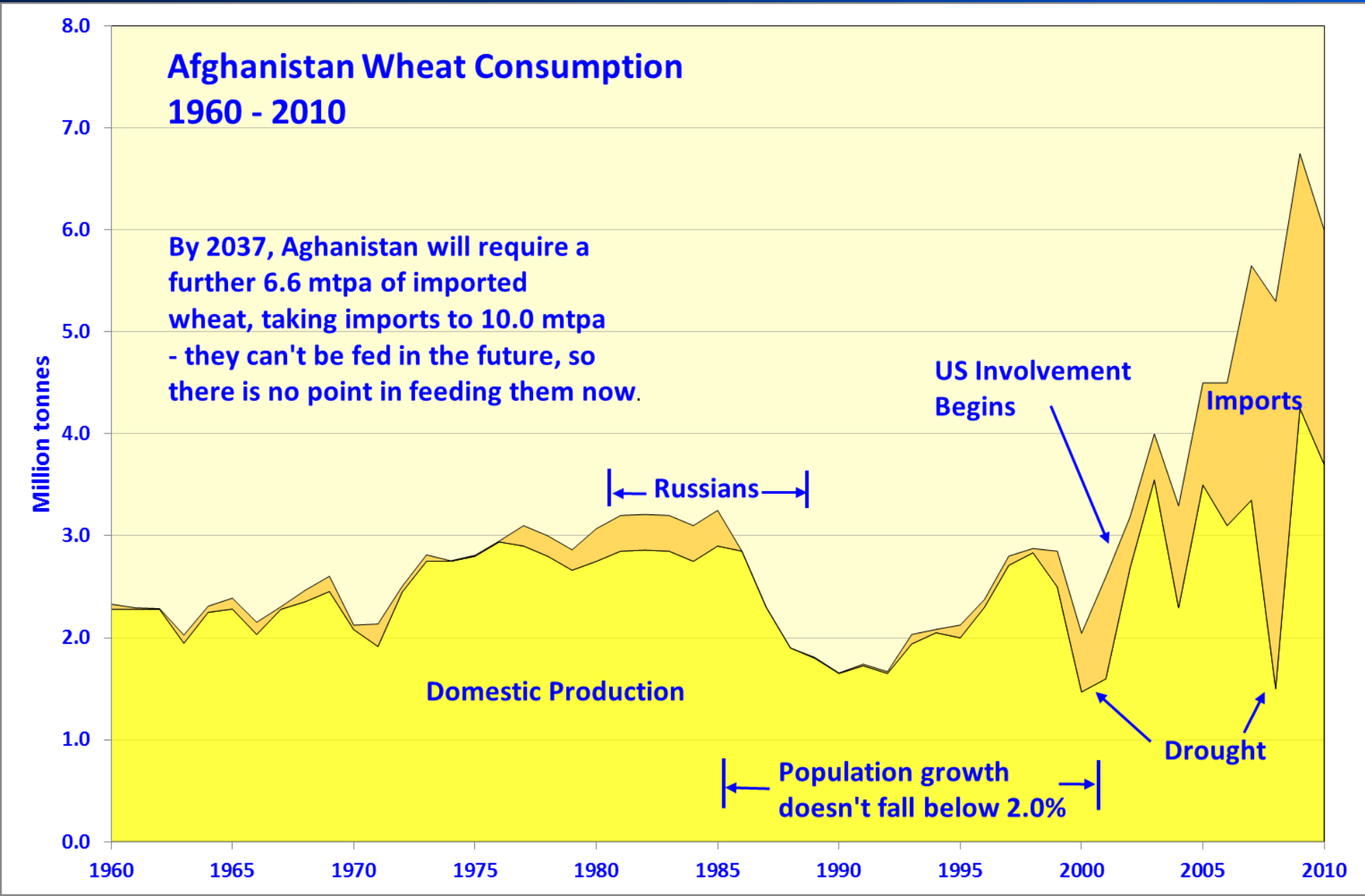
As ability to pay for imported food is declining rapidly.



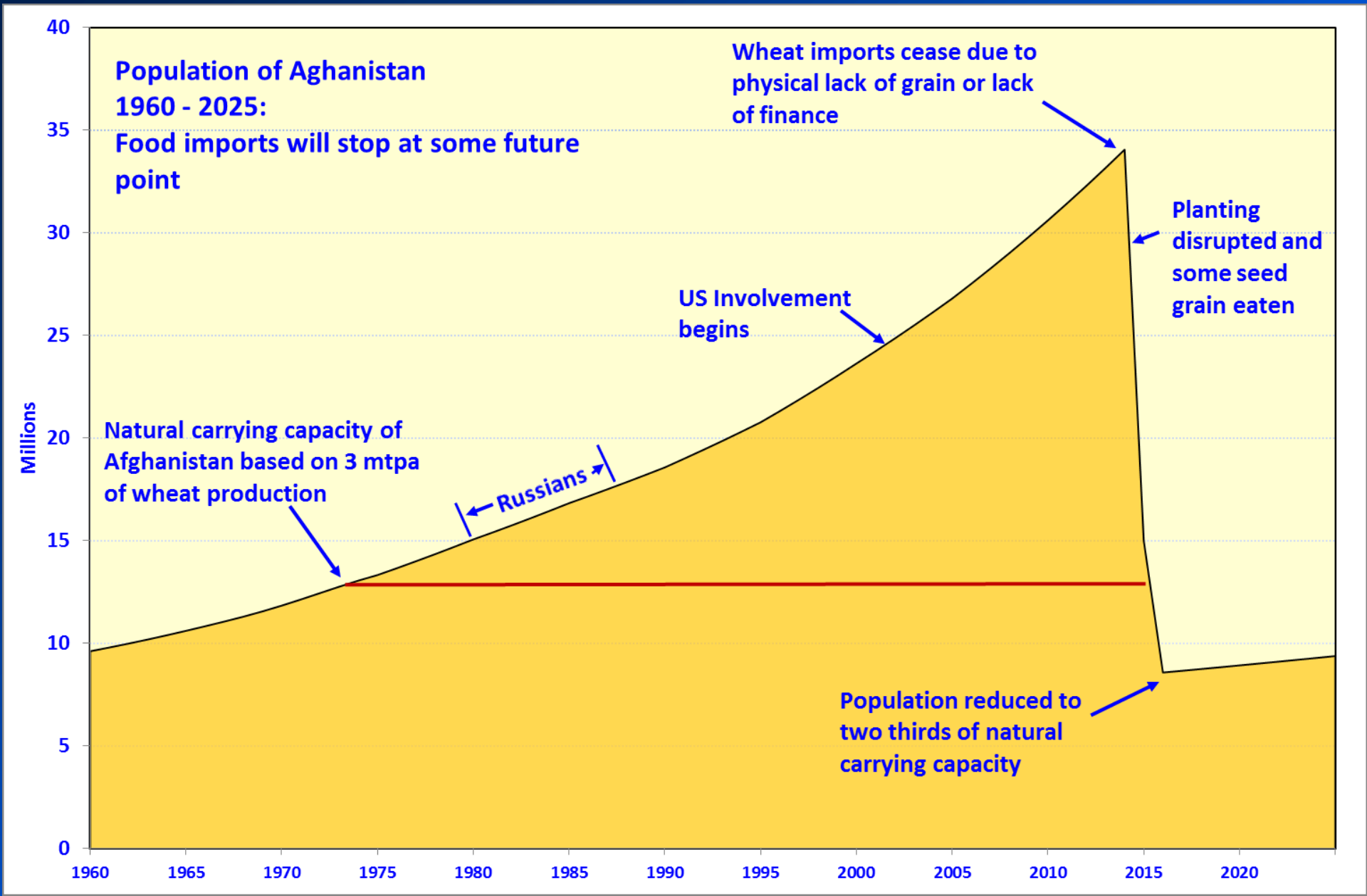
And these islands come up for grabs.



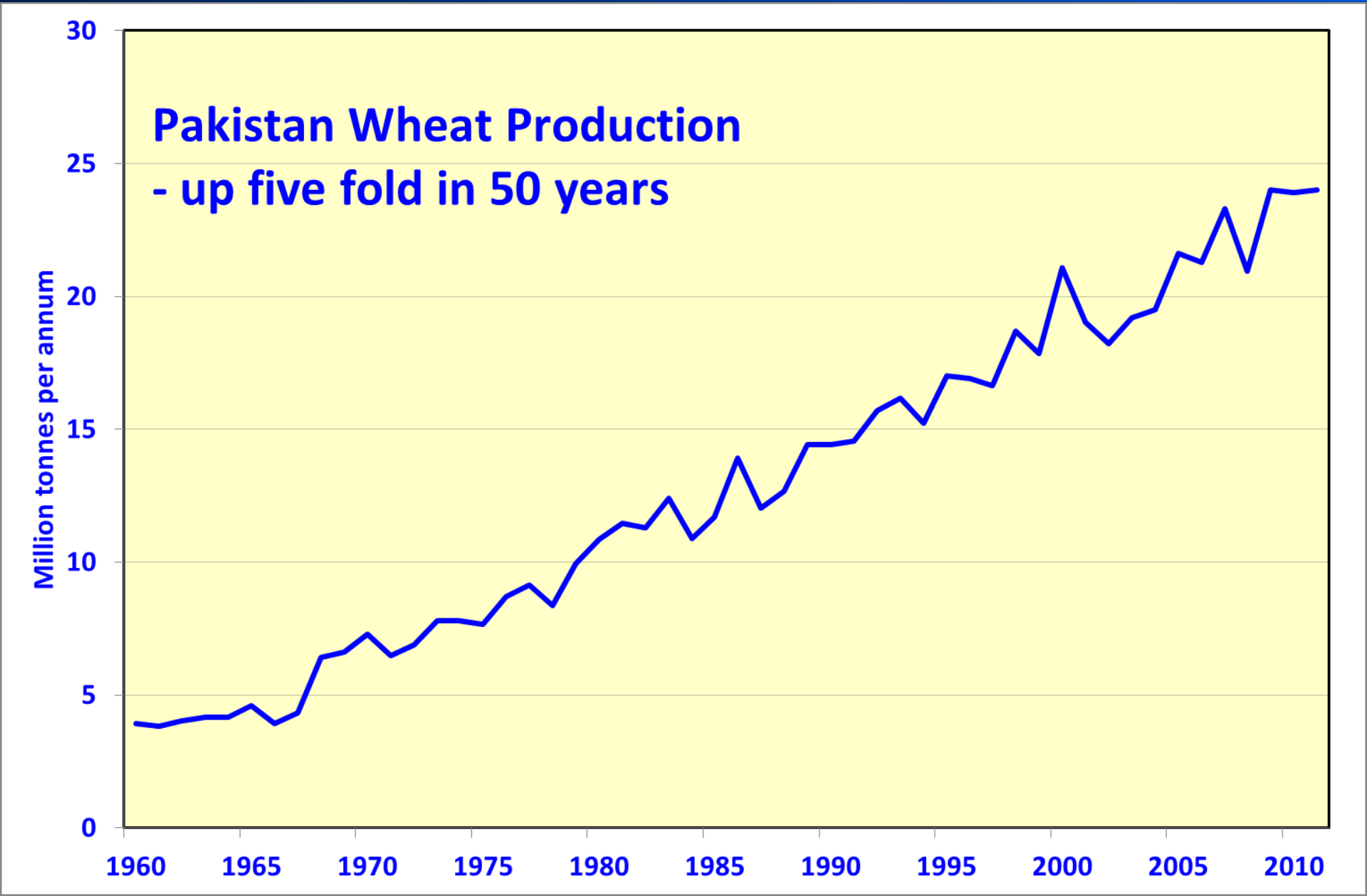
Afghanistan – another basket case



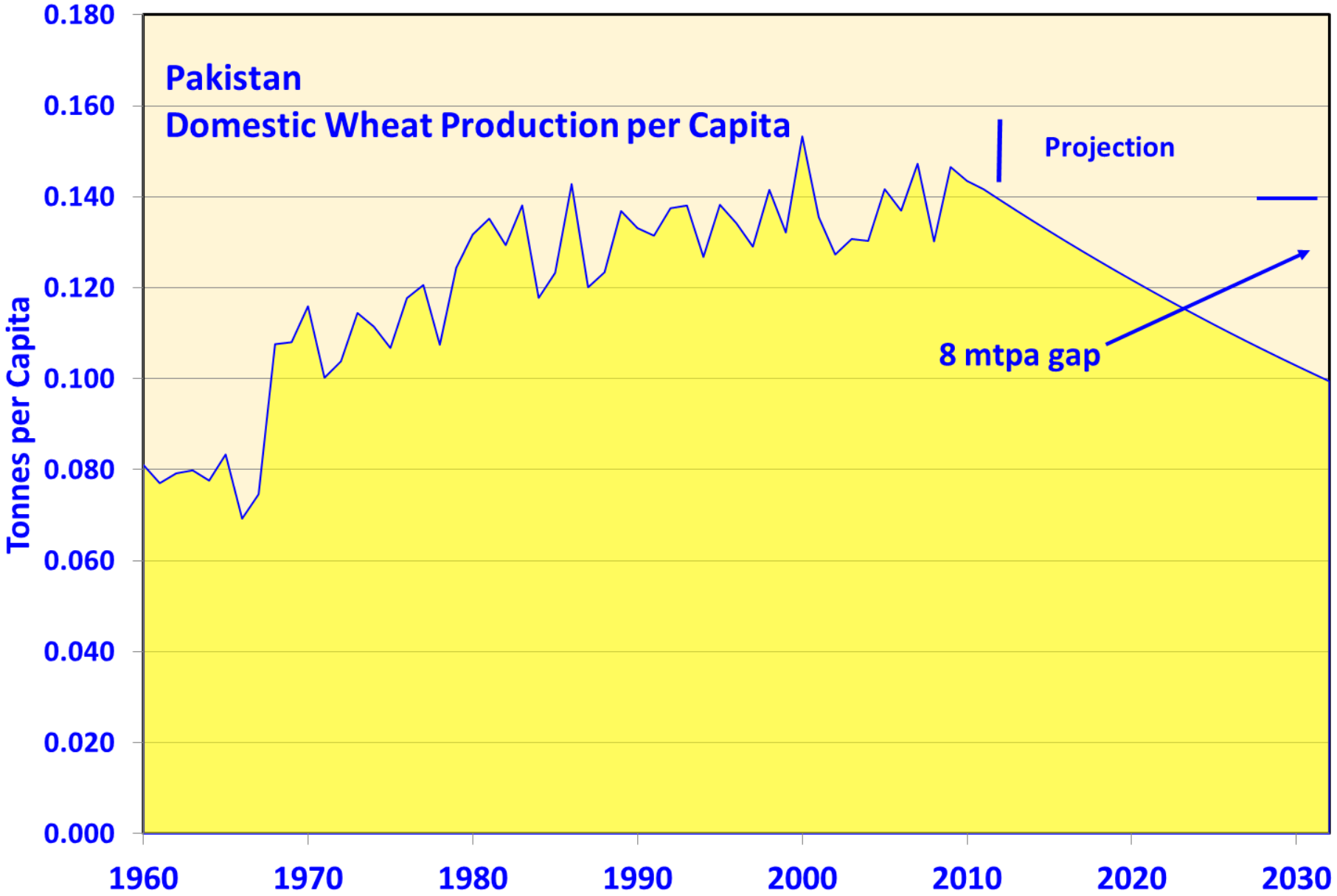
Afghanistan – something like this will happen.



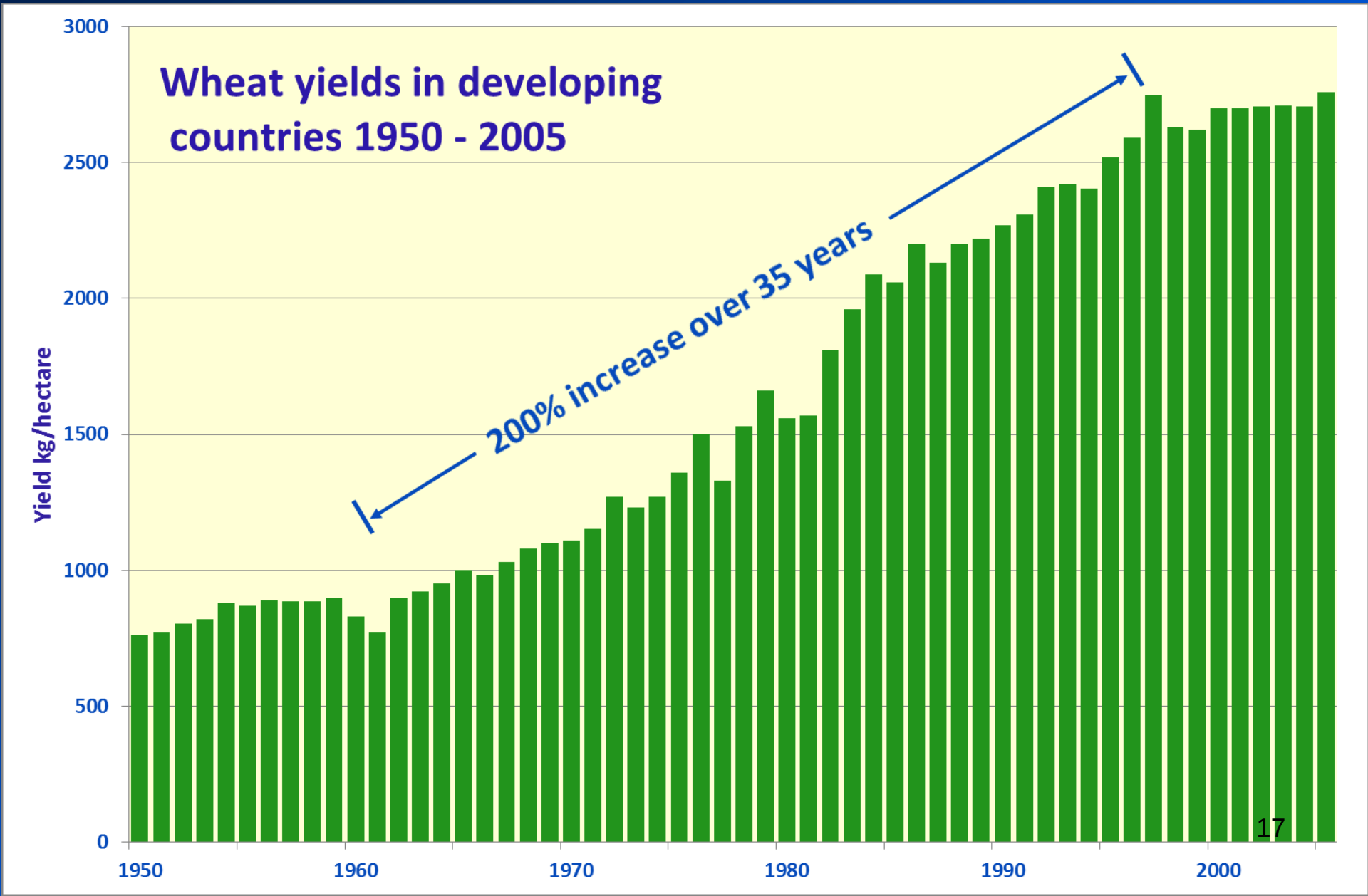
Pakistan


Pakistan Wheat Production
- up five fold in 50 years
Million tonnes per annum
30
25
20
15
10
5
0
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010

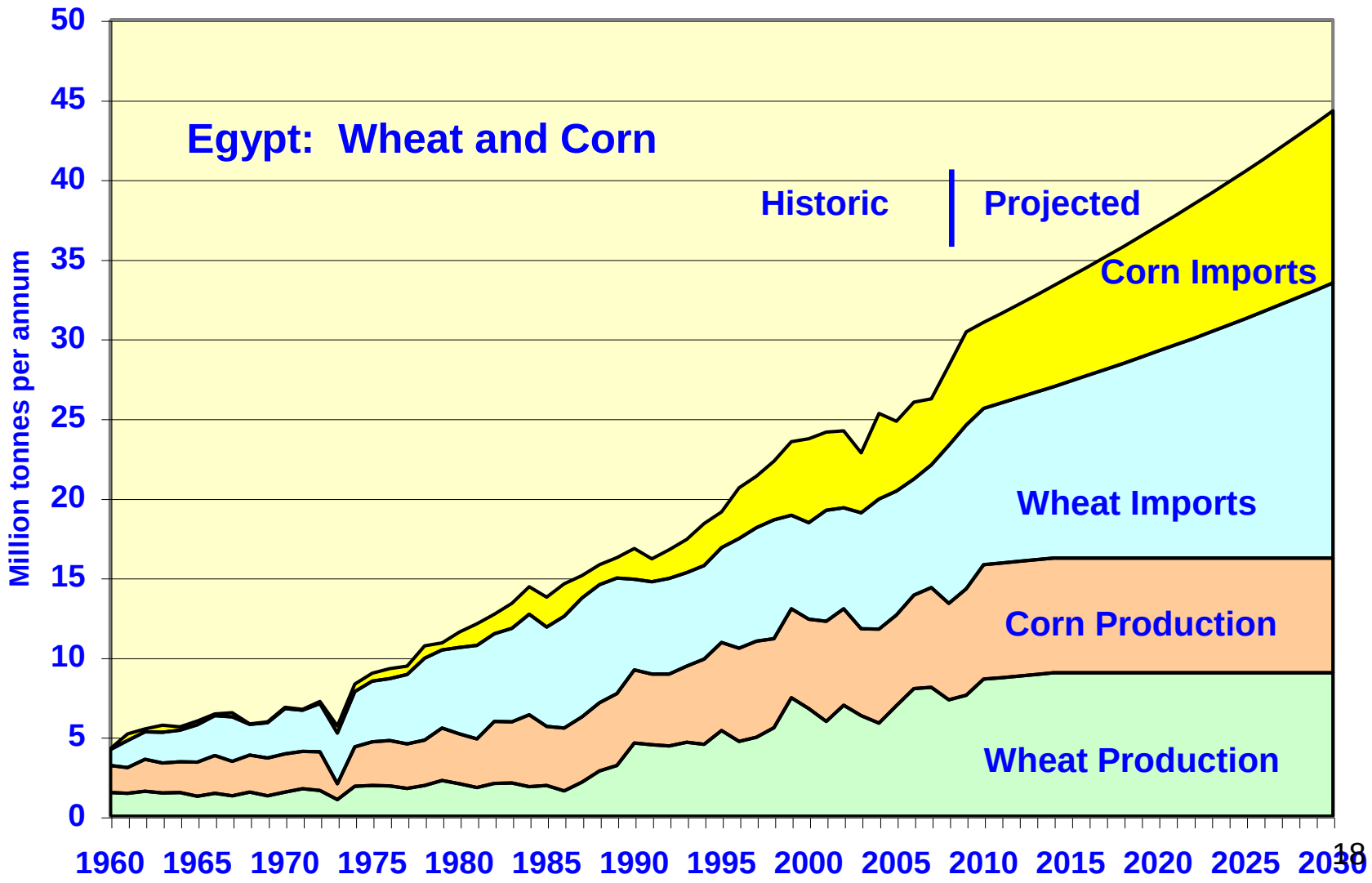
If population growth keeps going



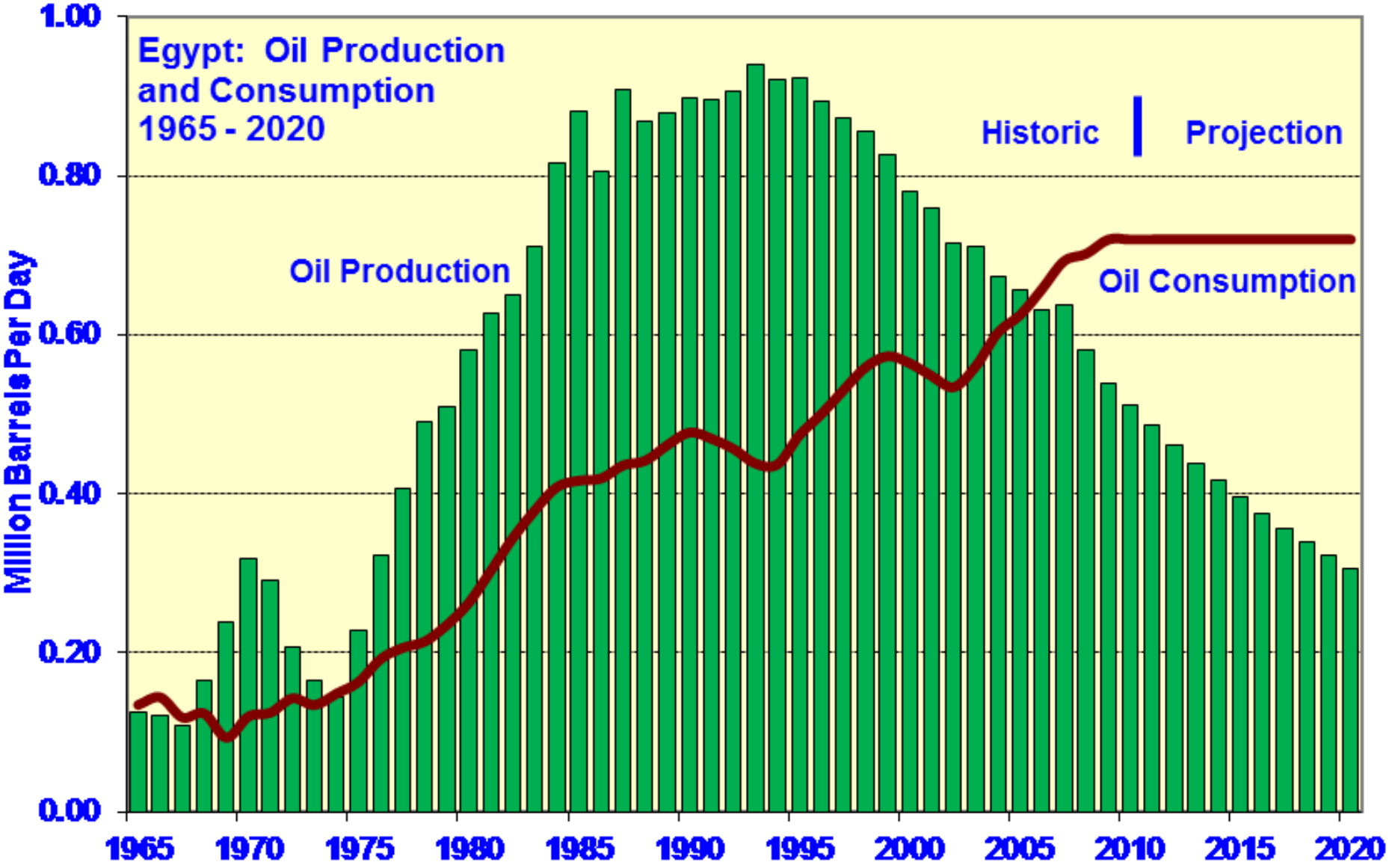
Wheat Yields plateaued from 1996.



