

## *SPPI News Watch 12-17-08*

**As coal comes back into fashion, how serious are we about carbon reduction?**

<http://business.timesonline.co.uk/tol/business/columnists/article5315057.ece>



Carl Mortished: World business briefing

Peering nervously into the dark tunnel of climate change policy, Europe's political leaders hesitate. Gordon Brown says he can see a chink of light in the distance and he stumbles into the gloom. Silvio Berlusconi says the British are silly and declines to follow. Angela Merkel, the German Chancellor, says she can see the dim glow but wonders whether it might be a train.

She is right; the light at the end of the tunnel is a coal train, a diesel juggernaut pulling 100 wagons laden with dusty, carbon-rich but very cheap fuel. Even as European Union leaders were preparing to meet in Brussels on Thursday for talks on cutting carbon emissions, the world's energy marketplace was rushing towards them, pistons pumping and whistle blowing.

Can they hear it? Europe's CO<sub>2</sub> emissions are falling. Deutsche Bank is forecasting a 10 per cent fall in emissions in 2009 against last year's level. The price of coal, gas and oil is cheaper by the day and, even more embarrassing, the price of a permit to emit a tonne of carbon has collapsed on Europe's emissions trading system.

With fuel prices as they are, the margin from burning coal is unbeatable, even after adding the cost of buying carbon allowances at €14 a tonne. According to Deutsche Bank's calculations, a fuel switch from dirty coal to cleaner natural gas would require a carbon price of between €25 and €30 a tonne. Estimates of the long-running carbon price needed to justify investment in carbon capture and storage technology vary between €40 and €50 a tonne.

Forget it. This much-lauded technology of stripping out CO<sub>2</sub> and pumping it into spent oil wells is at the heart of many cherished plans and projections, but where is the full-scale demonstration plant? Where are the wagons of cheap coal being transformed economically into kilowatt hours with carbon dioxide piped harmlessly into subterranean pits?

For the next two or three decades, the picture is emerging of coal for the poor, more expensive gas and nuclear power for those on middle incomes and wind turbines for the super-wealthy. Wind is a fringe benefit for Britain: it works at the margins but it is too unreliable and expensive to replace the 22 gigawatts of baseload power that this country needs if it is to replace elderly power stations over the next 15 years. Nuclear will fill some of the gap but Europe's nuclear industry is just recovering after decades of ruinous neglect. For an electricity generator, the market signal is absolutely clear: burn coal, make cheap power and speed the economic recovery.

The market wants to go with coal and there is the rub. Having erected this fantastic mechanism – the emissions trading system – and puffed its merit on political platforms worldwide, Europe's leaders are now embarrassed, frantically brushing the coal dust off their cuffs. The original idea behind the scheme was that it puts a price on carbon by enabling companies to trade permits, known as EU allowances to emit CO<sub>2</sub>. These allowances were issued free by governments in the

early stages of the ETS. Too many were issued and falling industrial output now means that companies need fewer of them. Unless governments drastically curtail the number of permits in the future by forcing companies to pay for them, the cost of carbon pollution will continue to fall. Deutsche Bank reckons a decline to less than €12 a tonne is possible. but the auctioning of permits will push up power prices as the recession deepens. A politically dangerous strategy.

The air is now fetid with antimarket sentiment. Poland wants the carbon price to be collared with a cap and a floor. Ed Miliband, Britain's new Energy and Climate Change Secretary, was last month asking energy bosses about their plans for price reductions and yesterday he spoke of a "strategic role for government" in energy policy. The Government would take responsibility in "setting the carbon price", he said. Why bother?

Carbon is now central to the pricing of energy, if we are to believe the EU target of reducing emissions by 20 per cent by 2020. So, when the minister talks of setting a carbon price he is talking about setting energy prices. Why not go all the way and regulate energy prices? Why not bring back the Central Electricity Generating Board?

It is easy to see where Mr Miliband's thoughts are drifting. The carbon price is becoming an irritation rather than a useful tool by which the cost of pollution is calculated and priced into the cost of fuels. However, carbon is not a real market. No one wants carbon; it is not a commodity, like wheat or gold, to be hoarded or consumed. If its price is falling precipitously, it is because companies denied credit from banks and desperate for funds are selling their carbon permits for a bit of free cash.

Politicians invented the carbon market, but it is only a tax like any other. Instead of fiddling with carbon permits, Europe's leaders should take a deep breath and make up their minds. Do they want cheap energy and a rapid recovery from this grim recession? If so, take the coal train and use the profits of recovery to build civil defences against climate change.

