

Dear PCC,

I wish to lodge a complaint about the article 'UN climate panel shamed by bogus rainforest claim' by Jonathan Leake, published in the Sunday Times, across pages 8 and 9 on 31 January 2010. I consider it in breach of PCC Editors Code of Practice point 1) Accuracy, i) The Press must take care not to publish inaccurate, misleading or distorted information, including pictures.

Specifically, I consider this article to be materially misleading. I am the scientific expert cited in the article who was asked about the alleged "bogus rainforest claim". In short, there is no "bogus rainforest claim", the claim made by the UN panel was (and is) well-known, mainstream and defensible science, as myself and two other professional world-class rainforest experts (Professor Oliver Phillips and Professor Dan Nepstad) each told Jonathan Leake.

The Sunday Times knew that the UN panel report contained an incorrect reference relating to a sentence about the potential impacts of climate change on the Amazon rainforest, and not an error of science. Yet, the Sunday Times published inaccurate, misleading and distorted information which would lead any reasonable person to assume that the UN report had included information that was not backed by the best scientific information available at the time. Furthermore, they used highly selective reporting to imply, by omission, that a leading expert – myself – concurred with them that the IPCC had published an incorrect scientific claim. This is not the truth, and not what I told the Sunday Times, and therefore I consider the article materially misleading.

I suspect that the Sunday Times may claim that it did not state in the main body of the article that the statement in the UN report was scientifically correct or not, and that the article was about the IPCC making a mistake. Yet, according to the Editor's code this is immaterial: "Stories that are technically accurate can still be misleading or distorted leaving the reader with a false impression. Sometimes the problem is more because of what they don't say than what they do, and that — whether intentional or not — can breach the Code."

The Sunday Times contention that the IPCC had made a mistake in the reporting of scientifically credible statements was then widely re-reported, in part because the Sunday Times used my expertise to lend credibility to the assertion, due in part to the concealment of my views that the statement in question was fully in line with scientific knowledge at the time the IPCC report was written.

Following publication, I posted a very short comment on the Sunday Times website, below the article, on the afternoon of Sunday 31 January, stating that I was the expert cited in Jonathan Leake's article, that the article was misleading, as there was no 'bogus rainforest claim', and posted a link to the BBC whom I also gave an interview with, to which I gave broadly similar information as to the Sunday Times, but was accurately reported

(<http://news.bbc.co.uk/1/hi/8488395.stm>, reproduced as Appendix 4). My posted comment was deleted from the Sunday Times website.

I also wrote a letter to the Sunday Times, emailed on Tuesday 2 February, to explain the distortion and errors in the article, for publication the following Sunday, copying in the lead author of the article, Jonathan Leake, which was neither acknowledged, nor published (see Appendix 2 for a copy of the letter).

The deletion of my comment on the website, and failure to publish my letter would appear to be in breach of point 1) Accuracy, ii) A significant inaccuracy, misleading statement or distortion once recognised must be corrected, promptly and with due prominence, and - where appropriate - an apology published.

As I have tried to correct the record in the Sunday Times, and the Sunday Times has not cooperated, and would like the public record to be correct in this matter, (reluctantly) I ask that the PCC fully investigate the case, and the Commission then make a ruling. I hope that in the course of the investigation the Sunday Times will adhere to the highest standards of accuracy, openness and clarity in their submissions to the PCC, as the article, and accompanying editorial related to the article ('Bad science needs good scrutiny') are themselves about the importance of taking the utmost care in reporting science.

I detail the misleading claims in the article in a series of sections below.

1). Headline, sub-headline

The 2-page banner headline, 'UN climate panel shamed by bogus rainforest claim', claims that the UN climate panel (the Intergovernmental Panel on Climate Change, IPCC) made a "bogus" claim about rainforests. The definition of bogus is generally taken to mean counterfeit or fake, i.e. not genuine, or alternatively can mean merely incorrect. The expectation is set that a false or incorrect claim has been made by the IPCC.

The sub-headline, "An IPCC report warning of Amazon catastrophe was unfounded. Jonathan Leake reports," reinforces the Sunday Times claim, and readers' likely interpretation that the IPCC has reported a claim that is without a basis in scientific evidence, and further, that the report overplays the threat of climate change impacts on Amazon rainforests. This is completely untrue, and counter to what myself and two other experts told Jonathan Leake. I reproduce the email exchange with Mr Leake in Appendix 1, and ask Mr Leake to release all his notes to the PCC from all his interviews with Amazon-forest experts interviewed for this article, which should show what the Sunday Times knew, and that they knew the headline and sub-headline to be incorrect.

To summarise there is no “bogus rainforest claim”, nor any “unfounded” warning of serious impacts on the Amazon. It is all clearly laid out in the primary scientific literature, of which Mr Leake was aware, but chose to conceal.

2). Introductory paragraphs

The first three paragraphs continue to reinforce that the IPCC have published a false claim. Here we get some explanation of how this occurred: the claim is apparently by an environmental pressure group, WWF, that itself is based on a mistaken inference from a scientific paper, and by implication that the IPCC reported this error in science. Here are the opening paragraphs:

“A STARTLING report by the United Nations climate watchdog that global warming might wipe out 40% of the Amazon rainforest was based on an unsubstantiated claim by green campaigners who had little scientific expertise.

The Intergovernmental Panel on Climate Change (IPCC) said in its 2007 benchmark report that even a slight change in rainfall could see swathes of the rainforest rapidly replaced by savanna grassland.

The source for its claim was a report from WWF, an environmental pressure group, which was authored by two green activists. They had based their “research” on a study published in *Nature*, the science journal, which did not assess rainfall but in fact looked at the impact on the forest of human activity such as logging and burning. This weekend WWF said it was launching an internal inquiry into the study.”

This may be arguable to be, to a large extent, technically correct but is extremely misleading. The ‘startling report’ is the IPCC Fourth Assessment Report published in 2007. It consists of three volumes. The claim investigated by the Sunday Times is a single sentence on page 596 of the 976 page second volume which says,

“Up to 40% of the Amazonian forests could react drastically to even a slight reduction in precipitation; this means that the tropical vegetation, hydrology and climate system in South America could change very rapidly to another steady state, not necessarily producing gradual changes between the current and the future situation (Rowell and Moore, 2000).”

Jonathan Leake asked me to comment on whether this claim is correct via an email (reproduced verbatim in Appendix 1). His emailed question was:

“The question here is why the IPCC has included in its last impacts report a suggestion that 40% of the Amazon could be lost and replaced by for example savannah because of a slight reduction in rainfall. There appear to be no solid references for this in the scientific literature and it contradicts other reports.”

Here is my emailed answer:

Your statement is untrue, there is a wealth of scientific evidence suggesting that the Amazon is vulnerable to reductions in rainfall. The IPCC statement itself is poorly written, and bizarrely referenced, but basically correct. It is very well known that in Amazonia tropical forests exist when there is more than about 1.5 meters of rain a year, below that the system tends to ‘flip’ to savanna, so reductions in rainfall towards this threshold could lead to rapid shifts in vegetation. Indeed, some leading models of future climate change impacts show a die-off

of more than 40% Amazon forests, due to projected decreases in rainfall. The most extreme die-back model predicted that a new type of drought should begin to impact Amazonia, and in 2005 it happened for the first time: a drought associated with Atlantic, not Pacific sea-surface temperatures. The effect on the forest was massive tree mortality, and the remaining Amazon forests changed from absorbing nearly 2 billion tonnes of CO₂ from the atmosphere a year, to being a massive source of over 3 billion tonnes.

The Amazon drought impacts paper was written by myself and colleagues in Science (attached). Here is the press release explaining the sensitivity:

http://www.leeds.ac.uk/news/article/36/amazon_carbon_sink_threatened_by_drought

Also, a paper on the model predictions is attached (Huntingford paper, see map in Fig. 4 RED is savanna, Yellow+green are forest), showing the scale of possible changes may exceed 40%, and a paper from Nepstad also showing the potential extent of drought impacts across the Amazon (attached, see Lewis 2006 Figure 7 originally from Nepstad, which illustrates the scale of sensitivity of the Amazon to drought), again showing much of the Amazon may be regarded as vulnerable.

End of Quote.

Hence, it is highly misleading to state that the claim in the IPCC report was 'unsubstantiated'. It had been substantiated by myself, and two other Amazon experts, Professors Dan Nepstad and Oliver Phillips who Mr Leake spoke to, each independently, and backed by several peer-reviewed scientific papers, some of which I sent to Mr Leake.

