



Global warming acceleration becomes evident by connecting global temperatures at successive La Nina minima.

Global Warming Acceleration Plus Miscellaneous

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Climate models indicate that at least a weak El Niño will begin this (Northern Hemisphere) winter; observations show that warming in the tropical Pacific has begun. This implies that the current La Niña minimum global temperature has bottomed out and the 12-month running mean global temperature will begin to rise during the next few months. Global temperature minima associated with La Niñas are more uniform in depth than El Niño maxima. This provides an opportunity to check whether the global warming rate is accelerating.

Global temperature *appears* to increase almost linearly over the past 50 years; the 1970-present rate is 0.17°C per decade. Jeremy Grantham [pointed out](#) that the rate of warming inferred by connecting the peak temperatures of the last two El Niño maxima (0.21°C per decade, see figure above) exceeds this longer term rate, and he infers that global warming is accelerating. La Niña minima probably provide a better estimate, and they provide more recent rates. As the figure shows, the most recent two La Niñas imply a warming rate of 0.38°C per decade, at least double the longer term rate! Such acceleration is predicted by climate models for continued high fossil fuel emissions as a result of amplifying climate feedbacks and is a cause for concern. We expect global temperature rise in the next few months to confirm our analysis.

I am leaving today for Xi'an, China to attend the joint American Geophysical Union/Chinese Academy of Sciences conference on atmospheric aerosols and upon return should focus on preparations for the trial of the Trump Administration in the lawsuit brought by Our Children's Trust. So I summarize here a few items that Eunbi has put or will put on Facebook:

(1) Pierre Friedlingstein points out that the linear scale used for CO₂ in Charts 30 and 31 of my Taiwan talk is misleading when compared with the temperature scale in the same figures. He is right that we should use a log scale for CO₂. As is well known, partial saturation of CO₂ absorption bands requires the CO₂ amount to double for each successive increase of 4 W/m² of climate forcing, and expected global warming increases approximately linearly with the climate forcing.

O.K., that's a mouthful. Here's the bottom line. The remarkable fit of CO₂ and temperature for the past 800,000 years (Chart 30) is hardly altered by this change of scale. CO₂ is a tight control knob for global temperature. However, for increase of global temperature above the preindustrial level the expected eventual warming, after all amplifying feedbacks have played out, increases more slowly than linearly with increasing CO₂ (see new Chart 31). Charts 30 and 31 have been replaced in my [Taiwan Charts](#). Of course the correct relation has been used in all of our climate simulations – the plotting error occurs only in these two charts.

(2) In Bemidji, Minnesota last week I was not able to testify on behalf of the “raging grannies” who turned off a tar sands oil pipeline, because the judge threw out the case after a jury was selected. Frankly, I believe that the prosecution presented a weak case intentionally, expecting it to be thrown out. They didn’t want the publicity that would have been associated with jailing these determined ladies, who were just barely strong enough to turn off the pipeline. You can see a photo of these two heroines on my Facebook.

(3) In an interview for [an article in the Guardian](#) I decry the decision in the UK to “ape” Trump (the reporter’s choice of words) and develop fracking for gas. The UK just discovered a huge gas deposit offshore. What sense does it make for them to develop fracking, with its greater carbon footprint via leaked methane and its local pollution, when they have more than enough conventional gas to pass the dangerous level?