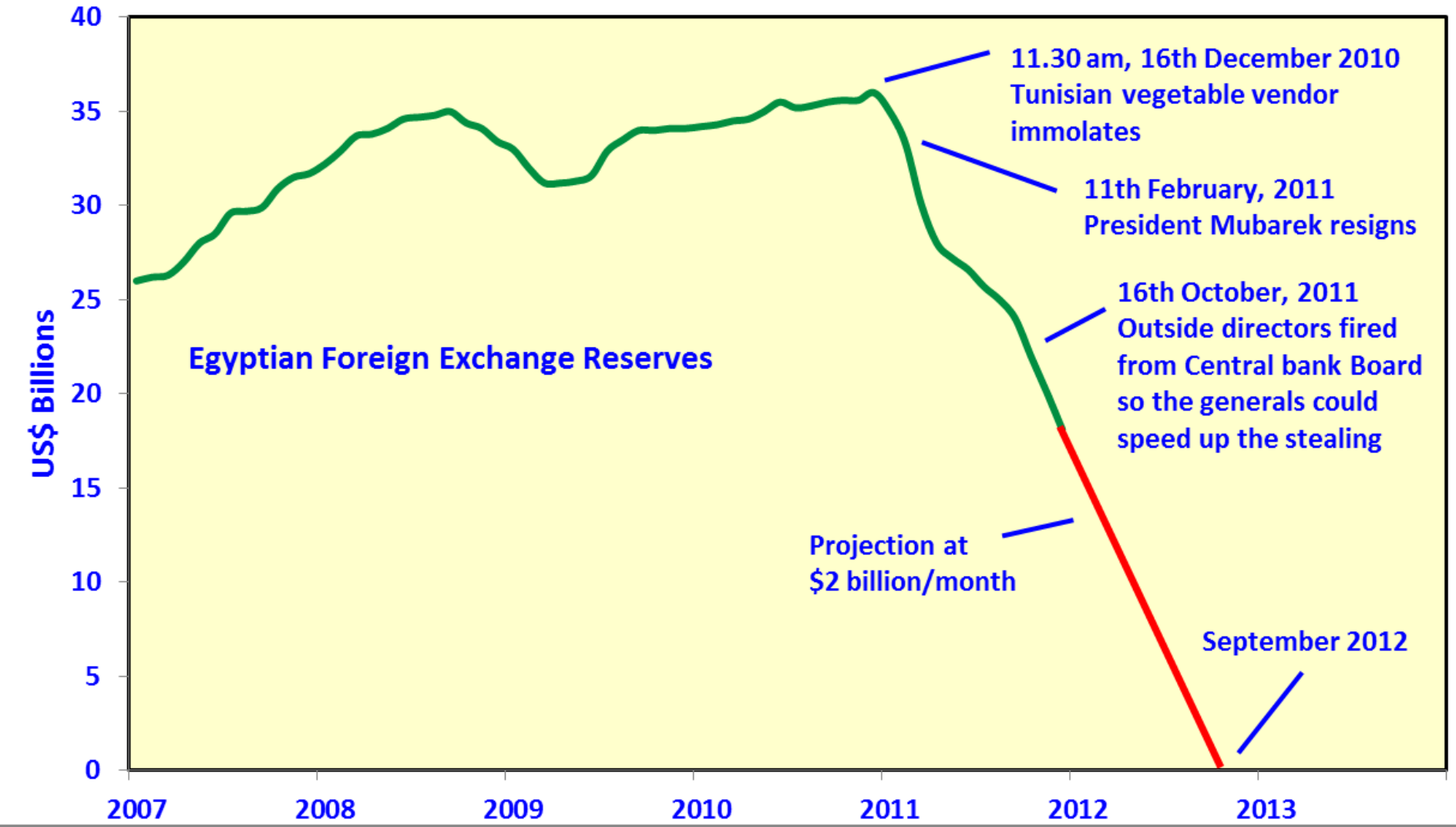
By 2030, Egypt will be importing twice as much grain as it grows.



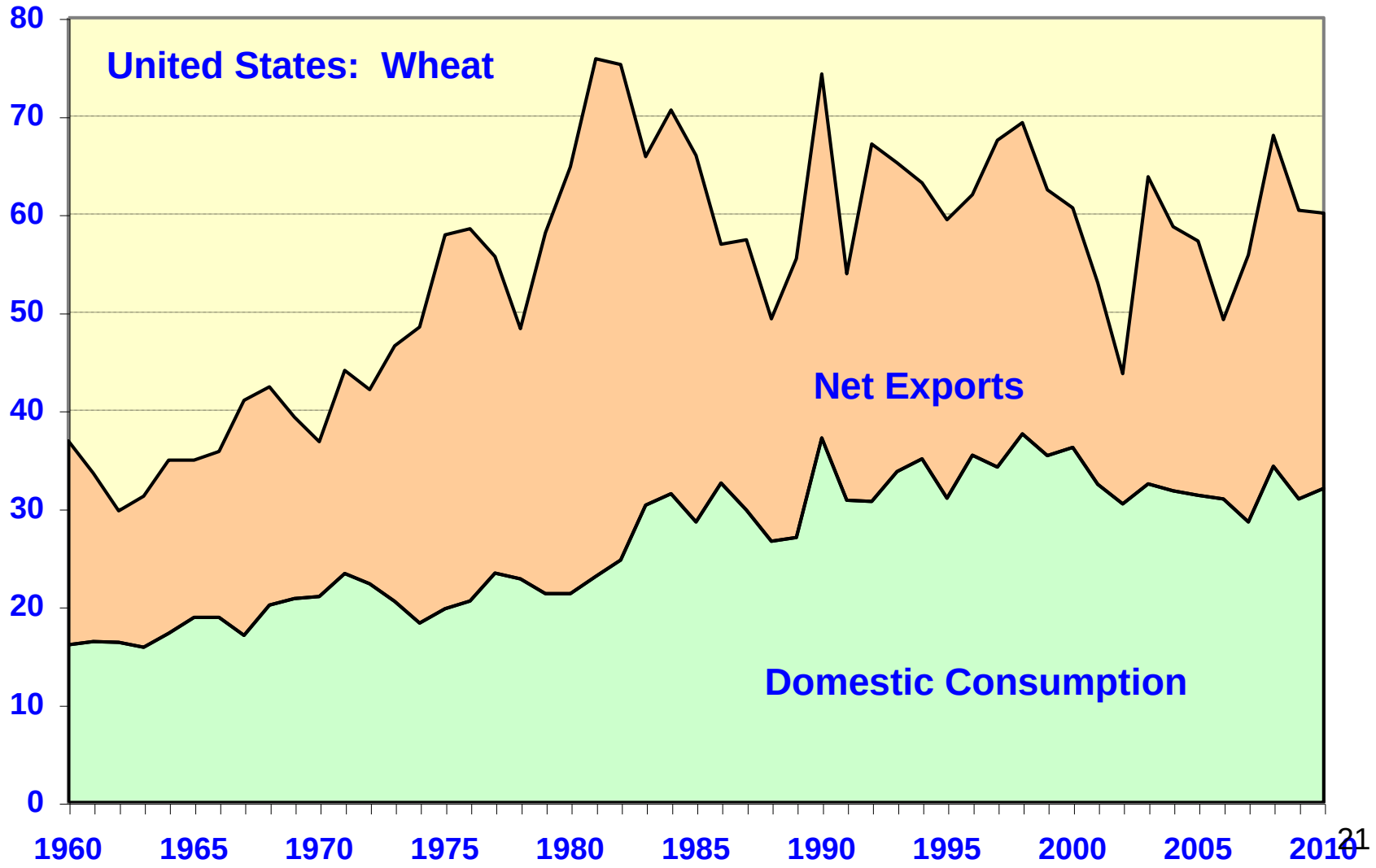
Fuel is also subsidised in Egypt - the Muslim Brotherhood will have a hard time balancing the budget.



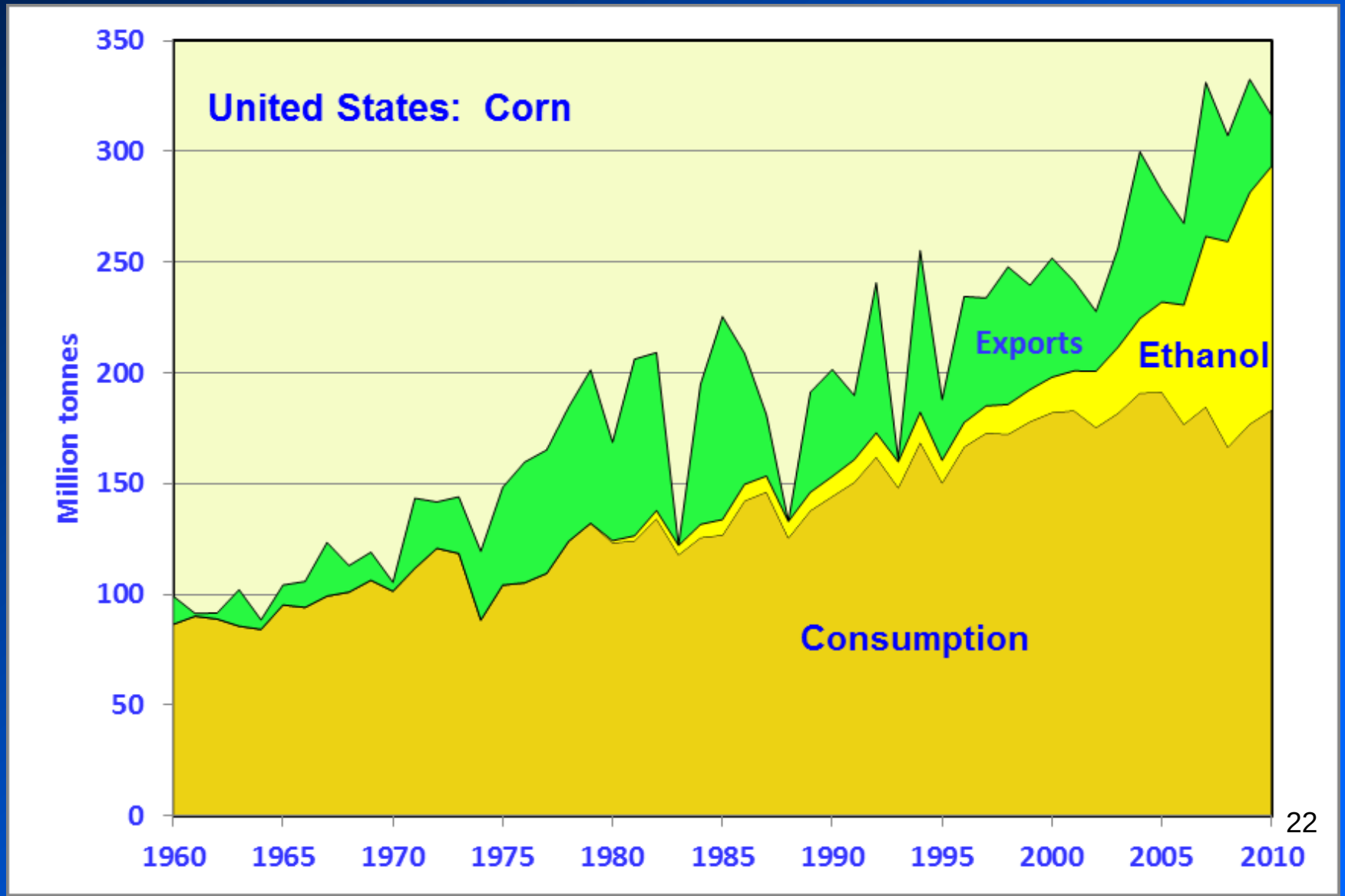
Goodbye Egypt – mass starvation begins in 2012.



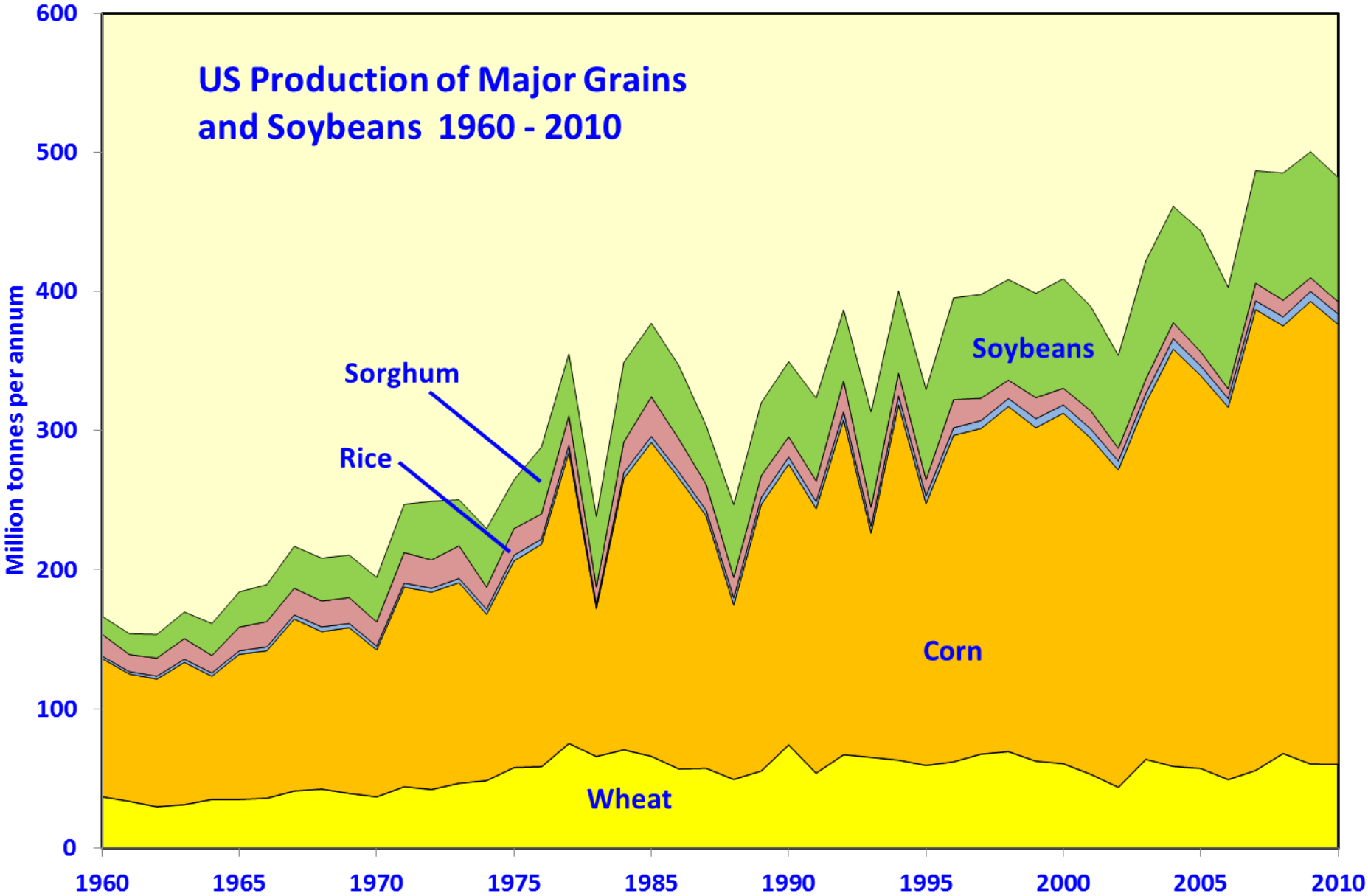
By 2030, Egypt will be needing the equivalent of 100% of US wheat exports.



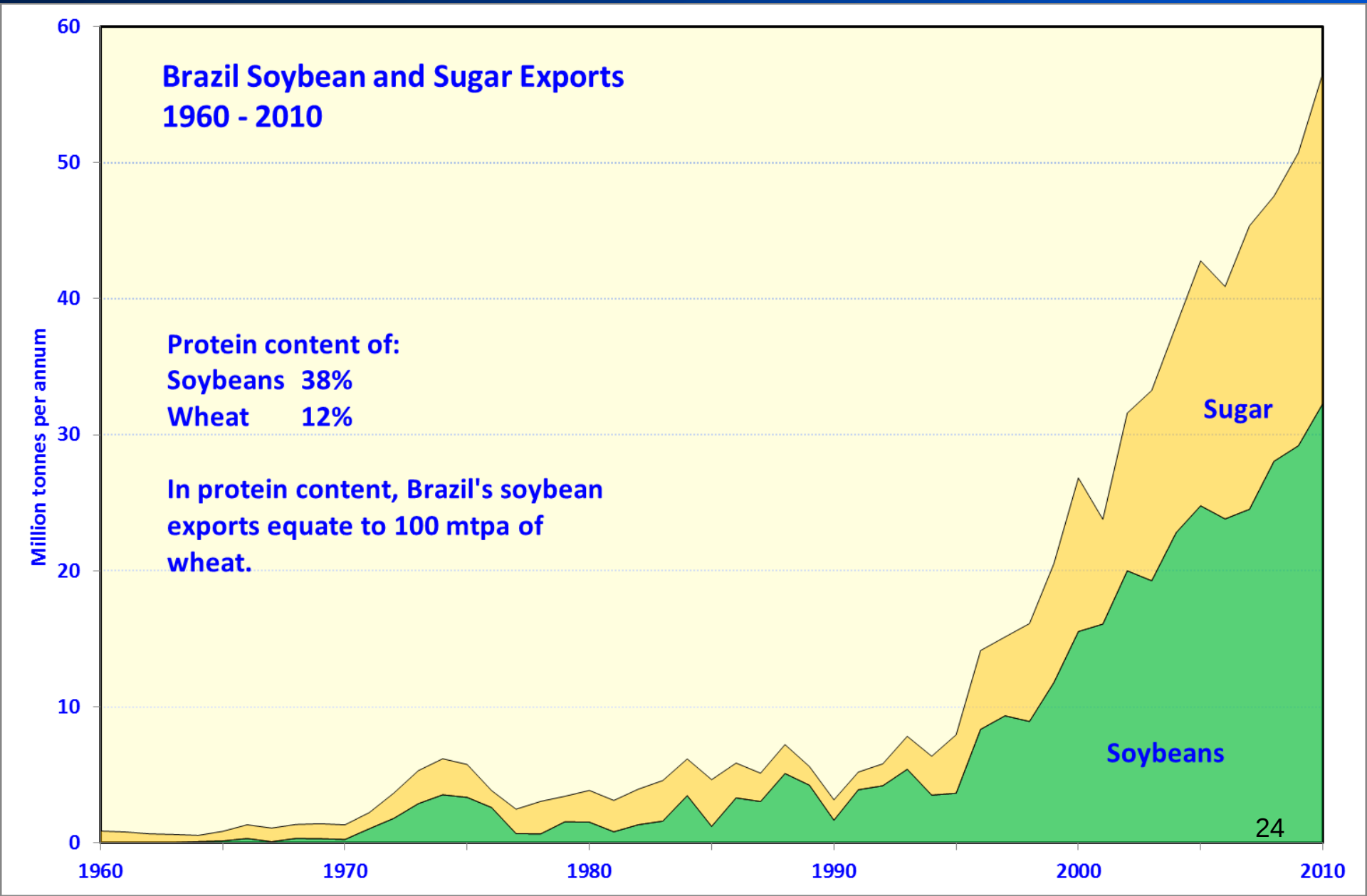
The mandated ethanol requirement has brought the future forward in terms of food scarcity.



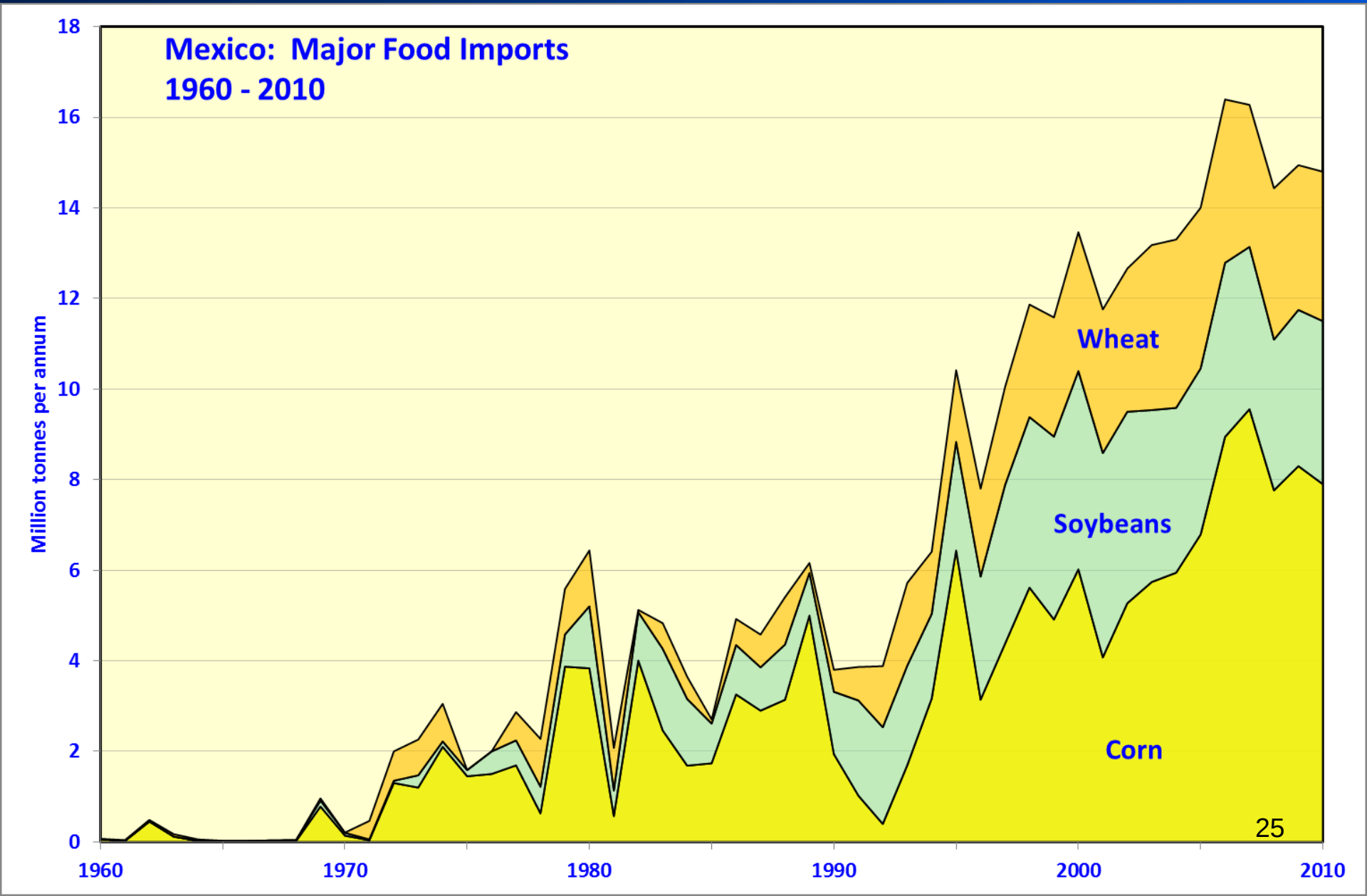
US Production could feed 1.2 billion vegetarians.



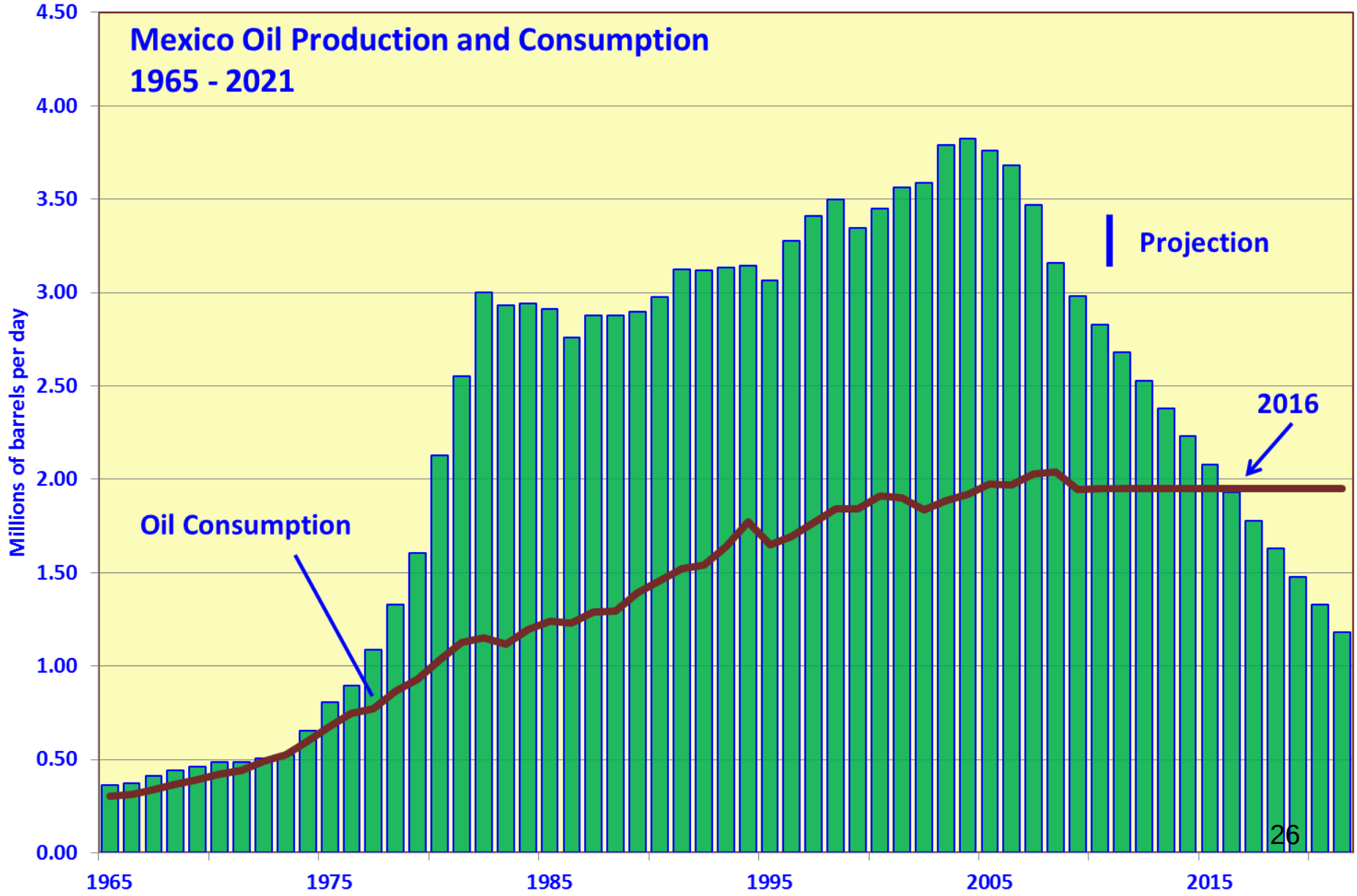
Brazil might outrun its population growth, but how much of the Amazon is left to clear?