Or, are we sincere about carbon reduction? That road is harsh: it means taxing all hydrocarbons, doubling road fuel duty and raising domestic electricity bills as recession deepens. It's a policy of more pain now in return for less pain tomorrow. It requires enormous political courage, a commodity that has been taxed almost to extinction.

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Article Title: Indians don't believe in global warming!

BANGALORE, INDIA: Indians do not believe the environment is in [crisis](#), but they think it is important to take environmentally-friendly actions and it is a high priority for them. Hence, 88 percent of Indian consumers are prepared to pay more for goods that are environmentally friendly against 82 percent in China. In Japan, only 68 percent of consumers feel the environment is the most important issue.

Unlike their peers in every other country, respondents in India believe there is too much fuss about the environment (79 percent) and they do not believe the world is experiencing global warming (56 percent). Still, 92 percent feel it is their duty to contribute to a better society and environment.

These are some of the interesting findings to emerge from a study of consumers in India, China and Japan, part of a 10-market global study called 'goodpurpose' conducted by Edelman, the world's largest independent PR firm.

The study seeks to understand consumer attitudes and preferences on the emerging issue of social purpose. Its findings show that despite the [economic downturn](#), a strong majority think it is

important to purchase products and brands they perceive to be socially responsible (India 90 percent, China 90 percent and Japan 64 percent).

"What we find particularly interesting in this study is that economic concerns are taking a distant place behind consumers' demands that quality brands be produced by socially conscious companies," says Alan VanderMolen, Edelman's Asia-Pacific President.

"The current economic crisis has made little or no difference to the financial or voluntary support given to good causes by Indians. We found that 23 percent of Indian respondents have actually paid more for a brand because it supports a good cause. We believe this is driven by two factors. First, the obvious fallout from product safety issues in the region over the past 18 months; and second, an expanding middle class that now has the power to address social issues at home through purchase decisions."

'Doing good' can forge bonds with consumers and translate to 'doing well'

"In India, 49 percent of consumers do not know of any socially responsible brands. However, a large majority agreed that it is important for brands and companies to set aside money for a good cause during an [economic recession](#). Given the loyalty to socially-conscious brands, companies and brands in India should look at engaging with consumers to effect enduring positive change and build a deeper relationship with them. When brands act as 'citizen brands,' contributing to community and society beyond their functional benefits, 'doing good' can translate to 'doing well' and the brand can forge a stronger emotional bond with its consumers," VanderMolen added. Even in an economic downturn, the majority of consumers in India and China would remain loyal to brands that have a good purpose. About 84 percent in India and 77 percent of consumers in China say they would remain loyal to socially-responsible brands in a recession. However, Japanese consumers tend to be less committed during tough times, with 46 percent saying they would remain loyal to a brand that demonstrated social purpose in an economic downturn. "Brands that engage in social purpose have the opportunity to solidify relationships with consumers by consistently delivering quality products and demonstrating an ongoing [commitment](#) to the social welfare of the communities in which they are operating. Even in turbulent times like these, corporations receive short and long term benefits by delivering socially purposeful brands and top quality products" VanderMolen said.

Reducing poverty top of mind cause in India

Sixty-two percent of Indian consumers said that they would buy a brand that supports a good cause, regardless of what the good cause is, though the causes they support the most is reducing poverty (54 percent) followed by equal opportunity to education (40 percent) and protecting the environment (33 percent).

"In India, 49 percent of consumers do not know of any socially-responsible brands. However, a large majority agreed that it is important for brands and companies to set aside money for a good cause during an [economic recession](#). Given the loyalty to socially conscious brands, companies and brands in India should look at engaging with consumers to effect enduring positive change and build a deeper relationship with them. When brands act as 'citizen brands,' contributing to community and society beyond their functional benefits, 'doing good' can translate to 'doing well' and the brand can forge a stronger emotional bond with its consumers," VanderMolen added.

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Enviro Economics

<http://www.newsweek.com/id/174063/>

*Despite all their promise, green companies are awash in red ink.*

Anna Kuchment

Newsweek Web Exclusive

First there was the dotcom bust of the late 1990s, then came the real-estate bubble that's deflating before our eyes. Next up: the green bubble. Alternative energy ventures have received a lot of great press, heavy investment and lip service from politicians in the last couple of years, but many of the nascent green industry's balance sheets are beginning to bleed red.

