

Discovery of Padmanabha Rao Effect Controlling Planetary temperatures

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ABSTRACT: Atmospheric and surface temperatures of planets have been attributed so far to the density of the atmospheric gases, despite lack of the necessary experimental evidences. The current paper explains presence of near infrared radiation, visible light, UV, EUV, Bharat radiation, and β , γ and X-ray emissions from $^{235}\text{Uranium}$ fission taking place on Sun's core surface in atmospheric layers control atmospheric temperatures of Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune by two different mechanisms. The first mechanism unfolds gradual decline in surface temperatures of planets is due to their location in near infrared radiation, visible light, UV, and EUV zones in space. Atmospheric temperatures around $2,000^\circ\text{C}$ above 500 km height above Earth owes to near infrared radiation, fall to 250°C from 500 km to 110 km to visible light, fall to around -85°C from 110 to 100 km to UV, fall to around -125°C from 100 to 90 km to EUV, and the same -125°C from 90 to 84 km to Bharat Radiation. The second mechanism operates where direct sunlight cannot reach below Bharat radiation layers of planets. The rest solar β , γ and X-ray emissions at keV or MeV energy go at superluminal velocities, reach below around 80 km height, generate near infrared radiation, which raises surface temperatures of planets. High atmospheric temperature generated within 10 km height above Earth than that at 84 to 54 km is attributed to the strong pull of β , γ and X-ray emissions by Earth's gravitational attraction force. The gravitational pull helps the emissions in gaining more energy, which generates intense near infrared radiation, resulting into high atmospheric temperature within 10 km height above Earth.

KEY WORDS: Planets, atmosphere, surface temperature, Sun, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, $^{235}\text{Uranium}$ fission, superluminal, β , γ , X-ray, near infrared, visible light, UV, EUV, Bharat Radiation, Exosphere, Thermosphere, Mesosphere, Stratosphere, Troposphere.

1. INTRODUCTION

Atmospheric and surface temperatures of planets involve complex phenomena. Traditionally, variation in atmospheric temperature is attributed to just absorption of X-rays and UV by atmospheric gases present with different densities; despite lack of the essential experimental support. The current paper unfolds $^{235}\text{Uranium}$ fission causing sunlight; and low wavelengths travelling fast are the two complex phenomena, which primarily control atmospheric and surface temperatures of planets.

The current solar physics suffers from serious limitations. Blackbody does not emit UV like Sun, yet solar physicists believe that Sun is akin to black body and planets receive direct sunlight. Contrary to this belief, this paper unfolds that planets do not receive direct sunlight.

It is widely believed that fusion causes sunlight, but had no clue what is the actual source of solar X-rays, Extreme UV (EUV), UV, and visible light. Previous researchers had no clue what causes the atmospheric and surface temperatures of planets, since the real sequence of solar near infrared radiation, visible light, UV, EUV radiations exist at various atmospheric layers above planets eluded previous astrophysicists.

The current paper unfolds that direct sunlight leave a trail of near infrared radiation, visible light, UV, and EUV, Bharat Radiation in atmospheric layers that are primarily responsible for atmospheric temperature up to around 80 to 100 height. While a blackbody fails to emit UV and EUV, radioisotopes do emit β , γ and X-ray emissions, which first generate Bharat

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radiation, which in turn generate EUV, UV, visible light, and near infrared radiation by an unprecedented atomic phenomenon, now known as Padmanabha Rao Effect [1-12]. Bharat Radiation, EUV, UV, visible light, and near infrared radiation emissions are common from radioisotopes as well as Sun. This insight provided the key in explaining here how atmospheric and surface temperatures of planets are controlled by successive near infrared radiation, visible light, UV, EUV, Bharat Radiation and β , γ and X-ray emissions from $^{235}\text{Uranium}$ fission taking place on Sun's core surface.

Experimental solar physics made significant progress owing to reliable, accurate and most pains taking measurements made by solar physicists, but difficulty came in interpretation of their own experimental findings. The author's experimental research from 1988 to 1997 with radioisotopes and X-ray fluorescent (XRF) sources paved a way in resolving some of these fundamental issues in solar physics [1-12]. The newly detected UV dominant optical emission from both radioisotopes and XRF sources led to an important prediction that β , γ and X-ray emissions first generate some energy higher than that of UV, now known as Bharat Radiation, which in turn causes UV dominant optical emission by Padmanabha Rao Effect [3-5,7,8]. A search for evidence on existence of Bharat Radiation in solar spectrum met with success in 2013. Successful measurement of solar spectra could be made by various astrophysicists since 60 years, yet faced difficulty in identifying the three distinct wavelengths in solar spectrum[13,14]. Existence of Bharat Radiation wavelengths from 12.87 to 31 nm in solar spectrum that eluded from solar physicists was first identified by the author in 2013. The discovery of Bharat radiation wavelengths in solar spectrum brought a fundamental change in understanding the sunlight phenomenon from fusion to fission [8-10]. Since Bharat Radiation originates from radioisotopes, Sun's Bharat Radiation pinpointed presence of radioisotopes on Sun's core surface. In 2013, the author has reported fission powers sunlight phenomenon[10]. In 2013, this major breakthrough finding in solar physics helped in reporting low wavelengths such as X-rays go faster than light, challenging Einstein's assertion that light travels with maximum velocity [11]. Strong evidences were reported in 2015 on fission causing sunlight and low wavelengths travelling fast in explaining how solar β , γ and X-ray emissions control atmospheric temperatures at different layers above Earth [12]. Against the common belief that planets receive direct sunlight, the author has reported that Bharat Radiation with minimum wavelengths (12.87 to 31 nm) of direct sunlight can reach only up to a limited height around 84 km height above Earth. Solar β , γ and X-ray emissions are responsible for fall or raise in atmospheric temperatures within 84 km height above Earth, particularly for sunlight and atmospheric temperature within 10 km height and surface temperature of Earth [12]. With strong evidences on fission causing sunlight and low wavelengths travelling at superluminal velocities, the current paper unfolds fission controls the atmospheric and surface temperatures of planets by Padmanabha Rao Effect.

Average distance from Sun, reflectivity, and greenhouse warming are believed to control surface temperature of a planet [15]. Cooling of a planet was attributed to absorption of solar radiation by CO_2 , H_2O , and CO_3 , and heating of planet by $\text{CO}_2 + \text{O}_2 + \text{NO}_2$. However, the current paper explains that atmospheric temperature around a planet and its surface temperature are operated by two separate mechanisms. It is shown planets exist in space in four zones of near infrared, visible light, UV and EUV. Temperature of the zone where a planet exists controls its atmospheric temperatures up to the end of Bharat radiation wavelengths around 80 to 100 km height above a planet. Below 80 km height, the remaining solar β , γ and X-ray emissions control both atmospheric and surface temperatures of a planet.