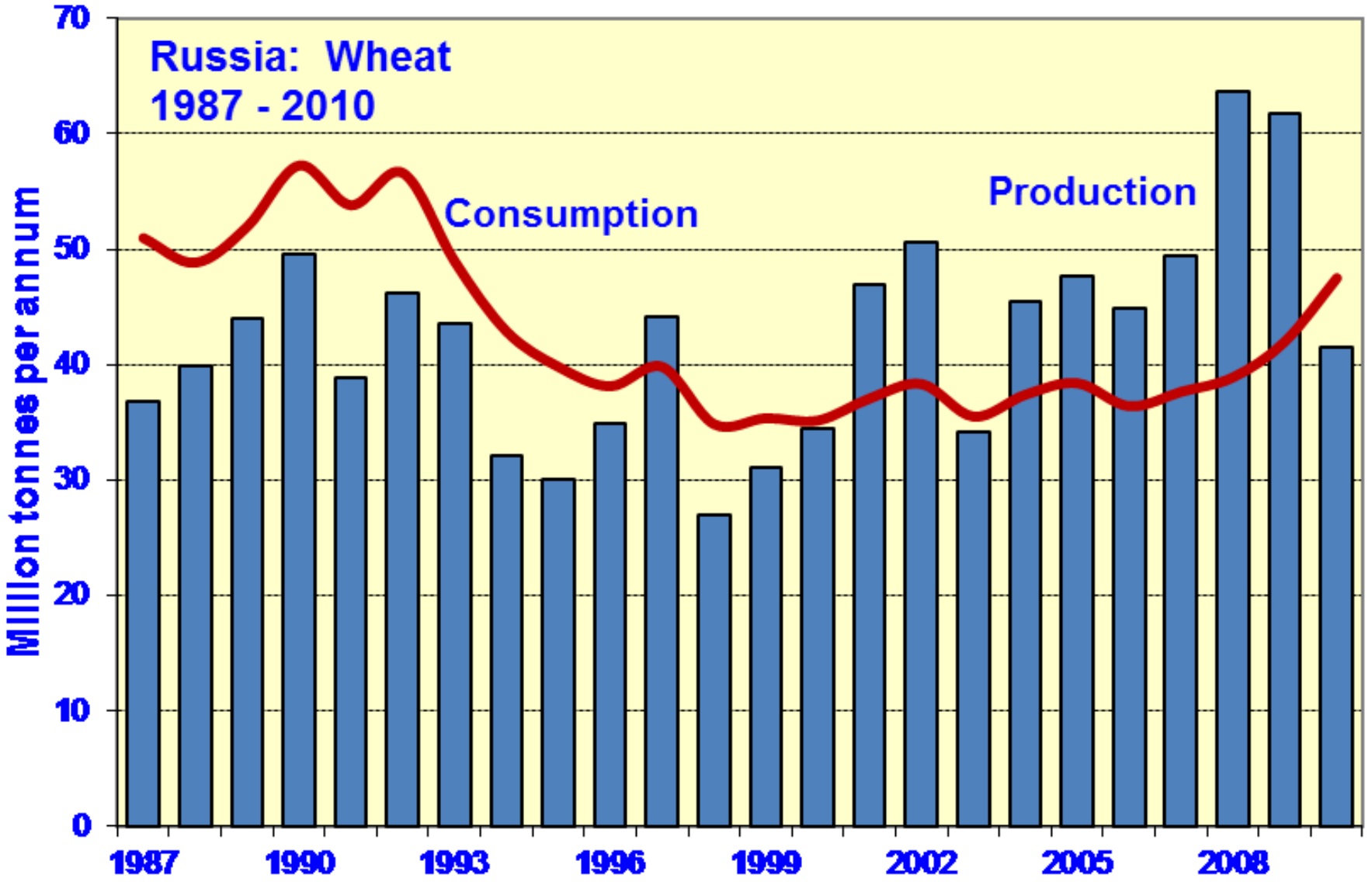
Mexico's population growth rate is down to 1.0% per annum.



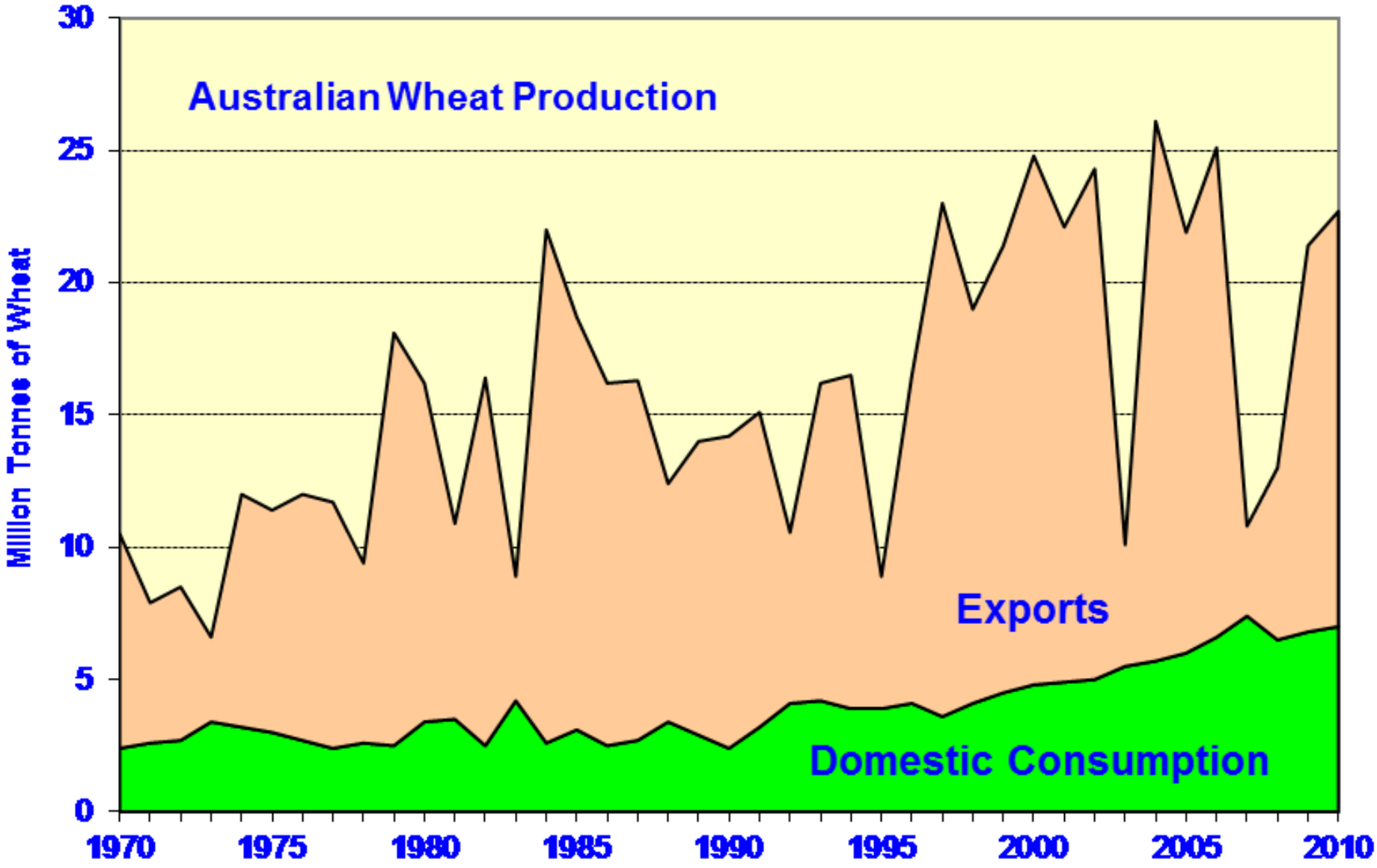
Though ability to pay is falling more rapidly.



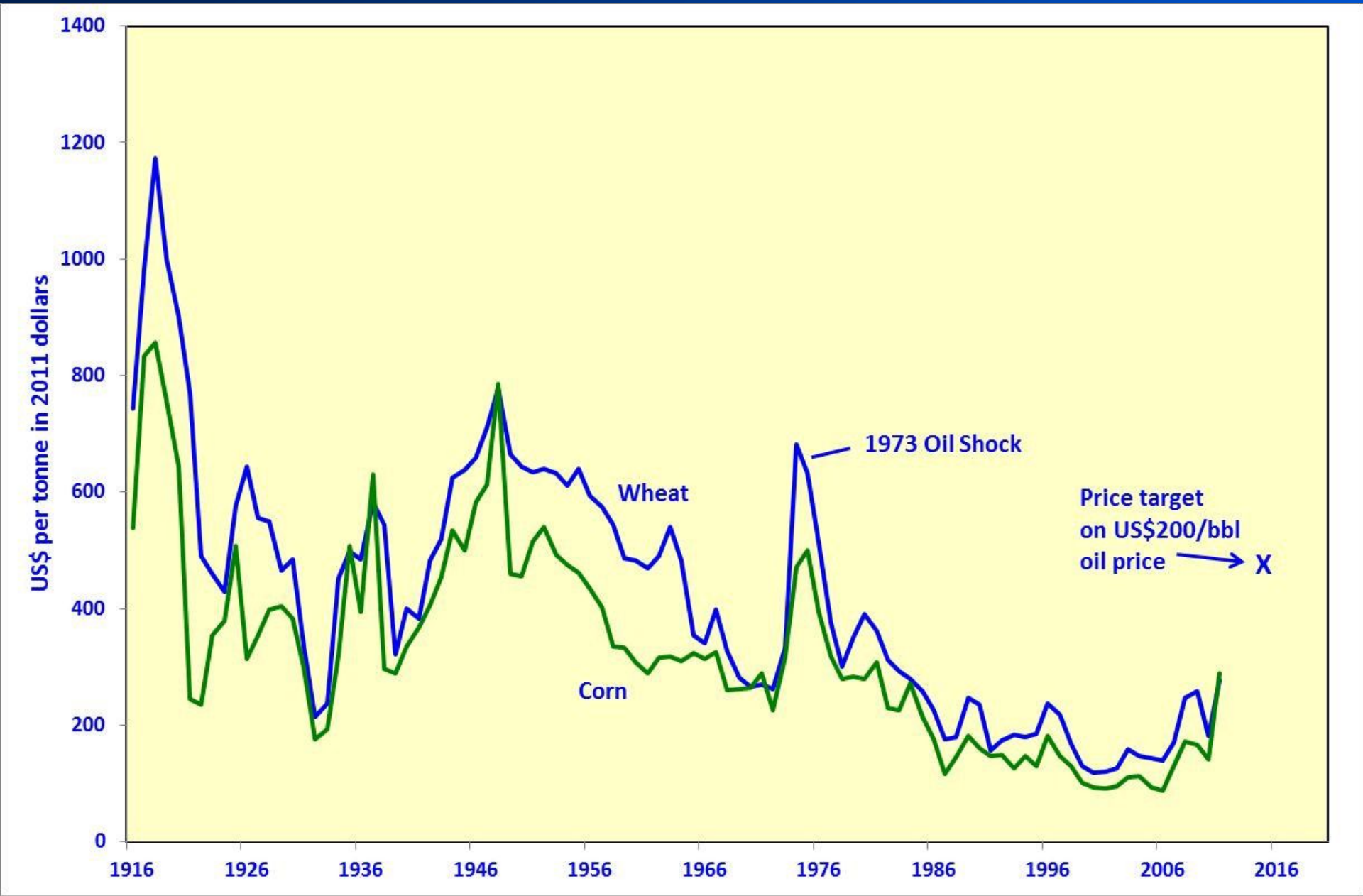
Russia struggles with weather events and a command economy.



Australia doesn't have much of a buffer.



Wheat and Corn Prices 1916 - 2011

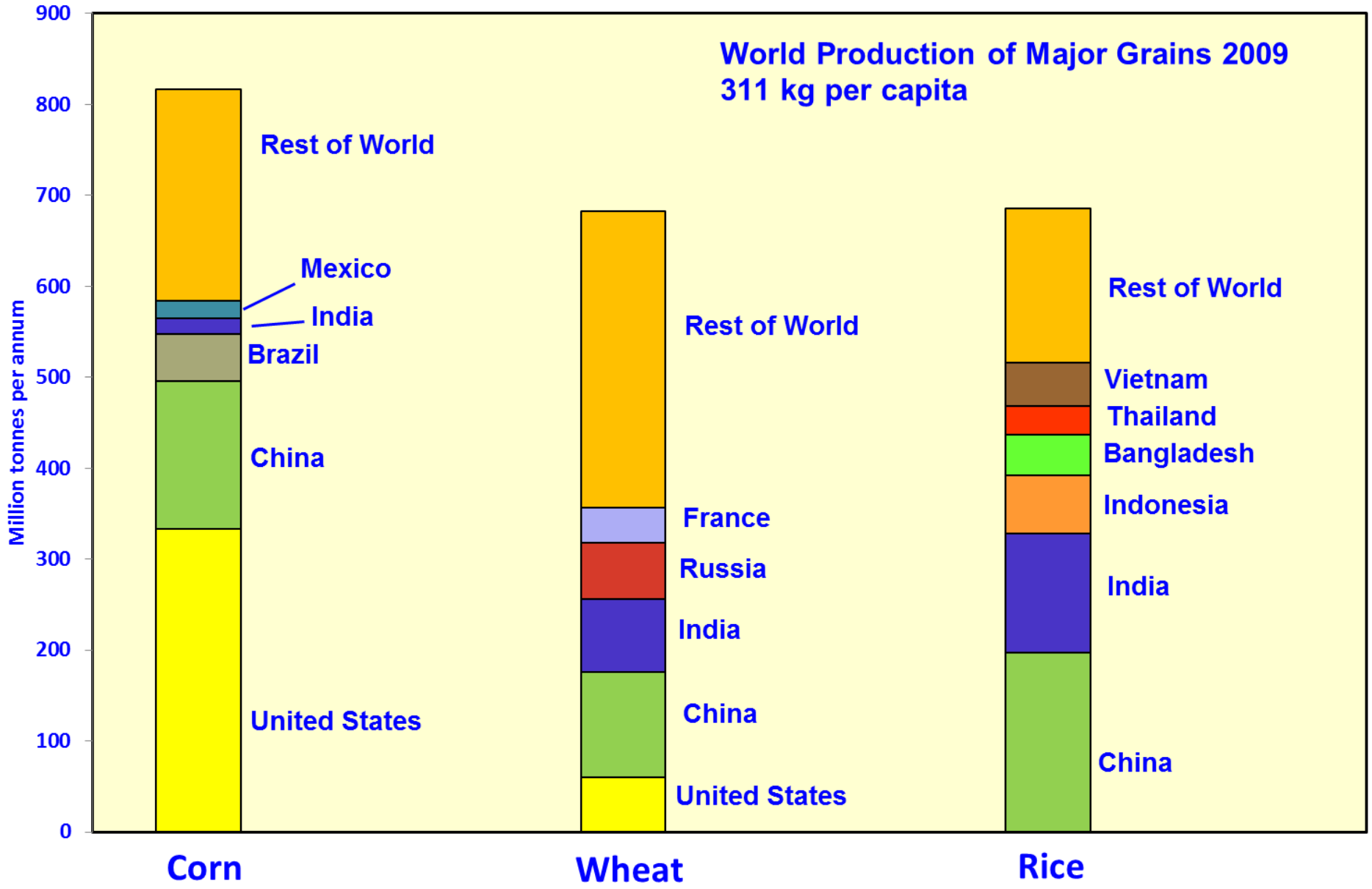


Why grain prices went down for 70 years.

	1930	1975	2010	2010 vs 1930 % change
Population	2 billion	4 billlion	7 billion	250%
Wheat	127	355	682	437%
Corn	113	324	817	623%
Rice	89	360	679	663%
Barley	41	150	147	259%
Rye	47	24	17	-64%
Oats	64	48	24	-63%
Total	481	1261	2366	392%

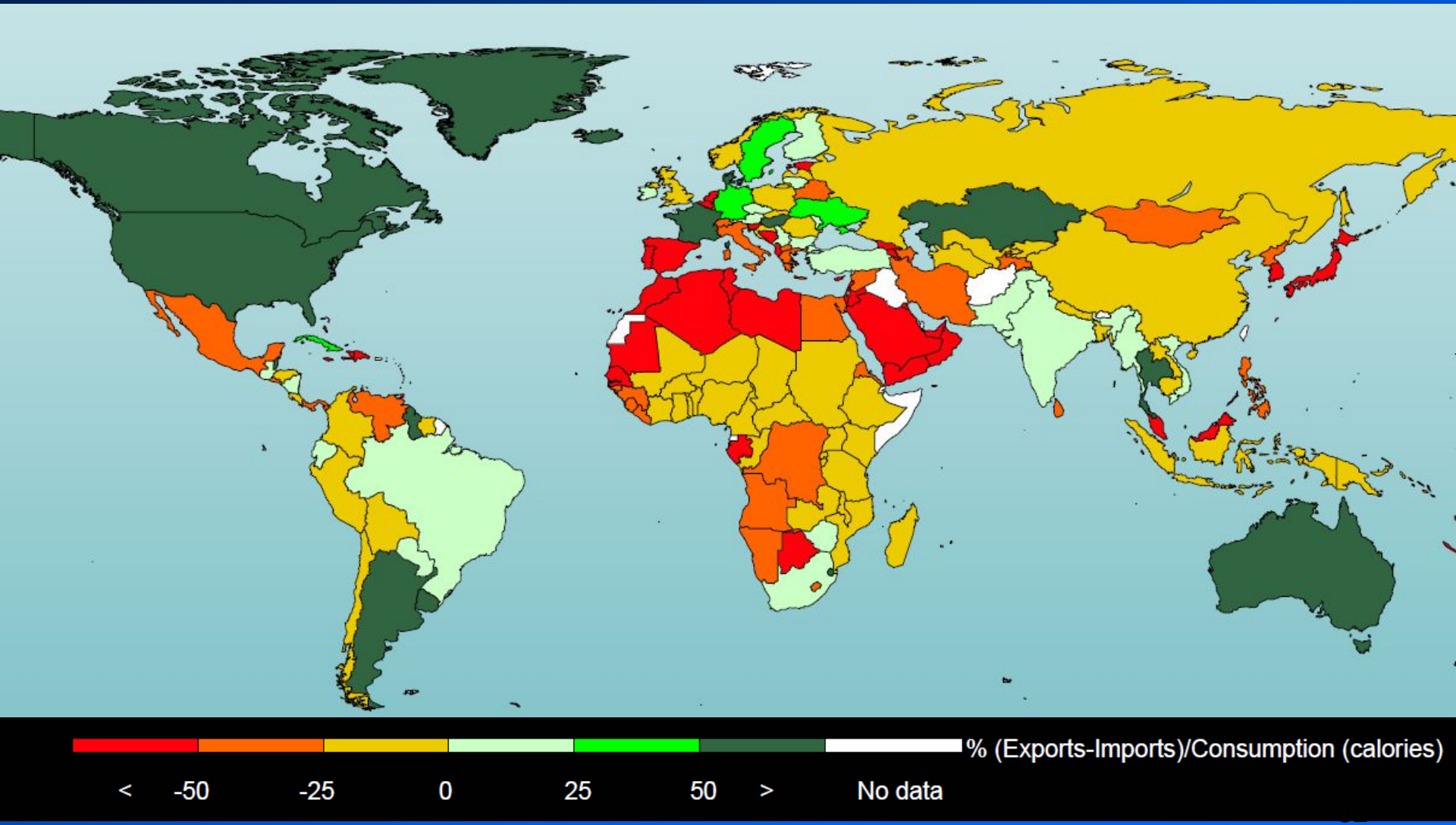
Those trends will now cross over.

The total is about 2,200 million tonnes.



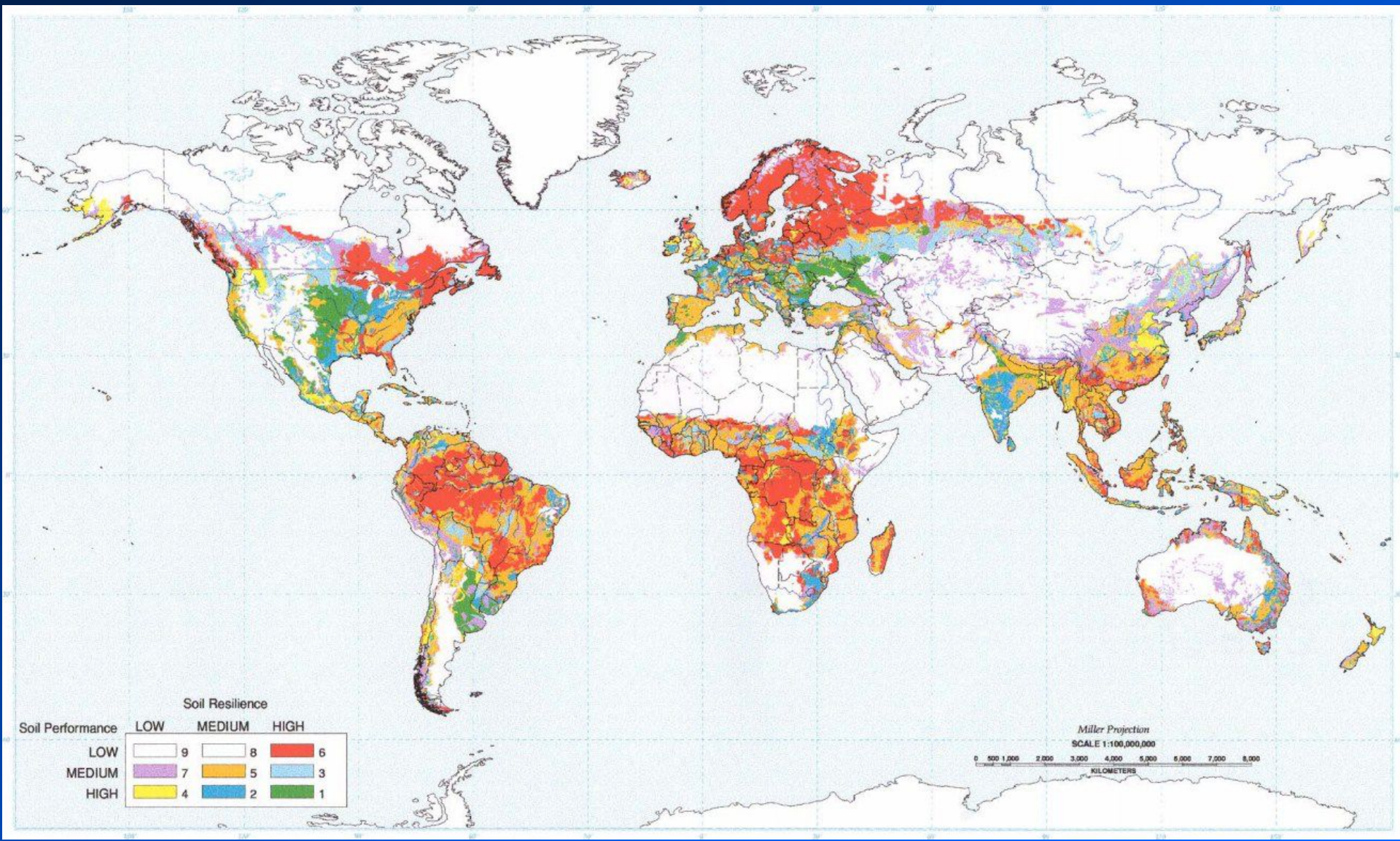
Net Trade in Food

2000 - 2002



Source: UN Food and Agriculture Organisation

Inherent Land Quality Assessment



Brazil will need a lot of fertiliser to remain productive.