In addition to this email I told Mr Leake on the telephone that the first volume of the IPCC Fourth Assessment report makes broadly the same claim and gets the references correct (on page 510, it states, "New coupled climate-carbon models (Betts et al., 2004; Huntingford et al., 2004) demonstrate the possibility of large feedbacks between future climate change and vegetation change, discussed further in Section 7.3.5 (i.e., a die back of Amazon vegetation and reductions in Amazon precipitation).").

The Sunday Times knew that the IPCC statement itself was scientifically defensible and correct, merely that Rowell & Moore was the incorrect reference, and that it was correctly referenced elsewhere in the IPCC report. To state otherwise is to materially mislead the reader.

Then Mr Leake further misleads the reader, when he states in the article, "They had based their "research" on a study published in Nature, the science journal, which did not assess rainfall but in fact looked at the impact on the forest of human activity such as logging and burning. This weekend WWF said it was launching an internal inquiry into the study."

Again Mr Leake asked me the question directly via email, "The actual paper cited in the Rowell paper came from a report in Nature about forest fires. I cannot find anything in the Nature paper to support the claims made by Rowell. Can you? (The claims may still be true of course)."

While Mr Leake acknowledges via email that the IPCC claims are correct (in contrast to the article), I responded, again via email:

The 40% claim is not actually referenced in the Rowell & Moore 2000 report (they use Nepstad to reference the specific figures in the next sentence). The Nepstad Nature paper is about the interactions of logging damage, fire, and periodic droughts, all extremely important in understanding the vulnerability of Amazon forest to drought, but is not related to the vulnerability of these forests to reductions in rainfall. I don't see how that can be the source of Rowell's 40% claim. Its more likely an unreferenced statement by Rowell.

The Nature paper is a red-herring here, it is nothing to do with the 40% claim, yet Mr Leake conceals this from the reader.

Furthermore, WWF who commissioned and published the Rowell & Moore report, had a letter published in the Sunday Times on Sunday 7 February, in which they state, "WWF acknowledges that a reference to Fire in the Amazon as the source of the 40% claim was omitted during the editing of the Global Review of Forest Fires. However, WWF informed your reporter of the source several hours before you went to press."

Thus, Mr Leake knew, from two independent sources, that the single sentence claim in the Rowell & Moore 2000 report that was the focus of attention was itself unreferenced, and that the WWF report was *not* a misunderstanding of a scientific paper in Nature by non-specialists. Mr Leake's introductory paragraphs are highly misleading.

2). Quotes from Simon Lewis

Having set up the 'bogus' and 'unfounded' claim by 'green activists' based on an apparent misinterpretation of a scientific paper by non-specialists, I am quoted, I believe, to provide scientific credibility to reinforce these points. This is despite repeatedly stating to the Sunday Times that there is no problem with the sentence in the IPCC report, except the reference. E.g. this statement is taken from my first email with Mr Leake, "The IPCC statement is itself is poorly written, and bizarrely referenced, but basically correct" (see Appendix 1), and this from the final email communication with Mr Leake, and my last line, "My one line conclusion would be (unfortunately): Both the IPCC paragraph and Rowell's report are both sloppy when there is no need to be. The claims made can all be substantiated with reference to solid peer-reviewed papers." (see Appendix 1).

The article has three paragraphs of quotes from me:

Simon Lewis, a Royal Society research fellow at Leeds University who specialises in tropical forest ecology, described the section of Rowell and Moore's report predicting the potential destruction of large swathes of rainforest as "a mess".

“The Nature paper is about the interactions of logging damage, fire and periodic droughts, all extremely important in understanding the vulnerability of Amazon forest to drought, but is not related to the vulnerability of these forests to reductions in rainfall,” he said.

“In my opinion the Rowell and Moore report should not have been cited; it contains no primary research data.”

The first paragraph is again misleading. The emails in Appendix 1 of this letter, attached scientific papers I sent to Mr Leake and comments by myself published on the BBC website all show that I support the statement in the IPCC report, *and therefore support the same statement in the Rowell and Moore report*. The only thing being discussed between myself and Mr Leake is referencing. It is the fact that the IPCC statement that references the Rowell and Moore report, which itself then provides no peer-reviewed reference to back the (correct) claim it is making that I term “a mess”. The “mess” is the double referencing error, and in no way relates to any scientific claims. Again the sentence in the Sunday Times piece is constructed to suggest that I disagree with the thrust of the IPCC statement, and the Rowel report, without stating that the truth is that I agree with both.

The quote by me in the second paragraph is the middle section of a longer quote. The full quote I gave Mr Leake is:

The 40% claim is not actually referenced in the Rowell & Moore 2000 report (they use Nepstad to reference the specific figures in the next sentence). The Nepstad Nature paper is about the interactions of logging damage, fire, and periodic droughts, all extremely important in understanding the vulnerability of Amazon forest to drought, but is not related to the vulnerability of these forests to reductions in rainfall. I don't see how that can be the source of Rowell's 40% claim. Its more likely an unreferenced statement by Rowell.

Again, WWF themselves, had a letter published in the Sunday Times, informed Mr Leake of this problem in their report, “WWF acknowledges that a reference to Fire in the Amazon as the source of the 40% claim was omitted during the editing of the Global Review of Forest Fires. However, WWF informed your reporter of the source several hours before you went to press.”

The opening paragraphs of Mr Leake's piece strongly suggests that WWF have made a mistaken inference from a paper published in Nature, while my description of the paper is used to encourage this perception, despite what I told the Sunday Times. At no point did I even suggest there was a problem with the WWF report except the referencing. Again the Nature paper is a red-herring. Nobody with any scientific credibility could think that that particular Nature paper was the source of the 40% claim.

The third quote is again truncated to give a differing impression to the one intended. The full quote I gave to Mr Leake was: “In my opinion the Rowell and Moore report should not

have been cited, it isn't sufficient evidence to back any claim at all, as it contains no primary research data. It shouldn't have been cited to back any claim." Note that the sub-clause, 'it isn't sufficient evidence to back any claim at all,' has been omitted. Again, the bias is to omit, for the reader, the generic point I made to Mr Leake that in my view *no* reports should be cited by the IPCC, only peer-reviewed scientific literature. Instead the highly selective quoting – including removing clauses in the middle of sentences –insinuates that there is something particular about this report and environmental pressure group reports more generally that is problematic or incorrect. Note that in the email exchange this quote was given before any investigation or opinion was given on the WWF report, because I do not think *any* report from outside the peer-reviewed literature should be included in IPCC reports. As I told Jonathan Leake, the WWF report is not important, in my view, what is important is whether the IPCC statements are backed by the best scientific evidence available at the time. Which they are.

The full email exchange between myself and Jonathan Leake is given in Appendix 1.

3). Lewis' demands...

The article then concludes with a demand:

Scientists such as Lewis are demanding that the IPCC ban the use of reports from pressure groups. They fear that environmental campaign groups are bound to cherry-pick the scientific literature that confirms their beliefs and ignore the rest.

This is both incorrect and a distortion. I stated that *no* material from sources that have not been published after peer-review should be cited by the IPCC. I do not restrict my call to pressure groups, but include business reports and newspaper articles to name but two. The demand is incorrect, and something that I did not say, which will also further mislead the reader.

In addition, I never said, nor even commented upon, the idea that reports by environmental campaign groups may be biased, indeed my recollection is that I was not asked to comment on this by Mr Leake. The second sentence of this paragraph is pure fabrication. My reasoning for including only primary scientific literature is simple, first, as explained to Mr Leake on the telephone and via email, using other sources is usually not necessary, all the IPCC statements in this case are easily substantiated by recourse to the scientific literature, and second, using other sources of information leaves a possibility of perceptions of bias that is not helpful in terms of explaining the science to the public.

4). Relations to other IPCC problems

The thrust of the article, that the IPCC report includes a 'bogus' claim, based on an environmental pressure group report, based on a mistake, itself criticised by a leading scientist, who then calls for the use of such reports to be banned due to biased reporting of the scientific literature (me) finishes with this:

It was exactly this process that lay behind the bogus claim that the Himalayan glaciers were likely to melt by 2035 — a suggestion that got into another WWF report and was then used by the IPCC.

This is misleading yet again. Is the Amazon claim ‘exactly’ the same as the Glacier case? No. Here is what I told Mr Leake via email, “The Amazon case is different from the Glacier case as the Amazon statement is not an exaggeration of what is known from the primary literature.” (see Appendix 1). Mr Leake knew that the Amazon claim was not ‘bogus’, but when the headline states there is a ‘bogus’ IPCC rainforest claim, and this sentence then says, “exactly this process lay behind the bogus claim that the Himalayan glaciers were likely to melt by 2035 — a suggestion that got into another WWF report and was then used by the IPCC,” any reasonable person would finish reading the article with a misleading impression that the best available scientific information at the time was incorrectly reported by WWF and then copied by the IPCC. The reality is far from this.