It is shown that gravitational attraction force of a planet attracts solar β , γ and X-ray emissions and raises their energy, resulting into intense near infrared radiation and raise of surface temperature. On this basis, it became possible to explain why surface temperature is high for Venus than that of Mercury, and why it is high for Jupiter than that of Mars.

The previous paper has unfolded that solar β , γ and X-ray emissions cause near infrared radiation, which raises atmospheric temperature below 10 km height more than at 84 to 54 km height above Earth [12]. For the first time, it is explained that solar β , γ and X-ray emissions acquire more energy while approaching Earth by more pull by gravitational attraction force of Earth.

II. RESULTS AND DISCUSSION

Proper understanding the profile of atmospheric temperatures above various planets dealt in this paper needs a bird's eye of author's five previous papers reported in 2010, 2013 and 2015 and a working knowledge in six subjects of physics: nuclear

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physics particularly the fission, X-ray physics, atomic spectroscopy, solar physics, special theory of relativity and atmospheric physics [8-12]. Anyhow, a brief of previous research described in the following helps in understanding various solar emissions and the way they exist in space.

Bharat Radiation (12.87 to 31 nm)

A new entry to the list of electromagnetic radiations: gamma, X-ray, and light

In 2010, the author has first reported that the three wavelengths regions of Rb X-rays, Bharat Radiation (predicted); UV, visible light and near infrared radiation emissions from Rb XRF source fall successively in electromagnetic spectrum as shown in Fig.1, left [8]. In 2013, unexpected similarity found on comparing the emission spectrum of Rb XRF source used in the laboratory with solar spectrum obtained by Woods et al. on May 5, 2010 provided the key in first identification of solar X-ray wavelengths up to 12.87 nm, Bharat radiation from 12.87 to 31 nm, and EUV beyond 31 nm, as shown in fig.1, right [9,14].

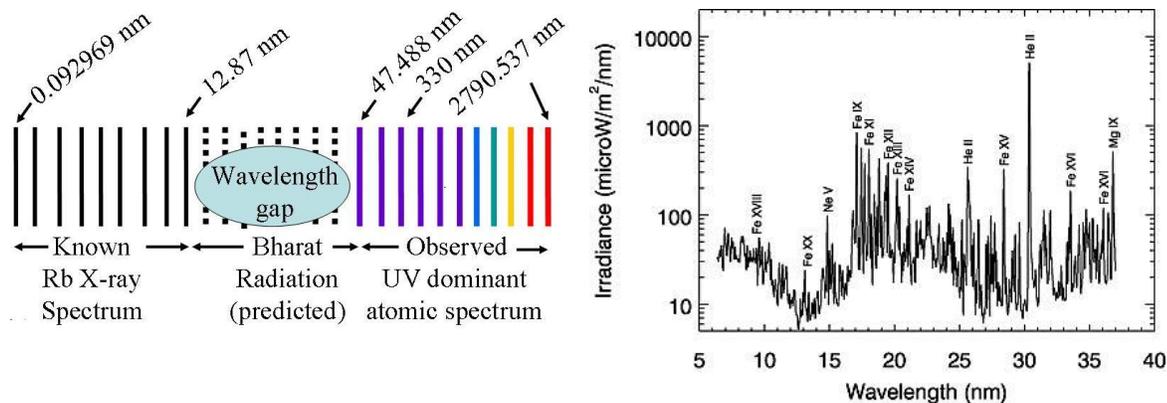


Figure 1. left: Schematic of revised spectrum of Rb XRF source shows 12.87 nm is the end of familiar X-ray range and 47.488 nm as the beginning of EUV and the newly detected UV dominant optical range, so Bharat Radiation range was predicted to be somewhere between 12.87 to 47.488 nm [8]. Solar spectrum shown in fig.1 right was obtained by Woods et al. on May 5, 2010 [14]. Note Rb X-ray spectrum ends at 12.87 nm in fig.1 left. Similarly, the mount like wavelengths in solar spectrum also end exactly at 12.87 nm that helped in first identification of solar X-rays existing in solar spectrum up to 12.87 nm. Since Bharat radiation is expected to fall next to Rb X-ray spectrum, the mount like wavelengths in solar spectrum was first identified as of Bharat radiation from 12.87 to 31 nm. The wavelengths from 31 nm onwards were identified as EUV (Extreme Ultraviolet) in 2013 [9].

Unexpected evidences on ²³⁵Uranium fission causing Sunlight

Basically, radioisotopes cause β , γ and X-ray emissions, which in turn generate Bharat Radiation; hence existence of Bharat Radiation wavelengths in solar spectrum hinted presence of radioisotopes on Sun's core surface. In 2013, the author has reported that ²³⁵Uranium fission taking place on Sun's core surface powers sunlight phenomenon [10]. With successful explanation how β , γ and X-ray energies of fission products (radioisotopes) generate solar lines as many as 153, fission causing sunlight seemed more convincing. The fact, fission causing sunlight gained further support from the latest publication unfolding that most sunlight that Earth receives is not directly from Sun but produced locally within 10 km height above Earth by solar β , γ and X-ray emissions [12]. More convincingly, 'fission causing sunlight' is the very basis of the current paper.

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Unexpected evidences on low wavelengths travelling fast

With increasing number of evidences on low wavelengths travelling fast, Albert Einstein's assertion that light travels with maximum velocity needs review [11,12]. In 2013, on the basis of fission, the author could first demonstrate that X-rays and Bharat radiation travel faster than 335A wavelengths (EUV) from the data of solar spectra measured by Woods et al in 2010 [11, 14]. In 2015, for the second time the author could demonstrate low wavelengths travel fast among solar beta, gamma, X-ray, dominant UV, visible light, and infrared radiation emissions and cover more distance that help in controlling the temperatures of atmospheric layers above Earth [12]. For the third time, the author demonstrates fission causes sunlight; and low wavelengths go fast in the current paper, while explaining how solar β , γ and X-ray emissions control atmospheric temperatures above various planets by an atomic phenomenon, now known as Padmanabha Rao Effect.