Major Potential Sources of Increased Grain Production

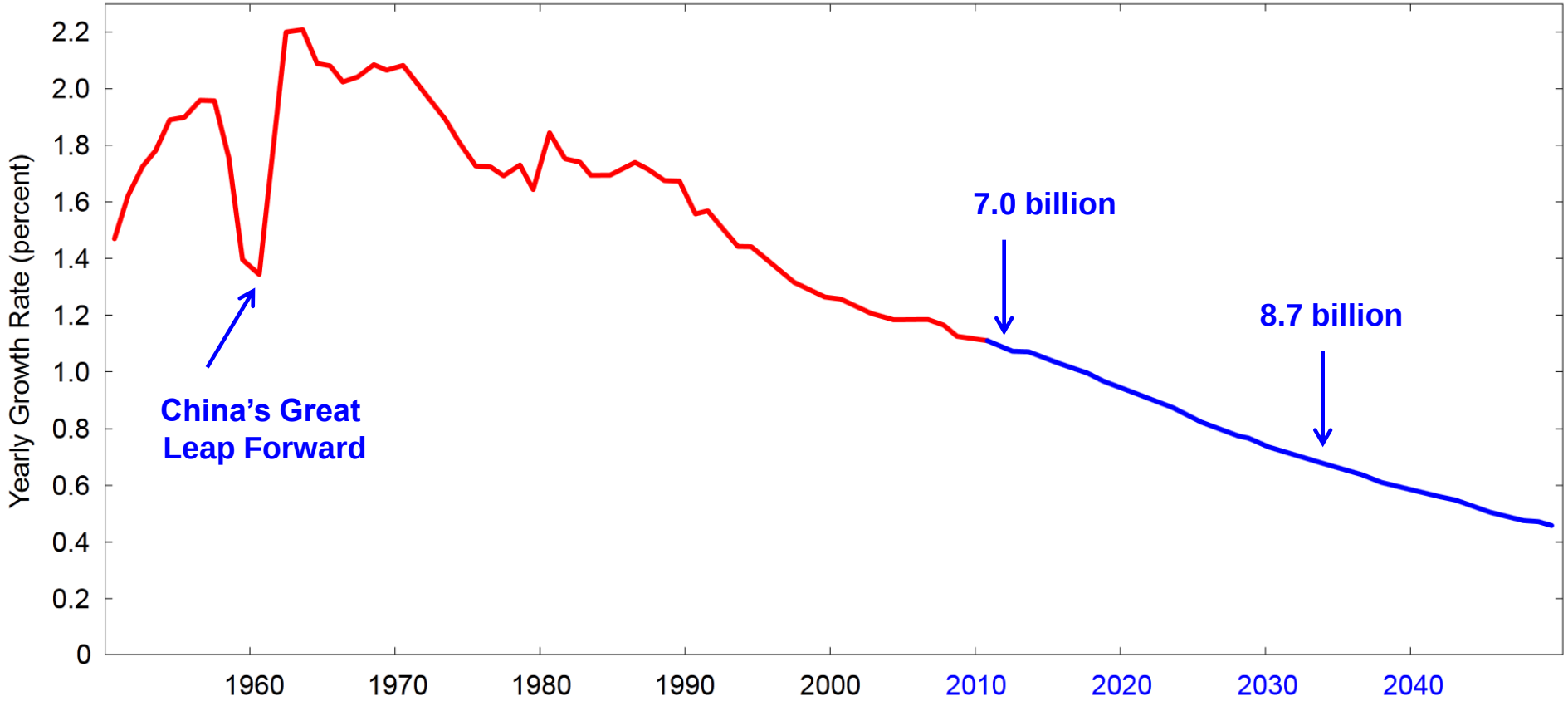
US – mandated ethanol increased corn production by 100 mtpa, total potential may be 200 mtpa.

Russia – 40 m ha currently growing nothing, possibly an extra 90 mtpa of wheat

Brazil – 190 m ha could be put under grain at a yield of 2 tonnes per ha for 380 mtpa of grain.

The total is 670 mtpa which might feed 1,675 million people at 400 kg per capita.

World Population Growth Rates 1950 - 2050



Russia currently imports 46% of its food – will require a big price signal to increase production.

Undeveloped Brazilian land is a long way inland – will require higher prices to support the road and rail buildout.

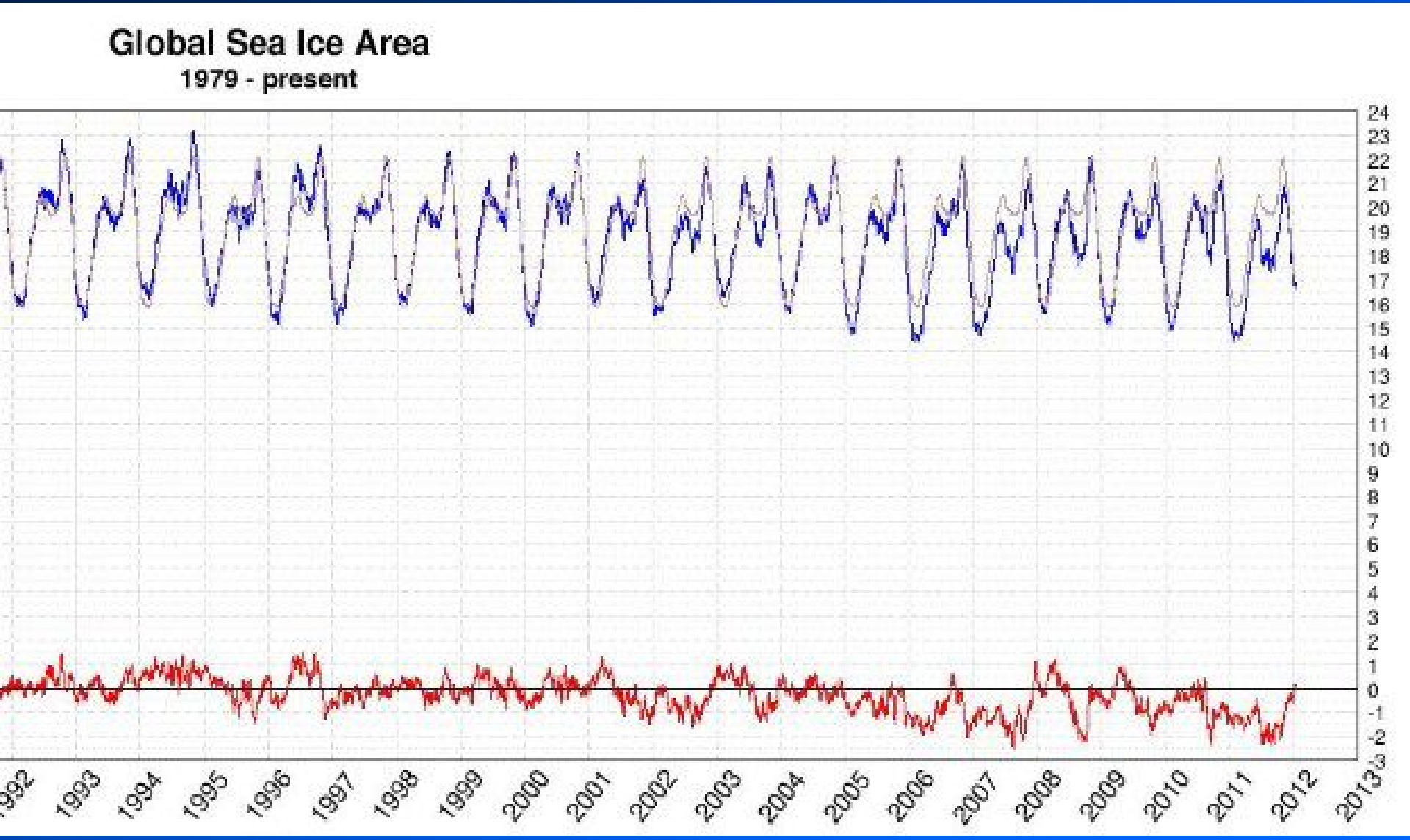
The Fourth Horseman

When the Lamb opened the fourth seal, I heard the voice of the fourth living creature say, "Come and see!" I looked and there before me was a pale horse! Its rider was named Death, and Hell was following close behind him. They were given power over a fourth of the earth to kill by sword, famine and plague, and by the wild beasts of the earth.

Revelation 5:7-8

Death:
Climate – the 210 year cooling cycle

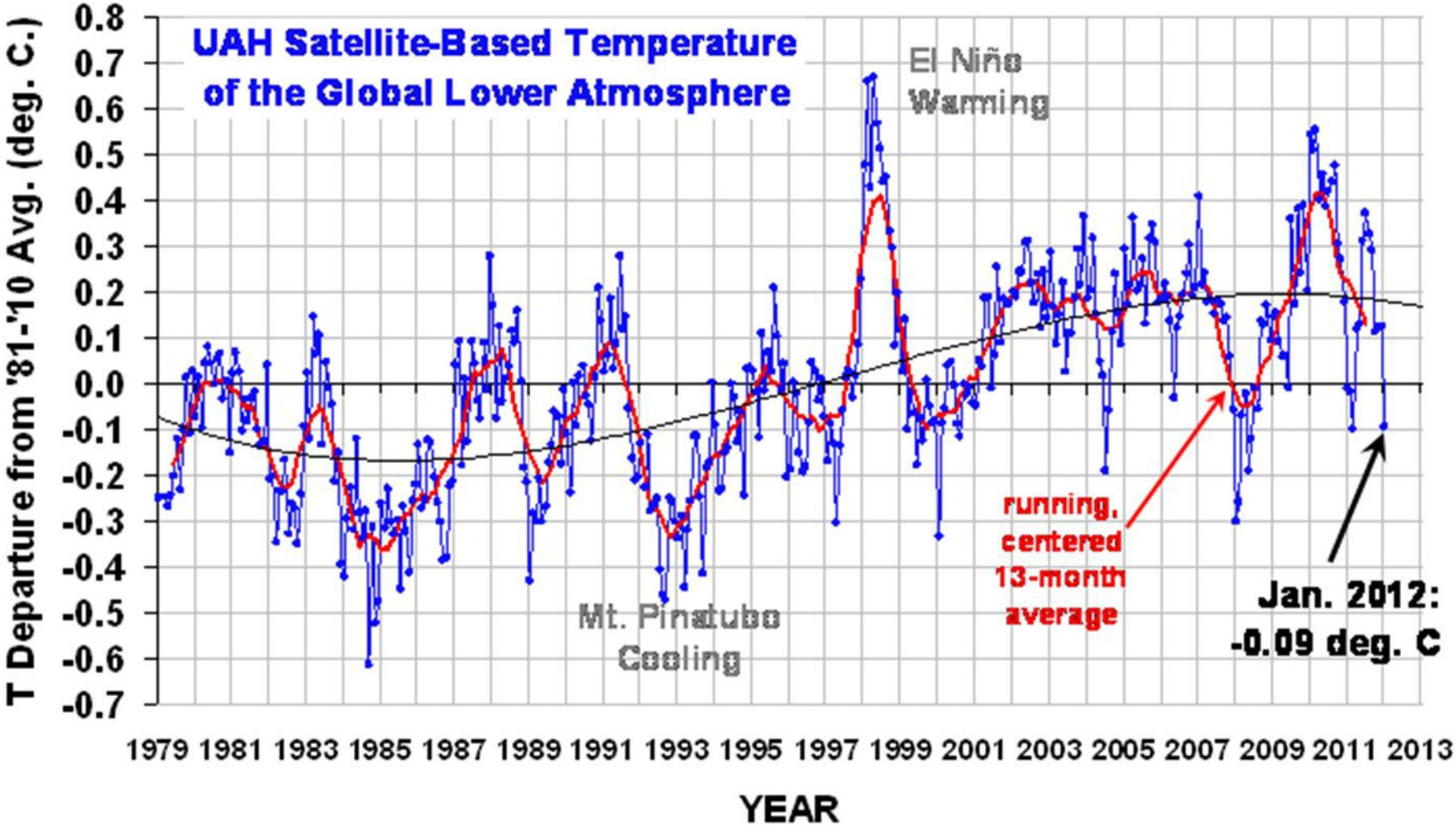
Climate: First of all, the world isn't warming.



Source: Cryosphere Today as at 11th January 2012

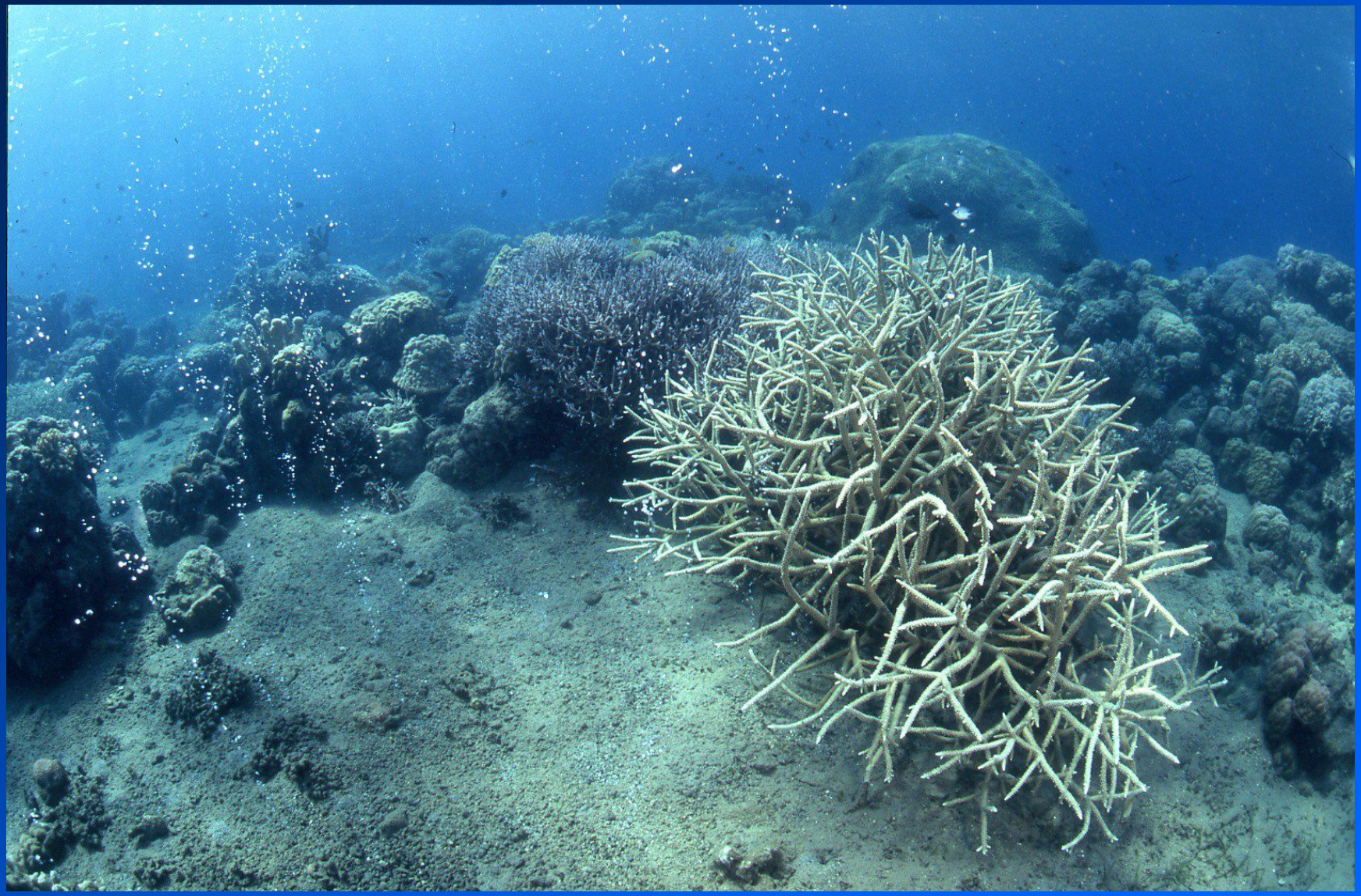
No change over 33 years

The temperature of the planet is the same as it was 30 years ago.



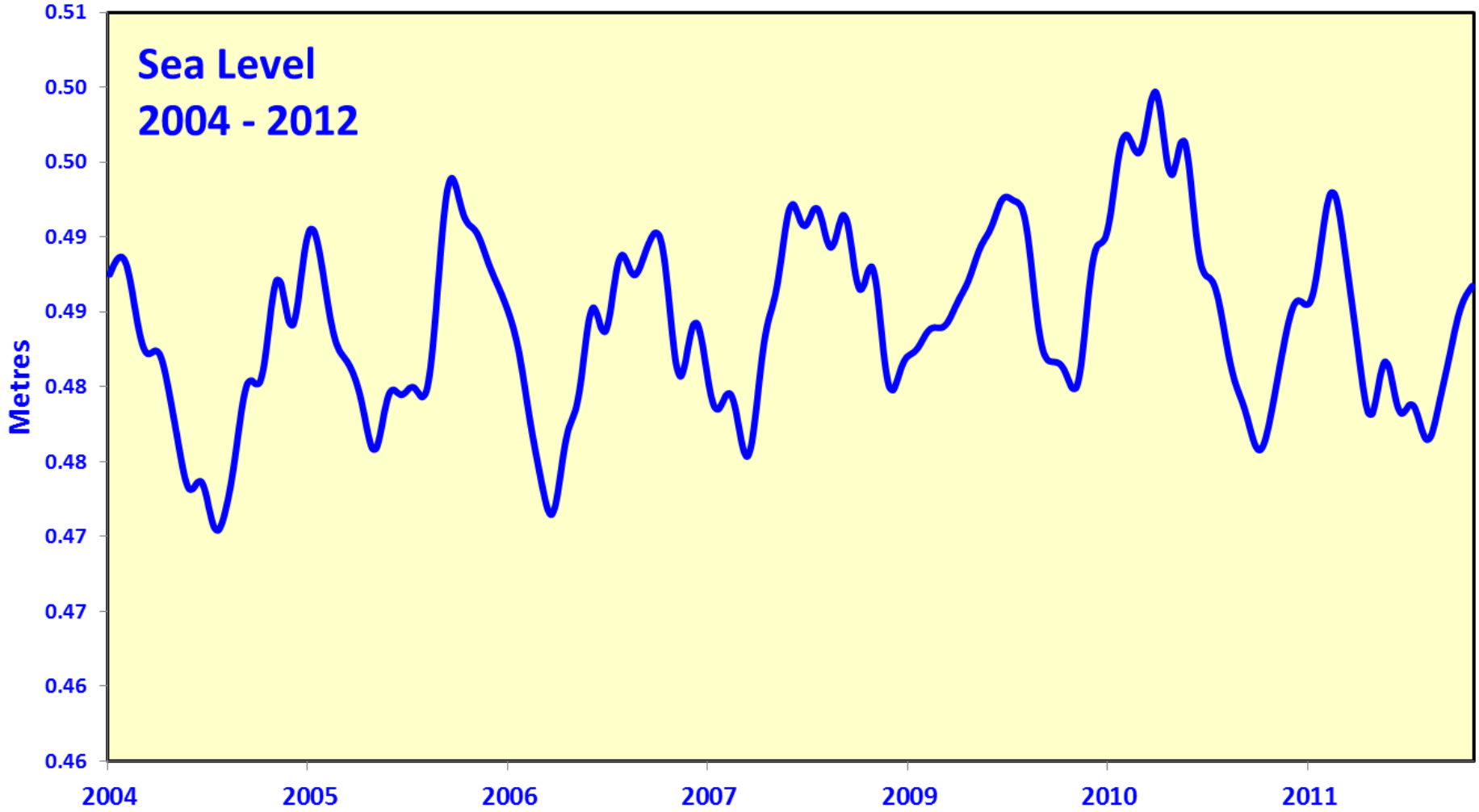
The satellite temperature record from www.drroyspencer.com