Graphics

Underneath the headline is a large diagram/illustration titled ‘Amazon facts’. Part of the diagram/illustration contains a panel titled ‘World Wildlife Fund Claims’ and some explanation, and a second title ‘Real threats’ below, and some explanation. Again this reinforces that there are claims without foundation, made by WWF, which are counter to the current best understanding of the future threats to the Amazon rainforest.

The explanation under the WWF claims is two sentences. One is a re-working of my comment to Mr Leake from my first email about the conditions required to sustain rainforest in the Amazon (but changed to imperial units, thus 1.5 metres becomes 5ft). The second sentence is the 40% claim which I clearly and unambiguously stated to Jonathan Leake was a reasonable scientific statement. This part of the figure could just as easily have been titled, “Simon Lewis’ claims”, or “Amazon experts’ claims” given the interviews with Professors Nepstad and Phillips that Mr Leake undertook stated the same position. The diagram is extremely misleading.

Interestingly, the diagrams show why the Amazon may be so vulnerable to small changes in rainfall (because I explained this all to Mr Leake on the telephone). This is because there is a rainfall threshold where forest tends to shift savanna coupled with the fact that the rainfall in the east of the Amazon is ‘recycled’ by the trees via evapotranspiration, to fall again further into the Amazon basin. Therefore, if the eastern Amazon rainforests are lost (which are close to the savanna threshold of 5 ft of rainfall per year), large areas of more remote rainforests may then in turn be lost because the rainfall recycling is lost. This is why there is

such concern about climate change induced droughts (or forest loss via deforestation) in eastern Amazonia, as it could then lead to major losses across central Amazonia too.

5). Accompanying Concerns

5.1 The article re-write

I spoke to Jonathan Leake on the afternoon of Saturday 30, a few hours before the article went to press, as he wanted to check the quotes he was using by me (checking quotes was agreed between ourselves on Friday 29 January). The entire article was read to me, and quotes by me agreed, including a statement that the science in the IPCC report was and is correct. The article was reasonable, and quotes were not out of context. Indeed I was happy enough that I agreed to assist in checking the facts for the graphic to accompany the article (I can supply the emails if necessary). Yet, following this telephone call the article was entirely and completely re-written with an entirely new focus, new quotes from me included and new (incorrect) assertions of my views. I ask the Sunday Times to disclose the version of article that was read out to me, and provide an explanation as to why the agreed correct, undistorted, un-misleading article, and specifically the quotes from me, was not published, and an entirely new version produced.

5.2 Contribution by Richard North

The online version of the article includes a line at the bottom, "Research by Richard North". Richard North is a writer who steadfastly refuses to accept the mainstream scientific results relating to climate change science. He writes a website blog, which published what many regard as the first article about the allegedly false claim by the IPCC about the impacts of climate change induced drought on the Amazon rainforest (<http://eureferendum.blogspot.com/2010/01/and-now-for-amazongate.html>; All relevant Richard North Blog posts are verbatim in Appendix 3). It was this website that several journalists who telephoned me asked me to look at. Quotes from North's blog were used in an article by the BBC's Roger Harrabin on Friday 29 January (<http://news.bbc.co.uk/1/hi/8488395.stm>, Appendix 3), claiming "The IPCC also made false predictions on the Amazon rainforests". On the BBC this was set against my statement: "The IPCC statement is basically correct but poorly written, and bizarrely referenced," and an explanation of what scientific literature the IPCC should have cited.

On Saturday 30 January, before the Sunday Times piece had been published, but which Richard North had, we now know, assisted with, North wrote on his blog:

However, the BBC's **Roger Harrabin** is already swinging into damage-limitation mode on "Amazongate", quoting "Euro-sceptic blogger Richard North".

The hapless Harrabin is driven to play down the importance of this latest development, claiming that the inclusion of the WWF reference "is a blunder perhaps, but maybe of a different kind, because there is indeed plenty of published science warning about drought in the Amazon."

In so doing, he distorts the thrust of the Rowell Moore argument, which claims that "40% of Amazonian forests could react drastically to even a slight reduction in precipitation."

First of all, the figure is entirely unsubstantiated and secondly, although there is plenty of evidence that severe or prolonged drought can damage tracts of forest, there is no good (or any) evidence that a "slight reduction in precipitation" could have the drastic effect predicted.

Of special note, though, is Harrabin's choice of expert to back up his argument. He cites Dr Simon Lewis from Leeds University, who told him: "The IPCC statement is basically correct but poorly written, and bizarrely referenced." The full significance of this will not become apparent until my next post, so this is just a marker ... we will see Lewis in a different light.

Richard North's Sunday blog, about the Sunday Times article he contributed to includes the following:

The detail *is familiar* to readers of this blog, and some might note a small addition at the end of the piece which says: "Research by Richard North", in what has been a fruitful partnership.

Crucially, Leake brings to the table the substance of an exchange with Simon Lewis, a Royal Society research fellow at Leeds University who specialises in tropical forest ecology. This is the same Simon Lewis cited by the BBC's *Roger Harrabin*, who has him say: "The IPCC statement is basically correct but poorly written, and bizarrely referenced."

Leake, who had extensive communications with the man, however, presents a completely different picture.

It is certainly true that Jonathan Leake's and Richard North's piece in the Sunday Times presents a very different picture of my views on the IPCC sentence in question, and the scientific evidence to back such a claim. Richard North is essentially claiming I told one thing to the BBC and another to the Sunday Times. This is untrue. The emails to the Sunday Times, show that whole chunks of the same text were used by the BBC (see Appendix 1).

What is concerning regarding my complaint is that according to Richard North, he and Jonathan Leake produced the Sunday Times article in "partnership". There also appears to be a determination by Richard North to 'prove' there is more of a problem with the IPCC than I expressed to Roger Harrabin and I also expressed to Jonathan Leake. The PCC code states that Editors must "take care" not to publish inaccurate, misleading or distorted information. By including Richard North in the production of the article I do not think the Sunday Times has taken "care" to avoid publishing misleading information.

Richard North discovered the referencing problem with the IPCC sentence, became the most vocal public advocate of the theory that the IPCC published a scientifically indefensible statement (while apparently not being an expert in the field) and then became involved in

the production of an article about these claims, seems, at best, an editorial mistake. I would like the Sunday Times to explain what role Richard North had in the production of the article (especially the last-minute re-write), release all Richard North's research notes relating to the production of this article, electronic or otherwise, and any emails between Richard North and Jonathan Leake relating to the production of the article so the PCC can understand the precise role of Richard North in the production of the article (perhaps it was negligible, perhaps he re-wrote it). This is particularly concerning as had I known Richard North was connected to writing the Sunday Times piece I would have refused to comment or answer questions about the Amazon as North is in no way a trustworthy writer when it comes to the careful assessment and reporting of scientific knowledge.

I have gone through the Sunday Times article in some detail as, in my opinion, it is the combined number of distortions, omissions, selective quotes and telling ambiguities taken together that mean a reasonable person would be materially misled to think that the IPCC had published a false and exaggerated statement about the potential impacts of climate change induced droughts on Amazon rainforests rather than a referencing error. This article has contributed to confusion as similar misleading claims have been made elsewhere, specifically noting the work of the Sunday Times, such as the editorial in the Wall Street Journal on February 16 (see Appendix 5). Indeed, it was copied around the world, and legitimised Richard North's incorrect 'Amazongate' thesis.

The confusion generated by the Sunday Times was completely unnecessary. The BBC and the Sunday Telegraph (<http://www.telegraph.co.uk/earth/environment/climatechange/7111525/UN-climate-change-panel-based-claims-on-student-dissertation-and-magazine-article.html>; Appendix 6) both managed to contact experts and convey the facts correctly.

Lastly, of the two other experts I know Mr Leake spoke to, one, Professor Nepstad, has already made a public statement about the IPCC statement (http://www.whrc.org/resources/online_publications/essays/2010-02-Nepstad_Amazon.htm, reproduced as Appendix 7), the other Professor Phillips has informed me he is happy to make a submission to the PCC relating what he told Mr Leake, if that is useful or necessary to assist resolving my complaint.

