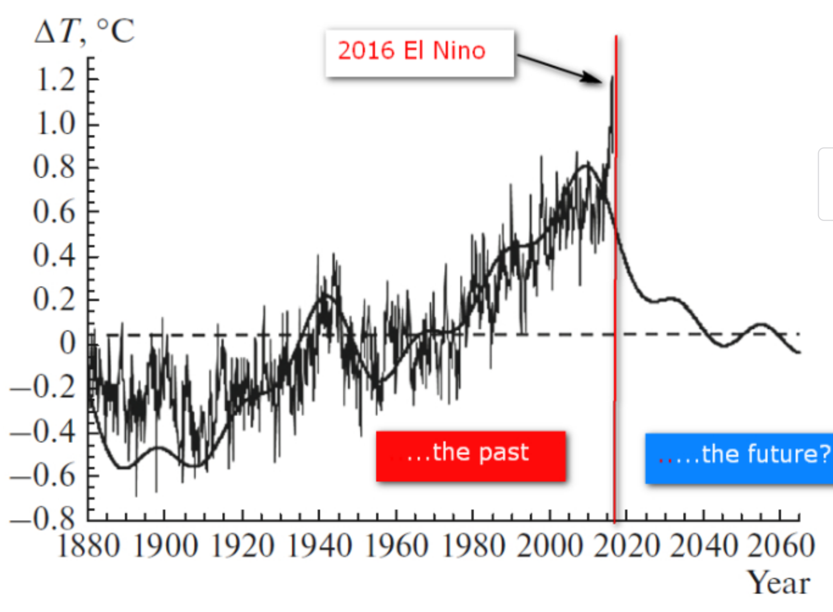
The coming cooling predicted by Stohzkov et al.

time



A new paper from February 2017 has been published by Y.I. Stozhkov et al. in the Bulletin of the Russian Academy of Sciences. Here a link to the abstract (at Springerlink); the complete version is regrettably paywalled, but I was able to access it through the Luxembourg Bibliothèque Nationale.

The paper is very short (3 pages only), has no complicated maths or statistics and is a pleasure to read. The authors predict as many other have done before a coming cooling period; their prediction is based on two independent methods of assessment: a spectral analysis of past global temperature anomalies, and the observation of the relationship between global temperatures and the intensity of the flux of charged particles in the lower atmosphere.

1. **Spectral analysis of the 1880-2016 global temperature anomalies.**

The paper uses the global temperature anomalies series from NOAA and CRU, computing them as the difference with the global average near surface temperatures between 1901 and 2000. Their spectral analysis suggests that only 4 sinus waves are important:

The general form is: wave = amplitude*sin[(2pi/period)*time+phase] with the period and time in years and the phase in radians; the authors give the phase in years, so you have to multiply by 2pi/period to obtain the phase in radians.

» series #1: amplitude=0.406 period=204.57 years phase=125.81*2pi/period (radians)

