SDI FINAL EVALUATION FORM 1.1

PART 1:

Journal Name:	**Physical Science International Journal**
Manuscript Number:	**Ms_PSIJ_23242**
Title of the Manuscript:	**Climate Sensitivity Parameter in the Test of the Mount Pinatubo Eruption**
Type of Article	**Original Research Article**

PART 2:

FINAL EVALUATOR'S comments on revised paper (if any)	**Authors' response to final evaluator's comments**
Review of "climate sensitivity parameter in the test of Mount Pinatubo Eruption" This paper reportedly presents an estimate of the climate sensitivity following a volcanic eruption which caused a reduction in heat to the Earth. The results from the model suggest a lower sensitivity than previous estimates and the author(s) present some rationale that more complex and sophisticated climate models over predict the Earth's climate sensitivity. This is a very interesting topic for both scientists as well as the general public. If this paper were correct, it would be wonderful news for society but also shake up our understanding of the Earth's climate. The problem is, both the logic and the mathematical formulation of the method. 1. In the abstract, the author(s) claim that "this confirms that theoretically…." No, this paper doesn't confirm that. These time constants are too short and the methodology in this paper does not provide evidence that these short time constants are correct. In the response to earlier comments, the author claims that his/her direct observation of ice melting off the coast of Finland is a confirmation. This is demonstrably false. The speed of ice melt IS NOT the time constant of the thermal response. 2. In many other instances when responding to prior review comments, the author does not provide a defensible response. For instance when a reviewer pointed out that the author had selectively used papers that supported their claim, the response was "Because this paper is crticial for the high climate sensitivity, the papers showing lower climate sensitivity have a greater role in my analysis." This is non-scientific. It is indefensible to only us those papers which support your argument. Furthermore, the author chose papers which have already been shown in the peer-reviewed literature to be incorrect (e.g. Lindzen and Choi 2011). 3. The author makes technical statements which are not true. For instance, claiming that according the HadCrut4, 2010 was hotter than 2014. http://www.metoffice.gov.uk/news/release/archive/2015/2014-global-temperature 4. The author admits, in responding to the earlier review that satellites are not surface temperatures. So my response is, why not use surface temperatures? Why continue to use satellites?	

5. Figure 1, the author claims that satellite temperatures are surface temperatures. No they are not.
6. Figure 2, over what period is this? It doesn't say. What are the light and dark bars to signify?
7. Line 72, the author claims that the same development is assumed to occur over the southern hemisphere. There is no justification for this.
8. Line 74 ,the author claims that the zenith angle is likely important They could show this by showing results by month of the year, as the zenith angle changes.
9. Line 79, the author claims a "global delay called a dead time is estimated to be 1.6 months." First, how is this supported? Is it by comparison of the minima in Figure 2? Second, how can this be longer than the time constant of 1.04 months? This is logically inconsistent.
10. Line 84 the author assumes that radiation changes happen simultaneously over the globe. This isn't true.
11. Lines 97-98, the author states that only early studies that are relevant to this subject are used. What does this mean? Is the author saying that only papers which support his/her conclusions are included?
12. Lines 117-118, there are other ways to measure surface imbalance, such as ocean heat content. The authors claim that LWDN fluxes cannot be estimated is not supported.
13. Line 1378, shouldn't SWIN be SWSRF?
14. Line 157, what is the basis for the statement that ash clouds and water-vapor clouds have the same effect?
15. Line 164, why is the author only considering some of the literature?
16. Lines 182-183. You don't need Pinatubo eruptions to make a conclusion about the sign of the water vapor feedback.
17. Is Figure 4 global? It isn't clear.
18. Lines 194-195, I don't think this is correct.
19. Line 199, from what year is the 1.17C temperature change begun? Preindustrial?
20. Why is this author citing predominantly third-rate journals with extremely light reviews when papers published in top-tier journals give the exact opposite conclusion. You simply cannot choose to cite poor research and selectively ignore higher quality work that contradicts your conclusion. Examples are references 10, 11, 29, 35…
21. Line 210, First, there is a grammatical error in this sentence. Second, what does it mean?
22. Line 212, the author claims that a TSC (should be TCS) can be reached in less than a year. This is not true. What definition of TCS would make this statement true?
23. Line 214, the author incorrectly states that the only essential feedback in a TCS calculation is water vapor. This is not true.
24. Lines 218-224, first the author has chosen low-sensitivity outliers and ignored middle and high-sensitivity studies. Second, Lindzen and Choi 2011 has been shown to be incorrect (Dessler). Third, most of these are based on short term temperature records which, when you include the most

recent years (like 2014 and 2015) are already known to be underestimates. 25. Line 223, what does this mean “the two most common values”? 26. Lines 263-264, why do you assume that these are reflected the same way? 27. Figure 7, UAH is not a surface temperature. 28. Line 300, what does the author mean by saying the effects of ENSO are controversial? Which effects are controversial? 29. Studies on the effect of ENSO on global temperatures have already been one. 30. The model used in this paper is not explained, is not one-dimensional, and is not correct. Where is Equation (3) from? This is not a one dimensional equation. Typically, one dimensional means that there is a single space dimension (like an atmospheric column or an ocean column). This model doesn’t have that. 31. What is the physical basis of Eq (2) and (3)? What are “out” and “in” referring to? Heat flows? 32. What is the physical basis of equations (4) and (5)? 33. Figure 12 doesn’t provide a logical physical feedback process because there is no physical mechanism.	

Reviewer Details:

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