Among the hardest hit is T. Boone Pickens and his alternative energy hedge fund BP Capital, which has reportedly lost some \$2 billion. The Oklahoma oil tycoon who leased hundreds of thousands of acres in West Texas for a giant wind farm, has put that project on hold, saying he'll have to wait for fossil-fuel prices to rise again in order to make the project economically viable. Oil was at \$48 a barrel this week, down from a peak of \$147 in July. Another canary in the coal mine: the once soaring market for carbon credits in Europe has tanked, as manufacturing firms worldwide slow production. Even the once promising sector of corn ethanol has gone bust, with the American company VeraSun declaring bankruptcy in October and other publicly held ethanol companies reduced to penny stocks.

Some sectors are brighter than others. Rick Hanna, an equity analyst at Morningstar, remains bullish on solar companies. "The United States promises to be one of the largest ultimate markets for solar power," he says. The sector has suffered in the short term from lower fossil-fuel prices, but Hanna's counting on the new Obama administration to put through a cap-and-trade program to help bridge the cost difference. "It's early on in solar's technological revolution," he says. "The cost will come down, and the cost of fossil fuel will rise, not just because of supply and demand, but also with the carbon-tax regimes, which may make it more expensive for traditional power to operate." And, regardless of what is happening in the United States, Germany, Japan and Spain continue to be major markets for solar energy (Germany is the world's largest, followed by the United States and Spain), aided by generous helpings of government investment.

The road for green mutual funds has been decidedly bumpier. Just one year ago, these funds, which tend to invest in more volatile small-cap stocks, were riding a wave of popularity. The Winslow Green Growth Fund, launched in 2001, was seeing 5-year average returns of 25 percent. The New Alternatives Fund was seeing a 20 percent average annual rate of return. In 2008, the Winslow fund, which invests in such companies as Chipotle Mexican Grill, Green Mountain Coffee and First Solar, hit a low of \$16 (down from \$30 a year ago) before rising into the low \$20s this week. "I think we're seeing now that the market has found a bottom," says Matthew Patsky, manager of Winslow's Green Growth Fund. "We are seeing more money coming back into the market looking for attractive values, and it seems they are seeking out green companies in a big way." Environmentally friendly companies have high growth potential, especially with the incoming administration in Washington, he says.

Perhaps, but that possibility is little comfort to companies like Covanta Energy, a New Jersey-based company that converts waste into electricity and recycles metal. The company has relatively lucrative long-term contracts with municipalities around the country that pay Covanta a fixed price for collecting their trash while also receiving revenue from utilities that buy the electricity the company produces. Covanta gets even more revenue from additional electricity that it sells on the open market. "It's a very stable business model, and yet the stock has been slammed," says Patsky. Covanta stock hit a low of \$15 in October, down from a 52-week high of \$30, before rebounding to \$21 on Friday.

Stock market volatility isn't likely to settle any time soon. According to Michael Herbst, a Morningstar equity analyst who follows mutual funds, weaker green companies will probably get weeded out before the crisis comes to an end—much the way weaker dotcoms failed after the first tech bubble burst, though he hesitates to draw too much of a parallel between the two economic periods. "During the tech bubble you saw people investing like mad in companies with no products and no revenues, nothing other than allure," he says. "That certainly is the case for some

companies related to alternative energy, especially the very early stage companies. But you're also including in this bucket, well established, international companies like Vestas [one of the world's largest wind turbine manufacturers]." Over the next 10 to 15 years, says Herbst, the outlook for green funds is good, because "the need for alternative energy and clean technology is going to remain important." But the next two years look cloudy. "It's a very tough time for earlier stage companies," he says. You bet your bubble.

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## COOLING ON GLOBAL WARMING

The Wall Street Journal, 16 December 2008

<http://online.wsj.com/article/SB122937766062908297.html>

*The Brussels summit symbolizes a turning point. The watered-down climate deal epitomizes the onset of a cooling period in Europe's hitherto overheated climate debate. It may lead eventually to the complete abandonment of the unilateral climate agenda that has shaped Europe's green philosophy for nearly 20 years.*

By BENNY PEISER

Participants at last week's United Nations climate conference in Poznan, Poland, were taken aback by a world seemingly turned upside-down. The traditional villains and heroes of the international climate narrative, the wicked U.S. and the noble European Union, had unexpectedly swapped roles. For once, it was the EU that was criticized for backpedalling on its CO2 targets while Europe's climate nemesis, the U.S., found itself commended for electing an environmental champion as president.