As far as I understand, the procedure is that Sunday Times will respond, I will have the chance to read and comment upon any new material presented, and then this can go before the Commission for a ruling. If I can be of any further assistance please do not hesitate to ask.

With best wishes,

Dr Simon Lewis

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Appendix 1. Email exchange between Jonathan Leake and Simon Lewis

From: Leake, Jonathan [mailto:jleake@sunday-times.co.uk]

Sent: 29 January 2010 11:22

To: Simon Lewis [GEO]

Subject: The Sunday Times

One issue relates to the last report of working group 2 of the AR4 published by the IPCC.

It relates to Chapter 13 which deals with Latin America. In 13.4.1 it says:

Up to 40% of the Amazonian forests could react drastically to even a slight reduction in precipitation; this means that the tropical vegetation, hydrology and climate system in South America could change very rapidly to another steady state, not necessarily producing gradual changes between the current and the future situation (Rowell and Moore, 2000). It is more probable that forests will be replaced by ecosystems that have more resistance to multiple stresses caused by temperature increase, droughts and fires, such as tropical savannas.

I have traced this Rowell & Moore reference to a campaigning paper called Global Review of Forest Fires published by the WWF and IUCN in 2006. In that report <http://data.iucn.org/dbtw-wpd/edocs/2000-047.pdf> the authors Andy Rowell and Peter Moore say on page 15:

"During exceptional dry years the forest literally sucks the soil dry, meaning that in that year or for a number of subsequent years, there may not be enough water to sustain the forest and it crosses the threshold of flammability⁴⁵. Up to 40% of the Brazilian forest is extremely sensitive to small reductions in the amount of rainfall. In the 1998 dry season, some 270,000 sq. km of forest became vulnerable to fire, due to completely depleted plant-available water

stored in the upper five metres of soil. A further 360,000 sq. km of forest had only 250 mm of plant-available soil water left.^{4 6"}

This statement is backed by a reference to a paper published in Nature in 1999 which you can read at

http://www.ic.ucsc.edu/~wxcheng/envs23/lecture12/Fire_nature.pdf called Large Scale impoverishment of Amazonian Forests by Logging and Fire. However this last report does not appear to support the assertions made by Rowell and Moore and hence does not support the assertions made by the IPCC.

In particular it does not support the claim that 40% of the Amazonian rainforest is susceptible to small changes in precipitation. I would suggest that common sense alone is enough to suggest such a claim is very questionable. After all, the natural environment is highly variable on all kinds of timescales and conditions including rainfall, especially over an area as large as the Amazon rainforest and forests tend to be adapted to that variation.

Perhaps ironically, this point is borne out by another WWF report published in 2007 (<http://www.worldwildlife.org/climate/Publications/WWFBinaryitem7658.pdf>) which points out how the Amazon is actually very resilient to droughts. It says:

"One of the great ecological puzzles of the Amazon forests is their ability to withstand severe seasonal drought with no visible signs of drought stress. Indeed, some researchers have reported satellite evidence of an early dry season "greening up" of the Amazon forest canopy [Saleska et al. 2007, Myneni et al. 2006], although field measurements of this phenomenon are tenuous. Nearly half of the forests of the Amazon are exposed to seasonal drought for 3-5 months duration when monthly rainfall totals only 0-3 centimeters (Nepstad et al. 1994, 2004)⁴. Slowly, we are learning that these remarkable ecosystems have evolved mechanisms for maintaining lush, green leaf canopies through periods with little rainfall. The most important adaptation appears to be the deep (>10m) rooting systems of many Amazon forest trees that enable them to absorb water stored deep in the soil, as shallow soil moisture is gradually depleted during periods of little rainfall (Nepstad et al. 1994; 2004; 2007, Bruno et al. 2006; Hodnett et al. 1995). During the dry season, 75 per cent of the water released to the atmosphere through leaf "transpiration" is absorbed from greater than 2m depth in the soil (Nepstad et al. 1994). More recently it has been discovered that Amazon trees absorb substantial amounts of moisture from the dew that forms on their leaves during the dry season (Cardinot 2007)."

The question here is why the IPCC has included in its last impacts report a suggestion that 40% of the Amazon could be lost and replaced by for example savannah because of a slight reduction in rainfall. There appear to be no solid references for this in the scientific literature and it contradicts other reports.

Do you still support the conclusions of 13.4, as cited above? Do you believe the WWF report was a sufficiently reliable source to quote as support for your conclusions?

A second question is whether, in view of this and the glacier report, you still think it would be appropriate to use WWF campaign reports in the IPCC's fifth assessment process?

Many thanks for your help.

Jonathan Leake
Science & Environment Editor
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From: Simon Lewis [GEO] [mailto:S.L.Lewis@leeds.ac.uk]
Sent: 29 January 2010 12:00
To: Leake, Jonathan
Subject: RE: The Sunday Times

Hi Jonathan,

Your question is:

"The question here is why the IPCC has included in its last impacts report a suggestion that 40% of the Amazon could be lost and replaced by for example savannah because of a slight reduction in rainfall. There appear to be no solid references for this in the scientific literature and it contradicts other reports."

Your statement is untrue, there is a wealth of scientific evidence suggesting that the Amazon is vulnerable to reductions in rainfall. The IPCC statement itself is poorly written, and bizarrely referenced, but basically correct. It is very well known that in Amazonia tropical forests exist when there is more than about 1.5 meters of rain a year, below that the system tends to 'flip' to savanna, so reductions in rainfall towards this threshold could lead to rapid shifts in vegetation. Indeed, some leading models of future climate change impacts show a die-off of more than 40% Amazon forests, due to projected decreases in rainfall. The most extreme die-back model predicted that a new type of drought should begin to impact Amazonia, and in 2005 it happened for the first time: a drought associated with Atlantic, not Pacific sea-surface temperatures. The effect on the forest was massive tree mortality, and the remaining Amazon forests changed from absorbing nearly 2 billion tonnes of CO2 from the atmosphere a year, to being a massive source of over 3 billion tonnes.

The Amazon drought impacts paper was written by myself and colleagues in Science (attached). Here is the press release explaining the sensitivity:

http://www.leeds.ac.uk/news/article/36/amazon_carbon_sink_threatened_by_drought

Also, a paper on the model predictions is attached (Huntingford paper, see map in Fig. 4 RED is savanna, Yellow+green are forest), showing the scale of possible changes may exceed 40%, and a paper from Nepstad also showing the potential extent of drought impacts across the Amazon (attached, see Lewis 2006 Figure 7 originally from Nepstad, which illustrates the scale of sensitivity of the Amazon to drought), again showing much of the Amazon may be regarded as vulnerable.

This is not to say there isn't much uncertainty as to exactly how vulnerable how much of the Amazon is to moving to a savanna system.

On your question 2: The IPCC would do well to just outlaw un-peer reviewed journal or book chapters from being citable in its reports to stop this type of thing happening again.

Hopefully 'Amazongate' could be used to try explaining some of the science (esp. the forest-drought-carbon emissions-climate change feedback).

Give me a ring if anything isn't clear.

Simon

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From: Leake, Jonathan [mailto:jleake@sunday-times.co.uk]
Sent: 29 January 2010 12:08
To: Simon Lewis [GEO]
Subject: RE: The Sunday Times

Thanks Simon - very helpful.

However I probably wasn't clear enough in my email. Do you think the papers cited in the IPCC report (Rowell, and the Nature report) are sufficient evidence to back up the claim? I accept there have been others since and probably before - but they weren't the ones cited.

I'm trying to separate the science from the process here.

Jonathan Leake

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See my articles at www.timesonline.co.uk

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From: Simon Lewis [GEO] [<mailto:S.L.Lewis@leeds.ac.uk>]
Sent: 29 January 2010 12:40
To: Leake, Jonathan
Subject: RE: The Sunday Times

In my opinion the Rowell and Moore report should not have been cited, it isn't sufficient evidence to back any claim at all, as it contains no primary research data. It shouldn't have been cited to back any claim.

The Amazon case is different from the Glacier case as the Amazon statement is not an exaggeration of what is known from the primary literature.

Simon

From: Leake, Jonathan [<mailto:jleake@sunday-times.co.uk>]
Sent: 29 January 2010 12:42
To: Simon Lewis [GEO]
Subject: RE: The Sunday Times

many thanks

The actual paper cited in the Rowell paper came from a report in Nature about forest fires. I cannot find anything in the Nature paper to support the claims made by Rowell. Can you? (The claims may still be true of course).

Jonathan Leake

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Landline: +44 20 7782 5662
Mobile: +44 7799 772253

See my articles at www.timesonline.co.uk

The contents of this email, plus any attachments, are confidential and should not be published in any format without prior agreement.