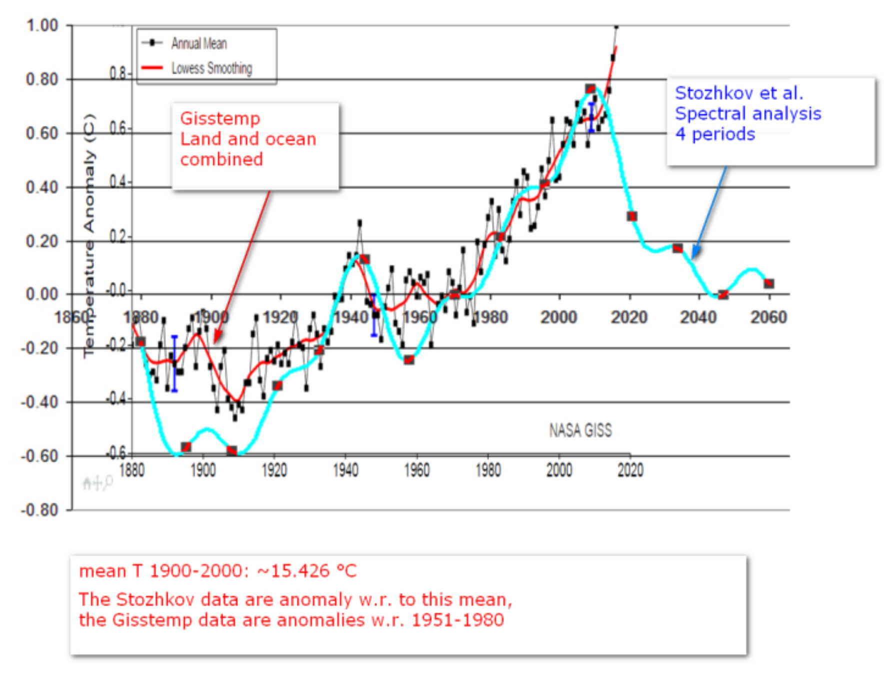
» series #2: amplitude=0.218 period= 69.30 years phase= 31.02*2pi/period

» series #3: amplitude=0.079 period= 34.58 years phase= 17.14*2pi/period

» series #4: amplitude=0.088 period= 22.61 years phase= 10.48*2pi/period

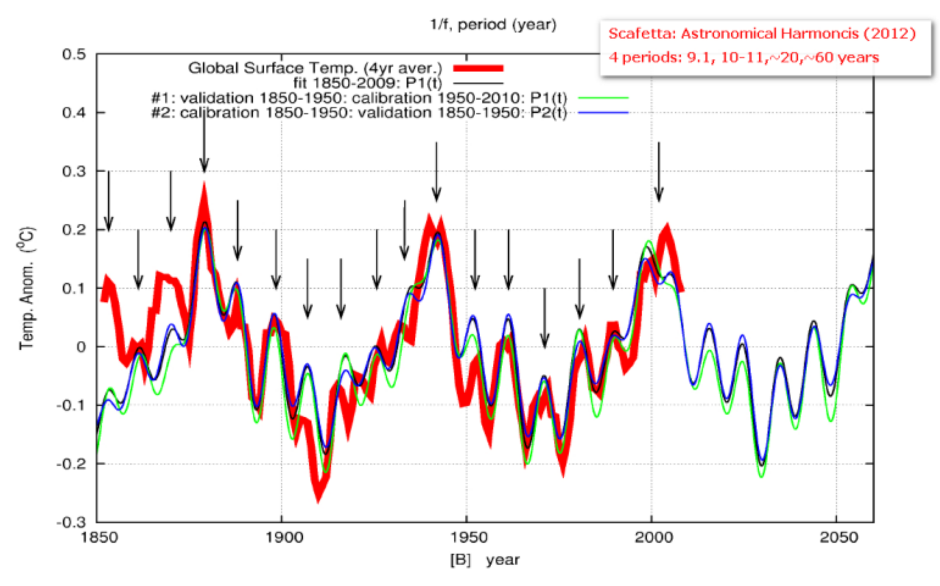
I computed the sum of these 4 series and merged the graph with the global land-ocean temperature anomalies from GISS; the problem is that GISStemp calculates the anomalies from the mean of the 1951-1980 period, so the concordance will suffer from an offset.

The authors write that spectral periods less than 20 years do not play an important role: this means that El Nino's (roughly a 4 years period) are ignored, as well as non periodic important forcing phenomena like volcanic eruptions. The following graph shows my calculation of the sum of the 4 spectral components (in light blue) together with the official GISStemp series in red:



The fit is not too bad, but as had to be expected, misses the very high 2016 El Nino caused warming.