Sun emits UV and EUV, while normal fire does not

There is a reason why heat is felt only up to a few meters distance, while visible light is seen faraway from normal fire. Near infrared radiation that causes heat travels slowly and reach only a limited distance, while visible light with short wavelengths go fast and reach more distance at the same time. Sun's heat reaching Earth at millions of kms distance, against rapid fall in heat experienced from a blackbody or fire remained an unresolved mystery, until 2015 [12]. Anyhow, the most common belief is that all the heat and light that Earth receives every day is directly from Sun. However, the latest findings reveal that solar β , γ and X-ray emissions from $^{235}\text{Uranium}$ fission products locally generate enough visible light and near infrared radiation intensity, which in turn causes heat within 10 km height above Earth [12].

Figure 1 reveals that both Rb X-rays and solar X-rays cause Bharat radiation, which in turn causes EUV, UV, visible light, and near infrared radiation. Previous researchers believed that variation in atmospheric temperatures are caused mainly by absorption of solar UV and X-rays by gases present in various layers of atmosphere [15-20]. Both the fall in temperature below 0°C and raise in temperature to 17°C are attributed to the density of gases. In the previous publication it is shown that solar near infrared radiation with long wavelengths go slowly, reach minimum distance; hence exists close to Sun [12]. It is clearly explained how a long stretch of near infrared radiation followed by long stretches of visible light, UV, EUV, Bharat Radiation, and β , γ and X-ray emissions control atmospheric temperatures above Earth. The current paper explains β , γ and X-ray emissions control atmospheric temperatures around planets by first mechanism and surface temperature of planets by second mechanism.

First mechanism:

Previously, the sequence of solar radiations shown in fig.2 eluded from solar physicists [16]. Surface temperatures hint planets are located in four wavelength zones with decrease in wavelengths as proceeded away from Sun. Near infrared radiation with long wavelengths travel slowly and reach minimum distance from Sun; hence near infrared radiation zone is located next to Sun. High surface temperatures of Mercury (620 K to 720 K or 347°C to 447°C) and Venus (730K or 457°C) indicate that these two planets are located in near infrared zone in close proximity to Sun [20]. It is because high temperatures are caused by high intensity of near infrared radiation.

In the next zone, the visible light with lower wavelengths than near infrared radiation go fast and reach more distance [12]; hence visible light zone exists next to that of near infrared radiation and farther from Sun. Earth is the only planet situated in visible light zone, where intensity of near infrared radiation is relatively low as compared to the intensity in previous zone. Keeping Earth in visible zone seems to be justified from the fact that its surface temperature is lower (around 17°C) than that of Venus (457°C). In the third zone, UV with wavelengths lower than that of visible light go fast and reach more distance from Sun; hence UV zone is located next to that of visible light. Solar UV causing low temperature was explained in the previous paper [12]. Therefore, Mars located in UV zone has caused a fall in atmospheric temperature to 140 K (-133°C) around at 100 km height (fig. 3). Atmospheric temperature at 300 km height above Jupiter situated in UV zone is around 180K (-93°C). Atmospheric temperature at 200 to 300 km height above Saturn situated in UV zone (fig.2) is around 170 K (-103°C) to 80 K (-193°C), lower than that of Jupiter (fig.6). Location of Mars, Jupiter and Saturn in UV zone seems justified from the fact that their atmospheric temperatures are truly lower than that of Earth (250°C to -85°C at around 110 to 100 km height) situated in visible light zone (table 1). EUV, with wavelengths lower than that of UV

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go fast and reaches more distance from Sun; hence EUV zone is located next to that of UV. Owing to EUV, which causes very low temperatures [12], Uranus and Neptune have minimum temperatures than that of Jupiter and Saturn in UV zone at the altitude of 0 km mark (fig.6). Bharat radiation zone, with lower wavelengths than EUV will be next to that of EUV; however no planets seem to exist there. Solar β , γ and X-ray emissions, which cause all these emissions go further than the Bharat radiation zone into space as shown in fig.2. The first mechanism explains solar β , γ and X-ray emissions generate four zones with definite temperature ranges in decreasing order, with increase in distance from Sun. The gradual fall in temperature seen in these four zones show influence on atmospheric temperatures of planets above around 80 km height (figs 3 to 5).

There is a need to explain why atmospheric temperatures significantly vary in different layers above each planet, particularly in the portion of planet facing Sun. Solar near infrared radiation, visible light, UV, EUV, and Bharat Radiation gain speed with decrease in wavelengths, so Bharat Radiation with minimum wavelengths reach around 84 km height above Earth, and Venus, and around 65 km height above Mars, and around and -10 km mark above Jupiter. The first mechanism explains that near infrared radiation, visible light, UV or EUV present at a particular atmospheric layer controls its temperature (figs.3,4). This is the case for all planets.

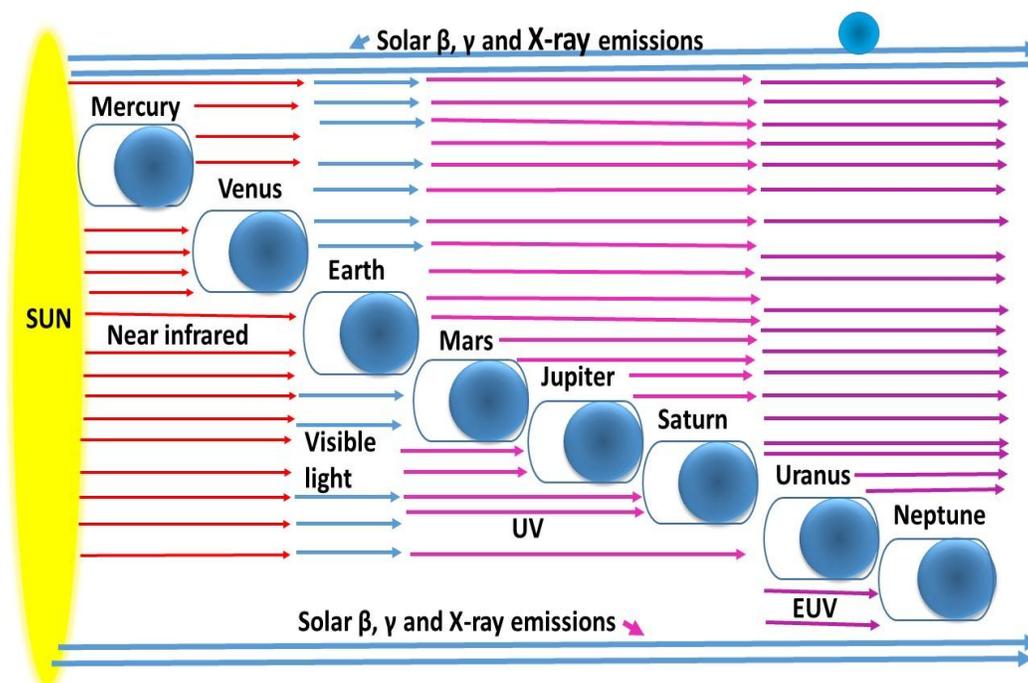


Figure 2. The above schematic diagram reveals that when planets are arranged according to their surface temperatures, they seem to have located in near infrared radiation, visible light, UV, and EUV zones with decreasing order of temperatures as proceeded away from Sun. The existence of these radiations in succession unfolds that they are caused by solar β , γ and X-ray emissions.

