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## ***Interactive comment on “Agnatology: learning from mistakes” by R. E. Benestad et al.***

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The review of Referee #2 is particularly erroneous and mostly demonstrates that he has not read nor understood the critique works.

In my own response to Benestand et al (2013) paper I discuss the issues in details. So I do not repeat here.

I just would like to highlight a few issues addressed by this referee, which demonstrate his poor understanding of mathematics.

1) The referee addresses the problem of "overfitting". He implicitly claims that the works critiqued in Benestand et al. (2013) are flawed because they are somehow using "overfitting" regression models. This is erroneous.

The referee does not really appear to know that "overfitting" needs to be demonstrated.

The referee nor Benestad et al. (2013) provided any evidence of overfitting errors.

In mathematics there is a "overfitting" problem when the functions used as regression constructors are collinear. If the regression constructors are not collinear "overfitting" does not exist. For example, the ocean tides are currently predicted using 30-40 harmonic astronomical constituents used in regression models. Nobody claims that the tidal models are flawed because of "overfitting". See here [http://en.wikipedia.org/wiki/Theory\\_of\\_tides#Tidal\\_analysis\\_and\\_prediction](http://en.wikipedia.org/wiki/Theory_of_tides#Tidal_analysis_and_prediction)

2) The referee addresses the problem of "Statistics vs logic". Here the referee claims that my papers are "bogus" without providing any demonstration. The referee simply references Benestad and Schmidt [2009].

The referee claims are quite curious, indeed, given the fact that immediately after the publication of Benestad and Schmidt (2009) I published a partial rebuttal where I demonstrated some of the major mathematical errors made by Benestad and Schmidt in applying the Maximum Overlap Discrete Wavelet Analysis. This strong rebuttal was published on July/22/2009 at Dr Pielke Sr. Blog at

Nicola Scafetta Comments on "Solar Trends And Global Warming" by Benestad and Schmidt <http://pielkeclimatesci.wordpress.com/2009/08/03/nicola-scafetta-comments-on-solar-trends-and-global-warming-by-benestad-and-schmidt/>

The same article was then published and commented in several other blogs, e.g. at WUWT

Scafetta: Benestad and Schmidt's calculations are "robustly" flawed.

<http://wattsupwiththat.com/2009/08/04/scafetta-benestad-and-schmidt%20%99s-calculations-are-%20%9Crobustly%20%9D-flawed/>

<http://rankexploits.com/musings/2009/arent-end-points-pesky-scafetta-responds-to-bs-paper/>

Full Screen / Esc

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Interactive Discussion

Discussion Paper



Interactive  
Comment

where a few hundred people could verify that indeed Benestad and Schmidt (2009) contains the math errors that I pointed out. Benestad too knows well about my rebuttal, but in their current paper they completely ignored to mention it, which is quite curious too.

More recently, I have published a formal paper (Scafetta, 2013a) in the peer review literature where I demonstrate in details some of the math and physical errors made in Benestad and Schmidt (2009). In Scafetta (2013a) I discuss both the collinearity errors made in the regression algorithm adopted by Benestad and Schmidt (2009) (they used ten collinear constructors in their regression model) and the wavelet filtering errors using erroneous padding (they used the periodic instead of the reflection one) and the erroneous sampling of the data they used.

Therefore, it is not clear to me how a study such as Benestad and Schmidt (2009), which contains seriously flawed mathematics, can be used to demonstrate anything about the works of other people.

It is curious that the referee accuses of "overfitting" my works, where the problem does not exist, while ignores that a "overfitting" flawed argument is contained in Benestad and Schmidt (2009)!

3) The referee argues that "Scafetta [2012] purports to test climate models over the instrumental record, ignoring the fact that no GCM is ever expected to match observed temperature, in light of natural climate variability. In doing so the author sets up a strawman, an impossible task that models are not designed to achieve"

This is another curious argument. The referee is indeed acknowledging that the IPCC general circulation models analyzed in detail by Scafetta do not reproduce the temperature data. Thus, these models are evidently flawed or useless, and they cannot be validated because they do not match the data.

More seriously, the referee seems to not understand the "scientific method" at all. In

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Interactive Discussion

Discussion Paper



this youtube video, Richard Feynman explains "The Scientific Method"

<http://www.youtube.com/watch?v=OL6-x0modwY>

Essentially, if a scientific model (e.g. the IPCC GCMs) disagree with the data, the model is wrong.

The referee is also severely ignoring that Scafetta (2012) is analyzing major data patterns such as the decadal and multidecadal patterns that the models are supposed to reconstruct. Because the models fail to do that, and the referee acknowledge it, the models are evidently flawed.

The referee also ignores that Scafetta (2010, 2012a, 2013c) proposes another model based on the claim that the climate system is oscillating at various frequencies driven synchronized with astronomical oscillations. The referee ignores that the proposed model constitutes an alternative to the IPCC GCMs and it is demonstrated to well construct the temperature patterns including the steady temperature observed since 2000, which is failed by the IPCC GCMs.

Reference:

Benestad, R. E., and G. A. Schmidt (2009), Solar trends and global warming, *Journal of Geophysical Research (Atmospheres)*, 114, D14101, doi:10.1029/2008JD011639.

Scafetta N., 2010. Empirical evidence for a celestial origin of the climate oscillations and its implications. *Journal of Atmospheric and Solar-Terrestrial Physics* 72, 951-970.

Scafetta, N. (2012), Testing an astronomically based decadal-scale empirical harmonic climate model versus the ipcc (2007) general circulation climate models, *Journal of Atmospheric and SolarTerrestrial Physics*, 80, 124–137.

Scafetta N., 2013a. Discussion on common errors in analyzing sea level accelerations, solar trends and global warming. *Pattern Recognition in Physics*, 1, 37–57.DOI: 10.5194/prp-1-37-2013. <http://www.pattern-recogn-phys.net/1/37/2013/prp-1-57.html>

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Interactive Discussion

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Scafetta N, 2013c. Solar and planetary oscillation control on climate change: hind-cast, forecast and a comparison with the CMIP5 GCMs. Special Edition, Energy & Environment, Vol. 24, No. 3 & 4, 455-496.

Interactive comment on Earth Syst. Dynam. Discuss., 4, 451, 2013.

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