

The age of extremes: new developments in climate change

Owen McCormack

For socialists the last period is testimony to Lenin's oft quoted "There are decades where nothing happens; and there are weeks where decades happen." from the Arab spring to the occupy movements, to the global fight against austerity, the pace of historic events has quickened dramatically. Yet in the middle of these events another development has taken place seemingly separate to, yet inextricably linked with, the overall crisis of capital.

2010 reached the top of the charts as the warmest year on record. In 2011, the US alone saw a record fourteen separate "billion dollar" extreme weather events ie fourteen separate instances of extreme weather that each cost over one billion dollars in damage, including the Mississippi floods, tornadoes, hurricanes, droughts and wildfires⁹⁴. Across the planet extreme and once in a generation events are becoming common occurrences as records fall with increasing intensity. Russia suffers a heat wave that breaks records while Pakistan and Australia see biblical floods.

All random unconnected weather events? Increasingly these extremes are seen as the harbinger of what is in store for humanity over the next few decades. One climate scientist said that that increasing greenhouse gases from human industry were "loading the dice" and making these extremes, usual only in decades or centuries, happen at 1 in 5 or 1 in 20 year intervals⁹⁵. The Intergovernmental Panel on Climate Change (IPCC) stated in November last year that it is "virtually certain" (IPCC parlance for 90 to 100% certainty) that the world will have more "extreme spells of heat, and heat waves could be 5⁰C hotter by 2050 and even 9⁰C⁹⁶."

Global average temperature has risen since 1880 by 0.8⁰C and is currently rising at a rate of 0.15-0.20⁰C per decade. To put that change in perspective it is worth reading the NASA web site which states that:

A one-degree global change is significant because it takes a vast amount of heat to warm all the oceans, atmosphere, and land by that much. In the past, a one- to two-degree drop was all it took to plunge the Earth into the Little Ice Age. A five-degree drop was enough to bury a large part of North America under a towering mass of ice 20,000 years ago⁹⁷.

This rise has already seen the widespread retreat of mountain glaciers, the shrinking of Arctic ice sheets and the increased intensity and fluctuations of La Nina and El Nino events, with dire consequences for huge swaths of humanity. Corals are dying across the globe and there is evidence that the northern boreal forests are suffering from potentially catastrophic die back⁹⁸.

Carbon and capital

For the last 10,000 years the level of CO₂ in the atmosphere has barely altered from 280ppm (parts per million). The level of carbon and other greenhouse gases like methane are a key determinant of global temperatures and climate. While not always the chief reason for fluctuations in climate, (the earth's orbit in relation to the sun or the level of solar activity can be as important), CO₂ levels are seen to move in lockstep with the earth's temperature over millennia. Since the Industrial revolution CO₂ levels have climbed steadily; they now stand at over 390 ppm, higher than at any time in the last 15 million years of our planet's history⁹⁹, and well past the level of 350ppm that many activists and scientists believe is the maximum you can have without the risk of runaway warming.

⁹⁴National Oceanic and Atmospheric Agency; <http://www.noaa.gov/extreme2011/>

⁹⁵James Hanson; <http://www.the9billion.com/2011/11/19/james-hansen-warns-climate-dice-loaded-for-extreme-weather-events/>

⁹⁶IPCC 2007 report, http://www.ipcc.ch/publications_and_data/ar4/wg2/en/contents.html

⁹⁷<http://www.epa.gov/climatechange/science/futuretc.html>

<http://earthobservatory.nasa.gov/Features/WorldOfChange/decadaltemp.php>

⁹⁸IPCC 2007 Report http://www.ipcc.ch/publications_and_data/ar4/wg2/en/contents.html

⁹⁹<http://www.skepticalscience.com/human-co2-smaller-than-natural-emissions.htm>

Not only are we past that, but every indication is that the level is accumulating faster as humanity burns greater levels of fossil fuels even after two decades of talk about carbon neutral energy and renewables¹⁰⁰. Estimates from the IPCC for the predicted levels of CO_2 that the atmosphere will contain by the end of the century leave scientists struggling to find historic parallels. The closest parallel in the climate record is what is known as the PETM event, the Palaeocene Eocene Thermal Maximum over 55 million years ago. It is thought that the temperature in the Arctic rose as high as 25 degrees Celsius!