Second Mechanism

Surface temperatures of planets is controlled by the second mechanism, which explains how gravitational attractive force of each planet plays a key role in attracting solar β , γ and X-ray emissions. On the basis of gravitational attraction force, it became possible to explain why Venus has more surface temperature than Mercury, though Mercury is closer to Sun; and why Jupiter has more surface temperature than that of Mars, though Mars is closer to Sun.

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Sun is not just a source of light and heat

Near infrared radiation and visible light are the only two emissions common from fire and Sun. Logically, if Sun is considered as a very huge fire or blackbody, a stretch of UV from 110 to 100 km height cannot be expected below the stretch of visible light from 500 to 110 km height in space above Earth. Moreover, UV is shown causing a dip in atmospheric temperature from 250 °C to around -85 °C, and EUV causing further dip in atmospheric temperature from -85 °C to -125°C as explained in table 1 and previous paper [12]. It can be safely concluded that UV and EUV emissions in space are caused by beta, gamma and X-ray emissions by Padmanabha Rao Effect [8,9,10].

Table 1: Column 3 explains that each of the specific solar radiation can reach only limited height above Earth. That specific emission controls atmospheric temperature of the layer mentioned in column 2. Note direct Sunlight reaches only up to 84 km height above Earth. From 84 km to 10 km height, solar beta, gamma, and X-ray emissions cause locally a particular emission in each layer as mentioned in column 3. Note that the Sunlight and heat that Earth receives is from within 10 km height, caused by beta, gamma, and X-ray emissions [12].

Atmospheric Layer above Earth	Height above Earth (km)	Radiation involved	Temperature variation
I. Exosphere	over 10,000 km	Near infrared radiation	around 2000° C
II. Thermosphere	At 500 km	Low intense infrared radiation	Around 500 °C
	500 – 110	Visible radiation	500 to 250°C
	110 – 100	UV	250 °C to around -85 °C (fig.4, Ref.12)
	100 - 90	EUV	-85 °C to -125°C.
III. Mesopause	90 - 84	Bharat Radiation	No variation in temperature. Fig.7, Ref. 12
IV. Mesosphere	84 - 54	Near infrared radiation caused by β , γ and X-rays	-120 °C to nearly-15°C (figs 4 & 7, Ref.12)
V. Stratopause	54 - 48	Visible light caused by β , γ and X-rays	No variation in temperature from -15°C.
VI. Stratosphere	48 - 33	UV caused by β , γ and X-rays	-15°C to around -42 °C (Fig.7, Ref. 12)
	33 - 20	EUV caused by β , γ and X-rays	-42°C to around -58°C
VII. Tropopause	20 - 10	Bharat Radiation caused by β , γ and X-rays	No variation in temperature from -58 °C
VIII. Troposphere	below 10 km	Near infrared radiation and Visible light caused by β , γ and X-rays	from -58°C to normal temperatures around 17 °C

Fission, the source of solar radiations

The latest research in solar physics has resolved a major issue on the source of solar X-rays, EUV, UV, visible light and near infrared radiations that are traditionally believed as independent radiations. Existence of Bharat radiation wavelengths in between the wavelengths of X-rays and EUV in solar spectrum (fig.1,right) pinpointed that fission products successively emit solar X-rays, EUV, UV, visible light and near infrared radiations. Figure 1, right illustrates X-ray wavelengths exist up to 12.87 nm, Bharat radiation from 12.87 nm to 31 nm, and EUV beyond 31 nm in solar spectrum. To sum up the findings of the author’s previous publications, fission products (radioisotopes) first release beta, gamma and X-ray emissions, which

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generate Bharat radiation, which in turn generate EUV, UV, visible light and near infrared radiations from within the same excited atoms [9,10].

Trail of solar radiations above plants in space

In November 2015, the author has evidently shown existence of trail of these solar emissions (table 1) each occupying a stretch of several kilometers in 8 layers of Earth's atmosphere [12]

Near infrared radiation

Very close to Sun, several thousands of kilometers long stretch of near infrared radiation exists in exosphere layer above 10000 km height above Earth and raises the temperatures exceeding 2000° C. In 2015, a detailed explanation provided for this high temperature supports that near infrared radiation go very slow owing to its relatively very long wavelengths, as a result of which reach around 10,000 km height, the least distance from Sun. A small fraction of it reach up to 500 km height. That is how beta, gamma and X-ray emissions first leave near infrared radiation at the tail end in their trail.

Visible light and speed

When the near infrared radiation with very long wavelengths fail to reach below around 500 km height, visible light with further low wavelengths go faster and reaches 390 kms more up to 110 km height above Earth. Visible light cannot significantly alter atmospheric temperature, so maintains temperature whatever exists at previous stretch of near infrared radiation. Visible light is also present at 54 to 48 km height caused by β , γ and X-ray emissions in Stratopause as shown in table 1 [fig.7 in ref.12].

UV and speed

Visible light cannot go below 110 km height because of its limited speed. UV with further low wavelengths go fast and travel 10 km more up to 100 km height [12]. UV has dipped atmospheric temperature from 250 °C to around -85 °C [12].

EUV and speed

When UV cannot go below 100 km height because of its limited speed, EUV with further low wavelengths go faster than UV and reach 10 km more from 100 to 90 km towards Earth [12]. Moreover, EUV has dipped atmospheric temperature from -85 °C to -125°C [12]. In the previous paper, the data on atmospheric temperatures at different heights was taken from two graphs, which showed slight differences in the height of EUV and Bharat radiation. Hence the stretch of EUV is reconsidered here to be from 100 to 90 km.

Bharat radiation and speed

When the stretch of EUV wavelengths cannot reach below 90km height, Bharat Radiation with further low wavelengths go faster and reaches 6 km more than EUV up to 84 m height above Earth. That is why a long stretch of Bharat Radiation exists from 90 to 84 km next to that of EUV and farther away from Sun. Notably, Bharat Radiation do not cause any change in atmospheric temperature, so the temperature (-125 °C) caused previously by EUV continues in the Bharat Radiation stretch [12].