Ocean acidification – the last refuge of the global warming scoundrel

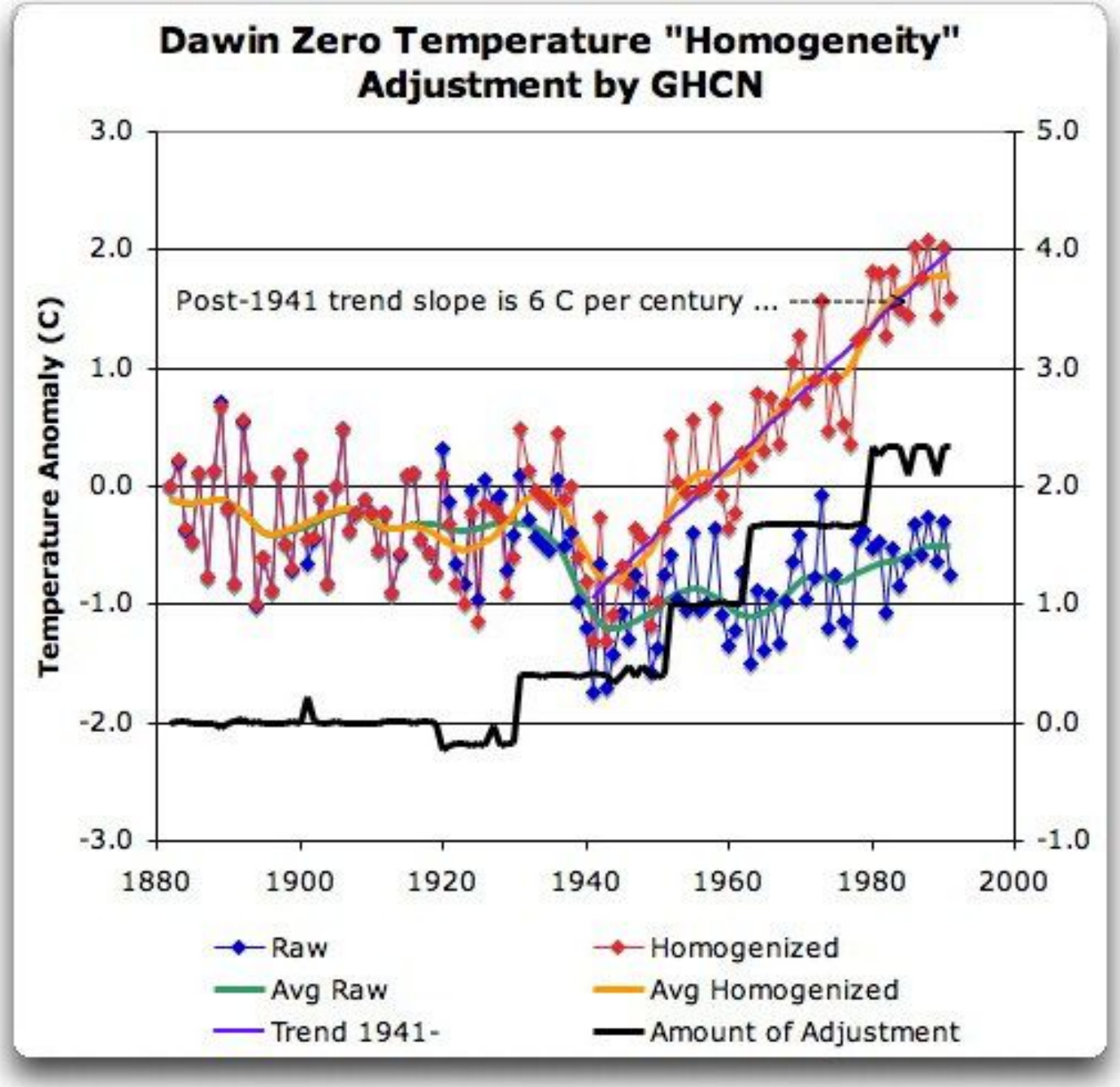


Coral reef and bubbling carbon dioxide, Dobu Island, PNG

Sea level rise – the second last refuge



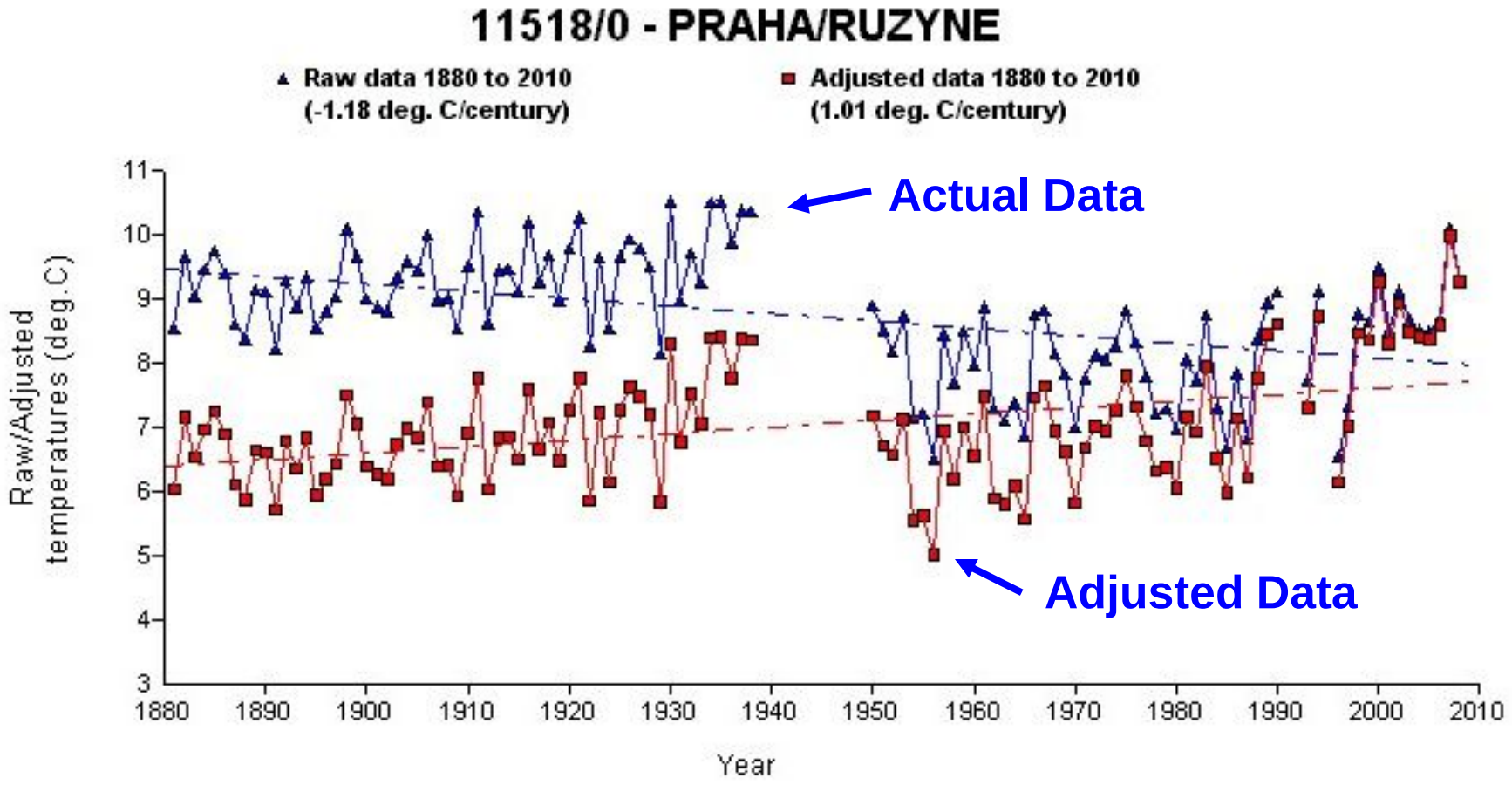
As measured by the Enviosat satellite



What the warmers did to Darwin – added 2.5° over 60 years

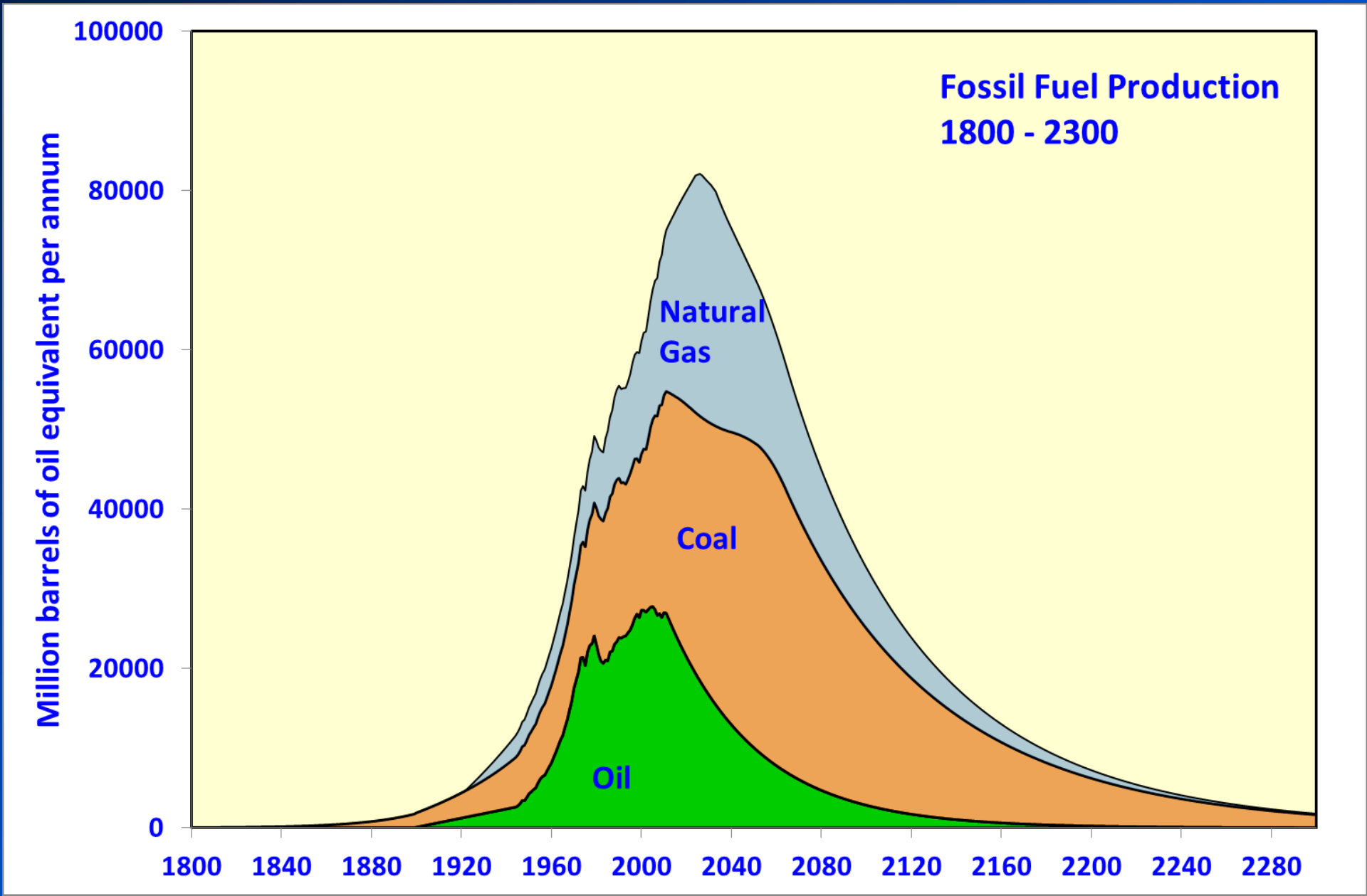
Source: http://wattsupwiththat.com/2009/12/08/the-smoking-gun-at-darwin-zero/

Faking Prague's Temperature Record

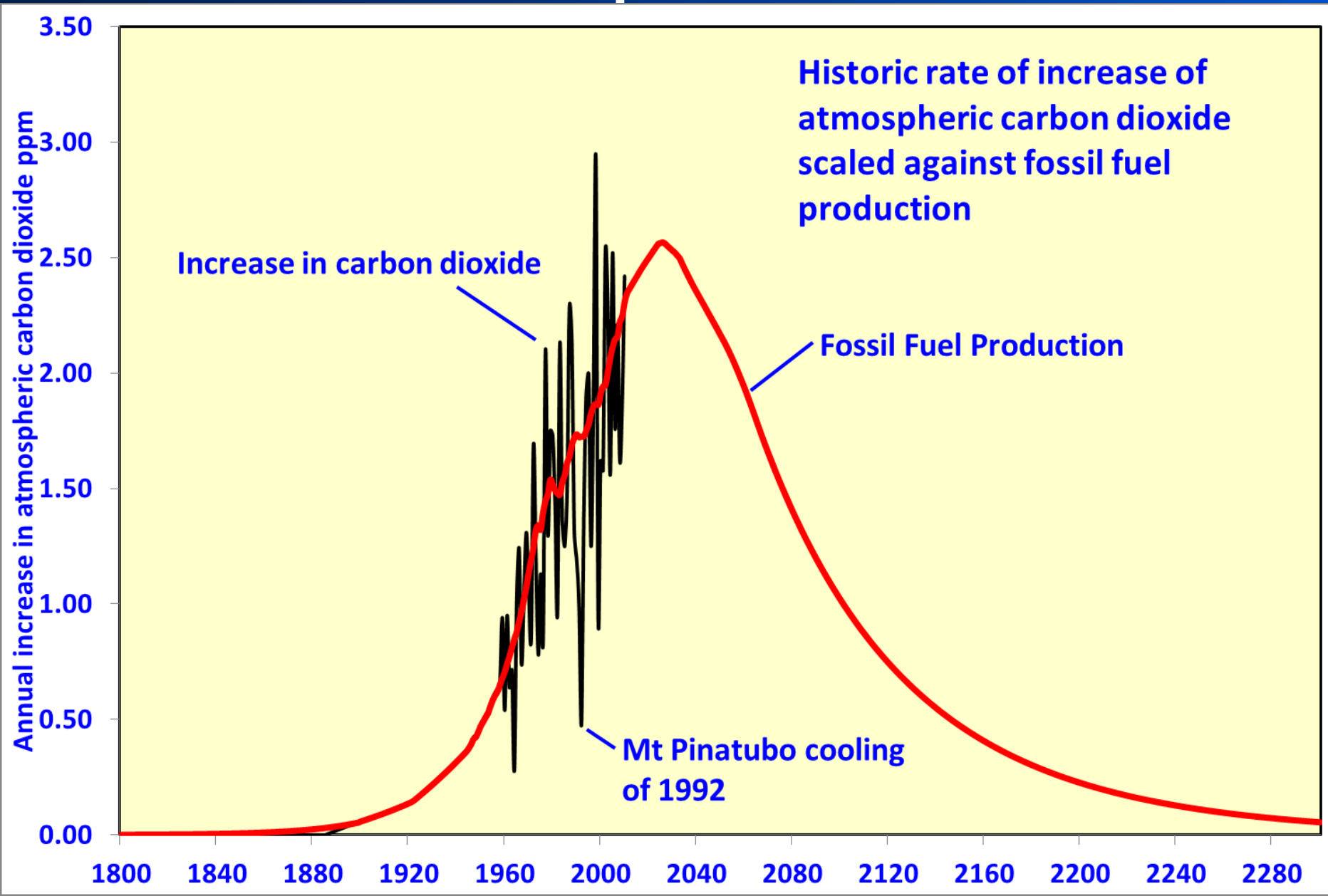


Data Source: Global Historical Climate Network (part of NOAA)

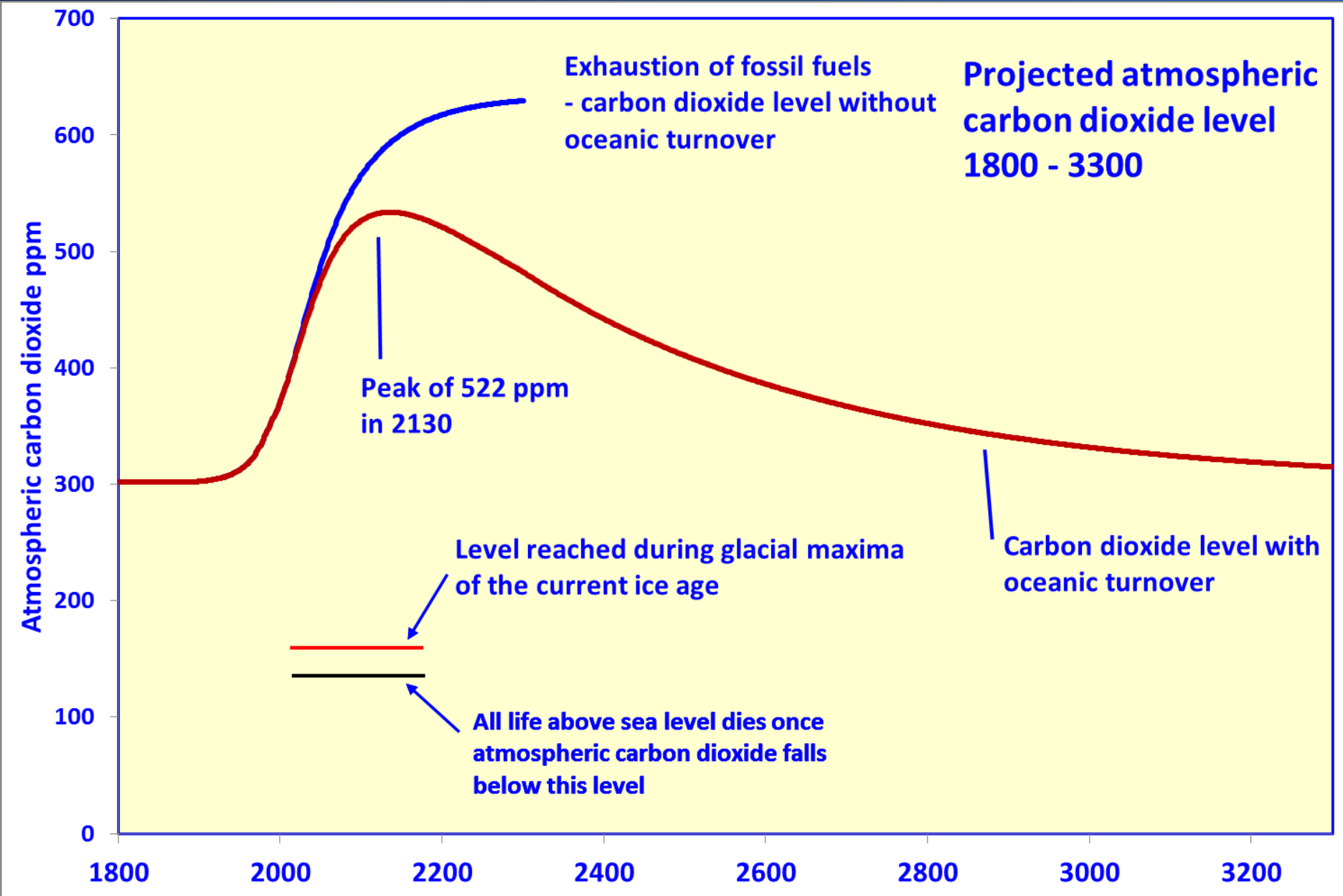
Where atmospheric carbon will come from



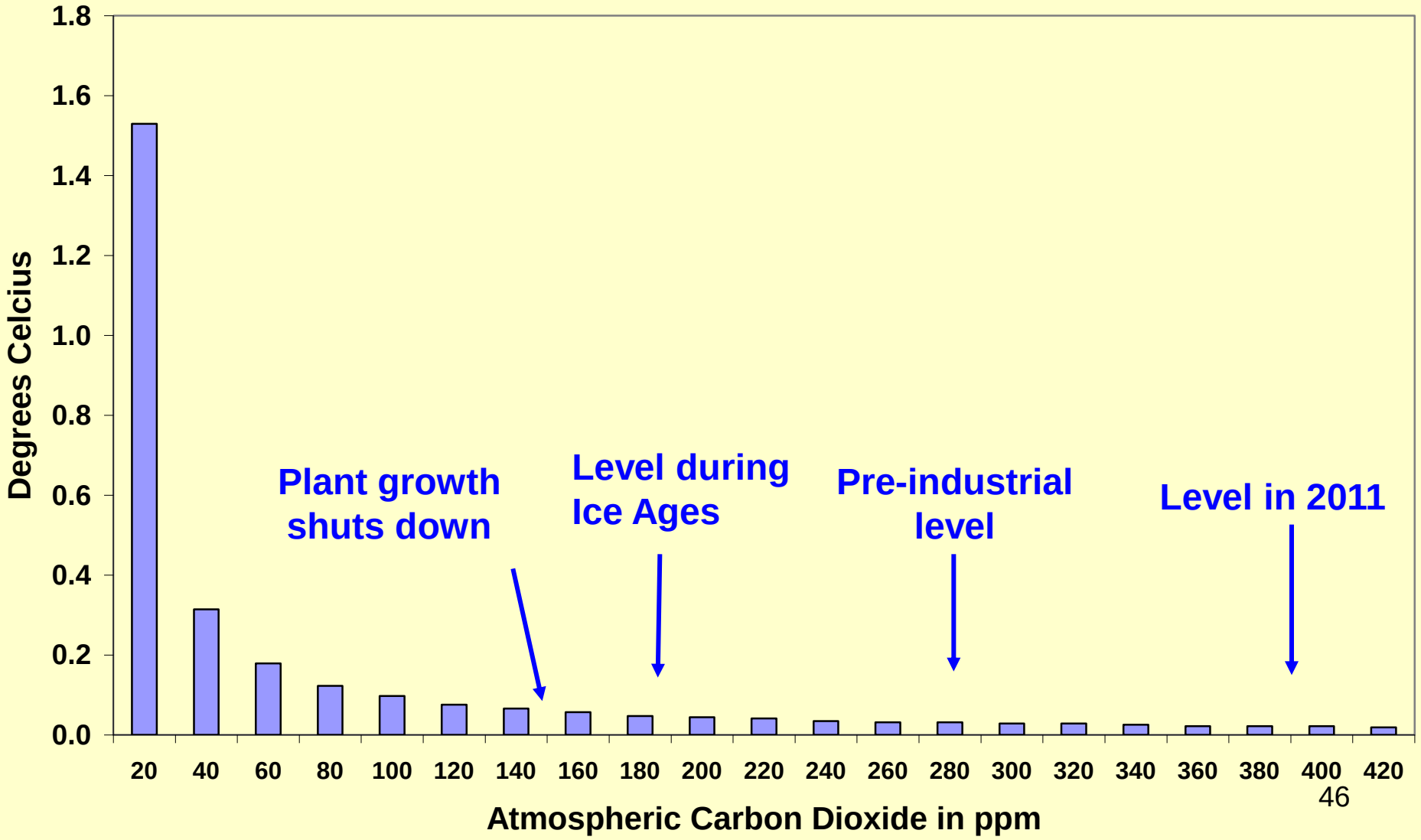
What that means for rate of increase of atmospheric CO2



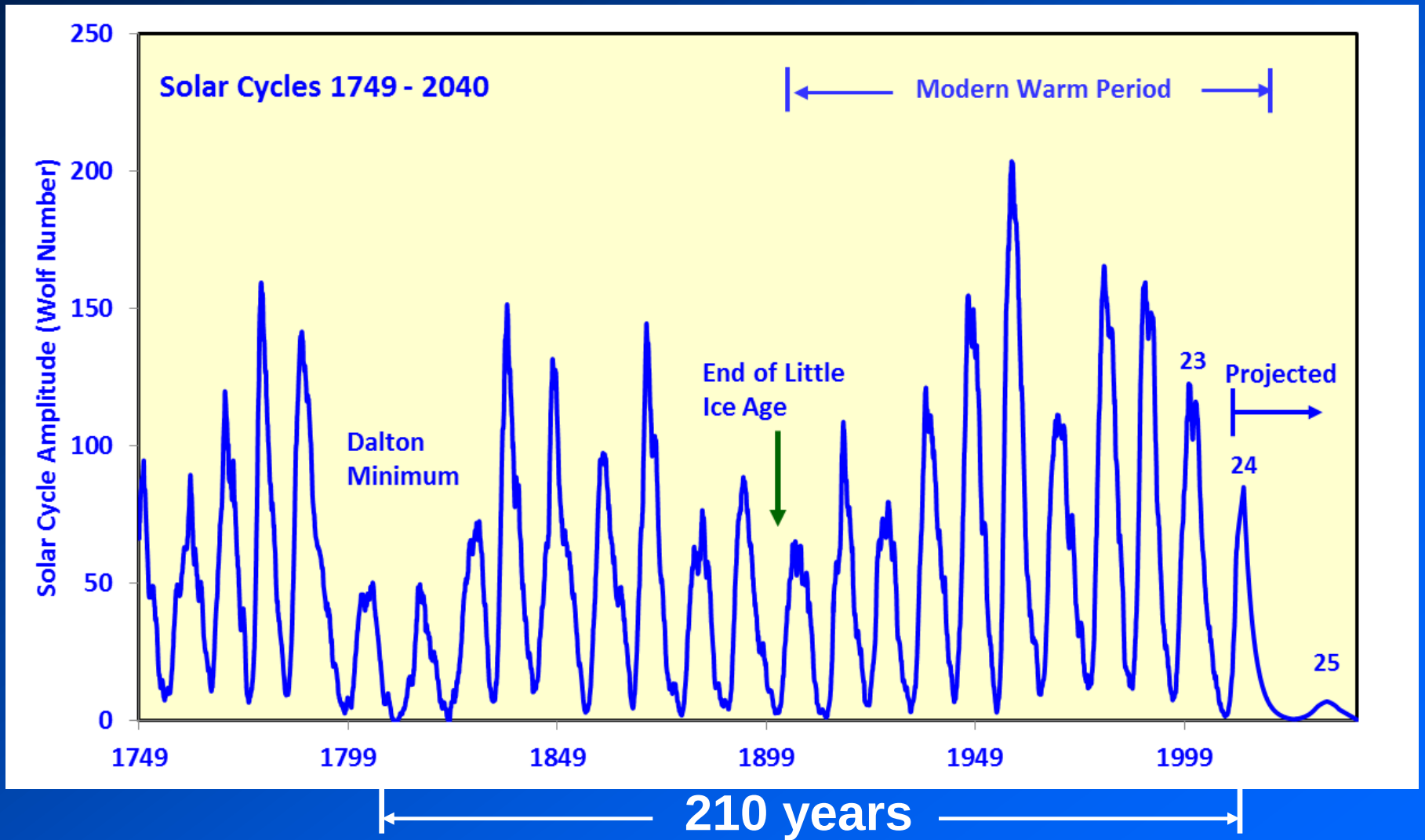
We are getting a brief burst of aerial fertiliser.



Carbon dioxide is tuckered out as a greenhouse gas.



The World won't stop having climate cycles just because they are inconvenient.



260 years of solar cycle data

Sunspot Cycle Length Relative to Temperature

Armagh, Northern Ireland 1796 – 1992 Butler and Johnson

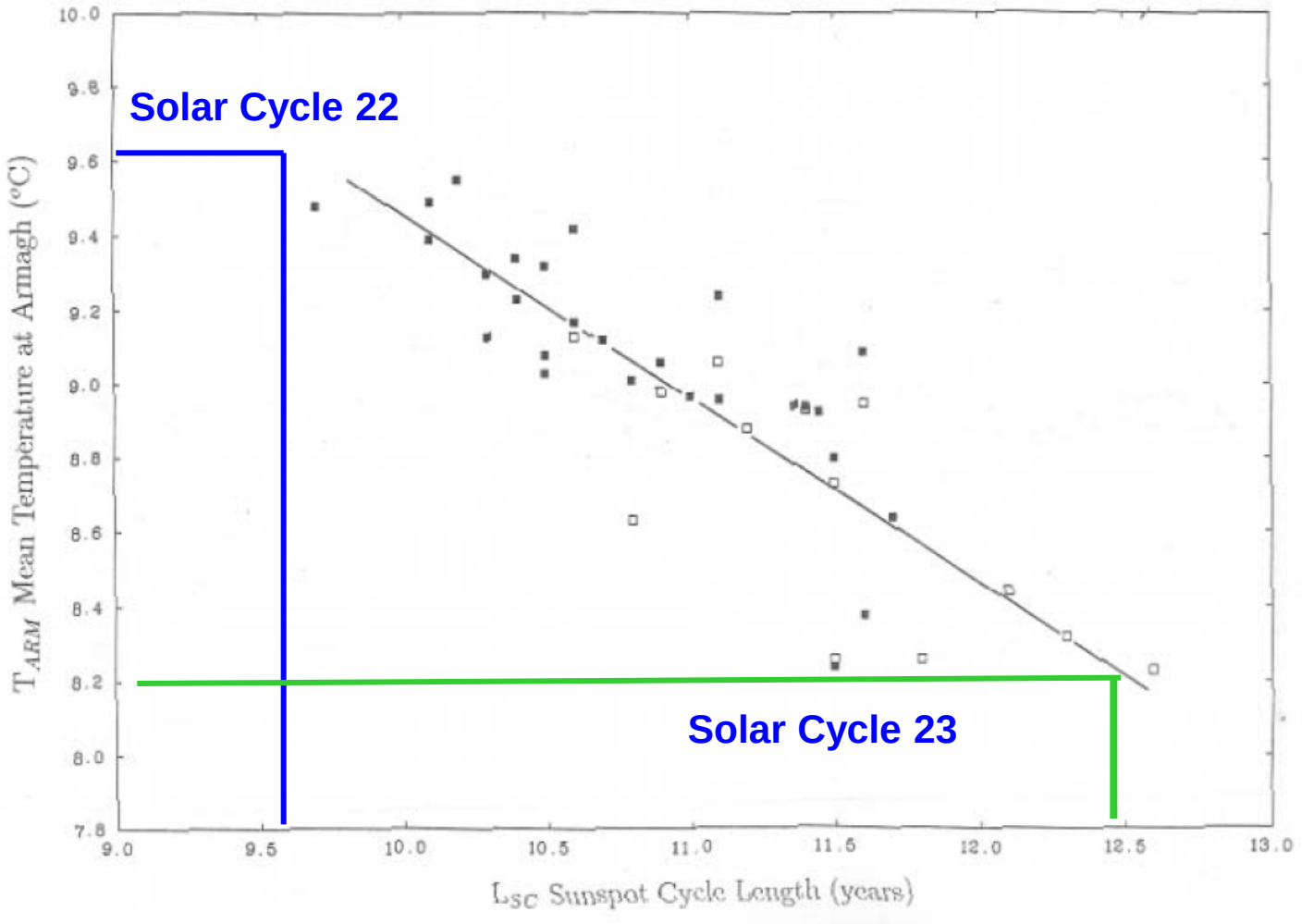
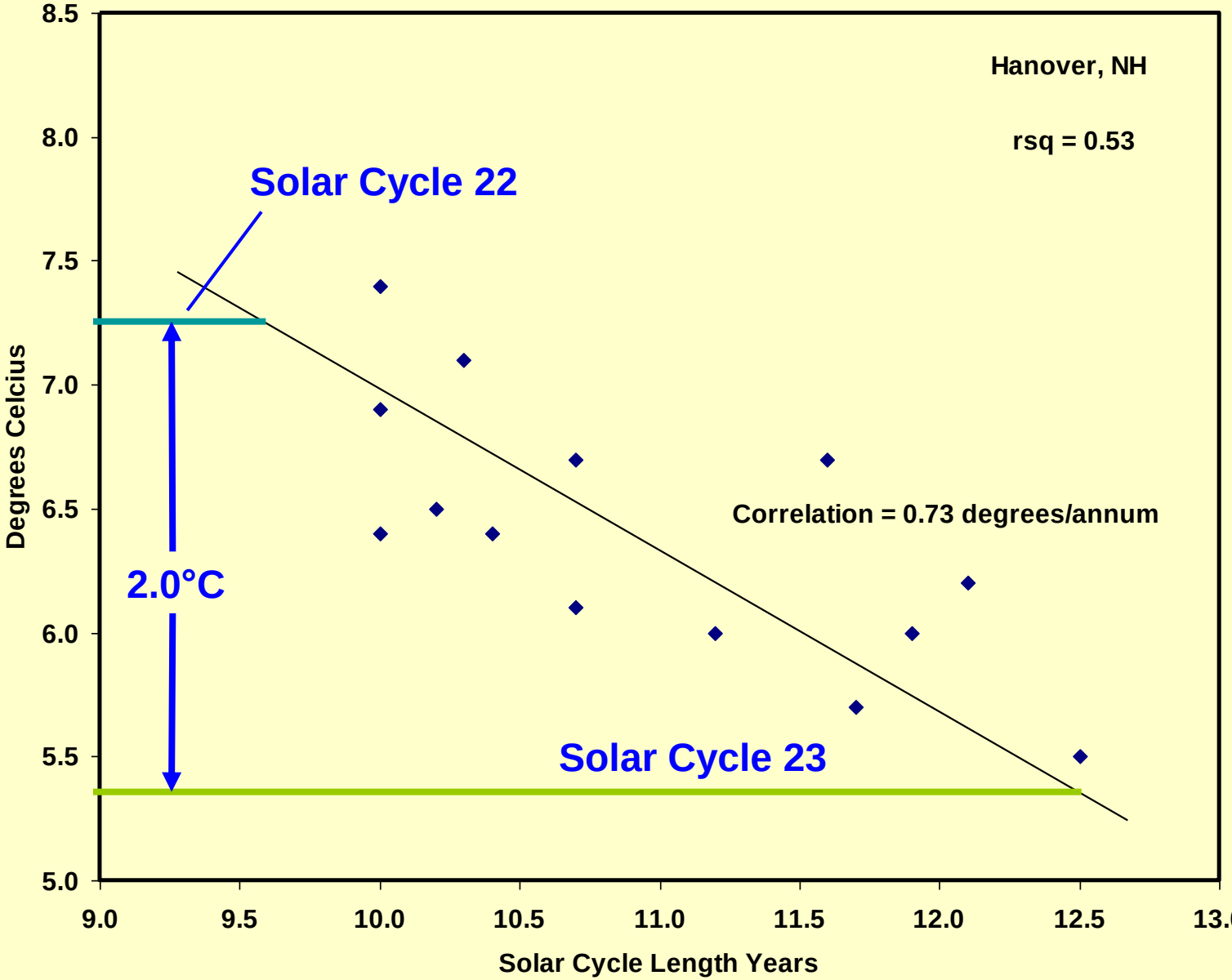
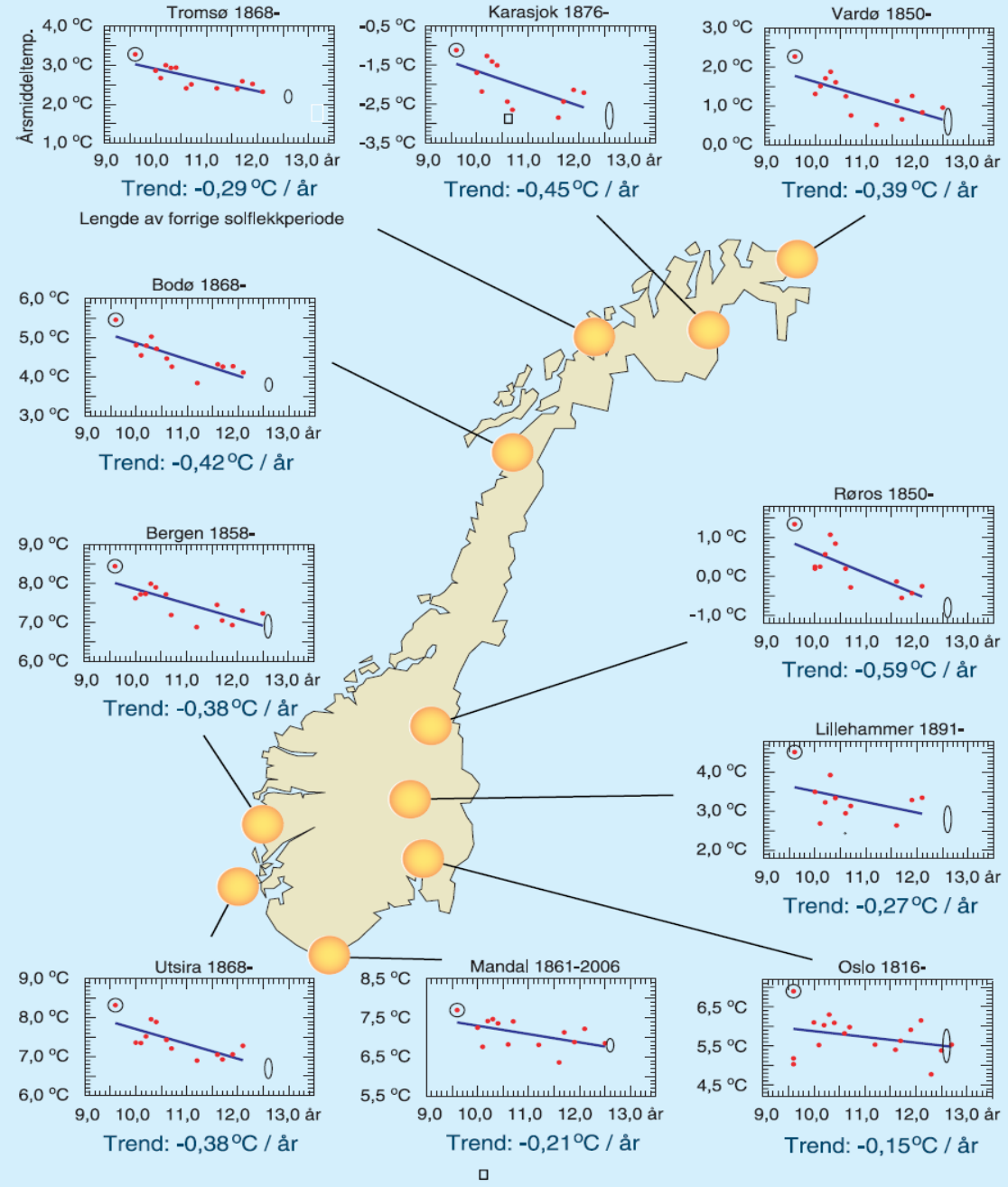