The wrangle over the EU's controversial climate package at a separate summit in Brussels wrong-footed the world's green bureaucracy. The EU climate deal was diluted beyond recognition. Instead of standing by plans to cut CO2 emissions by 20% below 1990 levels by 2020, the actual reductions might be as trivial as 4% if all exemptions are factored in.

The Brussels summit symbolizes a turning point. The watered-down climate deal epitomizes the onset of a cooling period in Europe's hitherto overheated climate debate. It may lead eventually to the complete abandonment of the unilateral climate agenda that has shaped Europe's green philosophy for nearly 20 years.

The reasons for the changing political atmosphere in Europe are manifold. First, the global economic crisis has demoted green policies nearer to the bottom of the political agenda. Saving the economy and creating jobs take priority now.

Second, disillusionment with the failed Kyoto Protocol has turned utopian thinking into sobriety. After all, most of the Kyoto signatories failed to reduce their CO2 emissions during the last 10 years. There are also growing doubts about the long-term viability of the EU's Emissions Trading Scheme. The price of carbon credits has collapsed as a result of the financial crisis. The drop in demand and the recession are likely to depress carbon prices for years to come. As a result, the effectiveness of the extremely volatile scheme is increasingly questioned.

Third, a number of countries have experienced a political backlash over their renewable energy schemes. Tens of billions of euros of taxpayers' money have been pumped into projects that depend on endless government handouts. Each of the 35,000 solar jobs in Germany, for instance, is subsidized to the tune of €130,000. According to estimates by the Rhine-Westphalia Institute for Economic Research, green subsidies will cost German electricity consumers nearly €27 billion in the next two years.

Perhaps even more important is the growing realization that the warming trend of the late 20th century has, for the last 10 years or so, essentially come to a temporary halt. The data collected by international meteorological offices confirm this. This most peculiar fact is rarely mentioned in policy debates, but it certainly provides decision makers with a vital respite to reconsider their climate policy options.

Above all, Europe's politicians have recognized that green taxes have turned into liabilities that may undermine economic stability and their chances of re-election. As German radio Deutsche Welle put it last week: "With the recession tightening its grip on the German economy, [Chancellor Angela] Merkel is betting that job reassurance is more important to the average worker than being a pioneer in tackling climate change."

Nowhere has the fundamental change of the political landscape been more pronounced and less expected than in Germany. For more than 20 years, Europe's economic powerhouse has been the major bastion of green politics.

In the 1990s, Angela Merkel steered and implemented Europe's Kyoto policy as Germany's first environment minister. Now serving as chancellor, she was hailed as Europe's climate savior after playing host to last year's G-8 summit in Heiligendamm. Only 18 months later, however, she no longer wears a halo. As a result of a concerted campaign by Germany's heavy industry, as well as growing opposition from within her Christian Democratic party, Mrs. Merkel has been forced to abandon her green principles and image.

The deepening economic crisis seems to transform the mood of the German public. Next year's general election looms large, and voters right now are worried about the economy and jobs, and not green issues. In early December, more than 10,000 angry metal workers and trade unionists - most of them from Germany -- protested outside the European Parliament in Brussels against the EU's climate policy, which they fear will increase unemployment.

For many international observers, the ease with which Mrs. Merkel overturned her celebrated climate policy has come as a shock. But she was almost the last member of her Christian Democratic party willing to accept that a change in strategy was necessary given the immense costs of the EU's original climate plans. In fact, her party demanded that Mrs. Merkel veto the climate package if German industry did not receive an exemption from the Emissions Trading Scheme's auctioning of carbon credits. The exemption was duly granted.

Perhaps the most critical factor for Mrs. Merkel's almost unchallenged about-face is the vanishing strength of the Social Democratic Party, whose members were once among the most forceful climate alarmists. Mrs. Merkel's junior coalition partner has lost much of its support in recent years. And amid growing fears of a deepening recession, there are also signs of a split within the party on climate and energy issues.

At the forefront of the left-wing opposition to the EU's climate policy has been EU Industry Commissioner Günter Verheugen. The German Social Democrat has been arguing throughout the year that the climate targets should only be accepted if "truly cost-effective solutions" could be found. Other prominent dissenters in his party include Hubertus Schmoldt, the head of the mining, chemical and energy industrial union, who has recently called for a two-year postponement of the climate package.