Direct Sunlight ends at 84 km height

Previous researchers believed that solar visible light is reflected into Earth's atmosphere by liquid droplets in space, while surface of planet reflects infrared radiation. Both Greenhouse gases (H₂O and CO₂) and clouds reflect infrared radiation towards Earth [17]. However, the current paper unfolds that direct sunlight comprising of near infrared radiation, visible light, UV, EUV, and Bharat Radiation at eV level control atmospheric and surface temperatures up to just 84 km height above Earth [12].

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Solar β , γ and X-ray emissions

The most interesting aspect in atmospheric physics is the sudden raise of temperature from $-120\text{ }^{\circ}\text{C}$ to nearly $-15\text{ }^{\circ}\text{C}$ at 84 to 54 km height. It could not be explained by the theory of fusion. The author explained that the raise is caused by the remaining solar β , γ and X-ray emissions with energies at keV and MeV level [12]. Since β , γ and X-rays have maximum energies among all solar radiations listed in table 1, they go with maximum speed and reach maximum distance from Sun, so could reach below 84 km height above Earth. They caused near infrared radiation, which raised atmospheric temperature from $-120\text{ }^{\circ}\text{C}$ to nearly $-15\text{ }^{\circ}\text{C}$. To sum up, solar β , γ and X-ray emissions locally caused near infrared radiation from 84 to 54 km, visible light from 54 to 48 km, UV from 48 to 33 km, EUV from 33 to 20 km and Bharat radiation from 20 to 10 km height above Earth (Table 1)

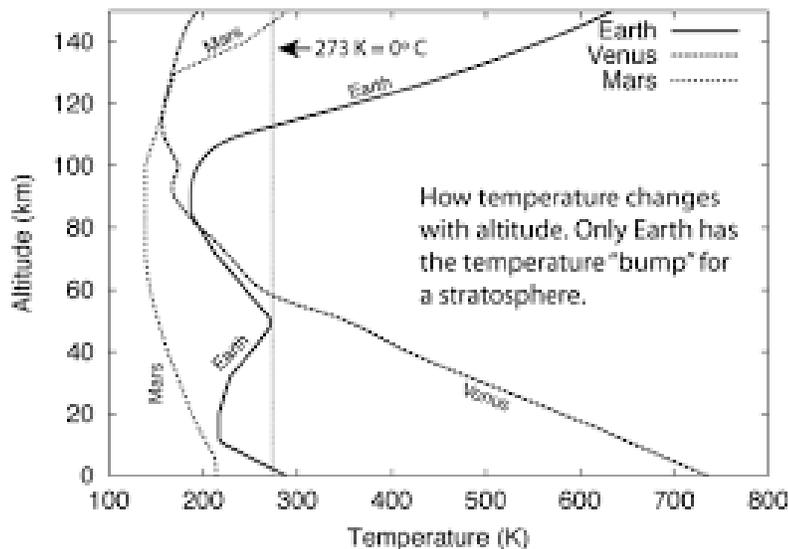


Figure 3. This figure illustrating variation of temperatures at different layers above Earth, Venus, and Mars from reference [17]. Increase in temperature below around 84 km height above Venus and Earth, is caused by near infrared radiation caused by solar beta, gamma and X-ray emissions. Likewise, solar β , γ and X-ray emissions produce near infrared radiation from 65 km height to the surface of Mars.

For the second time, solar β , γ and X-ray emissions produce near infrared radiation and visible light below 10 km height above Earth [12]. Besides visible light, the near infrared radiation provides adequate heat for sustenance of life on Earth. This is the key finding in current research. Previously, surface temperature of a planet is attributed to energy received from the Sun and how quickly it reflects that solar energy into space [17]. However, the key finding in fig. 3 is intensity level of near infrared radiation that reaches a planet control is surface temperature. The raise in intensity level of near infrared radiation depends mainly upon gravitational attraction force of each planet on solar β , γ and X-ray emissions.

Atmospheric temperatures above Venus

As the graphs are smoothed in fig.3 probably due to lack of precise data on exact temperatures at given heights, difficulty arises in knowing the exact height where each solar radiation exists. Like the case of Earth, solar Bharat radiation exists from around 95 to 84 m height above Venus, so atmospheric temperatures of Venus up to 84 km height are controlled by direct solar near infrared radiation, visible light, UV, EUV, and Bharat Radiation. Significantly, the direct solar Bharat

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Radiation with minimum wavelengths among solar radiations cannot travel below 84 km height owing to its limited velocity.

As in the case of Earth, solar β , γ and X-ray emissions locally cause near infrared radiation, which gradually raises temperature from around 190K (-83°C) to 290 K (17°C) with decrease in height from around 84 to 54 km height above Venus. Below 54 km height the pattern of atmospheric temperatures do not follow that of Earth. In the case of Earth, β , γ and X-ray emissions cause visible light from 54 to 48 km height, UV from 48 to 33 km, EUV from 33 to 20 km, and Bharat Radiation from 20 to 10 km. Again, solar β , γ and X-ray emissions cause near infrared radiation and visible light below 10 km height above Earth. In the case of Earth, solar β , γ and X-ray emissions have caused a limited raise in temperature from -58 °C to 17°C approximately below 10 km height. In wide contrast, a steep raise in temperature from around 290 K (17 °C) to 730 K (457°C) below 54 km height is evident. As explained in the case of Earth, steep raise in atmospheric temperature from 17°C to 457°C is produced locally by β , γ and X-ray emissions, which probably gained high energies beyond 14 MeV (fig. 4) owing to very high gravitational attraction force of Venus.