Figure 5. The mean temperature at Armagh for 11 year intervals, centred on years of sunspot maximum and minimum, plotted against the sunspot cycle length. Symbols: open squares - Series I, filled squares - Series II. The mean regression line is shown.

Hanover, New Hampshire

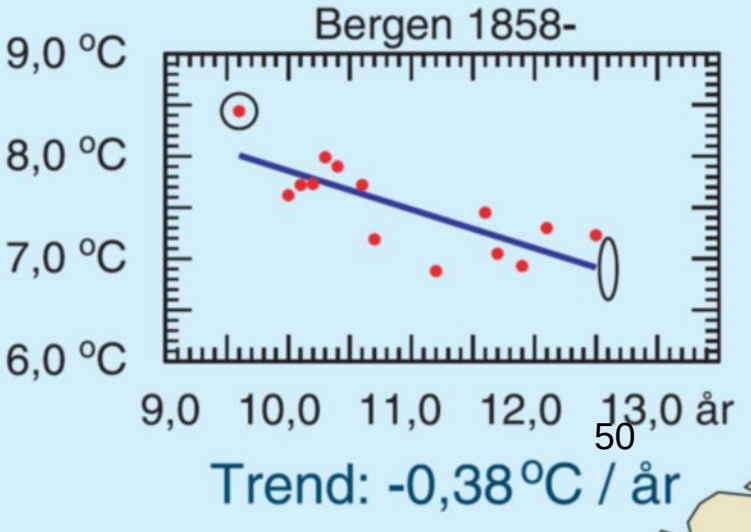




Friis-Christensen and Lassen theory, using Butler and Johnson methodolgy, applied to Norway

- a 1.5° C cooling underway

Work by Professor Jan-Erik Solheim of Oslo University



Three wise Norwegians:

Jan-Erik Solheim*

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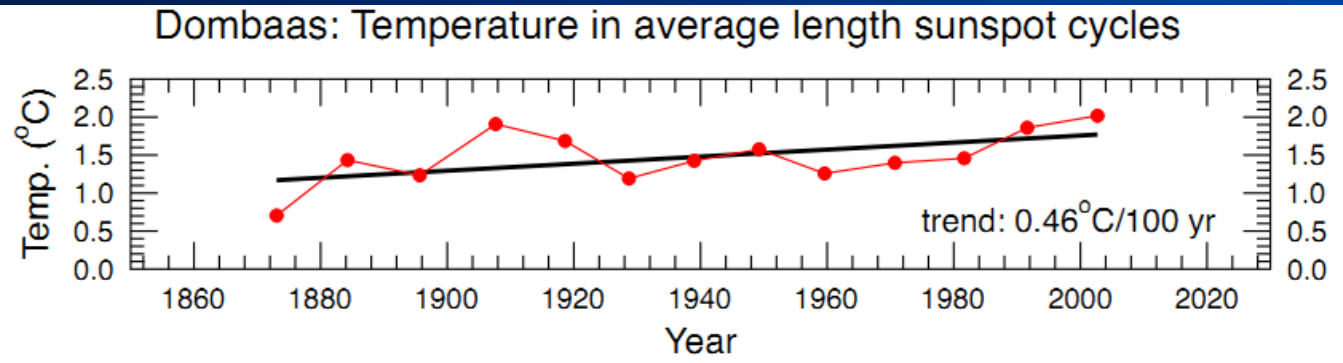
Credit me with a scientific discovery:

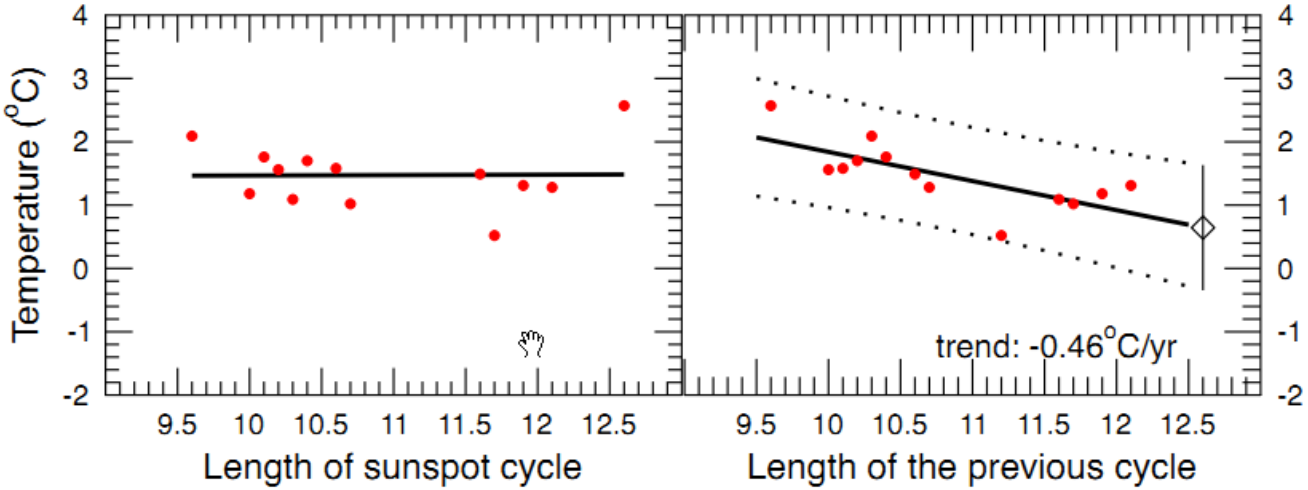
Archibald (2008) was the first to realize that the length of the previous sunspot cycle (PSCL) has a predictive power for the temperature in the next sunspot cycle, if the raw (unsmoothed) value for the SCL is used. Based on

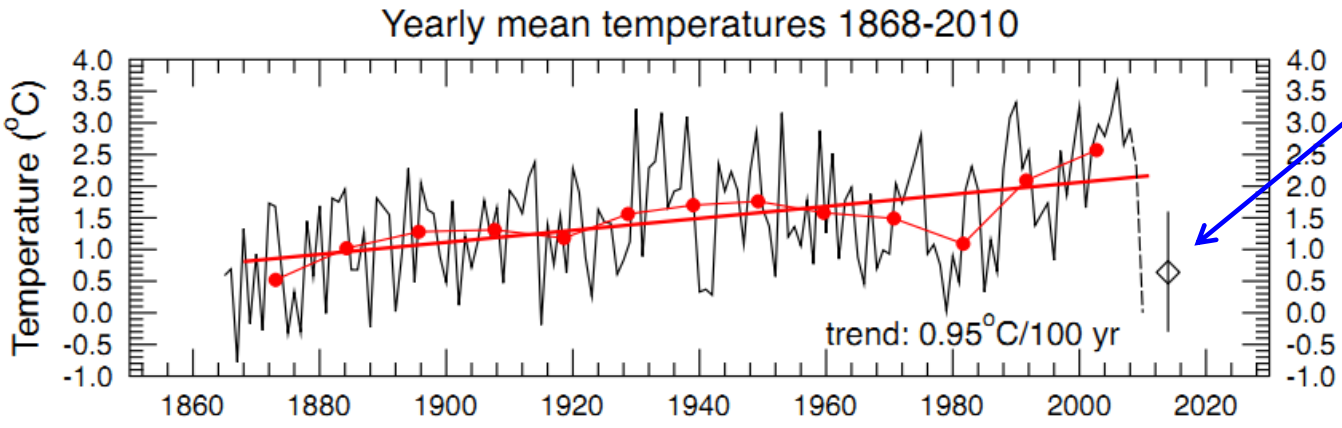
That enables climate to be predicted with great accuracy.

Available at: http://arxiv.org/pdf/1202.1954v1.pdf

Dombaas, Norway

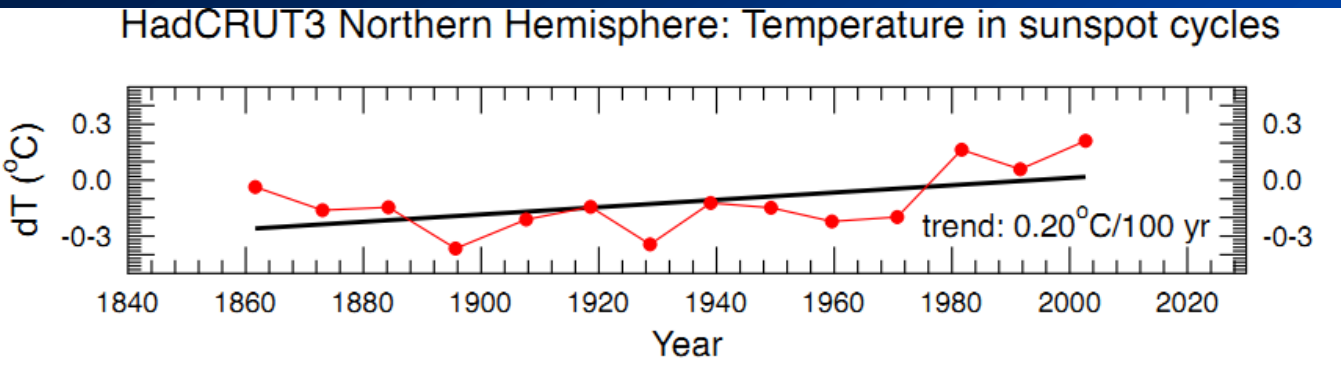


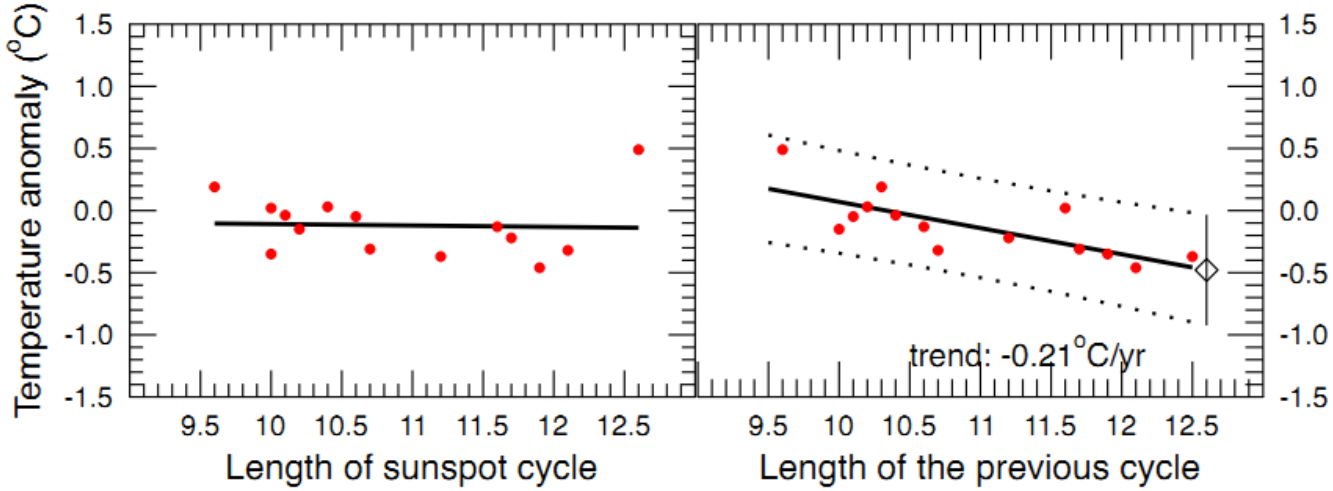


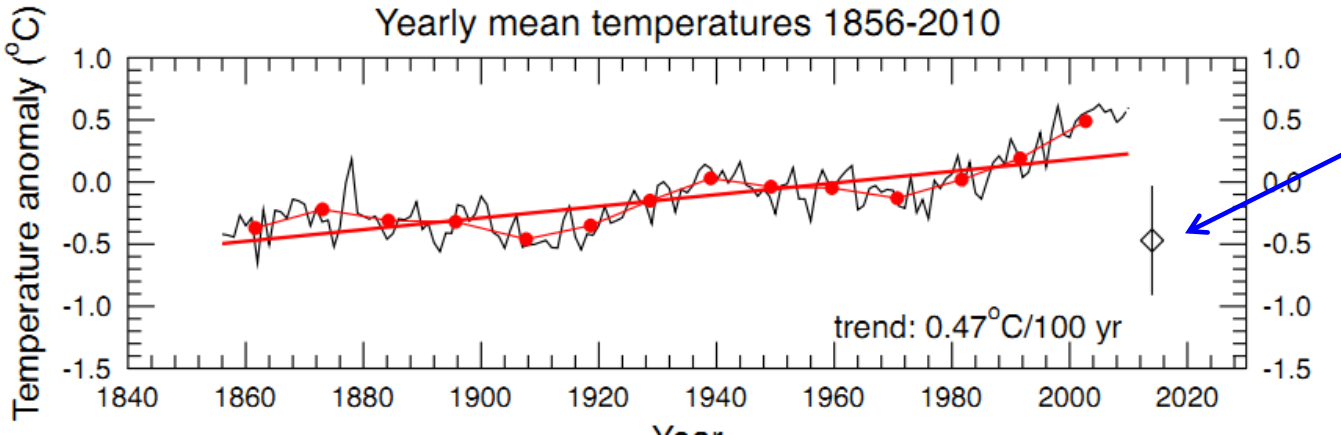


Predicted Decline

Northern Hemisphere



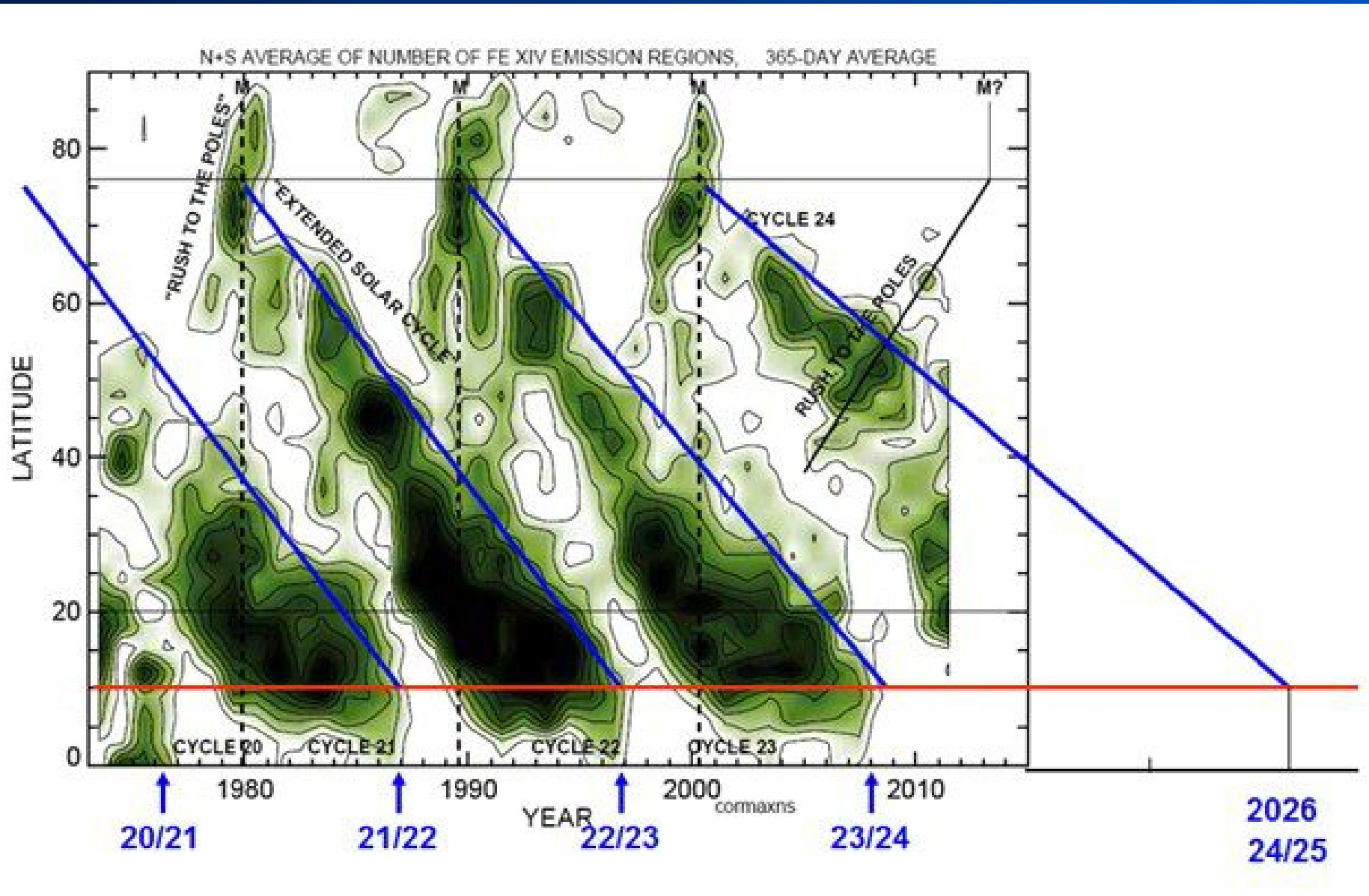




All the warming of the last 150 years will be reversed.

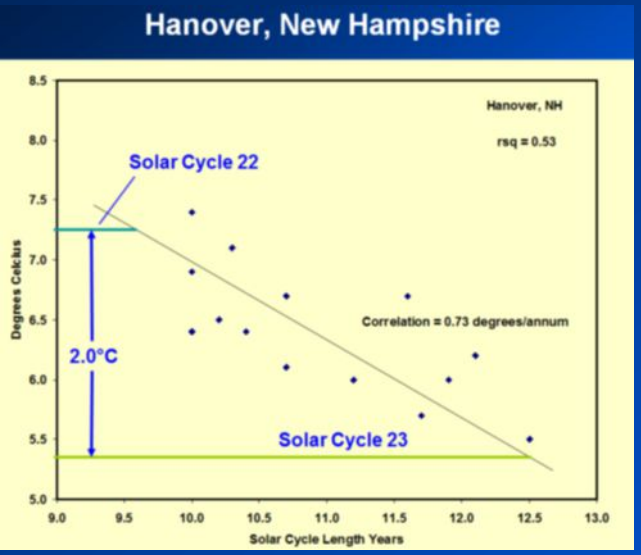
Predicted decline

Combine that with a prediction of solar activity:

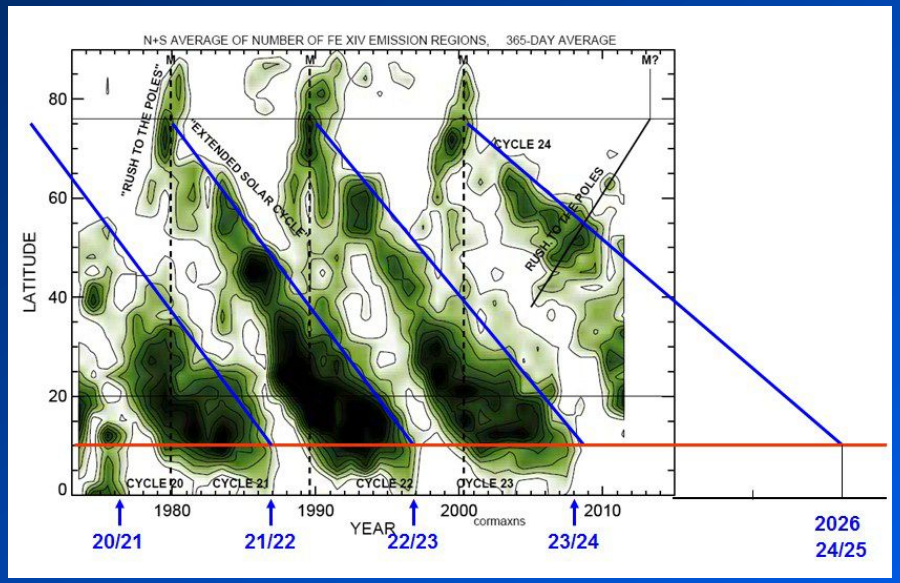


We can now predict climate to 2040.

