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# The New Planetary Harmony

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**Abstract.** Considering that the imaginary axis of the Earth is perpendicular to the base of the imaginary geometric figure or orbital solid formed by the Earth's orbit around the Sun in the course of a year, there is a harmonic constant between the velocity due to this displacement and the Earth's orbital velocity of 3.9490. It turns out that, based on the numbers of the other planets in our solar system, there is a perfect harmony between all the data, regardless of whether these planets are rocky or gaseous, whether they are near or far from the sun, whether their orbits are small or very large in relation to the others, or whether they move fast or slow in relation to each other. The harmonic velocity of the Earth is likely to increase as the axial tilt decreases, as shown by the Milankovitch cycles and the function of this New Planetary Harmony.

**Resumo.** Considerando que o eixo imaginário da Terra esteja alinhado de forma perpendicular em relação à base da figura geométrica imaginária ou sólido orbital, formada pela revolução da Terra em torno do Sol ao longo de um ano, pode-se demonstrar uma constante harmônica entre a velocidade por este deslocamento e a velocidade orbital da Terra de 3,9490. Ocorre que a partir dos números dos outros planetas do nosso Sistema Solar existe uma harmonia perfeita entre todos os dados, independentemente de serem esses planetas rochosos ou gasosos, se estão perto ou longe do Sol, se suas órbitas são pequenas em relação aos outros ou muito extensas ou se trafegam rápido ou lento nelas em relação uns aos outros. Provavelmente a velocidade harmônica da Terra irá aumentar quando a inclinação axial diminuir, conforme demonstrado pelos Ciclos de Milankovitch e pela função desta Nova Harmonia Planetária.

**Keywords.** Astrometry - Celestial mechanics - Earth movements - Gravitation

## 1. Introduction

We can measure the harmonic velocities of the Earth as it moves from one solstice to the next if we assume that its imaginary axis is perpendicular to the base of the imaginary geometric figure created by its orbit around the Sun over the course of a year. This figure, a geometric solid, resembles a cylinder, but it does not have a circular base, but circular faces. Since this body needs to be named, we will refer to it from now on as an "orbital body". To maintain the displacement of ~119, 012.7860988 km, which is slightly more than 85 times the diameter of the Sun or ~80% of 1 AU, and since this displacement occurs in about six months, we reach a speed of ~27, 171.8690 km/h. Since the average speed of the orbital transit is ~107, 302 km/h, this results in a harmonic constant of 3.9490 (Equation 1).

$$V_{obl}^{1.134522} = V_{orb} \wedge V_{orb}^{0.881428184} = V_{obl}$$
$$\varphi \wedge \psi \Rightarrow \frac{V_{orb}}{V_{obl}} = 3.9490 \qquad (1)$$

Using the same methodology to measure the harmonic orbital velocities in the orbits of other planets, it is possible to verify new relationships or harmonic features between them. For the other planets, we use NASA data for the declination of each orbit and also the minimum and maximum distances of each of them and not the solstices data, as in the case of the Earth, where we have more information and greater precision. From the same source, we also use the information about the minimum and maximum orbital velocities to calculate their harmonic velocities. It should be noted that the harmonic velocities are defined by the inclination of the axis. Earth, Mars, Saturn and Neptune have harmonic velocities between 3.2 and 3.9, taking into account their average harmonic velocities in orbit. Venus and Jupiter, which have a low declination, have harmonic velocities between 28.7 and 34.6. There is a perfect harmony for these six planets, because if we consider that the inclinations of Venus and Jupiter are about ten times smaller than that of the Earth, we can see that their harmonic speeds are about ten times greater! Obviously, the orbital velocities on Mercury are greater than on Neptune and increase from the orbit farthest from the Sun to the orbit closest to the sun. However, it is surprising that Earth (3rd orbit) has similar data to Saturn and Neptune (6th and 8th orbits respectively) in terms of harmonic velocities, although they have completely different speeds and orbital sizes, and Earth is a rocky planet while the other two are gaseous, and their masses are also very different, let us look at the data (Table 1).

**Table 1.** Planets in the order of increasing inclination of their axes and decreasing harmonic velocities in the first and second lines respectively. The planets are represented by their International Astronomical Union abbreviations.

| H | V | J | U | E | M | S | N |
|---|---|---|---|---|---|---|---|
| 0.034 | 2.6 | 3.13 | 7.77 | 23.44 | 25.19 | 26.73 | 28.32 |
| 2,766 | 34.6261 | 28.7976 | 11.6440 | 3.9490 | 3.7065 | 3.4782 | 3.2899 |

Looking briefly at the above table, we see that the arrangement was in the order of the proven values, which are inversely proportional, and not in the order of the planets in relation to their proximity to the sun. The last two planets are special cases and yet harmonize with the others. Uranus, which has an inclination of 97.77 degrees, finds negative data for the trigonometry of its orbit. In this way we have calculated its harmonic velocities by using only 7.77 degrees (assuming that the 90 degreea is another zero), and this also harmonizes with the others. If we look at the inclination of 7.77 degrees, we see that it is about three times the inclination of Venus, and its harmonic velocity is about a third of that!