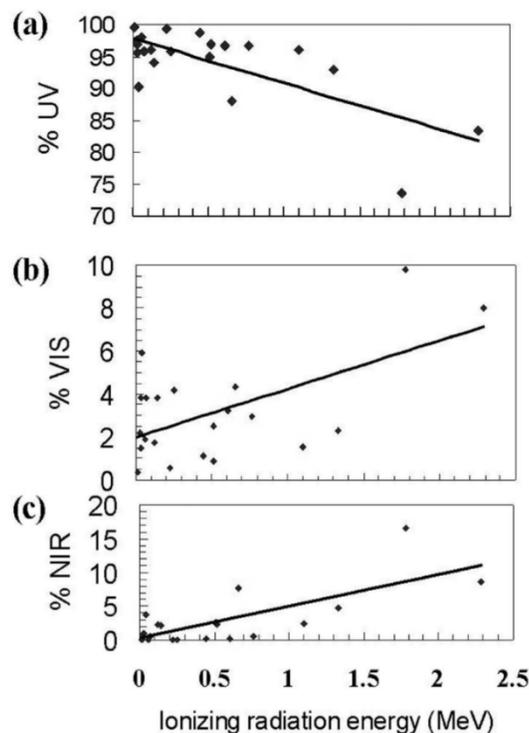


Figure 4. Reproduced here is the figure from the author's publications [8, 12]. Beta, gamma, and X-ray emissions from within radioisotopes and XRF sources emit an unprecedented nature of atomic spectrum with characteristic UV dominant optical radiation. Fig.4a shows UV is higher than 83% in gross light intensity, while fig.4b and fig.4c show percent visible light and near infrared radiation intensities share the rest 17%. Notably, the nature of atomic spectrum depends upon beta, gamma or X-ray energy, but not on atomic number. Like radioisotopes, Sun also emits dominant UV as well as EUV. On extending the graphs to 14 MeV (when beta, gamma or X-ray gain energy to above 14 MeV), the high energy generates only visible light and near infrared radiation (figs.4b and 4c) but not UV (fig.4a), from within the same excited atoms of radioisotopes and XRF sources.

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Mars

Figure 2 explains Mars, Jupiter and Saturn fall in the long UV zone in space. The first mechanism explains that presence of Mars in UV zone is responsible for fall of atmospheric temperature to around 150 K (-123°C) around 130 km height above Mars (fig. 3). Keeping Mars in UV zone in fig.2 is justified because its atmospheric temperature (-123°C) is lower than that of Earth (-85°C at 110 to 100 km height), in visible light zone (fig.3 and Table 1). Solar EUV go faster and reaches more distance than UV from around 130 to 100 km height above Mars and has caused further fall in atmospheric temperature from 150 K (-123°C) to 140K (-133°C) as shown in fig.3. Temperature remained the same as above from around 100 to 65 km height, where Bharat radiation exists that do not alter the temperature in any way. From 65 km height to the surface of Mars, solar β , γ and X-ray emissions produce near infrared radiation, which raises the atmospheric temperature limited to just 80 degrees from 140K (-133°C) to around 220K (-53°C). Surface temperature of Mars is far below that of Earth (around 17°C) due to farther away than Earth from Sun, and relatively low gravity of Mars (Table 2).

Key finding on surface temperatures of planets

The key finding of this paper is that surface temperature of Earth (17°C), Venus (457°C), and Mars (-53°C) are not caused by any direct radiation from Sun, but by near infrared radiation caused by solar β , γ and X-ray emissions by Padmanabha Rao Effect. Significant variation in surface temperatures of Earth, Venus and Mars shown in fig.3, could be due to differences in gravitational attraction forces on solar β , γ and X-ray emissions, a detailed explanation of which is given subsequently in the paper.

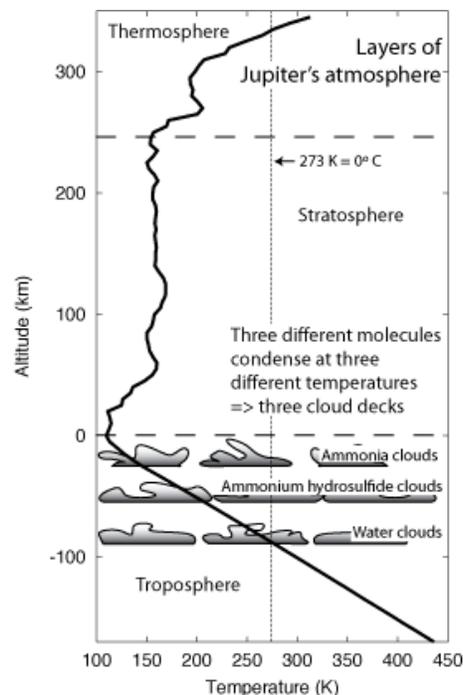


Figure 5. This figure on atmospheric and surface temperatures above Jupiteris from reference [17].

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Jupiter

UV and EUV in Thermosphere

On comparison of atmospheric temperatures of Venus, Earth and Mars in fig.3 with that of Jupiter here in fig.5 reveals planets have some common features. As in the case of Earth, solar UV go faster than near infrared radiation and visible light (not shown in the figure 5) and reaches up to the height around 300 km, and dips the temperature to around 180 K (-93°C) in Thermosphere above Jupiter. Solar EUV go faster than UV, reaches more distance up to the height 250 km and causes the temperature to fall steeply to around 150 K (-123°C) in Thermosphere.

Bharat Radiation in Stratosphere

Bharat Radiation go faster than EUV [11] and reaches more distance from 250 km to 0 km mark. Some inaccuracies seemed to have occurred in the measurements of temperatures at heights 250 km to 0 km height. The EUV might have reduced the temperature to around 120 K (-153°C) at height around 250 km height. Accordingly, the Bharat Radiation might have maintained 120 K (-153°C) from 250 km to 0 km height. Figure 5 pinpoints, direct solar radiations including near infrared radiations and visible light not shown in the figure 5; UV, EUV, and Bharat Radiation can reach maximum distance up to the end of Stratosphere up to 0 km mark above Jupiter.

Solar β , γ and X-ray emissions in Troposphere

Figure 5 taken from reference 17 claims Ammonia clouds, Ammonium hydrosulfide clouds and water clouds raise atmospheric temperatures below 0 km mark and surface temperature of Jupiter, but no experimental support was provided. The current paper clearly explains that the remaining β , γ and X-ray emissions among solar emissions go at superluminal velocities, reach below -10 km mark. They are responsible in generating near infrared radiation and raising temperature from around 120 K (-153°C) to 430 K (157°C) below -10 km mark in Troposphere by Padmanabha Rao Effect (fig.4).

Mars versus Jupiter

Figure 2 depicts both Mars and Jupiter are in UV zone. Mars being closer to Sun than Jupiter, it is believed to have higher surface temperature than Jupiter. Instead, Jupiter has higher surface temperature than Mars owing to higher mass, and gravity (table 2). As explained in this paper, higher gravitational attraction force of Jupiter attracts β , γ and X-ray emissions intensely, so they gain energy and speed while approaching the planet, raises intensity of near infrared radiation, which raises atmospheric temperature close to Jupiter as well as its surface temperature. In clear words, heavier mass and the higher gravity of Jupiter induce more intense near infrared radiation that raises surface temperatures of Jupiter more than that of Mars. Jupiter is far away from Sun than Mars, so it has caused some significant fall in both atmospheric and surface temperatures of Jupiter than the expected figures.

