SCIENCEDOMAIN *international*
www.sciencedomain.org

SDI Review Form 1.6

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 the Article	**Original Research Articles**

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty'**, provided the manuscript is scientifically robust and technically sound.
To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline)

SDI Review Form 1.6

PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments	This paper reportedly uses a 1 dimensional climate model to simulate Earth surface temperatures caused by the eruption of Mount Pinatubo to test various values of the climate sensitivity parameter. This issue has been looked at in the past and is of interest to the climate science community as well as the general public. However this paper is deeply flawed. First, there are many typographical and grammatical errors. Second, there are basic conceptual errors. For instance, the author(s) state that MSU temperatures measured from satellites are surface temperatures. I don't think this is correct. Typically MSU temperatures are from various layers in the atmosphere ranging from the lower troposphere. The images are very poor quality and hard to read, particularly the text. Little or no measurement uncertainty is provided. How are the five sites from figure 2 representative of 85% of the northern hemisphere? With these differences, how can the author(s) state that what happened in the north is assumed to be in the south?	

	Perhaps more importantly, why wouldn't the authors just utilize already available publications on apparent transmission? The author(s) comment about missed opportunities to measure downward flux changes following volcanoes but they should note that the 2010 volcano they cite is very different from one like Pinatubo which ejected large amounts of aerosols high into the atmosphere. The thermal fluxes in Figure 3 are too simplified and neglect some significant terms. Certain statements make no logical sense. For instance, on line 138, it is stated that "In the case of…" Do the author(s) mean to say that the difference in flux between the cases is 11 or are they saying something else? The author(s) make unsubstantiated claims, just as the comparison of ash clouds with water vapor clouds. On line 175 the author(s) claim that prior researchers included a positive water vapor feedback. There really is no doubt about this. Are the author(s) claiming the magnitude is unknown? The discussion related to Figure 4 appears to confuse the sign of water vapor feedback with short term changes in the term. This is like confusing a derivative with the value of a function,.	

	The discussion associated with Eq 1 is incorrect. First, the author(s) make a math error. Multiplying .5 with 3.7 gives 1.85 (not 1.75 as the author(s) state). Citation [27] has two different years (2001) and (2007). The IPCC reports don't "use" a value of the parameter, they report ranges of the parameter based on multiple lines of evidence. It is not true to say the IPCC reports this as a nearly invariant parameter. The author(s) says that "there should not be any of IPCC's own climate models…" What does this mean? Of course, the IPCC doesn't have its own models. The IPCC is a summary of work done by various research teams. This statement is not logical. Why doesn't the author(s) use the more recent predictions from the AR5 report from 2013? Why go back to 2001 anyway? The author(s) make statements about forcing and temperature change but do not give time frames for these to occur. The author(s) makes a statement that suggests the IPCC does not show temperature changes and models in the most recent assessment but in fact they do. The writing of this paper is very confusing and difficult to follow. The statements in lines 203-206 are non-sense. The IPCC doesn't "use" a lambda value in this way. N line 211, the author(s) introduce a term EQS. What is this? No description. Also, the comments on line 210, "A so high lambda…" makes little sense. What is the term TSC? Is this a misprint of TCS?	

	The author(s) claim that TSC (whatever that is) can be reached in less than a year. Please support this. If you mean the transient climate sensitivity (TCS), this is typically the value of the temperature change when CO2 increases by 1% per year. The temperature is obtained at year 70 (not in less than a year). If the temperature change occurred in less than a year, what is the ocean-layer thickness? How can oceans heat that fast? The author(s) states that there is no lambda value of the GCMs but it appears that they misunderstand that the climate sensitivity is an output of the GCMs, not an input. The author(s) cites some studies which report lower values of the climate sensitivity than the central estimate of the IPCC. But, the author(s) rely upon a paper that was published in 2011 and four following papers found errors in the 2011 article [35]. In fact, the authors of [35] have conceded the errors. Why would the author(s) not acknowledge this and also, why are they just listing selective papers which find a low sensitivity? There are many papers which find a higher sensitivity than the IPCC central estimate. Why aren't they mentioned? And even further, the papers cited here rely upon instrumental temperatures but they are all outdated with the two recent very hot years. Why not include that in the discussion?	

SDI Review Form 1.6

	There are many other tenuous claims that are made but it is noteworthy that the author(s) don't even begin to present their model until line 320. In Equation 2, the authors state that the "climate process is a combination of two parallel processes…" What does this mean? What is Equation 2? Saying something is a climate process is like saying nothing. The units don't work out in the equation. The denominators on the right have terms with different units. There is no description of justification of Equation 2. The numerical scheme treats inflows and outflows at different time steps. Regardless, this isn't a one-dimensional model anyway.	
Minor REVISION comments		
Optional/General comments		

Reviewer Details:

Name:	**Anonymous**
Department, University & Country	**University of St. Thomas, USA**