Finally, Mercury, which has virtually no inclination, but also follows the pattern of having a higher number for its harmonic velocity and a much lower inclination. If we increase its incli-

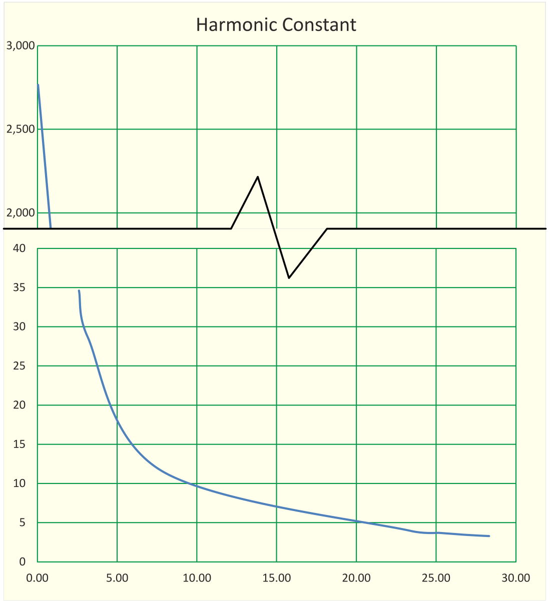


**Figure 1.** New planetary harmony function chart.

nation by a factor of 100, the data would lie between Venus and Jupiter. Complete agreement, then, because if we decreased its harmonic velocity by 100 times, it would be very close to that of Jupiter! Another way to measure planetary harmony is to increase Venus' inclination by a factor of 10 and decrease its harmonic velocity by a factor of 10. Then it would lie exactly between the data for Mars and Saturn.

## 2. Function of Planetary Harmony

With this data, it is possible to create a function of type decreasing exponential for the data presented. If we place the values of the inclinations of the planetary axes on the x-axis and the values of the harmonic velocities on the y-axis, we obtain the graphical representation of the function. Obviously, given the large distance between 34.6261 and 2,766, it is necessary to make a "crack" in the graph, which was achieved by placing the "radius" that separates the upper and lower parts. It should also be noted that the grids in the upper part are much larger and still do not match those in the lower part, given the differences between the values. In the lower part, the data grows from 5 to 5 and in the upper part from 500 to 500, which means that if the correct proportionality is respected, each line in the upper part would have to be 100 times as high as the lines in the lower part and would make it impossible to display the graph on one page. Therefore, we decided to slightly compress the values on the Y-axis of the function chart (Figure 1), although this would harm the proportionality but fulfill the goal and the need to show data from all planets.

To find the equations for these harmonic relationships between the harmonic velocities of the planets and their inclinations, we used a calculator that provides two equations for this data. The first equation below (Equation 2) refers to data for Mercury, Venus, Jupiter and Uranus, i.e. for planets with a declination of less than 7.77 degrees.

$$f(x) = 0.0025513x^3 - 0.195189x^2 + 4.82634x - 34.7943 \quad (2)$$

For the other planets, namely Earth, Mars, Saturn and Neptune, i.e. with a declination of more than 23.44 degrees, the website offers a second equation (Equation 3).

$$f(x) = -0.0000980126x^7 + 0.0114886x^6 - 0.5372x^5 + 12.6786x^4 - 157.364x^3 + 979.289x^2 - 2768.29x + 2859 \quad (3)$$

As you can see from the descriptions and the new proposed orbital metrics, there is a perfect harmony between the data of the planets of our solar system, especially between the harmonic velocities and the axial inclinations of each planet. This new harmony is probably a further confirmation of Newtonian universal gravitation. In addition to the examples shown here, harmonics are found in virtually all figures, whether of any planets, regardless of their positions, distances, properties or orbital velocities. For example, if we calculate the percentage deviation between the minor axial inclination of Mercury and that of the Earth, we get a result of 0.145051%. The same result is obtained to the second decimal place if we add the harmonic velocity of the Earth and that of Mercury (0.142769%)! This research must leave the theoretical environment and be completed with the help of telescopes for measurement by astrometry. In addition, for the Earth, the data of the solstices were used, since the declination is greatest there. For the other planets, we use the aphelion and perihelion dates and times provided by the NASA website. It is also possible to theorize about the variations in the Earth's orbit, known as Milankovitch cycles. As the planet's inclination decreases to 22.1°, the harmonic velocity is likely to increase, as shown by the planetary harmonic function. A quick look at the graph shows that the harmonic velocity at an axial inclination of 20º is about 5.0. For the sake of completeness, the harmonic velocities of other bodies in the solar system, such as Pluto, the dwarf planets and comets with known orbits, must also be measured.

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