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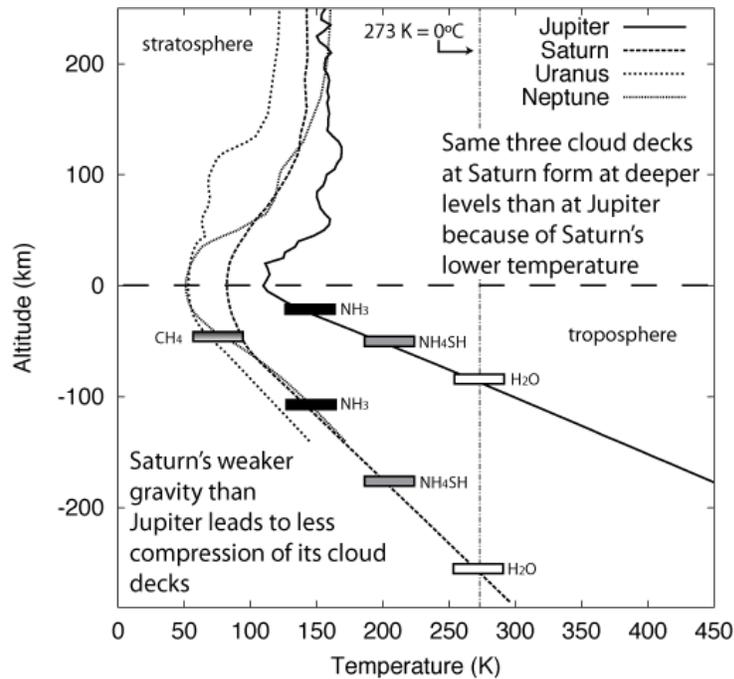


Figure 6: This figure on atmospheric and surface temperatures of Jupiter, Saturn, Uranus, and Neptune is from reference [17]. Below 0 km mark, the raise in atmospheric temperatures above Jupiter, Saturn, Uranus, and Neptune is attributed to the raise in intensity of near infrared radiation caused by solar beta, gamma, and X-ray emissions.

Figure 6 helps a comparison of atmospheric and surface temperatures among Jupiter, Saturn, Uranus and Neptune. About atmospheric and surface temperature of Jupiter shown in fig.6, a detailed discussion was already made. Figure 6 shows presence of various gases at different heights control the atmospheric and surface temperatures, but did not provide any experimental support. Generally, distance of the planet from the Sun, the planet's surface reflectivity of solar radiation (albedo), and the planet's atmosphere through greenhouse effect are attributed to surface temperature of a planet [17]. In clear words, more Greenhouse is believed to be raising atmospheric temperature, while greater surface reflectivity in cooling the atmosphere. However, the current paper provides a clear explanation how each one of the solar emissions control the atmospheric temperature at a particular height.

EUV in Stratosphere

Very lately, the author has reported that in comparison to UV, the EUV dips atmospheric temperature to minimum level [12]. In support of this view, Uranus and Neptune located in EUV zone (fig.2) have minimum temperature around 60K or -213°C at the end of Stratosphere and beginning of troposphere than Jupiter (around 120 K or -153°C) and Saturn (around 90 K or -183°C) located in UV zone. This exemplifies how the existence of planets in EUV zone shown in fig.2, as explained in the mechanism 1 bring atmospheric temperature to minimum level above Bharat Radiation layer over planets.

Bharat Radiation reaches up to - 10 km mark

Bharat Radiation go faster and reaches more distance than EUV. Though the graphs are smooth in fig.6, a rough estimation suggests that Bharat Radiation exists up to 30 km height above 0 km mark and up to 30 km above Saturn, Uranus and

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Neptune; and up to 10 km height above 0 km mark and up to 10 km above Jupiter. A comparison of Fig.2 and Fig.6 show some interesting findings. Overall view of Fig.2 reveals planets are located in four zones, and no planet exists in the next Bharat Radiation zone very far away from Sun. It gives a broad understanding that Earth is located in visible light zone, so its atmospheric and surface temperatures are moderate. In contrast, fig.3 discloses existence of 8 atmospheric layers with different temperatures above Earth. Existence of similar atmospheric layers with different temperatures are evident above all other planets. To sum up, direct solar radiations including infrared radiation, visible light, UV, EUV and Bharat Radiation responsible for variation in atmospheric temperatures in various layers can reach only up to -30 km mark above Saturn, Uranus and Neptune, and -10 km mark above Jupiter.

Solar β , γ and X-ray emissions in Troposphere

Figure 6 displays that below 0 km mark, NH_3 , NH_4SH , H_2O influence temperature of troposphere above Jupiter and Saturn, but did not substantiate with experimental evidences. However, the current paper explains how solar β , γ and X-ray emissions control temperature of atmospheres above Saturn, Uranus and Neptune.

Below 30 km height in troposphere, solar β , γ and X-ray emissions locally generate near infrared radiation that raises the surface temperatures of Saturn and Neptune up to 300K (27°C) and of Uranus up to 260K (-13°C) on extending the graph. Notably, surface temperatures of planets depend upon gravitational attraction force of planets on solar β , γ and X-ray emissions. In clear words, higher the mass and gravitational force, greater is the attraction on solar β , γ and X-ray emissions. Therefore in the case of those planets with large mass and high gravitational force solar β , γ and X-ray emissions acquire more energy and generate more near infrared radiation intensity as a result of which high surface temperature will be evident. Uranus is closer to Sun than Neptune, so it is believed to have higher surface temperature. Instead, fig.6 reveals surface temperature of Neptune (300K or 27°C) is higher than that of Uranus (260K or -13°C) owing its more mass and gravity than that of Uranus (table 2).

A new phenomenon in astrophysics and nuclear physics

Nuclear Physics explains high energy at keV or MeV level facilitates β , γ and X-ray emissions in travelling great distances in space and deep penetration into dense materials. Surprisingly, they travel millions of kms distance from Sun. The high energy of solar β , γ and X-ray emissions at keV or MeV level enables them to go faster than solar Bharat radiation and enables to reach below 84 km height above Earth [11,12], so generate near infrared radiation, which in turn raises atmospheric temperature from -120 °C to nearly -15°C at 84 to 54 km height in Mesosphere above Earth (Table 1). In the second time, solar β , γ and X-ray emissions are able to further raise the atmospheric temperature and surface temperatures from -58°C to normal temperatures around 17 °C within 10 km height above Earth. Higher temperature within 10 km height than at 84 to 54 km height can happen only when solar β , γ and X-ray emissions gain more energy than in the previous case, while approaching closer to Earth due to more pull by Earth's gravitational attraction force. Pulling or attraction of solar β , γ and X-ray emissions by gravitational attractive force of planets is termed temporarily as 'Vemuluru Effect'.