Last November, the International Energy Agency warned that CO_2 levels of 450ppm could be reached by 2017 if the present trends in the building of huge numbers of coal firing power stations continued. After that, the hope of limiting temperature rises to 2^0C vanishes and the agency warns we will have missed the last chance to avert irreversible climate change. In reality many in the scientific community believe that the figures that both the IEA and the IPCC base their predictions on are wrong, not in the way that climate sceptics say, but wrong as in too optimistic. They believe we have already strayed into triggering uncontrollable feedbacks and already crossed climate thresholds without knowing it¹⁰¹.

Climates past

That history of the earth's past climate has been retrieved by looking at the composition of air bubbles trapped in ice cores in Greenland and Antarctica and from the contents of deep ocean sediments. They have given us an amazing picture of climate stretching back hundreds of thousands of years, and the lesson of that history is starker than we could dream up. Far from the previous thinking, it now seems that the Earth's climate can swing toward warming or cooling in a matter of decades with huge changes to the global ecosystem¹⁰². The argument of climate sceptics that the climate has always changed and it is perfectly natural is in one sense absolutely true. But the history of that change offers no comfort today, marked as it is by sudden and dramatic changes that have occurred within a lifetime. The ability of plants, animals and humans to adapt to such dramatic change is profoundly affected by the speed of the change, by the effects humanity has already had on the global ecosystem, and by the nature of capitalism itself.

Causes and Effects

Billion dollar extreme weather events don't just cost money; climate change costs lives across the globe and causes species extinction on a scale hitherto unknown. The most severe effects will be on the poorest nations and especially those already wrecked from decades of IMF structural adjustment and political instability. The IPCC 2007 report, in careful and guarded language, predicted that in Africa alone within the next ten years up to 200 million people will be affected by increased "water stress", as a result of climate change, while agricultural yields could fall by 50%. It warns:

Climate change plays an important role in the distribution of malaria, dengue, tick-borne diseases, cholera and other diarrhoeal diseases; the effects are unequally distributed, and are particularly severe in countries with already high disease burdens, such as sub-Saharan Africa and Asia¹⁰³.

Scientists such as those involved in the IPCC and activists like Bill McKibben and James Hanson have become increasingly alarmed at what is happening to the global climate, urging the powers that be to take action before we cross thresholds and the climate trips into uncontrollable "feedbacks". Hanson, formerly of the NASA Goddard Institute and one of the chief inspirations for Al Gore's *An Inconvenient Truth* documentary, was among the first to sound alarm bells about global warming in the 80s and 90s. The certainty around the damage being done by CO_2 and methane emissions has move him to take radical action. Last year both he and McKibben were arrested outside the White House while protesting against the Keystone XL pipeline along with 12,000 others. The pipeline would carry vast quantities of crude oil

¹⁰⁰<http://scrippsco2.ucsd.edu/home/index.php>

¹⁰¹McKibben, Bill, 2010, *Earth; Making life on a tough new planet*, Henry Holt and Company New York.

¹⁰²Turney, C, 2008, *Ice, Mud and Blood; lessons from climates past*, New York MacmillanScience.

¹⁰³IPCC 2007 http://www.ipcc.ch/publications_and_data/ar4/wg2/en/ch8s8-7.html

mined from the tar sands of Alberta through the US ending in the Gulf of Mexico. Its backers represent the biggest oil and gas interests around and include the Koch brothers, financiers of the Tea Party lunatics.

As McKibben points out, the tar sands of Canada are, after the Saudi oil fields, the largest remaining “sink” of carbon on the planet¹⁰⁴. Their extraction and burning could mean, Hanson has suggested, that, “it’s game over for the planet”¹⁰⁵.