From: Simon Lewis [GEO]
Sent: 29 January 2010 13:17
To: 'Leake, Jonathan'
Subject: RE: The Sunday Times

Hi Jonathan,

I looked more closely – what a mess.

The 40% claim is not actually referenced in the Rowell & Moore 2000 report (they use Nepstad to reference the specific figures in the next sentence). The Nepstad Nature paper is about the interactions of logging damage, fire, and periodic droughts, all extremely important in understanding the vulnerability of Amazon forest to drought, but is not related to the vulnerability of these forests to reductions in rainfall. I don't see how that can be the source of Rowell's 40% claim. Its more likely an unreferenced statement by Rowell.

On your other query: in the near-term the fate of tropical forests will be largely determined by how much of it is destroyed to grow crops and biofuels, but the interactions between occasional droughts, warmer temperatures, and the remaining logged and fragmented forests will ultimately determine how much tropical rainforest is left by the end of this century.

My one line conclusion would be (unfortunately):

Both the IPCC paragraph and Rowell's report are both sloppy when there is no need to be. The claims made can all be substantiated with reference to solid peer-reviewed papers.

Cheers,

Simon

Appendix 2. Letter to Sunday Times, which they declined to publish.

I am the scientific expert cited in the article, 'UN climate panel shamed by bogus rainforest claim' (31 January), which was profoundly misleading. I repeatedly informed the Sunday Times that the claim in the Intergovernmental Panel on Climate Change (IPCC) report that up to 40% of the Amazon may be vulnerable to climate change induced drought impacts was a defensible and reasonable claim, based on the data and knowledge available at the time the report was written. Furthermore, the evidence to back such a claim has strengthened since. I was categorical that the IPCC contained a referencing error, and not an error in the science. There is no 'bogus rainforest claim'.

The WWF report about fires that was cited by the IPCC is a useful document, but should not have been used to justify that particular IPCC statement. It was the juxtaposition of the statement and reference that I referred to as 'a mess', not the WWF report itself.

I recommend that the IPCC cite only peer-reviewed documents, not because of bias in green group reports, as they are usually of high quality, but because citing them is unnecessary and introduces the possibility of perceptions of bias and unnecessary controversy.

There is no 'shame' on the IPCC. It is a truly inspirational institution and I would gladly serve on it, if asked. The 'shame' is that a quality newspaper, given the facts about an area of climate change science, chose to publish a highly selective and biased account in an article about the importance of taking the utmost care in reporting science.

Dr Simon Lewis

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Appendix 3. Richard North's 'Amazongate' blogs.

25 January 2010. <http://eureferendum.blogspot.com/2010/01/and-now-for-amazongate.html>

And now for Amazongate.

The IPCC also made false predictions on the Amazon rain forests, referenced to a non peer-reviewed paper produced by an advocacy group working with the WWF. This time though, the claim made is not even supported by the report and seems to be a complete fabrication

Thus, following on from "Glacierngate", where the IPCC grossly exaggerated the effects of global warming on Himalayan glaciers – backed by a reference to a WWF report - we now have "Amazongate", where the IPCC has grossly exaggerated the effects of global warming on the Amazon rain forest.

This is to be found in Chapter 13 of the Working Group II report, the same part of the IPCC fourth assessment report in which the "Glacierngate" claims are made. There, is the **startling claim** that:

Up to 40% of the Amazonian forests could react drastically to even a slight reduction in precipitation; this means that the tropical vegetation, hydrology and climate system in South America could change very rapidly to another steady state, not necessarily producing gradual changes between the current and the future situation (Rowell and Moore, 2000). It is more probable that forests will be replaced by ecosystems that have more resistance to multiple stresses caused by temperature increase, droughts and fires, such as tropical savannas.

At first sight, the reference looks kosher enough but, following it through, one sees:

Rowell, A. and P.F. Moore, 2000: *Global Review of Forest Fires*. WWF/IUCN, Gland, Switzerland, 66 pp. http://www.iucn.org/themes/fcp/publications/files/global_review_forest_fires.pdf.

This, then appears to be another WWF report, carried out in conjunction with the IUCN - **The International Union for Conservation of Nature**.

The link given is no longer active, but the report is on the IUCN website [here](#). Furthermore, the IUCN along with WWF is another advocacy group and the report is not peer-reviewed. According to IPCC rules, it should not have been used as a primary source.

Firming up the WWF link, the second of the two authors, Dr P F Moore, is cited as the coordinator of the World Wide Fund for Nature (WWF) and World Conservation Union (IUCN) Project FireFight South-East, Asia, Bogor, Indonesia. He works for both organisations.

His reported comments on the Amazonian rain forests are interesting, as he is by no means an Amazon specialist – or even a climate specialist. His **cv tells us**:

My background and experience around the world has required and developed high-level policy and analytical skills. I have a strong understanding of government administration, legislative review, analysis and inquiries generated through involvement in or management of the Australian Regional Forest Agreement process, Parliamentary and Government inquiries, Coronial inquiries and public submissions on water pricing, access and use rights and native vegetation legislation in Australia and fire and natural resources laws, regulations and policies in Indonesia, Vietnam, Thailand, South Africa and Malaysia.



Professional Profile

Peter F. Moore Ph.D.
Policy Analyst & Forest Fire Specialist
metis@metis-associates.com

CURRICULUM VITAE

Perhaps, then, the lead author, Rowell A, is a more experience academic, with direct knowledge of the Amazon basin? Sadly, he is not. Andy Rowell, is an investigative freelance journalist and a **green activist** who writes occasionally for *The Guardian* and *The Independent*. His **cv** tells us:

Andy Rowell is a freelance writer and Investigative journalist with over 12 years' experience on environmental, food, health and globalization issues. Rowell has undertaken cutting-edge investigations for, amongst others, Action on Smoking and Health, The Campaign for Tobacco-Free Kids, Friends of the Earth, Greenpeace, IFAW, the Pan American Health Organization, Project Underground, the World Health Organization, World in Action and WWF.

.Thus, the IPCC is relying for its assertions that "up to 40% of the Amazonian forests could react drastically to even a slight reduction in precipitation" on a free-lance journalist/activist and a specialist in policy and analysis relating to forest fires in Australia, Asia and South Africa. At least, though, Andy Rowell need not fear being misquoted by a journalist. He is a journalist.

But then, it appears, it is not another journalist that either need fear, but the IPCC. The assertions attributed to them, that "up to 40% of the Amazonian forests could react drastically to even a slight reduction in precipitation" is nowhere to be found in their report. The closest match we can find is:

In this context, we have to remember that not all forest fires are bad. However, the effects of El Niño on the Amazon could have global repercussions. Of major concern for the Amazon is the way El Niño affects the region, causing increased precipitation in the South of the country and intense dryness in the North, just where the rain is needed in the Amazon basin - home to 70% of the remaining humid forest on the globe.

Predictions are for increased dry weather in the Amazon, which could significantly affect the equilibrium of the rainforest, by making it more susceptible to burning.

Nor elsewhere can we find any other reference to 40 percent of the Amazon being affected by even slight reductions in precipitation. On the contrary, we find that the WWF did produce **its own report** on the Amazon. There it states:

Large-scale tree death from drought is a surprisingly rare event, but is critical to understanding how small changes in rainfall could push big areas of Amazon forest beyond their ecological tipping points. One of the great ecological puzzles of the Amazon forests is their ability to withstand severe seasonal drought with no visible signs of drought stress. Indeed, some researchers have reported satellite evidence of an early dry season "greening up" of the Amazon forest canopy [Saleska et al. 2007, Myneni et al. 2006].

The report goes on to say:

Amazon forest drought tolerance has its limits, however, and it is in understanding these limits that we begin to realize how close these ecosystems are to their tipping point. A seven-year experiment was recently conducted to identify the level of drought stress beyond which Amazon forests would begin to "fall apart" through tree mortality. Rainfall was reduced by one third for five consecutive years in a one-hectare forest plot using 5,600 plastic panels placed above the soil (Nepstad et al. 2002).

During the third year of the experiment, a drought threshold was reached. The forest's giant canopy trees began to die as they ran out of water in the upper 11m of soil (Nepstad et al. 2007). Trees representing 10 per cent of the total weight of all the trees in the forest died in the course of a single year. It appears that even these remarkable, deeply-rooting, giant trees succumb to drought and die if they cannot absorb enough water from the soil to supply their leaves with new water to replace that lost through transpiration.