In part as a result of German -- as well as Italian and Polish -- objections, Europe's climate package did not survive in its original form. The inclusion of a revision clause, pushed by Italy, is particularly significant as it makes the EU's climate targets conditional on the outcome of international climate talks. If the U.N.'s Copenhagen conference in 2009 fails to seal a post-Kyoto deal, it is as good as certain that some of the EU's targets will be further cut. By linking its decisions to those of the rest of the world, Europe has begun to act as a more rational player on the stage of international climate diplomacy.

Instead of yielding to the siren calls of climate alarmists, European governments would be well advised to focus their attention on developing pragmatic policies capable of safeguarding their industries, labor forces and environment at the same time.

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### **MWP - Taravilla Lake, Central Iberian Range, Spain**

[http://co2science.org/data/mwp/studies/l3\\_taravillalake.php](http://co2science.org/data/mwp/studies/l3_taravillalake.php)

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#### **Reference**

Moreno, A., Valero-Garces, B.L., Gonzalez-Samperiz, P. and Rico, M. 2008. Flood response to rainfall variability during the last 2000 years inferred from the Taravilla Lake record (Central Iberian Range, Spain). *Journal of Paleolimnology* **40**: 943-961.

#### **Description**

Moreno *et al.* conducted a sedimentological, geochemical and palynological study of Spain's Taravilla Lake (40°39'N, 1°59'W) that revealed the presence of "allochthonous terrigenous layers that intercalate within the lacustrine sediments over the last 2000 years," which were formed "as the result of extreme hydrological events that caused higher clastic input to the basin." This work indicated that during the MWP, which they identify as occurring between AD 800 and 1300, "there is almost no evidence of flood deposits in the lake," in contrast to what was evident before and after it.

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### **Estimating 21st-Century Sea Level Rise**

<http://co2science.org/articles/V11/N51/C1.php>

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#### **Reference**

Pfeffer, W.T., Harper, J.T. and O'Neel, S. 2008. Kinematic constraints on glacier contributions to 21st-Century sea-level rise. *Science* **321**: 1340-1343.

#### **Background**

In his testimony of 26 April 2007 before the U.S. House of Representatives' Select Committee on Energy Independence and Global Warming, NASA's James Hansen stated "there is increasing realization that sea level rise this century may be measured in meters if we follow business-as-usual fossil fuel emissions," as Hansen also contended that year in two separate scientific publications (Hansen, 2007; Hansen *et al.*, 2007). But is this really so?

The answer to this question is of considerable consequence, *because* as Pfeffer *et al.* write in the introduction to their new analysis of the subject, "underestimates will prompt inadequate preparation for change, [but] overestimates will exhaust and redirect resources inappropriately." Hence, as with all things, it is important to determine where the truth lies.

#### **What was done**

The three U.S. researchers gave particular emphasis to Greenland in their analysis, in light of its supposed "vulnerability to ongoing Arctic warming and meltwater-related feedbacks, recent accelerations of ice motion, and its large volume reductions during the last interglacial," as well as to Antarctica, employing "a simple kinematic approach" that determined the velocities of their outlet glaciers that would be "required to achieve various magnitudes of sea level rise by 2100."

### What was learned

Pfeffer *et al.* determined -- and concluded with readily apparent confidence -- that "increases in excess of 2 meters are *physically untenable* [our italics]," noting that "a total sea-level rise of about 2 meters by 2100 could occur under physically possible glaciological conditions *but only if all variables are quickly accelerated to extremely high limits* [our italics and bold]," after which they state that "more plausible *but still accelerated* [our italics] conditions lead to total sea-level rise by 2100 of about 0.8 meter [31 inches] ," while for comparison they indicate that the consensus estimate of the IPCC's most recent Fourth Assessment Report was a sea-level rise of only 0.18 [7 inches] to 0.60 meter [23 inches] by 2100.

### What it means

Both James Hansen and Al Gore -- who also likes to talk of sea levels rapidly rising to great heights -- appear to be on the far, far fringes of the twilight zone when they warn of mean global sea level rising by *multiple meters* over the next nine decades.

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Hansen, J.E. 2007. Scientific reticence and sea level. *Environmental Research Letters* **2**: 10.1088/1748-9326/2/2/024002.