The reality of what is happening is having a contradictory impact on the climate movement. On the one hand it is radicalising a whole section of mostly middle class professionals who are coming to conclusions that the system can’t stop global warming. On the other hand, many and sometimes the same people will look to the free market to find a solution our rulers might accept, and hope the great and good of the world will listen to reason.

Sceptics for Capitalism

As the science behind human induced global warming has become more certain, opposition to the “theory” of humanly generated warming has not only become louder but better funded, slicker and more confident.

In February the Wall Street Journal printed a lengthy piece signed by seventeen so-called “leading scientists” claiming there was no need to be alarmed by global warming, and that in fact a bit more, for say, fifty years would be a good thing for the planet and especially for its poor¹⁰⁶. Attempting to limit CO_2 emissions would wreck the world’s economy and stop the much needed development of the poorest nations. Concern for the world’s poor is a new interest for most of the scientists involved. Some, like Richard Lindzen do have a long history of climate change denial and half of the signatories have received funding from various think tanks and right wing institutions like Cato, George C. Marshall and Heartland, to cast doubt on the science behind global warming. As the recent release of documents from the Heartland Institute¹⁰⁷ showed these are far from independent non-profit organisations, their funding comes straight from big oil and gas. Their goal is to emulate the policy of tobacco firms in the 50s and 60s in casting doubt over the certainty of any link between smoking and cancer. Heartland were even planning a programme to get a form of climate change denial taught in schools in a move that mirrors the attempts to have evolution and creationism given equal footing in the school curriculum.

The Wall Street Journal letter is a rehashing of previous claims and in a tremendous feat of ingenuity they include a graph taken from the IPCC which they claim shows the planet has had no warming trend over the period referred to. In fact they deliberately omit error bars in order to falsify the information shown. Amazingly the Wall Street Journal declined to publish a piece by 250 scientists of the National Academy of Sciences in 2010 which urged action on the dangers of humanly generated warming¹⁰⁸.

In fact the science behind climate change is sound and, if anything, even scarier than the direst warnings sounded by the IPCC. The accumulated information about the earth’s past climate and how it changed abruptly has galvanised many in the climate justice movement as it leaves no room for ambiguity about what may happen within our lifetimes.

Market Solutions

For many years it seemed that even leading members of the ruling class were now aware and alarmed at the consequences of global warming. Reports like those produced by the economist Nicholas Stern, portrayed global warming as a “market failure” that could be dealt with once everyone understood the potential costs¹⁰⁹. Even the Pentagon’s own report in 2004 warned of the horrendous consequences facing the US as a result of climate change¹¹⁰.

¹⁰⁴http://www.newyorker.com/talk/comment/2011/11/28/111128taco_talk_mayer

¹⁰⁵<http://www.realclimate.org/index.php/archives/2011/11/keystone-xl-game-over/>

¹⁰⁶<http://online.wsj.com/article/SB10001424052970204301404577171531838421366.html>

¹⁰⁷<http://www.guardian.co.uk/environment/2012/feb/21/peter-gleick-admits-leaked-heartland-institute-documents>

¹⁰⁸<http://www.treehugger.com/corporate-responsibility/scientists-publish-letter-to-defend-against-climate-deniers.html>

¹⁰⁹<http://www.guardian.co.uk/politics/2006/oct/30/economy.uk>

¹¹⁰<http://www.guardian.co.uk/environment/2004/feb/22/usnews.theobserver>

Yet as the UN's recent Durban conference showed the system is seemingly paralysed and unable to limit its CO_2 emissions. What attempts have been made are increasingly shown to be useless. The use of market mechanisms like 'Cap and Trade' and carbon trading have been good at producing a multibillion financial market but useless at reducing CO_2 ¹¹¹. Like all markets it has been plagued by fraud and speculation and yet remains the only response of those sections of the ruling class who take climate change seriously. In some respects it is the utter failure of the system to deal with CO_2 emissions despite all the evidence that lies behind the renewed vigour and brashness of the climate change deniers.

Yet even leading activists like Bill McKibben continue to believe that the free Market is "the only force on the planet" capable of reducing CO_2 to the levels needed, in the time needed, to stave off catastrophic climate change. Coming from a honest campaigner this is depressing stuff. The fact that the free market system itself is responsible for the emissions in the first place has eluded McKibben and so many other genuine activists.