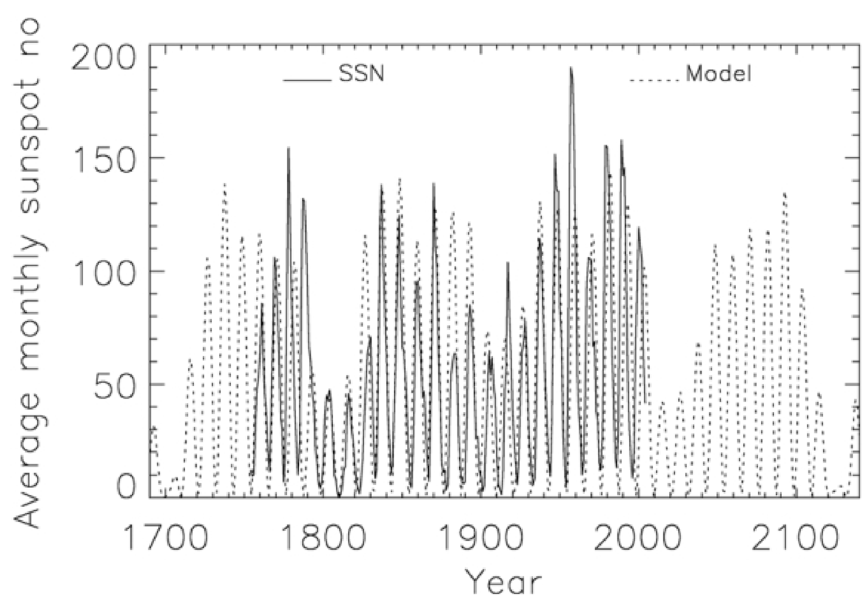
The authors are not the first doing a spectral analysis on the temperature series. N. Scafetta in his 2012 paper "Testing an astronomically based decadal-scale empirical harmonic climate model vs. the IPCC (2007) general circulation climate models" (link) gives the following figure of a good fit using 4 **short** period sinus waves (so he does not seem to agree with the Stozhkov on the non-importance of short periods):



Note that both models predict a cooling for the 2000-2050 period.

2. Cosmic rays and global temperature

We are now in solar cycle 24, one of the weakest cycles since ~200 years, as shown by the next figure (link):



A situation similar to the Dalton minimum during the first decade of the 19th century cold period seems to unfold, and all things being equal, would suggest a return to colder than "normal" temperatures. But as Henrik Svensmark has first suggested, the sun's activity acts as a modulator of the flux of cosmic charged particles, which create in the lower atmosphere the nucleation particles for condensing water, i.e. cooling low atmosphere clouds. In this paper the authors compare the flux N (in particles per minute) measured in the lower atmosphere (0.3-2.2 km) at middle northern latitudes with the global temperature anomalies dT: the measurements clearly show that an increase in N correlates with a decrease in dT. This is an observational justification of Svensmark's hypothesis:

