



Effect of the Planets' Gravity Fields to the Sun and Solar Cycles and its Observable Factors

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The Solar cycles just as; irradiance, sunspot, solar flare, radio flux and polarity flip have average duration about 11 Earth years. Scientists are believed, these solar activities are results of the Sun's internal processes and its atmospheric interactions. The authors are believed that these activities and cycles have an external cause too. Because, continuing internal processes and dynamics systems in planets need to external continuous loading. Here, the external cause is unbalanced gravity fields of planets on the Sun, specially by largest one, Jupiter, with its 67 moons, which its orbit period is 11.856 years in solar system, and helps to activation of the Sun's dynamics system and internal processes and consequently produce different solar cycles. The external variable gravity fields effect to the Sun's gravity center (core), and consequently the Sun's core dislocates, fluctuates and produces variable deformation in base of the radiation zone. The Sun's core dislocation and its fluctuations are in equatorial/current sheet towards the resulted vector of other planets' gravity fields on the Sun. It means that, during the Sun's rotation, a permanent variable eccentricity for the core has been produced. The radius of this eccentricity is variable in magnitude and direction.

On the other hands, Sun's spin is faster than rotational speed of the external gravity fields' resulted vector. It means that the Sun's core, during its spin, rotates around the Sun's axis inverse of the Sun's spin with an eccentricity radius. Following of this core's rotation, a permanent flow of a layer of moving plasmas in base of the radiation zone is generated. This transition zone between the core and differently rotating radiative interior zone has a large shear profile that is one way that large scale magnetic fields can be formed. In addition, temperature changes more rapidly with depth occurs in this zone. In this magneto-thermo layer, produced moving plasmas generate magnetic field and their own electric currents. This dynamics system is cause of producing tachocline too. In the other words, this magneto-thermo layer and tachocline are two transition zones which are origins of the Sun's magnetic fields and their own electrical currents.

The observable factors for proving this dislocation is overlapping of the solar cycles with the Jupiter's orbit period which is 11.856 years. In solar system, the Jupiter's gravity has largest effect to the Sun's core and its dislocation, because the gravity force between the Jupiter and the Sun is 11.834 times of the gravity force between the Earth and the Sun. Fluctuations of the core during its dislocation is by passing other planets between the Sun and Jupiter (or the Sun will be between the Jupiter and them), specially just as the Venus (which its gravity force on the Sun is 1.573 times of the Earth's gravity force on the Sun) and the Earth.