This contradiction at the heart of this approach is shown in a recent book by Wallace Broecker, one of world's leading climate scientists. Broecker has made significant contributions to climate research with his theory of how the North Atlantic Ocean Conveyor Belt could shut down abruptly, triggering rapid climate change. In his book *Fixing Climate*¹¹² Broecker looks to geo-engineering projects to save the day. Accepting that CO_2 will continue to be produced at increasing levels the task, he thinks, is to get it out of the atmosphere and store it somehow. He proposes a vast network of "carbon strippers" that will chemically remove carbon and pump it deep into the ocean or underground. Now the science on whether this is feasible is uncertain, and what such huge quantities of carbon would do in the depths of the oceans and underground is pretty much unknown, but the fact that such schemes are now proposed as the best chance humanity has is revealing. Broecker is involved in research on one scheme but tells us he cannot reveal details about it as the people behind it want to save the planet but also make a profit and there are patent issues! Hence the best bet the planet has is the hope that some scheme might be developed that could make profits for some corporation.

So powerful is the grip of 'free market' ideology that rather than think that capitalism could stop producing CO_2 , or could invest massively in wind wave and solar energy, it seems to some genuine climate scientists more feasible to construct elaborate geo engineering schemes like this.

Capital and the accumulation of catastrophe

The upsurge in climate denial will surprise many who after the 2001 IPCC report and popularity of Al Gore's *An Inconvenient Truth* documentary thought the "debate" was settled. In fact as Fred Pearce's book *Climate File*¹¹³ shows, the carbon industry is not about to let a threat to the future habitability of the planet get in the way of its addiction to profits . A reduction in CO_2 is in truth a reduction in profits for many of the most profitable and powerful corporations on the planet today. This is what lies behind the accusation that the scientists involved in the IPCC report are anti-market, big government lovers who just want more funds to feather their beds.

Capitalism has simply proven incapable of stopping or limiting its use of fossil fuels. Even as the evidence mounts the strategy has been renewed obfuscation by climate deniers and the extraction of dirtier forms of carbon via "fracking" (induced hydraulic fracturing which creates fractures from wellbores drilled into reservoir rock formations to release natural gas) and tar sands (bituminous sands, loose sand or partially consolidated sandstone containing naturally occurring mixtures of sand, clay and water, saturated with a dense form of petroleum technically referred to as bitumen found in extremely large quantities in Canada). Ironically as the Arctic ice melts its vast potential for oil and gas is eyed up and as prices continue to rise hitherto unprofitable stores of carbon become profitable.

This is driving the despair of many activists who can't figure out why capitalism can't control carbon emissions. A Marxist understanding of the system might help them.

¹¹¹<http://www.carbontradewatch.org/>

¹¹²Broecker, W and Kunzig, R, 2008, *Fixing Climate*, Hill and Wang New York

¹¹³Pearce, F, 2010, *TheClimate Files*, Guardian books, London

Capitalism could survive a switch to other forms of energy but there is a major stumbling block. The architecture and history of capitalism is entwined with fossil fuels. Capitalism has had profound shifts in its production methods and techniques throughout its history, but the driving force of such shifts were profits, competition and the need for each company to accumulate for accumulation's sake ; "Accumulate, accumulate, that is Moses and the prophets" as Marx said¹¹⁴. It is this intrinsic logic of capitalism that Marxist environmentalist John Bellamy Foster has described as leading to the "accumulation of catastrophe"¹¹⁵.

Proposed solutions like carbon trading rest on the possibility of putting a price on a ton of carbon and requiring companies to pay to emit any level above a certain amount permitted. Economists call this an externality, ie a cost of production not paid for by the firm responsible. Be it a chemical spill into a river or globally the rising of CO_2 levels that are driving temperature increases around the world.