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### Last Glacial Maximum and Little Ice Age Atmospheric Circulation Characteristics Over the Mediterranean Sea

<http://co2science.org/articles/V11/N51/C2.php>

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#### Reference

Kuhlemann, J., Rohling, E.J., Krumrei, I., Kubik, P., Ivy-Ochs, S. and Kucera, M. 2008. Regional synthesis of Mediterranean atmospheric circulation during the Last Glacial Maximum. *Science* **321**: 1338-1340.

#### What was done

The authors developed a synthesis of vertical temperature gradients in the lower atmosphere of the Mediterranean region during the *Last Glacial Maximum* (LGM, about 19 to 23 thousand years ago), based on equilibrium line altitudes of the area's glaciers, which can be reconstructed by *in situ* dating of glacial advances and retreats, augmented by information provided by sea surface temperature proxies, after which they compared their results with what has been learned about the region's atmospheric circulation during the *Little Ice Age*, from which the world was rescued by 20th-century global warming.

#### What was learned

Kuhlemann *et al.* say their synthesis "reveals evidence for frequent cold polar air incursions, topographically channeled into the northwestern Mediterranean," and that "anomalously steep vertical temperature gradients in the central Mediterranean imply local convective precipitation," noting that "a similar configuration is thought to have been common during the late Little Ice Age, notably the Maunder Minimum," when there was "enhanced meridional winter circulation." On another note, they also report that their findings "do not support a straightforward zonal LGM atmospheric circulation, as inferred from climate models."



### What it means

The results of this study have two important implications. First, they suggest that current climate models are not up to the task required of them (i.e., providing climate simulations that are good enough to drive energy policy development), as they fail to properly portray the past. Second, they suggest that the Little Ice Age was likely the coldest period of the current interglacial, which further suggests it should not be surprising that the earth has warmed as much as it has in response to the *increase in solar activity* that followed the *demise of the Maunder Minimum*, starting (as the past century's warming did) from such a uniquely-cold base-level temperature.  
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### The Little Ice Age in the Tropical Andes of Bolivia

<http://co2science.org/articles/V11/N51/C3.php>

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### Reference

Rabatel, A., Francou, B., Jomelli, V., Naveau, P. and Grancher, D. 2008. A chronology of the Little Ice Age in the tropical Andes of Bolivia (16°S) and its implications for climate reconstruction. *Quaternary Research* **70**: 198-212.

### Background

In an attempt to rewrite climatic history, certain scientists have claimed that the Little Ice Age (LIA) and the prior Medieval Warm Period (MWP) were neither global phenomena nor strong enough where they did occur to have a discernable influence on mean global air temperature, in order to portray the warming of the last decades of the 20th century as *highly unusual*, which they equate with *anthropogenic-induced*, which they associate --incorrectly, we believe -- with the historical rise in the atmosphere's CO<sub>2</sub> concentration. Hence, we continually scan the scientific literature, looking for data that demonstrate that the LIA and MWP were both real and global in nature.

### What was done

In the case we consider here, Rabatel *et al.* used lichenometry to reconstruct glacier movements in the Bolivian Andes over the last several centuries, seeking to answer two important questions they posed for themselves: (1) "Were glacier fluctuations during the LIA in the tropics of the same magnitude as those in mid-latitudes?" and (2) "Were these fluctuations synchronous with others observed elsewhere, suggesting that climate changes during this period were similar and produced the same effects worldwide?"

### What was learned

The five researchers report that "the maximum and the main phases of the LIA glacier evolution in Bolivia are in agreement with those of the well-documented glaciers in mid-latitude mountain ranges." More specifically, they write that "the glacier maximum in Bolivia is quite similar to glacier expansions observed in the European Alps in the mid/late 17th century (Le Roy Ladurie, 2004) and during the first half of the 18th century in Scandinavian mountain ranges (Nesje and Dahl, 2000), the Canadian Rockies (Luckman, 2000), the Patagonian Andes (Luckman and Villalba, 2001) and the Southern Alps of New Zealand (Winckler, 2004)." In addition, they say that "the trend to Bolivian glacier recession accelerated after AD 1870 up to the beginning of the 20th century," and that "this acceleration in the recession coincides with the decrease in surface area of many glaciers worldwide, particularly in the Alps (Grove, 1988)."