Then we get this:

The El Niño episode of 1997-1998 may have pushed about one-third of Amazon forests close to this threshold of death-inducing drought (Nepstad et al. 2004, Figure 2), although few measurements are available from the field to know exactly how extensive the damage was. In the central Amazon, tree mortality increased 50 per cent following this drought (Williamson et al. 2000).

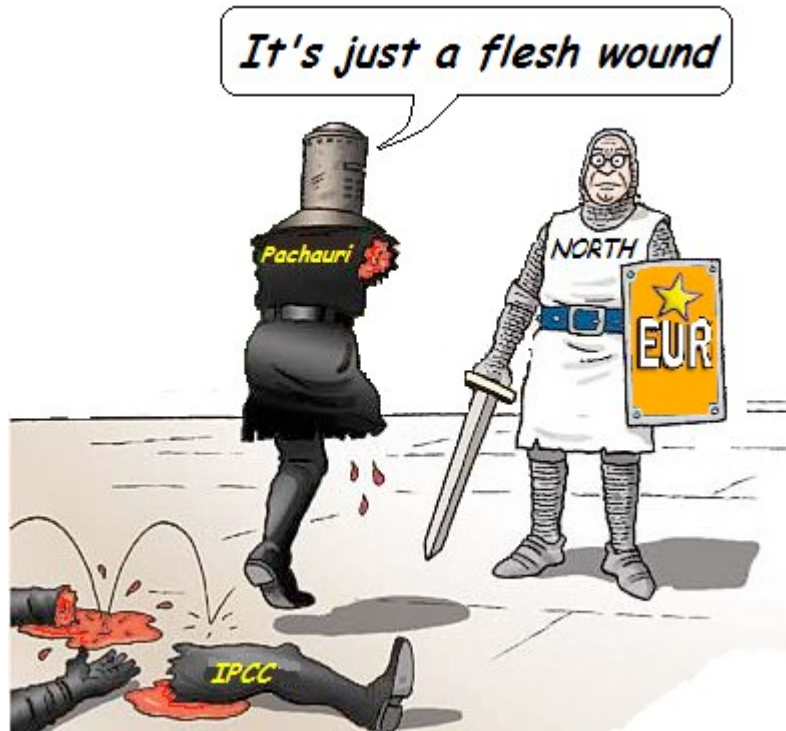
In other words, although there is evidence – as you would expect – that the forest would suffer from reduced rainfall, the evidence adduced here (and in other papers) is that fairly drastic and prolonged shifts in rainfall patterns are needed before serious damage occurs, and then nothing like 40 percent.

In all, then, the IPCC claim is a fabrication, unsupported even by the reference it gives, which it should not in any event have used as it is not a primary source.

The significance of this cannot be understated. Together with polar bears and melting ice-caps, and melting glaciers, the Amazon rain forests are iconic symbols for the climate change industry, and their potential loss was fully exploited at December's Copenhagen summit.

There, the dire predictions from the IPCC were treated as a baseline, and then expanded upon **by others** and **reported widely**, adding to the sense of doom and crisis.

Well sourced reports, however, put logging and farm expansion as the major threat to the rain forests, climate change being just another factor which exacerbates the damage. But this was not good enough for the IPCC, which wanted to hype up crisis. And, as with melting glaciers, it did so using exactly the same technique of making an assertion unsupported by the "science" it holds as so important.



The glaciers claim is said to be a "mistake" by Rajendra Pachauri, chairman of the IPCC. But, as Lady Bracknell might have said, to cite one WWF report may be regarded as a misfortune; to cite two looks like carelessness. And what will Rajendra say to that?

Saturday 30 January. <http://eureferendum.blogspot.com/2010/01/amazongate-final-phase.html>

Amazongate: the final phase

The **Booker column** is up, with the headline: "Amazongate: new evidence of the IPCC's failures". This is the start of the final phase of the IPCC's meltdown.

Actually, the Amazon story only occupies one paragraph of the column, with the newspaper reacting to the building publicity by hyping it up in the headline. Booker actually addresses the wide-ranging failures of the IPCC, including a reference to Montford (of **Bishop Hill** fame) and his brilliant book **The Hockey Stick Illusion**. Buy it.

Booker concludes, of the IPCC that: "Bereft of scientific or moral authority, the most expensive show the world has ever seen may soon be nearing its end."

However, the BBC's **Roger Harrabin** is already swinging into damage-limitation mode on "Amazongate", quoting "Euro-sceptic blogger Richard North".

The hapless Harrabin is driven to play down the importance of this latest development, claiming that the inclusion of the WWF reference "is a blunder perhaps, but maybe of a different kind, because there is indeed plenty of published science warning about drought in the Amazon."

In so doing, he distorts the thrust of the Rowell Moore argument, which claims that "40% of Amazonian forests could react drastically to even a slight reduction in precipitation."

First of all, the figure is entirely unsubstantiated and secondly, although there is plenty of evidence that severe or prolonged drought can damage tracts of forest, there is no good (or any) evidence that a "slight reduction in precipitation" could have the drastic effect predicted.

Of special note, though, is Harrabin's choice of expert to back up his argument. He cites Dr Simon Lewis from Leeds University, who told him: "The IPCC statement is basically correct but poorly written, and bizarrely referenced." The full significance of this will not become apparent until my next post, so this is just a marker ... we will see Lewis in a different light.

Harrabin, though, is forced to concede that there are problems, stating: "It all points to the need for much greater transparency, though that will throw up issues of its own for a body striving to offer a coherent view to policymakers of an issue dominated by risk, uncertainty and values, rather than unambiguous science."

That this is the main problem is wishful thinking on his part. The IPCC is holed below the waterline, and our little BBC man is trying to stem the leaks with a paper tissue.

(Note – I'm starting a new forum thread, as below, and will shut down the others tomorrow, to give us all a fresh start.)

Sunday 31 January. <http://eureferendum.blogspot.com/2010/01/amazongate-in-sunday-times.html>

Amazongate in The Sunday Times.

From Jonathan Leake in *The Sunday Times* we get an article headed: "UN climate panel shamed by bogus rainforest claim," - one of several on climate change in today's edition

It tells us that a "startling report" in the IPCC report claiming that that global warming might wipe out 40% of the Amazon rainforest "was based on an unsubstantiated claim by green campaigners who had little scientific expertise."

This is "Amazongate" writ large, where the IPCC launched the scare story that even a slight change in rainfall could see swathes of the rainforest rapidly replaced by savanna grassland – and the source turns out to be a report from WWF, an environmental pressure group, which was authored by two green activists.

They had based their "research" (Leake's quotations) on a study published in *Nature* which did not assess rainfall but in fact looked at the impact on the forest of human activity such as logging and burning. This weekend WWF said it was launching an internal inquiry into the study.

The detail is familiar to readers of this blog, and some might note a small addition at the end of the piece which says: "Research by Richard North", in what has been a fruitful partnership.

Crucially, Leake brings to the table the substance of an exchange with Simon Lewis, a Royal Society research fellow at Leeds University who specialises in tropical forest ecology. This is the same Simon Lewis cited by the BBC's Roger Harrabin, who has him say: "The IPCC statement is basically correct but poorly written, and bizarrely referenced."

Leake, who had extensive communications with the man, however, presents a completely different picture. Lewis describes the section of Rowell and Moore's report predicting the potential destruction of large swathes of rainforest as "a mess".

In a direct quote, Lewis goes on to say: "The *Nature* paper is about the interactions of logging damage, fire and periodic droughts, all extremely important in understanding the vulnerability of Amazon forest to drought, but is not related to the vulnerability of these forests to reductions in rainfall." Then we get Lewis saying: "In my opinion the Rowell and Moore report should not have been cited; it contains no primary research data."

Compare and contrast this with *The Sunday Telegraph* view that the IPCC had "accurately represented" the *Nature* paper.

Leake is clearly unconvinced, reporting that this is the third time in as many weeks that serious doubts have been raised over the IPCC's conclusions on climate change. And this weekend Rajendra Pachauri, chairman of the IPCC, was fighting to keep his job after a barrage of criticism – which is why *The Sunday Telegraph* writes a 750-word piece about his new novel.

Even the WWF takes it more seriously, saying it prided itself on the accuracy of its reports, but is investigating the latest concerns. "We have a team of people looking at this internationally," says Keith Allott, its climate change campaigner.

Scientists such as Lewis are demanding that the IPCC ban the use of reports from pressure groups. Georg Kaser, a glaciologist who was a lead author on the last IPCC report, said: "Groups like WWF are not scientists and they are not professionally trained to manage data. They may have good intentions but it opens the way to mistakes."