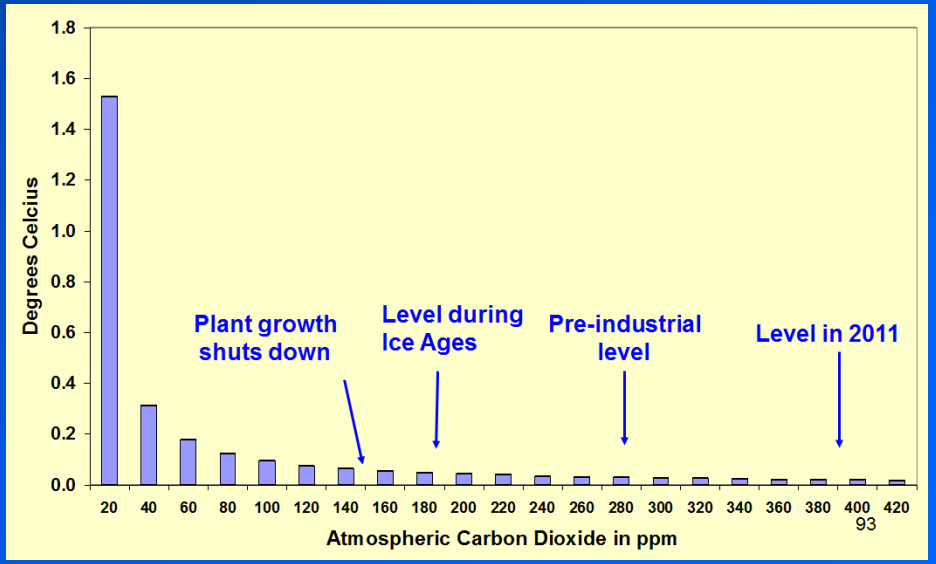
Using these three tools:



Solar cycle length - temperature

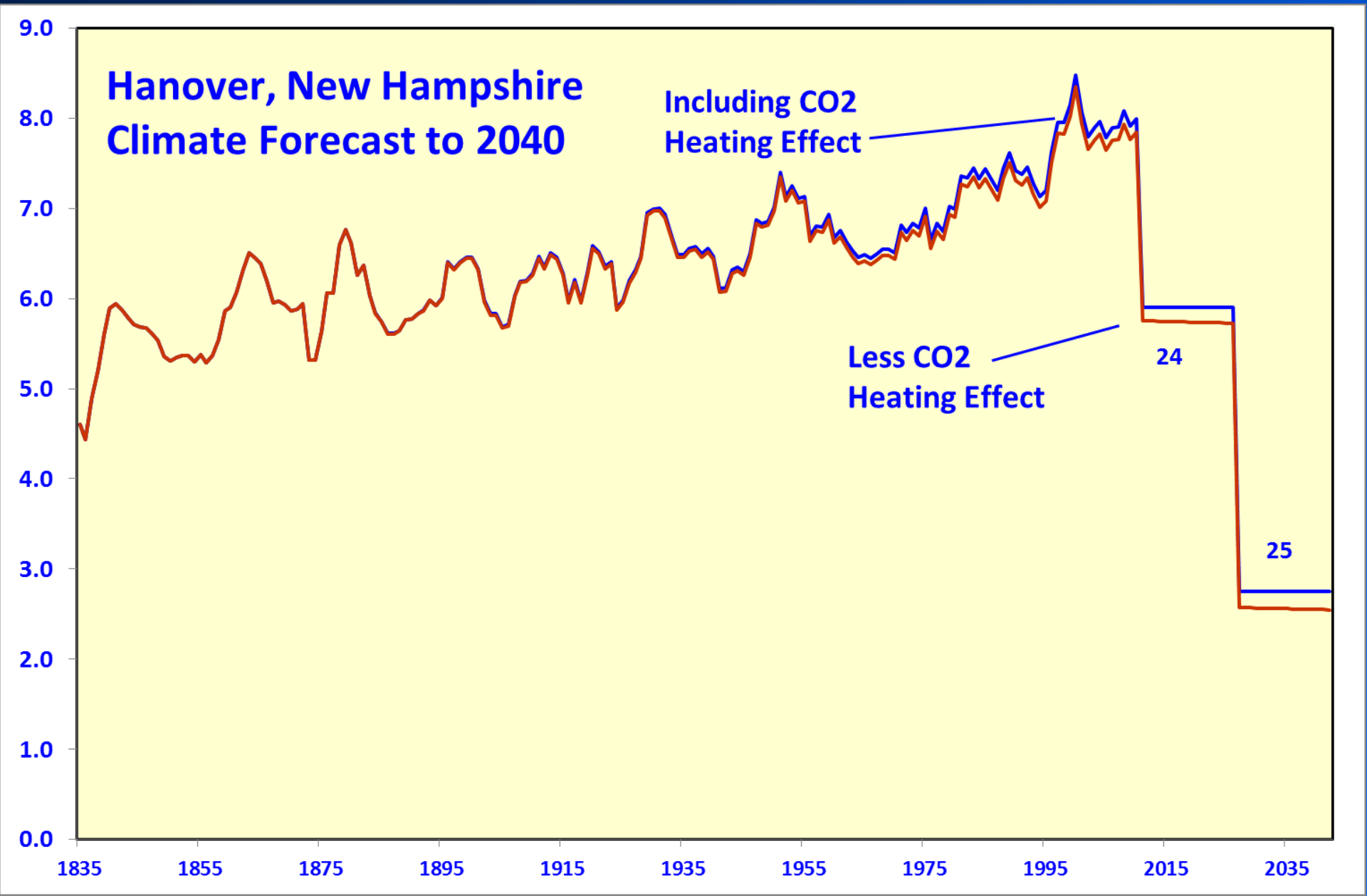


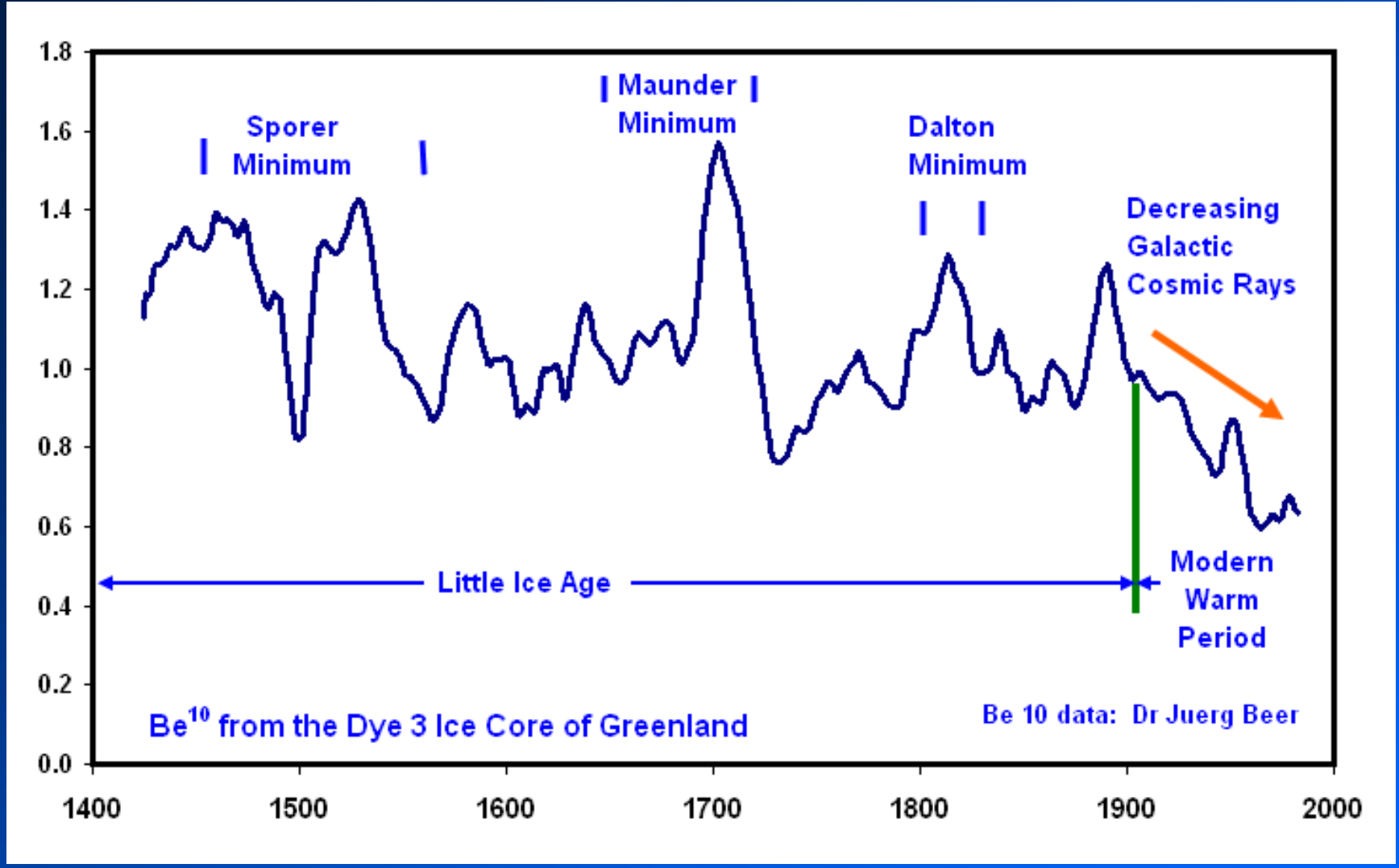
Solar activity forecast



Logarithmic heating effect of CO2

We are able to predict climate to 2040.

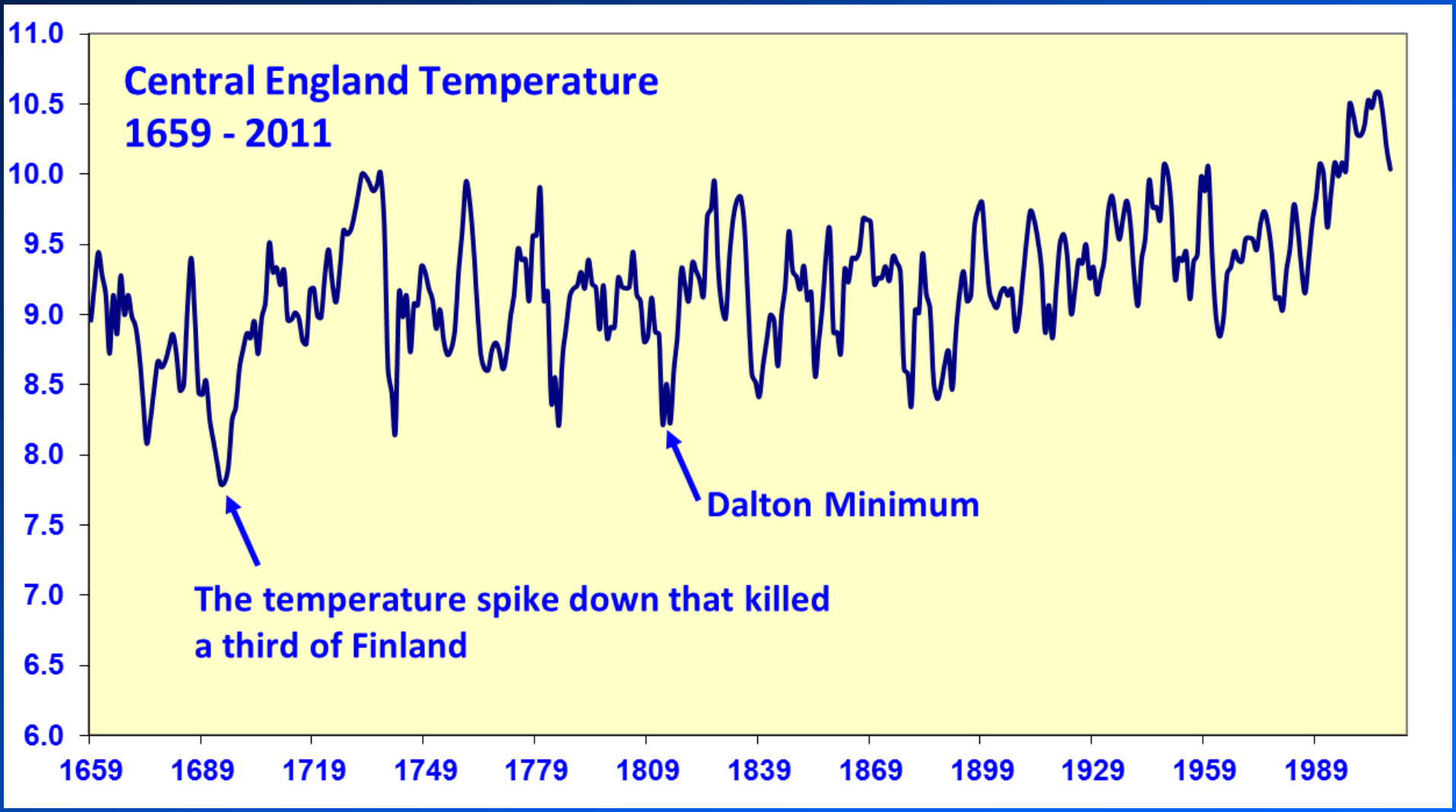




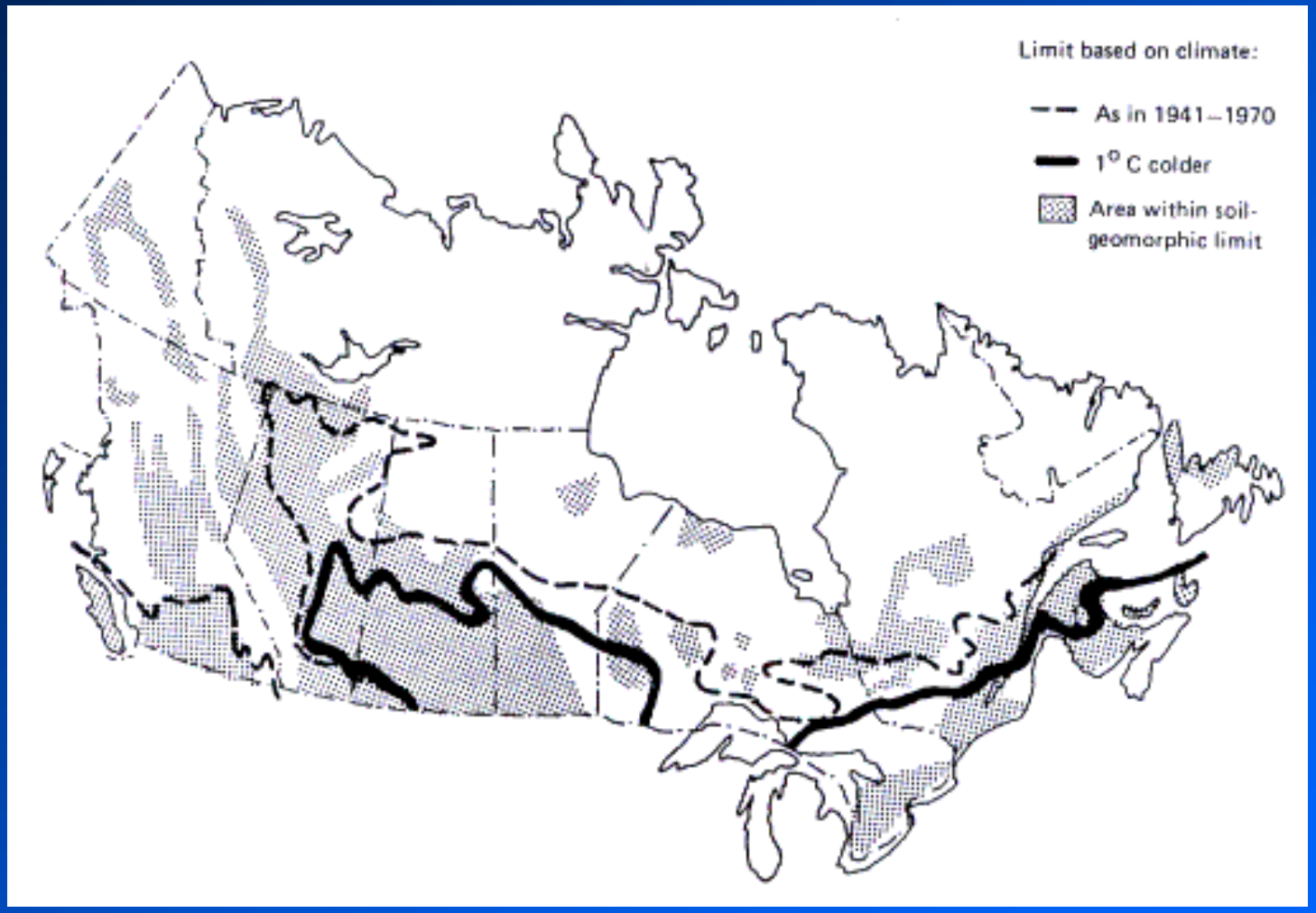
Famines in France 1693-94, Norway 1695-96 and Sweden 1696-97 claimed roughly 10% of the population of each country.

In Estonia and Finland in 1696-97, losses have been estimated at a fifth and a third of the national populations, respectively.

We see it in the thermometer record.

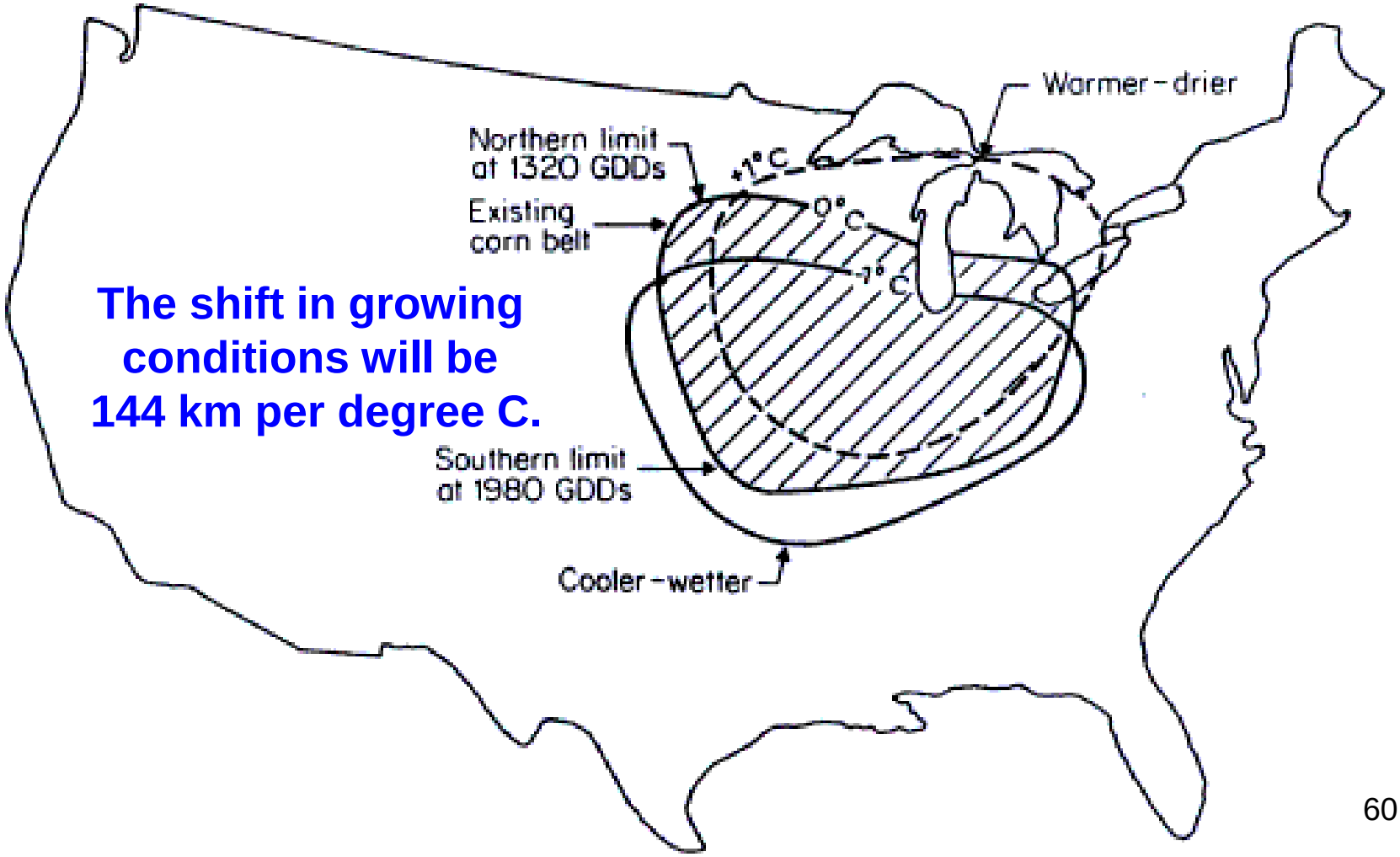


A prediction of Canadian agricultural response dating from the last cooling event 40 years ago

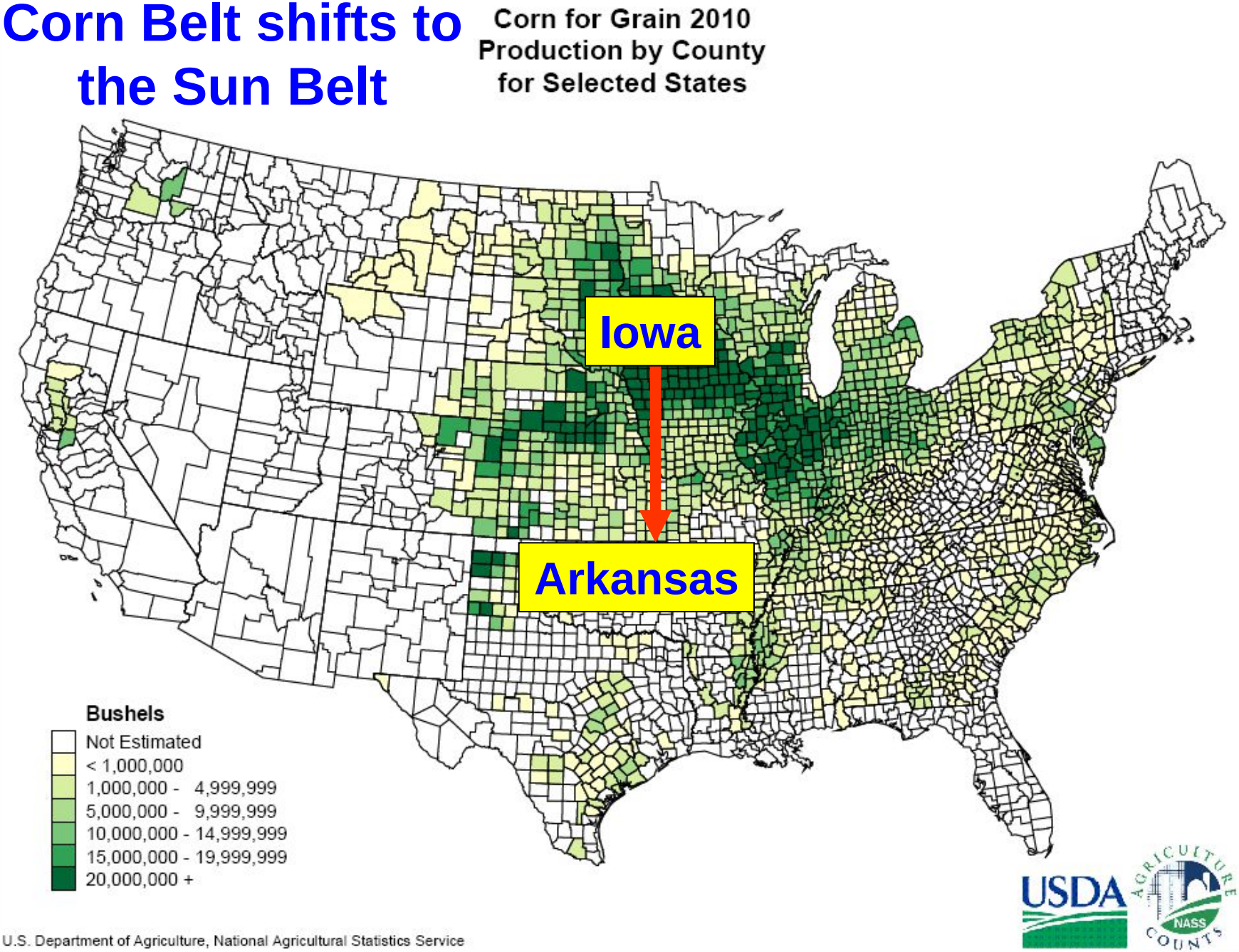


A 1° C decrease would reduce the frost-free period by 15 days.
A 2° C decrease would not allow the wheat crop to ripen before the first frost.
A 5 ° C decrease – it's all over.

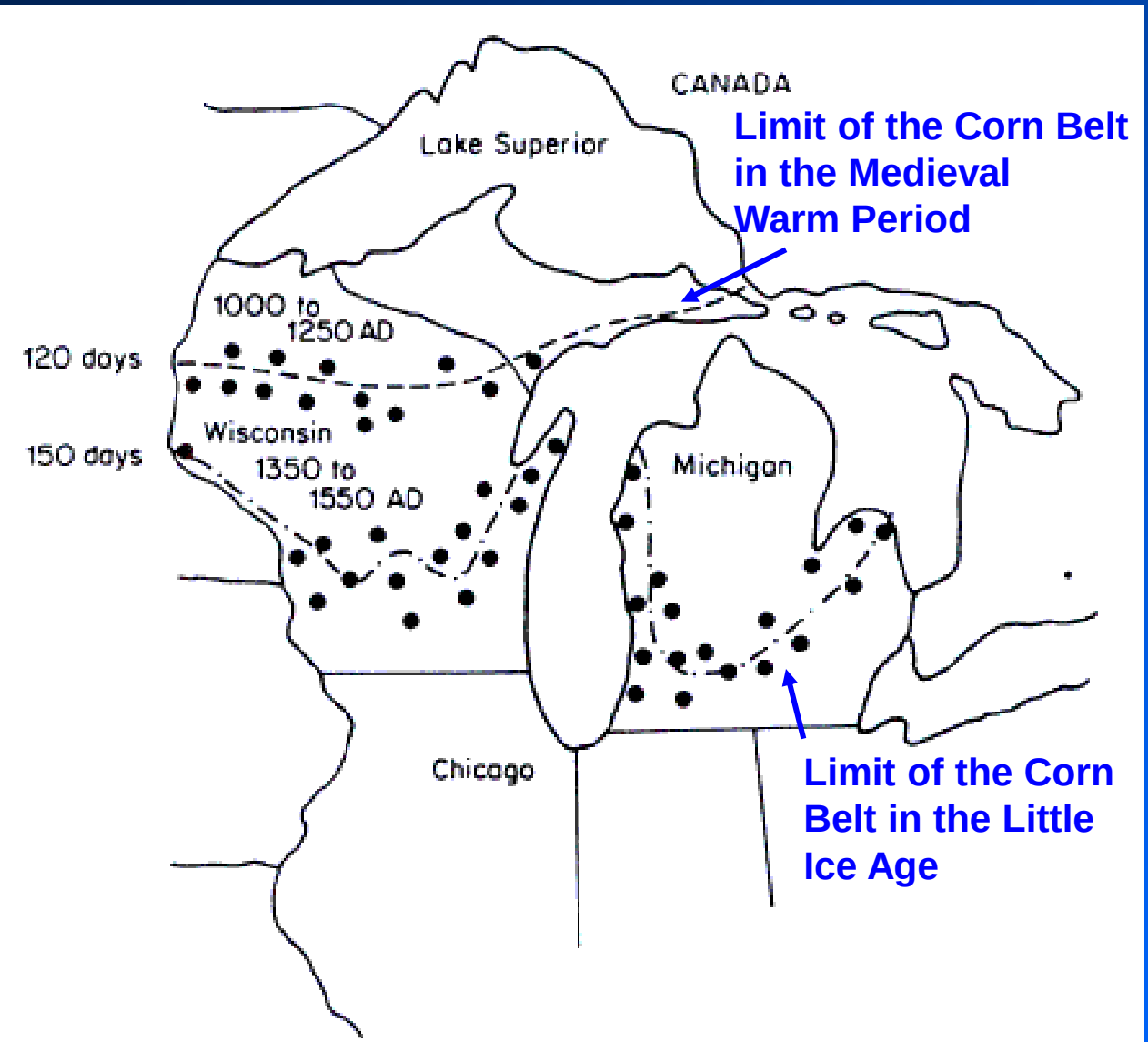
The Corn Belt shifts south but total growing area remains the same.