As for the *magnitude* and *source* of the cooling in the Bolivian Andes during the LIA, Rabatal *et al.* estimate it to have been 1.1 to 1.2°C below that of present conditions, noting that at this time there was a "striking coincidence between the glacier expansion in this region of the tropics and the decrease in solar irradiance: the so-called 'Maunder minimum' (AD 1645-1715) during which irradiance might have decreased by around 0.24% (Lean and Rind, 1998) and could have resulted in an atmospheric cooling of 1°C worldwide (Rind *et al.*, 2004)."

### What it means

Clearly, the evidence for a *largely synchronous* and *global* Little Ice Age is essentially irrefutable, much to the chagrin of the world's climate alarmists.

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- Reviewed 17 December 2008

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### Less Frequent but More Extreme Rainfall Events in Semi-Arid Grasslands

<http://co2science.org/articles/V11/N51/B1.php>

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#### Reference

Heisler-White, J.L., Knapp, A.K. and Kelly, E.F. 2008. Increasing precipitation event size increases aboveground net primary productivity in a semi-arid grassland. *Oecologia* **158**: 129-140.

#### Background

General circulation model projections of changes in rainfall characteristics in response to global warming, according to Knapp *et al.* (2008), "have been consistent for intensified intra-annual precipitation regimes (through larger individual precipitation events) with longer intervening dry periods than at present (Easterling *et al.*, 2000, IPCC, 2007)," for which projections they add there is "emerging empirical support from global climate data sets (Karl *et al.*, 1995; Kunkel *et al.*, 1999; Groisman *et al.*, 2005)."

#### What was done

Working at the Central Plains Experimental Range in northeastern Colorado within the Shortgrass Steppe Long-Term Ecological Research site of this semi-arid grassland, Heisler-White *et al.* investigated the effect of less frequent but more extreme rainfall events on aboveground net primary productivity (ANPP) via the use of rainout shelters, which allowed them to supply the long-term (30-year mean) growing season (May-September) precipitation quantity as 12, 6 or 4 events, applied manually according to typical seasonal patterns.

#### What was learned

The three researchers report that "soil moisture data indicated that larger events led to greater soil water content and likely permitted moisture penetration to deeper in the soil profile," with

the result that "plots receiving fewer, but larger rain events had the highest rates of ANPP ( $184 \pm 38 \text{ g m}^{-2}$ ), compared to plots receiving more frequent rainfall ( $105 \pm 24 \text{ g m}^{-2}$ )."

### What it means

Heisler-White *et al.* say their results indicate that "semi-arid grasslands are capable of responding immediately and substantially to forecast shifts to more extreme precipitation patterns," and, we might add, they appear to be capable of doing it in a very positive way, i.e., by posting a 75% increase in aboveground net primary productivity for the same amount of rainfall received in fewer but more extreme precipitation events.

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- Reviewed 17 December 2008

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Truth about Hurricanes and AGW

<http://www.co2science.org/education/truthalerts/v11/hurricanekatrina.php>

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### Global Warming and Wildfires

<http://co2science.org/articles/V11/N51/B2.php>

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#### Background

The authors report that "large, well-documented wildfires have recently generated worldwide attention, and raised concerns about the impacts of humans and climate change on wildfire regimes," noting that "climate-change *projections* [our italics] indicate that we will be moving quickly out of the range of the natural variability of the past few centuries."

#### What was done

To see what the global wildfire "range of natural variability" has actually been in this regard, Marlon *et al.* used "sedimentary charcoal records spanning six continents to document trends in both natural and anthropogenic biomass burning [over] the past two millennia."

#### What was learned

The international team of researchers reports that "global biomass burning declined from AD 1 to ~1750, before rising sharply between 1750 and 1870," after which it "declined abruptly." In terms

of *attribution*, they say the initial long-term decline in global biomass burning was due to "a long-term global cooling trend," while they suggest that the rise in fires that followed was "linked to increasing human influences." With respect to the final decline in fires that took place after 1870, however, they note it occurred "*despite* [our italics] increasing air temperatures and population." As for what may have overpowered the tendency for increased global wildfires that would "normally" have been expected to result from the global warming of the Little Ice Age-to-Current Warm Period transition, the nine scientists say they attribute the "reduction in the amount of biomass burned over the past 150 years to the global expansion of intensive grazing, agriculture and fire management."

**What it means**

In spite of evidence from prior centuries that global warming may indeed have had a tendency to promote wildfires on a global basis (since global cooling had a tendency to reduce them), technological developments during the industrial age appear to have overpowered this natural tendency to the point that man has become *a dominant factor for good* in actually leading to a *decrease* in global wildfires over the past century and a half.

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