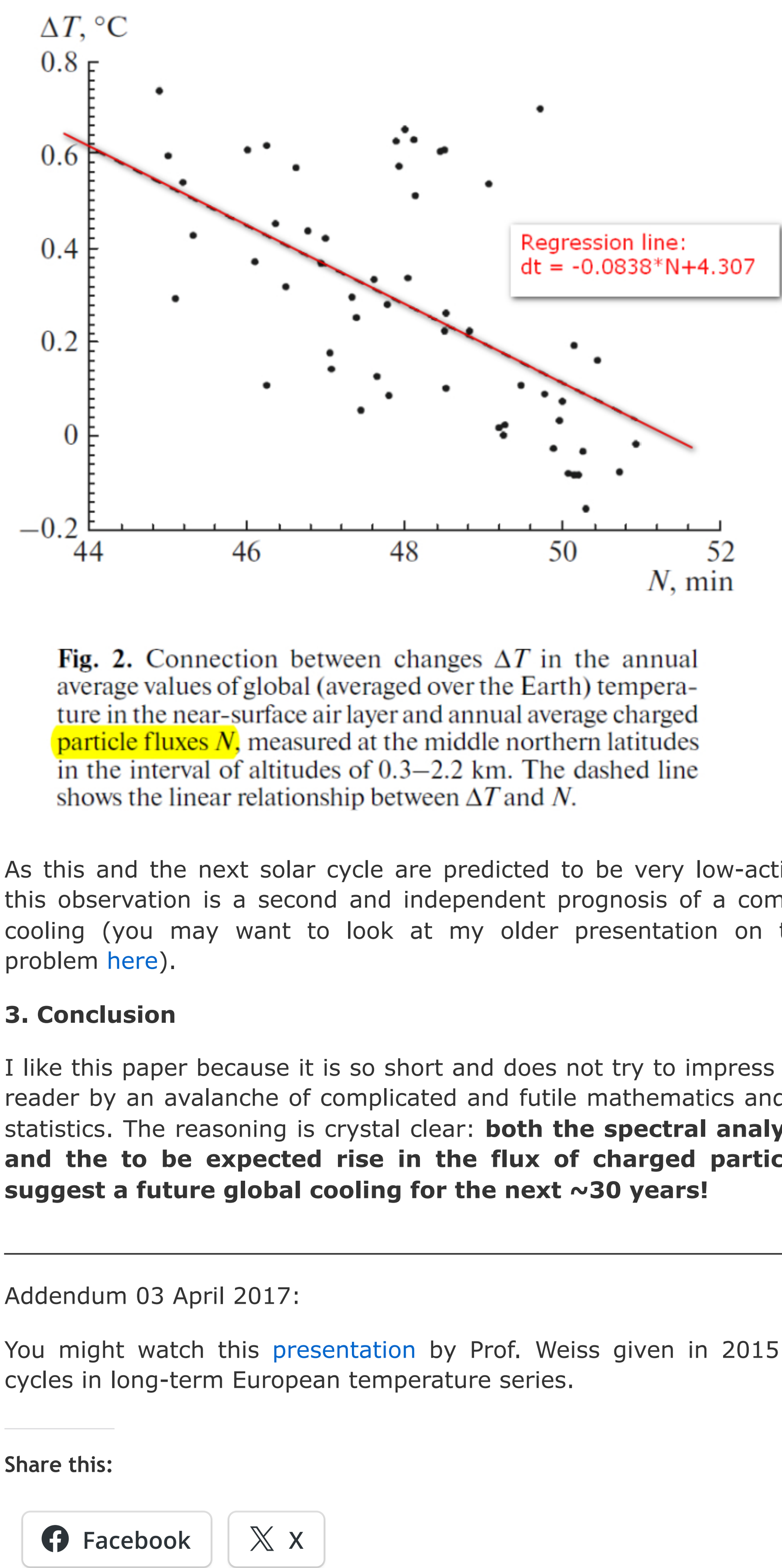


Fig. 2. Connection between changes ΔT in the annual average values of global (averaged over the Earth) temperature in the near-surface air layer and annual average charged particle fluxes N, measured at the middle northern latitudes in the interval of altitudes of 0.3–2.2 km. The dashed line shows the linear relationship between ΔT and N.

As this and the next solar cycle are predicted to be very low-active, this observation is a second and independent prognosis of a coming cooling (you may want to look at my older presentation on this problem here).

3. Conclusion

I like this paper because it is so short and does not try to impress the reader by an avalanche of complicated and futile mathematics and/or statistics. The reasoning is crystal clear: **both the spectral analysis and the to be expected rise in the flux of charged particles suggest a future global cooling for the next ~30 years!**

Addendum 03 April 2017:

You might watch this presentation by Prof. Weiss given in 2015 on cycles in long-term European temperature series.

Related

Cosmic Theories, Greenhouse Gases, Global Warming
August 27, 2015

NAP book (2)
February 22, 2011

Western Europe warming much faster than expected... really?
January 22, 2009
In "1"

This entry was posted on March 18, 2017 at 14:12 and is filed under Uncategorized. You can follow any responses to this entry through the RSS 2.0 feed. You can leave a response, or trackback from your own site.