Corn Belt shifts to the Sun Belt



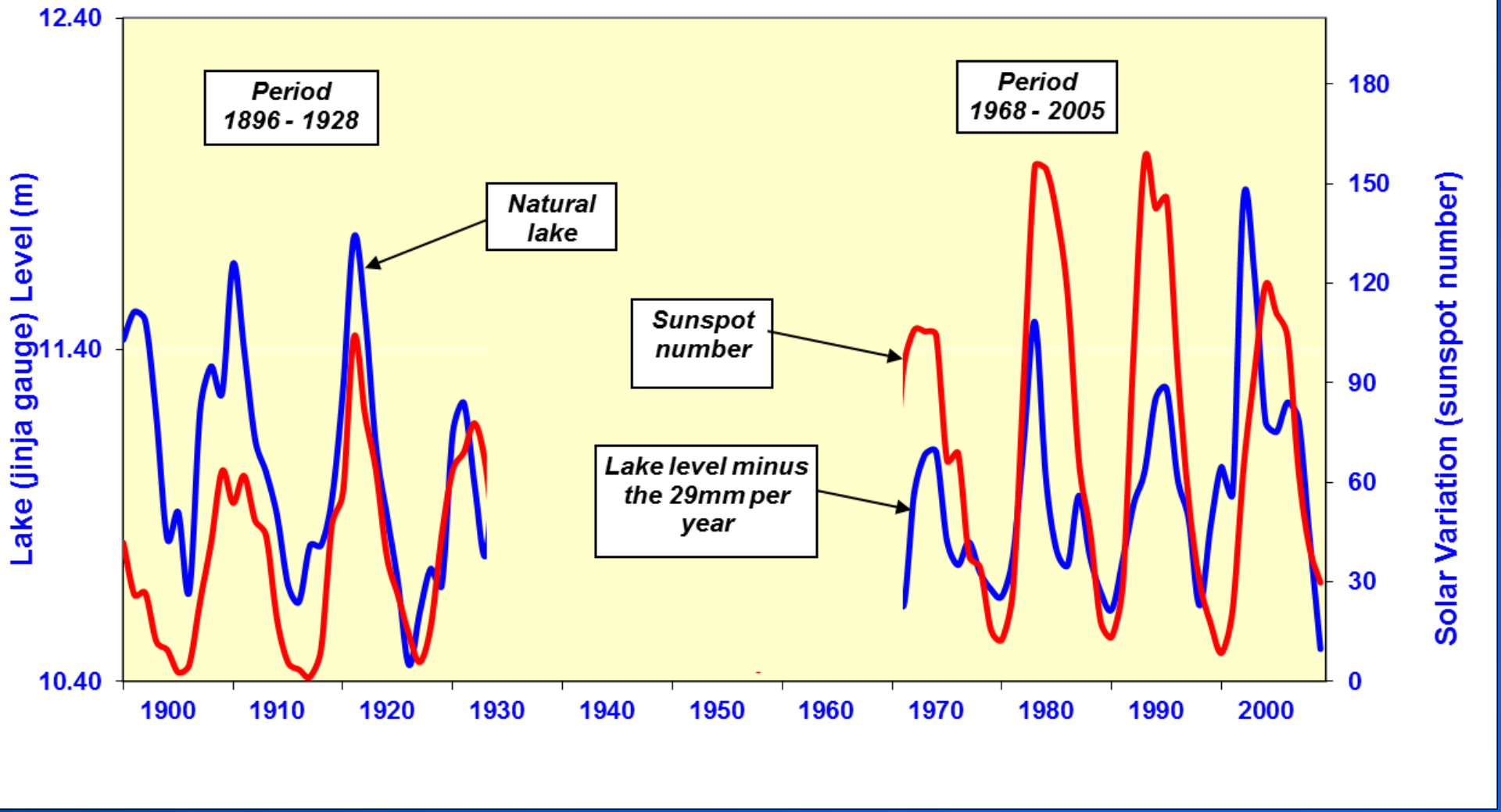
It has happened before in the US.



Distribution of prehistoric ridge-furrow maize gardens in relation to present-day frost-free seasons.

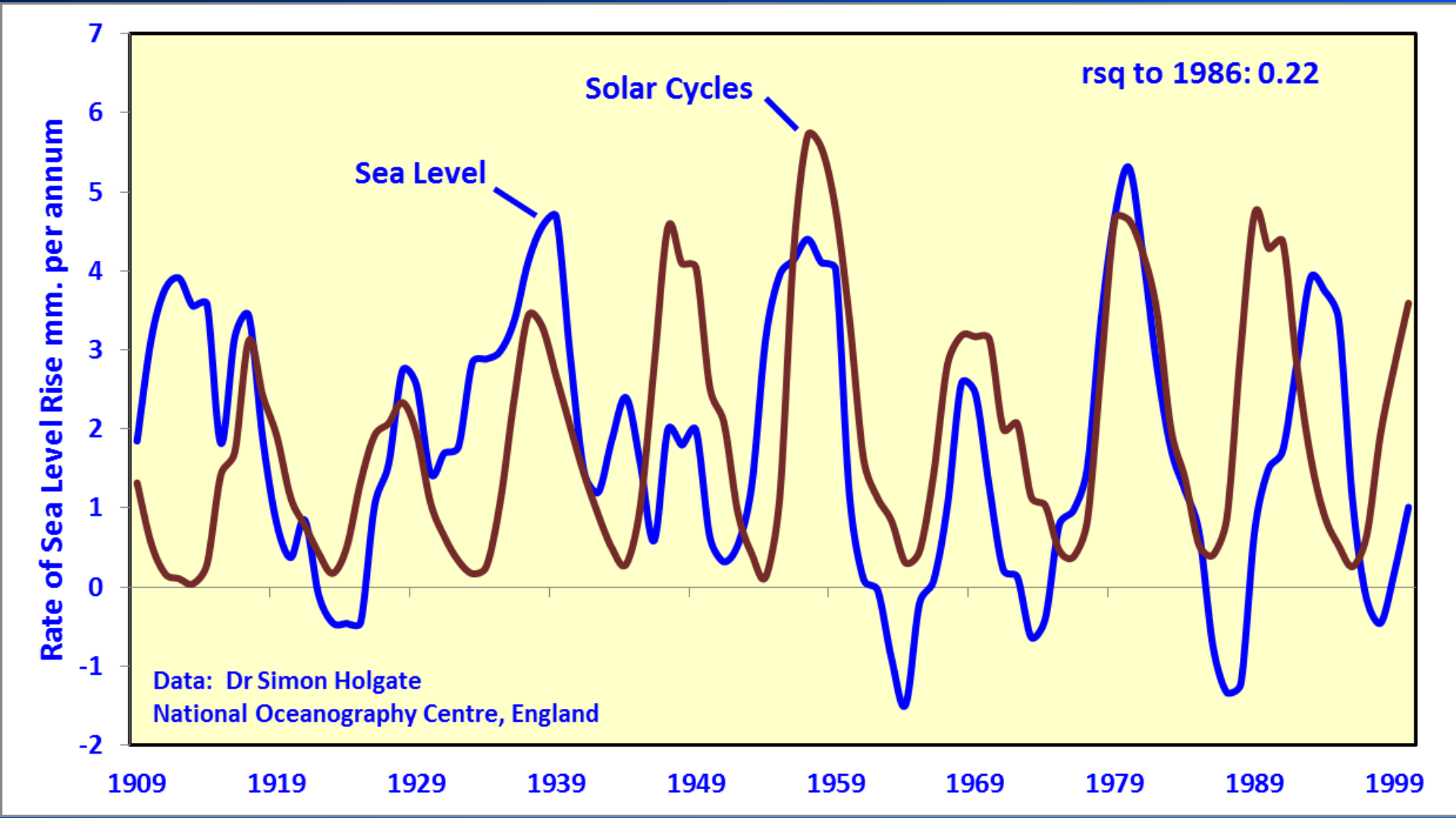
The northern limit of prehistoric maize fields appears to have retreated up to 320 km southward concurrently with cooling in the thirteenth and fourteenth centuries.

Lake Victoria Level and Solar Activity

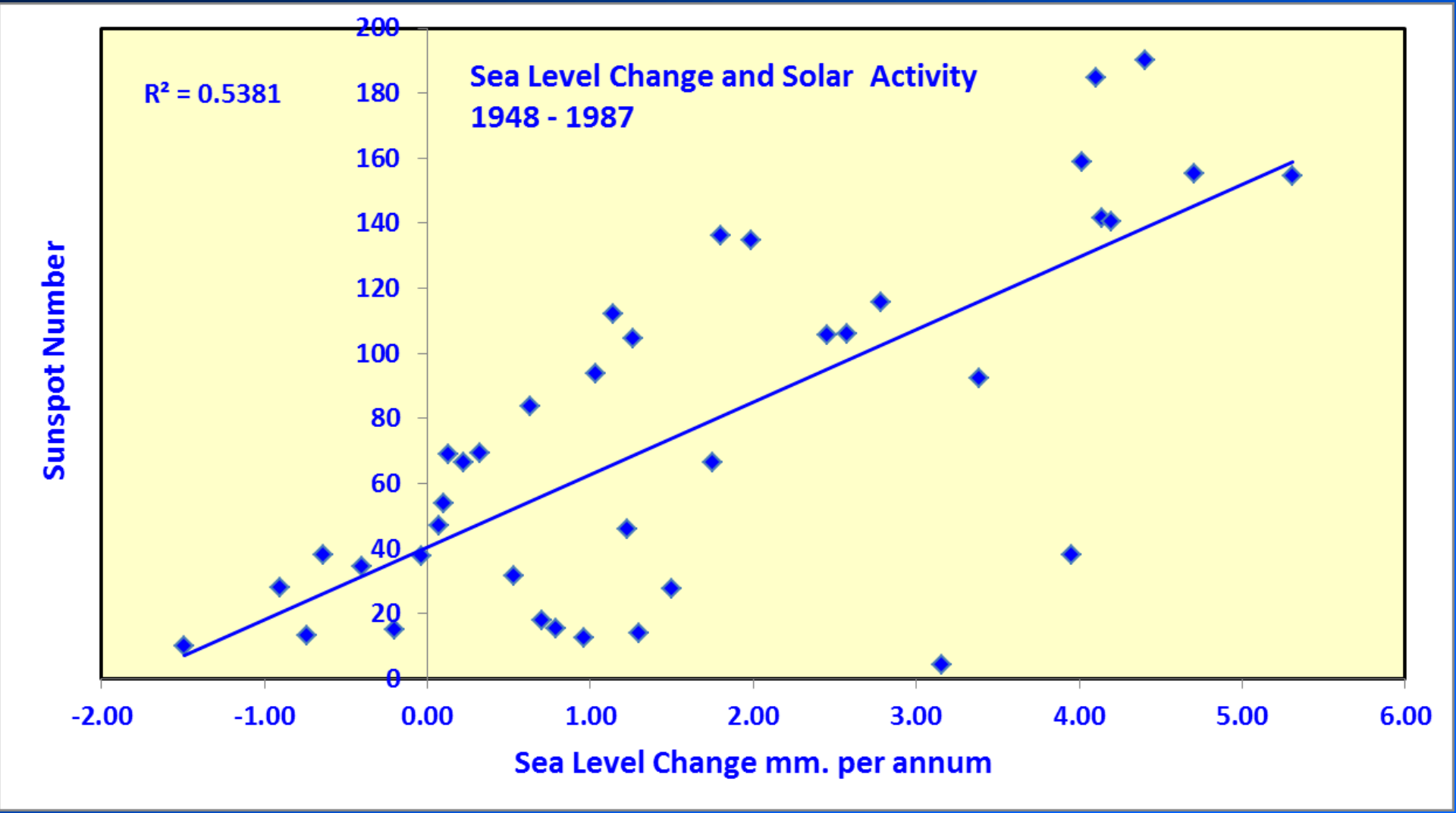


24 years of drought in train for East Africa

Rate of sea level rise is controlled by solar cycles.

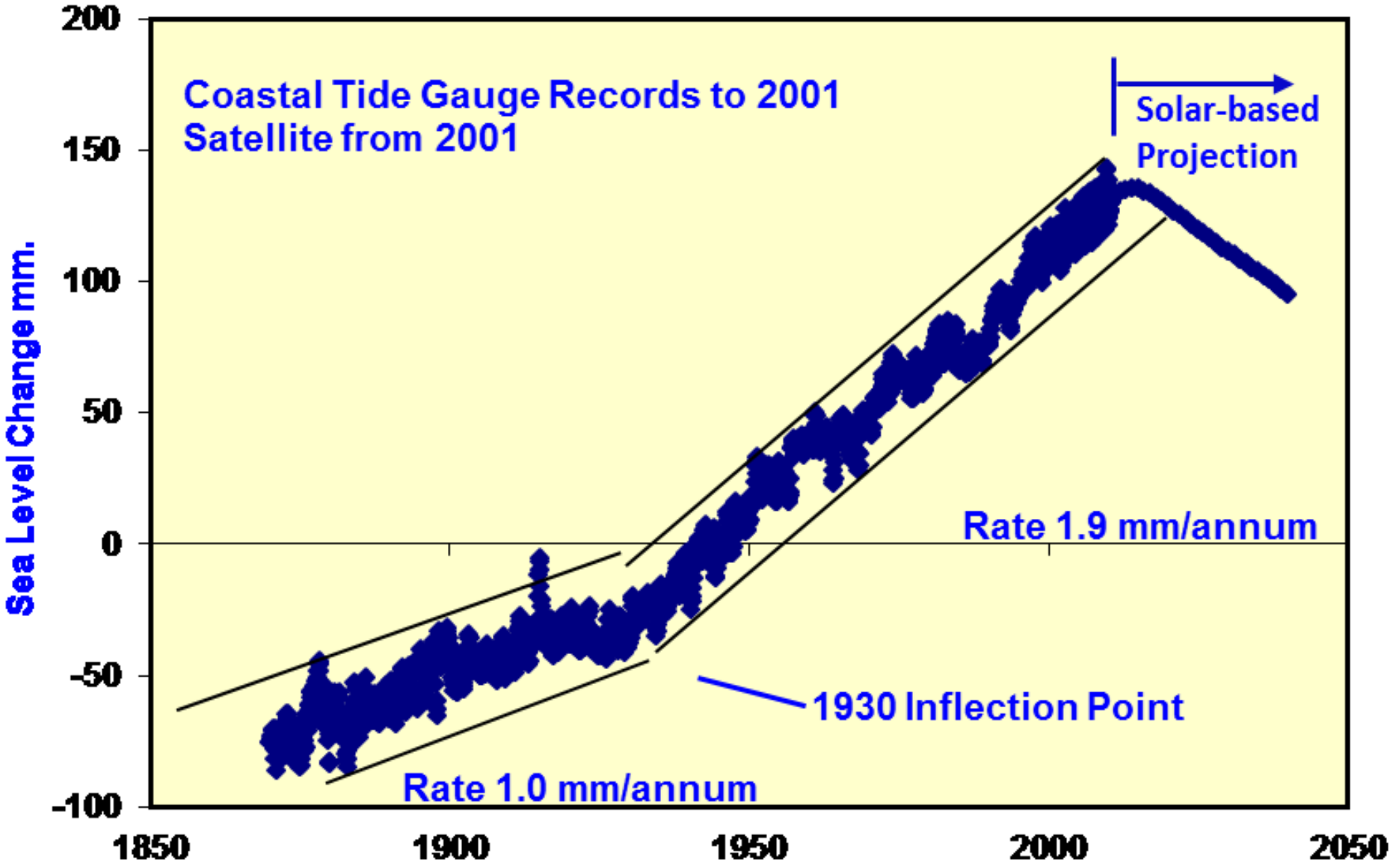


Statistically significant: R2 = 0.5381

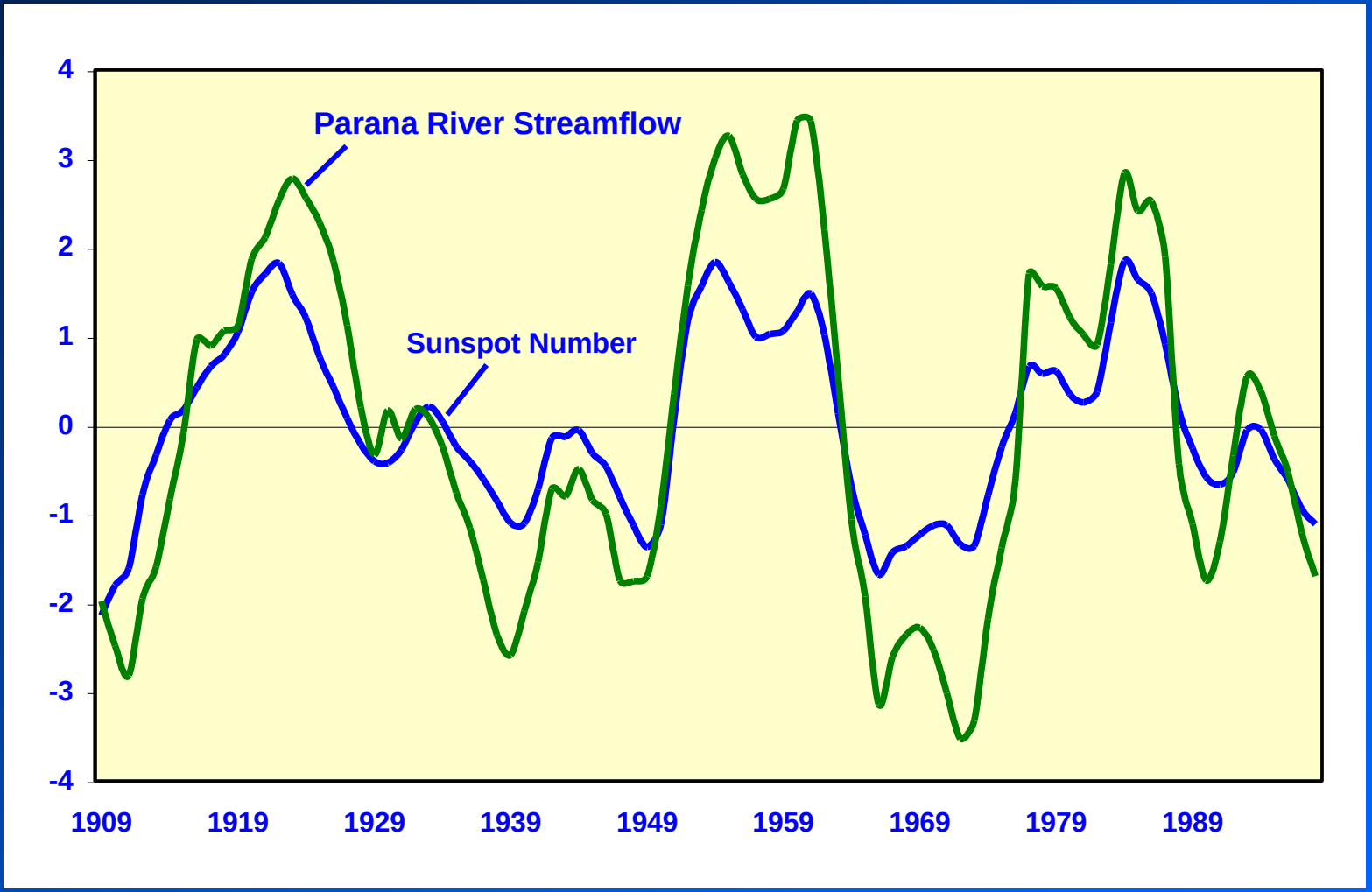


Sea level rise/fall is 0.045 mm per unit of sunspot number.

Which makes it a predictive tool.

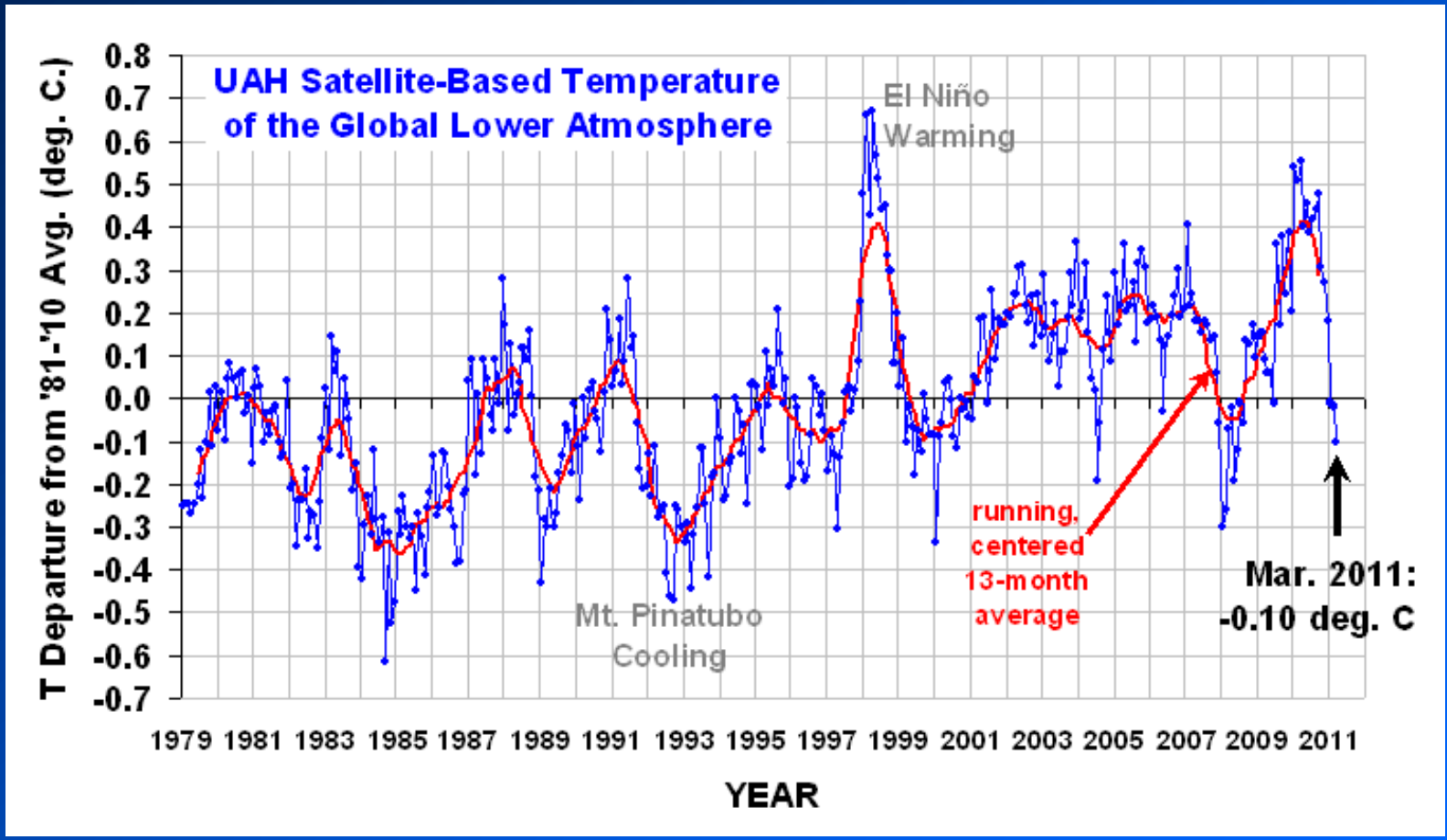


Colder is drier.



The Itaipu Dam on the Parana River provides 90% of Paraguay's electric power and 20% of Brazil's.

If a Mt Pinatubo-type eruption is overprinted on a de Vries cycle event:



Then we get an 1816 – type crop failure event.

1816 Event – 50% Chance

- Mt Tambora in Indonesia erupted on 10th April, 1815.
- Average global temperatures decreased by 0.4 – 0.7° C.
- On 4th June 1816, frosts were reported in Connecticut.
- On 6th June 1816, snow fell in Albany and Maine.
- Oats rose from 12 cents a bushel to 92 cents a bushel.
- For the last 500 years, major volcanic eruptions averaged 45 years apart.
- One of these could easily reduce world grain production by 400 million tonnes.

Summary on Climate

1. The World has entered a sharp cooling period due to lower solar activity.
2. Mid-latitude grain production under threat with potential famines.
3. Carbon dioxide's heating effect is real but minuscule.
4. Sea level now falling.