And, in its own leader, headed, "Bad science needs good scrutiny", *The Sunday Times* makes a comparison between Dr Wakefield, who has recently been savaged by the GMC, and Dr Pachauri who "is still head of the IPCC, although he presided over the use of dodgy science in its reports and ignored legitimate criticism of that science."

"He should go," says the paper.

CLIMATE CHANGE – FINAL PHASE THREAD

Appendix 4. BBC's Roger Harrabin's story (also reported in truncated form on the Today program, Saturday 30 January. <http://news.bbc.co.uk/1/hi/8488395.stm>

Harrabin's Notes: IPCC under scrutiny

In his regular column, BBC environment analyst Roger Harrabin considers whether another mistake by the Intergovernmental Panel on Climate Change has come to light.

ANOTHER ERROR?

After the Intergovernmental Panel on Climate Change (IPCC) admitted it had made a mistake in its Himalaya glacier forecast in its Fourth Assessment Report, climate "sceptics" are busy searching the rest of the panel's report for more mistakes.

It appears that this week, they have found one. In parts of the blogosphere it has been dubbed "Amazongate".

There was a dire warning in chapter 13 of the report of IPCC Working Group II:

"Up to 40% of Amazonian forests could react drastically to even a slight reduction in precipitation; this means that the tropical vegetation, hydrology and climate system in South America could change very rapidly to another steady state, not necessarily producing gradual changes between the current and the future situation," it observed.

"It is more probable that forests will be replaced by ecosystems that have more resistance to multiple stresses caused by temperature increase, droughts and fires, such as tropical savannas."

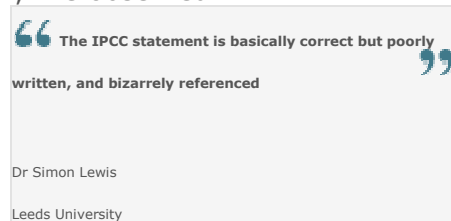
Closer inspection reveals that the authors referenced for this work are, in fact, an expert linked to environmental group WWF and a green journalist.

Euro-sceptic blogger Richard North said: "The IPCC also made false predictions on the Amazon rainforests, referenced to a non-peer reviewed paper produced by an advocacy group working with the WWF. "This time though, the claim made is not even supported by the report and seems to be a complete fabrication," he observed.

A blunder perhaps, but maybe of a different kind, because there is indeed plenty of published science warning about drought in the Amazon.



An IPCC statement on the fate of the Amazon has been questioned



Authors of some of that research are not happy that the IPCC chose to reference WWF rather than the basic science itself.

Dr Simon Lewis from Leeds University, who co-authored a paper on the Amazon in the journal Science, says the forest is surprisingly sensitive to drought.

He told me: "The IPCC statement is basically correct but poorly written, and bizarrely referenced.

"It is very well known that in Amazonia, tropical forests exist when

there is more than about 1.5 metres of rain a year, below that the system tends to 'flip' to savannah.

"Indeed, some leading models of future climate change impacts show a die-off of more than 40% Amazon forests, due to projected decreases in rainfall.

"The most extreme die-back model predicted that a new type of drought should begin to impact Amazonia, and in 2005 it happened for the first time: a drought associated with Atlantic, not Pacific sea surface temperatures.

"The effect on the forest was massive tree mortality, and the remaining Amazon forests changed from absorbing nearly two billion tonnes of CO₂ from the atmosphere a year, to being a massive source of over three billion tonnes."

So, it appears that, unlike in the case of "Glaciergate", the IPCC's science may be right but its referencing wrong.

Dr Lewis's Science paper came too late for the Fourth Assessment Report's deadline.

But, he said: "They should have cited the papers by Peter Cox and colleagues on the modelling side, and a paper by Dan Nepstad on a massive drought exclusion experiment."

I have tried to contact the lead author of Working Group II to ask why his team cited WWF not the journals - but without success so far.

My guess is that NGO reports often offer an easy synthesis of already-published evidence.

In my experience, NGO papers are often both accessible and accurate - though clearly written from a point of view.

But it is obvious that the next IPCC report will have to be much more meticulous about flagging up the provenance of its sources.

There will need to be more clarification of what is known as "grey" literature (not peer-reviewed) and IPCC panel participation.

It all points to the need for much greater transparency, though that will throw up issues of its own for a body striving to offer a coherent view to policymakers of an issue dominated by risk, uncertainty and values, rather than unambiguous science.

Just this week, for instance, there were two pieces of published research in Science and Nature suggesting that the very worst effects of climate change may have been overestimated.

The researchers of both papers say they are still concerned about man-made climate change, though.

The unfinished science of climate change goes on.

Appendix 5. Editorial, Wall Street Journal, February 18.

<http://online.wsj.com/article/SB10001424052748703630404575053781465774008.html>

The Continuing Climate Meltdown

More embarrassments for the U.N. and 'settled' science.

It has been a bad—make that dreadful—few weeks for what used to be called the "settled science" of global warming, and especially for the U.N. Intergovernmental Panel on Climate Change that is supposed to be its gold standard.

First it turns out that the Himalayan glaciers are not going to melt anytime soon, notwithstanding dire U.N. predictions. Next came news that an IPCC claim that global warming could destroy 40% of the Amazon was based on a report by an environmental pressure group. Other IPCC sources of scholarly note have included a mountaineering magazine and a student paper.

Since the climategate email story broke in November, the standard defense is that while the scandal may have revealed some all-too-human behavior by a handful of leading climatologists, it made no difference to the underlying science. We think the science is still disputable. But there's no doubt that climategate has spurred at least some reporters to scrutinize the IPCC's headline-grabbing claims in a way they had rarely done previously.

Take the rain forest claim. In its 2007 report, the IPCC wrote that "up to 40% of the Amazonian forests could react drastically to even a slight reduction in precipitation; this means that the tropical vegetation, hydrology and climate system in South America could change very rapidly to another steady state."

But as Jonathan Leake of London's Sunday Times reported last month, those claims were based on a report from the World Wildlife Fund, which in turn had fundamentally misrepresented a study in the journal *Nature*. The *Nature* study, Mr. Leake writes, "did not assess rainfall but in fact looked at the impact on the forest of human activity such as logging and burning."

The IPCC has relied on World Wildlife Fund studies regarding the "transformation of natural coastal areas," the "destruction of more mangroves," "glacial lake outbursts causing mudflows and avalanches," changes in the ecosystem of the "Mesoamerican reef," and so on. The Wildlife Fund is a green lobby that believes in global warming, and its "research" reflects its advocacy, not the scientific method.

The IPCC has also cited a study by British climatologist Nigel Arnell claiming that global warming could deplete water resources for as many as 4.5 billion people by the year 2085. But as our Anne Jolis reported in our European edition, the IPCC neglected to include Mr. Arnell's corollary finding, which is that global warming could also increase water resources for as many as six billion people.

The IPCC report made aggressive claims that "extreme weather-related events" had led to "rapidly rising costs." Never mind that the link between global warming and storms like Hurricane Katrina remains tenuous at best. More astonishing (or, maybe, not so astonishing) is that the IPCC again based its assertion on a single study that was not peer-reviewed. In fact, nobody can reliably establish a quantifiable connection between global warming and increased disaster-related costs. In Holland, there's even a minor uproar over the report's claim that 55% of the country is below sea level. It's 26%.

Meanwhile, one of the scientists at the center of the climategate fiasco has called into question other issues that the climate lobby has claimed are indisputable. Phil Jones, who stepped down as head of

the University of East Anglia's Climatic Research Unit amid the climate email scandal, told the BBC that the world may well have been warmer during medieval times than it is now.

This raises doubts about how much our current warming is man-made as opposed to merely another of the natural climate shifts that have taken place over the centuries. Mr. Jones also told the BBC there has been no "statistically significant" warming over the past 15 years, though he considers this to be temporary.

All of this matters because the IPCC has been advertised as the last and definitive word on climate science. Its reports are the basis on which Al Gore, President Obama and others have claimed that climate ruin is inevitable unless the world reorganizes its economies with huge new taxes on carbon. Now we are discovering the U.N. reports are sloppy political documents intended to drive the climate lobby's regulatory agenda.

The lesson of climategate and now the IPCC's shoddy sourcing is that the claims of the global warming lobby need far more rigorous scrutiny.

Appendix 6. Sunday Times story on Amazon claims in IPCC report.

