



SDI Review Form 1.6

Journal Name:	Physical Science International Journal
Manuscript Number:	Ms_PSIJ_37789
Title of the Manuscript:	Dynamics of low energy gamma rays near ground level during July to September 2017, in São José dos Campos, SP, Brazil.
Type of the Article	

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:

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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)
<u>Compulsory</u> REVISION comments	<p>Some corrections have been suggested that will assist in bringing out and communicating the findings of the work. As it is now, some of the statements are not clearly understood. The Conclusion and Abstract should be re-written.</p> <p style="text-align: center;">REVIEW SUGGESTIONS/COMMENTS</p> <p>Introduction</p> <ol style="list-style-type: none">Line 27: 'α' should be written in full as 'alpha'.Line 32: Reference to the sentence 'These radiations cause health problems called Pfozter maximum.' should be provided. <p>Materials and Method</p> <ol style="list-style-type: none">Line 42: The first part of the sentence is not clear. It could be re-worded to read; 'The gamma ray detector used had the energy range 200 keV to 10.0 MeV, with dimensions 3-inch-by-3-inch (3" x 3") in diameter, equipped with high sodium iodide scintillation crystal and doped with thallium. This crystal is directly coupled to a photomultiplier (PM), which registers the pulses coming from the scintillator after having undergone amplification and passed through an analog-digital converter (ADC). These digitized signals are recorded by a computer [6]. This experimental set is seen in Figure 1 and mounted in the inner room of ACA tower, belonging to the Institute of Aeronautics and Space (IAE). The room is 25 m above the ground'.Line 54: This part of the sentence could be re-worded as: 'The set (scintillator + associated electronics + data acquisition systems) depends only on a laptop with a charged battery and can measure radiation for 5 continuous hours. However, for a series of long measurements it has the capability of using an electrical network or photovoltaic energy. The scintillator and its associated electronics were calibrated with respect to energy and counting intensity per minute at the laboratory of experimental teaching physics of ITA (please provide the full meaning of ITA as it is being mentioned for the first time) using radioactive sources and a spectral analyzer of counts versus energy within the range 0.2 to 10 MeV (Million electron Volt) [7, 8]'. <p>Results and Discussions</p> <ol style="list-style-type: none">Line 62: It is suggested that the sentence be re-worded as: 'Gamma radiation measurements were carried out during the period of June 26 to September 25 of 2017, in the inner room above the tower, as shown in Figure 2. During this same measurement period a rain gauge was installed on the roof of the tower, and therefore measured and reported the amount of rain in mm/min'.Line 67: Sentence should read: 'Figure 3 shows a plot of the measured gamma radiation intensity with time from June 26 to September 25 of 2017. It presents the uninterrupted monitoring each minute during this measurement period'. Figure 3: The vertical axis should read '<i>gamma radiation intensity x 10³</i>'. Figure 3: Line 69; the horizontal axis should read '<i>Time (minutes) x 10³</i>'. This should be repeated for Figures 4-7.Line 72: The sentence could be modified to read: 'Analyzing the dynamics of the radiation intensity measurements, three large specific and diverse variations occurred within the period analyzed. Between the start of the monitoring period to a time of 70 x 10³ minutes, the mean intensity of the measured radiation was 37.5 x	NOTED



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	<p>10³ counts/minute.</p> <p>4. Line 74: 'It presents in this analyzed time also small variations indicating passages of cold fronts but without rain'. This statement is not clear. The authors should rephrase to bring out the intended message better.</p> <p>5. Line 75: Could be re-worded as 'The observed dynamics within this period has been expanded and presented in Figure 4'.</p> <p>6. Line 79: Reconstruct to read 'Figure 5 shows the radiation intensity variations as monitored from 70 x 10³ to 80 x 10³ minutes. Some rainfall was experienced within this period.</p> <p>7. Line 83: Could read 'There was an intense rain between the measurement times 70 x 10³ and 71 x 10³ minutes, with the level of radiation count reaching the order of 40 x 10³ counts / min.</p> <p>8. Line 84-90: The sentence 'Then, on the other dayscold front'. is not clear. The authors should reconstruct to bring out the meaning better.</p> <p>9. Lines 92-97: The statement is not clear. Authors should re-phrase to communicate the information better.</p> <p>10. Line 110: Suggested to read 'In 2017, the region of São José dos Campos, SP, Brazil was severely hit by one of the longest droughts ever. This experience could be due to climate change. During this period, there were many occurrences of large bush fires that caused damage to agriculture, and local fauna and flora. The net rain statistic for the period is 170 mm.</p> <p>Conclusion It is suggested that the entire conclusion is written again to bring out the lessons drawn from the study. This is completely absent in the current write-up. The conclusion should clearly point out the deductions made from the measurements of the gamma radiations and the rainfall, and the linkage between these.</p> <p>Abstract</p> <p>1. On Line 6 it was stated that the measurement period was May 28 to September 25 of 2017. In line 62 (Results and Discussions) it was stated that the measurement period was June 26 to September 25 of 2017. These completely different measurement periods should be reconciled.</p> <p>2. In line 5, it was stated that the variation of the intensity of the gamma radiation integrated between 200 keV to 10.0 MeV was measured. In Line 42, under Materials and Method, 200 keV to 10.0 MeV was stated as the range of the gamma ray detector, and not the range of the measurements carried out. This has to be corrected.</p> <p>3. In the abstract, an attempt was made to link the possibility of gamma radiation monitoring to the ability of predict the arrival of cold fronts from Southern Brazil. This did not come out clearly in the article.</p> <p>Suggestion for abstract It is my suggestion that the abstract be re-written to capture the key requirements:</p>	
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	<p>what was done, how it was done and the findings. The abstract as it is now does not have these clearly spelt out.</p> <p>General Observation This is a very good study, but the authors had a difficulty communicating their findings effectively due to language barrier. Assistance could be sort from a language expert to assist in this direction.</p>	
Minor REVISION comments	Some minor suggestions have been made and submitted.	NOTED
Optional/General comments	An interesting and good study, but it seems the authors had a difficulty effectively communicating their findings due to language barrier. An expert in the English language could be asked for assistance to improve on the writing.	NOTED