Foster quotes the economist William Kapp who saw the ability to "externalise the true costs of production" onto the rest of society as a key element of its operation. Foster goes on to say:

Whenever the destruction is too severe the system simply seeks to engineer another spatial fix. Yet, a planetary capitalism is from this standpoint a contradiction in terms: it means that there is nowhere finally to externalize the social and environmental costs of capitalist destruction (we cannot ship our toxic waste into outer space!), and no external resources to draw upon in the face of the enormous squandering of resources inherent to the system (we can't solve our problems by mining the moon!).

The destruction that capitalism has visited upon the individual environments of the planet, by deforestation, industrial agriculture, acid rain from industrial complexes, etc. has now reached a new and global level with CO_2 levels changing the world's climate.

Capitalism is driven by 'short termism' in its hunger for profits. Investment decisions are made on the basis on what will make a return in the quickest time. Such a system cannot deal with the scale of the climate crisis or make rational planned decisions about what to produce that is separate from the bottom line of profits. Engels and Marx were well aware of this and of the system's rapacious nature.

beginquote What cared the Spanish planters in Cuba, who burned down forests on the slopes of the mountains and obtained from the ashes sufficient fertiliser for one generation of very highly profitable coffee trees - what cared they that the heavy tropical rainfall afterwards washed away the unprotected upper stratum of the soil, leaving behind only bare rock!¹¹⁶

Marx understood how capitalism treated nature and the consequences for both humans and environment, writing:

For the first time, nature becomes purely an object for humankind, purely a matter of utility; ceases to be recognised as a power for itself; and the theoretical discovery of its autonomous laws merely as a ruse so as to subject it under human needs, whether as an object of consumption or as a means of production¹¹⁷.

Marx developed his idea of a "metabolic rift" under capitalism between humanity and the natural world - a rift with dire consequences even in the 19th century and a rift he believed could only be repaired by the move to a socialist society based on the self-emancipation of the working class.

Allied to this is a trend in capitalism that was first noted by Victorian economist WS Jevons and is called the Jevons Paradox. Noting how improvements in the efficiency of coal fired engines actually lead to an increased use of coal, the Jevons Paradox is important today for those in the green movements who look to technological solutions to the growing crisis. Any improvement in fuel efficiency or effectiveness is not going to lead to a reduction in the total amount of resources used. The need to keep accumulating that drives capitalism means any savings from increased efficiency are used to expand production and drive the system on. Hopes of "decoupling" economic growth from an increase use of fossil fuels and CO_2 are therefore in vain. Foster summarises this by saying;

¹¹⁴<http://www.marxists.org/archive/marx/works/1867-c1/ch24.htm>

¹¹⁵ John Bellamy Foster; Monthly review; <http://monthlyreview.org/2011/12/01/capitalism-and-the-accumulation-of-catastrophe>

¹¹⁶ Engels, F <http://www.marxists.org/archive/marx/works/1876/part-played-labour/index.htm>

¹¹⁷ Marx, K <http://www.socialistreview.org.uk/article.php?articlenumber=10106>

An economic system devoted to profits, accumulation, and economic expansion without end will tend to use any efficiency gains or cost reductions to expand the overall scale of production. Technological innovation will therefore be heavily geared to these same expansive ends¹¹⁸.

The solutions on offer, from carbon trading, carbon sequestration and storage, clean development mechanisms, or massive geo engineering projects, are ways in which the system can continue to use fossil fuels and produce CO_2 . None will save the planet or stop climate catastrophes.

What should socialists say?

Faced with the argument that capitalism is the cause of climate change and socialism ie social ownership and democratic planning of production, many climate activists objected, 'There is no time to wait for the revolution'. They believed that rational argument combined with 'effective' campaigning would force governments to act and produce speedier results than struggling to overthrow capitalism. We are now well entitled to reply 'There is no time to wait for the capitalists and their governments to listen to reason'. Whether capitalism could solve the problem of climate change is an abstract question; it is clearly not doing so and there is no reason to give it the benefit of the doubt.