<http://www.telegraph.co.uk/earth/environment/climatechange/7111525/UN-climate-change-panel-based-claims-on-student-dissertation-and-magazine-article.html>

UN climate change panel based claims on student dissertation and magazine article

The United Nations' expert panel on climate change based claims about ice disappearing from the world's mountain tops on a student's dissertation and an article in a mountaineering magazine.

By Richard Gray, Science Correspondent and Rebecca Lefort

The revelation will cause fresh embarrassment for the Intergovernmental Panel on Climate Change (IPCC), which had to issue a humiliating apology earlier this month over inaccurate statements about global warming.

The IPCC's remit is to provide an authoritative assessment of scientific evidence on climate change.

In its most recent report, it stated that observed reductions in mountain ice in the Andes, Alps and Africa was being caused by global warming, citing two papers as the source of the information.

However, it can be revealed that one of the sources quoted was a feature article published in a popular magazine for climbers which was based on anecdotal evidence from mountaineers about the changes they were witnessing on the mountainsides around them.

The other was a dissertation written by a geography student, studying for the equivalent of a master's degree, at the University of Berne in Switzerland that quoted interviews with mountain guides in the Alps.

The revelations, uncovered by *The Sunday Telegraph*, have raised fresh questions about the quality of the information contained in the report, which was published in 2007.

It comes after officials for the panel were forced earlier this month to retract inaccurate claims in the IPCC's report about the melting of Himalayan glaciers.

Sceptics have seized upon the mistakes to cast doubt over the validity of the IPCC and have called for the panel to be disbanded.

This week scientists from around the world leapt to the defence of the IPCC, insisting that despite the errors, which they describe as minor, the majority of the science presented in the IPCC report is sound and its conclusions are unaffected.

But some researchers have expressed exasperation at the IPCC's use of unsubstantiated claims and sources outside of the scientific literature.

Professor Richard Tol, one of the report's authors who is based at the Economic and Social Research Institute in Dublin, Ireland, said: "These are essentially a collection of anecdotes.

"Why did they do this? It is quite astounding. Although there have probably been no policy decisions made on the basis of this, it is illustrative of how sloppy Working Group Two (the panel of experts within the IPCC responsible for drawing up this section of the report) has been.

"There is no way current climbers and mountain guides can give anecdotal evidence back to the 1900s, so what they claim is complete nonsense."

The IPCC report, which is published every six years, is used by government's worldwide to inform policy decisions that affect billions of people.

The claims about disappearing mountain ice were contained within a table entitled "Selected observed effects due to changes in the cryosphere produced by warming".

It states that reductions in mountain ice have been observed from the loss of ice climbs in the Andes, Alps and in Africa between 1900 and 2000.

The report also states that the section is intended to "assess studies that have been published since the TAR (Third Assessment Report) of observed changes and their effects".

But neither the dissertation or the magazine article cited as sources for this information were ever subject to the rigorous scientific review process that research published in scientific journals must undergo.

The magazine article, which was written by Mark Bowen, a climber and author of two books on climate change, appeared in *Climbing* magazine in 2002. It quoted anecdotal evidence from climbers of retreating glaciers and the loss of ice from climbs since the 1970s.

Mr Bowen said: "I am surprised that they have cited an article from a climbing magazine, but there is no reason why anecdotal evidence from climbers should be disregarded as they are spending a great deal of time in places that other people rarely go and so notice the changes."

The dissertation paper, written by professional mountain guide and climate change campaigner Dario-Andri Schworer while he was studying for a geography degree, quotes observations from interviews with around 80 mountain guides in the Bernina region of the Swiss Alps.

Experts claim that loss of ice climbs are a poor indicator of a reduction in mountain ice as climbers can knock ice down and damage ice falls with their axes and crampons.

The IPCC has faced growing criticism over the sources it used in its last report after it emerged the panel had used unsubstantiated figures on glacial melting in the Himalayas that were contained within a World Wildlife Fund (WWF) report.

It can be revealed that the IPCC report made use of 16 non-peer reviewed WWF reports.

One claim, which stated that coral reefs near mangrove forests contained up to 25 times more fish numbers than those without mangroves nearby, quoted a feature article on the WWF website.

In fact the data contained within the WWF article originated from a paper published in 2004 in the respected journal *Nature*.

In another example a WWF paper on forest fires was used to illustrate the impact of reduced rainfall in the Amazon rainforest, but the data was from another *Nature* paper published in 1999.

When *The Sunday Telegraph* contacted the lead scientists behind the two papers in *Nature*, they expressed surprise that their research was not cited directly but said the IPCC had accurately represented their work.

The chair of the IPCC Rajendra Pachauri has faced mounting pressure and calls for his resignation amid the growing controversy over the error on glacier melting and use of unreliable sources of information.

A survey of 400 authors and contributors to the IPCC report showed, however, that the majority still support Mr Pachauri and the panel's vice chairs. They also insisted the overall findings of the report are robust despite the minor errors.

But many expressed concern at the use of non-peer reviewed information in the reports and called for a tightening of the guidelines on how information can be used.

The Met Office, which has seven researchers who contributed to the report including Professor Martin Parry who was co-chair of the working group responsible for the part of the report that contained the glacier errors, said: "The IPCC should continue to ensure that its review process is as robust and transparent as possible, that it draws only from the peer-reviewed literature, and that uncertainties in the science and projections are clearly expressed."

Roger Sedjo, a senior research fellow at the US research organisation Resources for the Future who also contributed to the IPCC's latest report, added: "The IPCC is, unfortunately, a highly political organisation with most of the secretariat bordering on climate advocacy.

"It needs to develop a more balanced and indeed scientifically sceptical behaviour pattern. The organisation tend to select the most negative studies ignoring more positive alternatives."

The IPCC failed to respond to questions about the inclusion of unreliable sources in its report but it has insisted over the past week that despite minor errors, the findings of the report are still robust and consistent with the underlying science.

Appendix 7. Professor Dan Nepstad's public statement in response to the Sunday Times 'bogus' rainforest claim article.

Senior Scientist Daniel Nepstad endorses the correctness of the IPCC's (AR4) statement on Amazon forest susceptibility to rainfall reduction

February 2010

The Intergovernmental Panel on Climate Change has been recently criticized in media coverage (e.g. Sunday Times) for presenting inaccurate information on the susceptibility of the forests of the Amazon Basin to rainfall reduction in its fourth assessment. The statement that has drawn the criticism reads as follows:

"Up to 40% of the Amazonian forests could react drastically to even a slight reduction in precipitation; this means that the tropical vegetation, hydrology and climate system in South America could change very rapidly to another steady state, not necessarily producing gradual changes between the current and the future situation (Rowell and Moore, 2000)." (IPCC 2007, Magrin et al. 2007)

The Rowell and Moore review report that is cited as the basis of this IPCC statement cites an article that we published in the journal Nature in 1999 as the source for the following statement:

"Up to 40% of the Brazilian forest is extremely sensitive to small reductions in the amount of rainfall. In the 1998 dry season, some 270,000 sq. km of forest became vulnerable to fire, due to completely depleted plant-available water stored in the upper five metres of soil. A further 360,000 sq. km of forest had only 250 mm of plant-available soil water left.[Nepstad et al. 1999]" (Rowell and Moore 2000)

The IPCC statement on the Amazon is correct, but the citations listed in the Rowell and Moore report were incomplete. (The authors of this report interviewed several researchers, including the author of this note, and had originally cited the IPAM website where the statement was made that 30 to 40% of the forests of the Amazon were susceptible to small changes in rainfall). Our 1999 article (Nepstad et al. 1999) estimated that 630,000 km² of forests were severely drought stressed in 1998, as Rowell and Moore correctly state, but this forest area is only 15% of the total area of forest in the Brazilian Amazon. In another article

published in Nature, in 1994, we used less conservative assumptions to estimate that approximately half of the forests of the Amazon depleted large portions of their available soil moisture during seasonal or episodic drought (Nepstad et al. 1994). After the Rowell and Moore report was released in 2000, and prior to the publication of the IPCC AR4, new evidence of the full extent of severe drought in the Amazon was available. In 2004, we estimated that half of the forest area of the Amazon Basin had either fallen below, or was very close to, the critical level of soil moisture below which trees begin to die in 1998. This estimate incorporated new rainfall data and results from an experimental reduction of rainfall in an Amazon forest that we had conducted with funding from the US National Science Foundation (Nepstad et al. 2004). Field evidence of the soil moisture critical threshold is presented in Nepstad et al. 2007.

In sum, the IPCC statement on the Amazon was correct. The report that is cited in support of the IPCC statement (Rowell and Moore 2000) omitted some citations in support of the 40% value statement.

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