Table 2: Higher mass and gravity of Venus than that of Mercury [18] exerts more gravitational attraction force of Venus over solar beta, gamma and X-rays. Similarly, higher mass and gravity of Jupiter than that of Mars exerts more gravitational attraction force of Jupiter over solar beta, gamma and X-rays.

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Gravity on Planets and Sun				
Body	g / g-Earth	Mass [kg]	Radius [m]	Acceleration Due to Gravity, "g" [m/s ²]
Sun	27.95	1.99 x 10 ³⁰	6.96 x 10 ⁸	274.13
Mercury	0.37	3.18 x 10 ²³	2.43 x 10 ⁶	3.59
Venus	0.90	4.88 x 10 ²⁴	6.06 x 10 ⁶	8.87
Earth	1.00	5.98 x 10 ²⁴	6.38 x 10 ⁶	9.81
Moon	0.17	7.36 x 10 ²²	1.74 x 10 ⁶	1.62
Mars	0.38	6.42 x 10 ²³	3.37 x 10 ⁶	3.77
Jupiter	2.65	1.90 x 10 ²⁷	6.99 x 10 ⁷	25.95
Saturn	1.13	5.68 x 10 ²⁶	5.85 x 10 ⁷	11.08
Uranus	1.09	8.68 x 10 ²⁵	2.33 x 10 ⁷	10.67
Neptune	1.43	1.03 x 10 ²⁶	2.21 x 10 ⁷	14.07
Pluto	0.04	1.40 x 10 ²²	1.50 x 10 ⁶	0.42

The familiar Sir Issac Newton's law of universal gravitation helps in explaining why solar β , γ and X-ray emissions are attracted by gravitational attraction force of a planet. The force (F) of gravitational attraction between two objects with Mass1 and Mass2 at distance D is defined as

$$F = G (\text{mass1} * \text{mass2}) / D \text{ squared.}$$

As such this formula can be applied to particulate matter including electron, since mass of electron is known; however difficulty arises in applying mass to γ and X-ray emissions. The formula can be made useful for β as well as γ and X-ray emissions, if modified as follows. Mass of beta or electron, γ and X-ray emissions is considered here as 1 purely for ease in calculations and not in practice.

$$\text{Modified formula is } F = G \times \text{mass} / D \text{ squared.}$$

Acceleration due to gravity, G and mass applies to the planet that attracts solar β , γ and X-ray emissions. D is the distance of planet from Sun.

Anomalies

Mercury versus Venus

Mercury is in close proximity to Sun than Venus; hence it is believed to have higher surface temperature than that of Venus. However, fig. 3 shows Venus has higher surface temperature around (457°C) than that of Mercury [20] ranging from 620 K (347°C) to 720 K (447°C). It is believed that the carbon dioxide present in atmosphere of Venus traps most of the radiation from the surface of Venus and raise its surface temperature to 470°C [19].

Explanation

The current paper explains that the higher temperature of Venus owes to its more mass (4.88x10²⁴ kg) than that of Mercury (3.18 x 10²³ kg) and higher acceleration due to gravity (g: 8.87 m/s²) than that of Mercury (3.59 m/s²). The modified formula explains that the higher mass and gravity of Venus than that of Mercury induce more gravitational attraction of solar β , γ and X-ray emissions, as a result of which they gain more energy, generate more intense near infrared radiation that causes higher surface temperature of Venus.

Relatively Earth has more mass (5.98 x 10²⁴ kg) and gravity (9.81 m/s²) than Venus that are expected to raise energy of solar β , γ and X-ray emissions resulting in producing more intensity of near infrared radiation and in the raise of surface

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temperature of Earth. However Earth is not able to attract solar β , γ and X-ray emissions more strongly than Venus because it is relatively far away from Sun. Due to the factor, square of distance D, the gravitational attraction force of Earth on solar β , γ and X-ray emissions is relatively lower than that of Venus, so the intensity of near infrared radiation falls significantly, accordingly the surface temperature of Earth falls to be comfortable enough for sustenance of life on Earth.

Mars versus Jupiter

The second anomaly is in surface temperatures between Mars and Jupiter. Mars being closer to Sun, it is believed to have higher surface temperature than that of Jupiter. However, Jupiter has higher surface temperature 430 K (157°C) than that of Mars 220K (-53°C) as evident from figs. 3 and 5.

Explanation

Table 2 shows Jupiter has more mass, 1.90×10^{27} than Mars (6.42×10^{23} kg). Acceleration due to gravity (g) is also higher for Jupiter (25.95 m/s^2) than that of Mars (3.77 m/s^2). The modified formula explains higher mass and gravity of Jupiter cause more gravitational attraction of solar β , γ and X-ray emissions, as a result of which gain more energy, generate more intense near infrared radiation and cause higher surface temperature of Jupiter.

Direction of gravitational force of radiation

The author has already postulated in the previous paper on the existence of gravitational force in the direction of propagation of β , γ and X-ray emissions [12]. In clear words, photon and particulate matter including electron have three forces: electrical, magnetic and gravitational forces. When electrical force is considered to be in X-axis, magnetic force falls in the direction of Y axis, and gravitational force towards Z axis, notably in the direction of motion of radiation. Therefore, when gravitational force of beta, gamma and X-rays is linked to gravitational force of a planet, these radiations are attracted towards planet by gravitational pull. When mass and gravity of a planet are relatively high, its gravitational attraction force attracts these radiations with more force, so they gain more energy, generate intense near infrared radiation and higher surface temperature of the planet.

Effect of pollution on atmosphere

Previously, the raise in atmospheric temperature within 10 km height above Earth and its surface temperature were attributed totally to the Greenhouse effect (fig.3). The current paper explains that these temperatures are caused mainly by solar β , γ and X-ray emissions. However, petrol and diesel oil used in vehicles, burning of waste materials in open air became significant pollutants to the atmosphere that became a serious global issue in recent times. It is felt that these man made pollutants are raising atmospheric temperature to a considerable extent causing ill health to population at large. It is difficult to predict exactly the contribution made by these pollutants to atmospheric temperature.

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