



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 l. 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.

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

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