One of the most difficult problems for the system is that tackling climate change clearly requires coordinated international action - a massive global shift from fossil fuels to renewable energy as the main source of power. This runs up against, and is blocked by, not only the logic of competition between corporations (Exxon Mobile, BP, Shell, General Motors, Toyota etc) but also the logic of competition between nation states (between USA and China and Russia and Germany and Japan and so on) which is central to the system: hence the failures of Copenhagen and Durban.

Paradoxically, the international nature of the problem makes it more difficult to build a mass protest movement against climate change as such. Only a small minority of people will travel round the world to climate summits while many people may say to themselves what is the point of demonstrating in Ireland or Britain or India or France about an issue that our government is powerless (by itself) to resolve. People take to the streets in their millions not just from moral outrage but when they believe they can actually win.

On the other hand the events of the last year since the Tunisian and Egyptian Revolutions have put the whole idea of international revolution back into the popular consciousness in way that has not been the case since 1968.

These facts mean that we have a particular responsibility to integrate the argument about climate change into our general case for socialism. (Too often at the moment it falls off even our propaganda agenda agenda after austerity, war, fascism and so on). Moreover it is one of the most powerful arguments we have. It is easier to build a mass working class movement against Household and Septic Tank charges (in Ireland) or in defence of pension rights (in Britain) but the political logic of moving from these issues to the need for world socialist revolution is not so simple whereas the reality of climate change shows necessity of socialism for human survival. This really is a case of "One solution, revolution" not only for preventing runaway climate change but also for dealing with its disasters when , as is looking more and more certain, it fully kicks in. But of course advocating socialism, necessary as it is, will not be all that is required. The climate crisis will unleash a whole range of events and questions that revolutionaries will have to intervene in and answer. As capitalism accumulates climate catastrophes it will proffer its own solutions to each. When even the sceptics cannot deny climate change, the nuclear industry will offer its help in moving to a CO_2 neutral economy, as agricultural yields are hit by drought, Monsanto will offer up its GM products. As refugees flee ravished regions, right wing politicians will urge we shut our borders. Carbon taxes are praised as a civic duty when in reality there are a simply way for industry to continue to externalise the real costs of production. As Hurricane Katrina showed in New Orleans, class will determine who suffers most and who survives. Each extreme event represents incremental steps toward a barbarism that Luxembourg could never have guessed.

Most of the green movement represent the fight against climate change as a fight against the western life style of consumerism and high energy use. This misses the point. It is not about consuming less for most of

¹¹⁸Foster, John Bellamy, 2002 *Ecology Against Capitalism* Monthly Review Press, New York

the planets inhabitants or even for most of the population in the west. It is about stopping capitalism from consuming the planet, and ending the inequalities at its heart.

Revolutionaries need to bring the issues around climate change into the struggles we are fighting every day. To offer to all those horrified by the realities of climate change the prospect of building a movement that can challenge and identify capitalism as the cause of both climate change and the desperate inequalities around the world.

One example is the struggle in the US around the Keystone XL pipeline. While many are objecting to the pipe on grounds of safety and the potential leaks into water tables etc others are objecting on the basis that the atmosphere cannot take any more carbon without massive risks to the future habitability of the planet. We support both these concerns. In the struggle over oil exploration off the coast of Dublin or fracking projects in Leitrim we should both support locals in their fight against these projects and also point out that the number one reason to reject the oil and gas company's promises of jobs and development is the release of more CO_2 and its consequences for humanity. The fight against these projects is a place for revolutionaries to intervene with a much more profound argument about the nature of capitalism and a much more profound alternative than that offered by any green movement. We can point out that there are perfectly logical and feasible alternatives to fracking or gas and oil exploration. Societies resources could be marshalled to move to a carbon neutral economy now with the creation of more jobs than Tamboran or Exxon could ever offer . For all the talk and rhetoric of a green economy we are well away from even taking the first steps .The minister for environment has made it clear that climate change legislation is not a priority and that agriculture and industry needs will trump the need to reduce CO_2 . That will always be the case within capitalism. Socialists can expose this contradiction and win a generation of activists to the struggle for revolutionary change to ensure the survival of humanity in the face of what may be greatest threat it has ever faced.

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