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

C. Loehle

craigloehl@aol.com

Received and published: 13 June 2013

Critique of Benestad et al. Craig Loehle National Council for Air and Stream Improvement, Inc. 552 S Washington Street, Suite 224 Naperville, Illinois 60540 630-579-1190; cloehle@ncasi.org This paper makes two fundamental assumptions that are false. The first is that the science of climate change is “settled” and that this consensus cannot be questioned. The second, which therefore follows, is that anyone questioning this consensus does so willfully and malevolently (intentionally promoting ignorance). We can distinguish between weak consensus and strong consensus. Weak consensus is “humans are having some impact on the climate,” a statement with which every one of those critiqued in this paper doubtless agrees, but it is a meaningless statement in terms of either science or policy. A small amount of warming would be “some” effect but would both contradict the models and not be alarming. The models assume that essentially all of the warming since 1950 is due to human action. If half or more of

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this is natural then the models are seriously wrong. Confusing “some” effect with an effect as large as IPCC claims is how Cook got the 97% figure in his recent study. Strong consensus implies that the IPCC documents are as fixed in stone, as scientifically solid, as Maxwell’s equations or Einstein’s laws. Yet no two models produce the same output for global temperature histories or future warming, ocean currents, polar ice, cloud patterns, ENSO, the polar vortex, the Gulf Stream, or global or regional precipitation (to name just a few), nor do any of the models match actual historic data for these items in anything like a precise manner. If this is a consensus that must not be questioned, it is a very curious and sloppy one. The second assumption is pernicious. It asserts that anyone who disagrees with this (sloppy) consensus in any particular is not merely wrong, but willfully wrong; that is, is engaged in disinformation or propaganda. “Agnotology” is thus just a fancy way of saying “denier.” Overall, the manuscript is simply a litany of complaints about papers the authors don’t like. Yet in no case do the authors bother to truly refute anything, they simply argue that this or that “might” have a problem or uses a method they disapprove of. They are essentially requiring the reader to take their word for it that these papers are wrong. But science, to paraphrase the Royal Society’s motto, “takes no man’s word” for anything. Everything should be demonstrated. I do not recognize these or any other scientists as having the authority to dismiss mine or any work on their say-so. Too many big names (of which I do not even include these authors) have been wrong in the past. Einstein never accepted quantum theory. For decades it was insisted that an infectious agent could not cause cancer, but now several cancers (e.g., cervical) are known to be caused by viruses. James Hansen insists that the whole scientific community (including the IPCC) and all the models are wrong about future sea level rise—why don’t the authors criticize him? In the general case, disputes in science can and do go on for many decades. Which line of hominid led to humans? Is string theory valid? If so, which version? Is Freudian analysis useful? What is the purpose of junk DNA? Is back surgery better than physical therapy? Bayesians will never agree with frequentists, nor experimentalists with modelers. To prematurely claim consensus is a clever shortcut simply designed to shut up

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one's opponents. That is, it is a political ploy. Because they are dismissing papers that have been published, they are further setting themselves as higher authorities than the peer-review system. As an experienced scientist, I have more publications (143) than most (maybe all) of the authors. This only matters if one wants to make claims of authority, as these authors do, but I do point out that ALL of the works being criticized here are authored by well-published scientists, not hacks. The standard in science is that refutation of a point requires a coherent argument, not merely handwaving that something "might" be confounded (as their arguments about spectral analysis). The authors repeatedly object to results in papers for which "a clear physical basis is lacking" or "not based on physics." Science proceeds by first attempting to detect regularities in nature. The "physical explanation" usually follows. When Newton proposed his laws of motion he could not provide a physical explanation, and we still lack a fundamental understanding of what gravity "is." Most of geology is descriptive and this eventually has led to a coherent picture of Earth's history. By their logic, one should not publish about the ~100,000 year periodicity of ice ages because we cannot precisely and mechanistically explain it. There is not much "based on physics" in all of agriculture, medicine, geology, or even chemistry and yet somehow these sciences have given us reliable results. On page 455 the authors mention the resignation of editors as proof of bad science getting published, but the ClimateGate emails showed that these events resulted from pressure from a handful of activists such as Mann. This only shows how political the subject has become and how much power the Hockey Team has. Case 3 in A2 (A2.1, p. 466+) examines Loehle and Scafetta (2011), my paper. The authors' statement that our results "are at variance" with most of the climate science community is false (and if no one could publish anything that disagrees with dogma I don't think science would progress). We cite multiple attribution studies that attribute only part of the recent rise in temperature to human activities. The bulk of empirical sensitivity studies also give lower sensitivity than the models. On p. 466 I. 25 they find it "difficult to conceive" what could cause the forcings we propose. The fact that there is a ~60 year solar cycle and a ~60 year PDO makes our hypothesis far from absurd, and in fact represents

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movement toward a mechanistic model. That they lack imagination does not invalidate the putting forth of a hypothesis that the sun is having an influence on Earth's climate. Do they think it does not? Solar forcing can act via electromagnetic currents, ultraviolet effects at the poles, the cosmic ray mechanism, and differential heating of parts of the ocean which change clouds, atmospheric movements, and ocean currents. I hope this helps their imagination. They claim it is not valid to fit to 160 years of data and that we did not validate our method. We in fact show a validation test in the appendix. Their attempt to demonstrate that our approach is wrong using a synthetic series is itself wrong. They did not replicate our method and fitting periodic data is not simple. In fact, a free fit of cycle length to the data gave results visually almost indistinguishable from the results we got. We use the solar cycle lengths found in Scafetta's earlier work to filter out the solar effect on the post-1950 period warming and attribute the residual to human activity. It is an attribution study. There is no dependence on being able to properly find 60 and 20 year cycles in 100 years of data except for the lag (timing) and amplitude because the existence of these cycles (based on a solar connection) is our HYPOTHESIS. We think the quality of the fit and the fact that our data 1850-1950 enabled us to predict the post-2000 flat temperatures speaks for itself. Their critique shows only that working with time series is tricky, not that we made any mistakes. In fact, they clearly did not read our paper very closely.

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

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