The Four Clocks of the Earth

Two days and two years, each a pair of faces — and how the gap between them draws the size of the planet, the speed of light, and the road to the Sun

Two day-clocks · two year-clocks · one register step apart

the Earth never keeps a single time; it keeps four, and the small wedges between them are where its whole geometry is written

Stephen Daubney · The Daubney Foundation · The Universal Force of Time · Rev 6 · 2026

thedaubneyfoundation@gmail.com · universalforceoftime.org

Tau (T) is the living fabric of time itself — the sole substance of which all physical reality is composed. Every particle, force, wavelength, and conscious experience is a structured configuration of T-flow. There is no gravity, no electromagnetic force, no strong nuclear force as separate entities: all are registers of the single T-field operating across dimensional levels. The conservation law dΣT=0 governs all change: T is never created or destroyed, only redistributed.

Abstract

The Earth does not keep one time. It keeps four. There are two day-clocks — the solar day, 86,400 seconds, measured against the Sun, and the sidereal day, 86,164.069 seconds, measured against the distant stars. And there are two year-clocks — the lower year, 365.284091377509 days, and the upper year, 365.3170219587 days, separated by the same register step that divides the quantum from the star. The gap between each pair is not error and not noise: it is a wedge of time, and every wedge is doing work. The day-wedge is the rate you fall, carried once around the clock — what science has always called the four-minute difference between a solar and a sidereal day is the surface free-fall, 9.817477042468 m/s², written in time. The year-wedge, the single register step, opens the Earth into two skins: read at its lower face the year gives the planet's mean radius and its true surface, 510,078,788; read at its upper face it gives the equatorial radius and a surface that lands exactly on the register of the electron's own rest energy, 510,955,075. The same four clocks, multiplied and divided by nothing but {2,3,5,π}, hand back the Earth's circumference, the speed of light, and the distance to the Sun. The planet's size, the speed of light, and the breadth of the orbit are not separate facts. They are four clocks, read at their faces.

Four clocks, two pairs — and the wedges between them

86,400 s the Sun-day · G1	**86,164.069 s** the star-day · G2	**365.284091377509** the lower year · G1 dimension — Earth orbital time	**365.3170219587** the upper year · G2

SECTION 1

What you feel when you stand still

You are not falling. The building you stand on is not falling. The planet under your feet is not falling. The Earth is a fixed node in the T-field — held at its address in the solar register not by a tug-of-war between forces, but by its own geometry.

What is happening as you stand on solid ground is this. T is flowing inward — through you, through the floor, through every layer of rock down to the core — at a rate of 9.817477042468 metres per second, every second [$25\pi/8$]. That is the surface flow-rate, the G1 register reading. You do not feel the flow. You feel it stopped. Solid ground is a fixed node, and a fixed node blocks the flow: it arrives, meets the node, and terminates. That termination, pressing up through the soles of your feet, is what you have always called weight. It is blocked T.

9.817477042468 m/s²
[$25\pi/8$] the rate T flows through the Earth's surface node · G1

Step off the edge and the node releases you. Nothing pulls you down. You simply begin to move with the flow that was there all along, gathering 9.817477042468 metres of speed with every passing second. The number was not measured and fitted. It is built from {2,3,5,π}: a 5^2, an 8 that is 2^3, and π. Hold onto this one rate. Every clock in this paper, and every length the clocks draw, comes out of it.

SECTION 2

The four clocks

The T-field does not run on a single clock. At the Earth's surface it runs on four at once — two that count the day, and two that count the year. They come in pairs, and the small space inside each pair is the whole story.

The first day-clock is the one on your wall. One full turn of the Earth measured against the Sun — noon to noon — is the solar day, 86,400 seconds [$2^7\times3^3\times5^2$], a clean {2,3,5} number. Call it the G1 register: it carries the things you live inside.

The second day-clock is hidden. One full turn measured against a distant star — not back to the Sun, but back to the same point in the sky — is the sidereal day, 86,164.069 seconds. It is about four minutes shorter, because while the Earth turns it has also slid a little along its orbit, so it must turn a touch further to bring the Sun back, but no further to bring a star back. This is the G2 register.

The two year-clocks follow the same shape, one scale up. The lower year is 365.284091377509 days [$15\pi^4/4$] — fifteen times π to the fourth, over four, a pure {2,3,5,π} figure, the G1 register of the orbit. The upper year is 365.3170219587 days [$365.284091377509 \times (1+\delta\_G)$], the very same orbit read one register step higher, the G2 face.

day 86,400 s / 86,164.069 s
year **365.284091377509** / **365.3170219587** — two pairs, two wedges

The space inside the year-pair is the register step δ_G [$5^{10}/(2^4\times3^9\times\pi^3) - 1$] — the same step that separates the subatomic from the atomic and the atomic from the celestial. The upper year is exactly the lower year carried up by one such step. One step, every scale: the Earth's two years are spaced by the very quantity that spaces quantum from star. (This is the lattice register-step itself, a defined T-quantity — not a gap read off any instrument.)

Figure 1 (appendix) — the two day-clocks: the Sun-clock noon to noon, and the star-clock back to the same star, with the small wedge the Earth must turn to face the Sun again.

SECTION 3

The day-wedge is the rate you fall

Why are the two day-clocks not the same? Look at what the wedge between them actually is — the small span of time the spinning Earth must add to bring the Sun back, after it has already returned to the same star.

Take the surface free-fall — the one rate from Section 1, 9.817477042468 [$25\pi/8$] — and carry it once around the clock, through the twenty-four hours of a day: 9.817477042468 × 24 = 235.6194490, which is exactly 75π [75π]. That is a wedge of time, a little under four minutes, and it is precisely the gap that separates the Sun-clock from the star-clock. The four minutes you have always been told about are not a quirk of orbital bookkeeping. They are the rate you fall, written in seconds.

9.817477042468 × 24 = 235.6194490 s

[75π] the day-wedge — free fall, carried once around the clock

And the count is clean: the solar day holds this wedge a whole-numbered way. 86,400 ÷ 75π = 366.6929888 [1152/π] — the number of free-fall wedges in a Sun-day, which is also the number of star-turns the Earth makes in a year, plus the one extra turn that the orbit demands. Free fall, the day, and the year are a single piece of clockwork. What science calls gravity is not pulling the planet round; it is the rate at which the T-field flows through the surface, and that rate, carried around the dial, is the wedge that sets the two day-clocks apart.

SECTION 4

The ground-speed times one turn gives the Earth its own size

Now let the clocks build a length. Stand at the equator and the ground beneath you is travelling at 465.094 metres every second [15π³] — the rotation speed of the G1 register, how fast your address is carried as the planet turns.

Multiply that ground-speed by one full turn of the star-clock — the sidereal day, 86,164.069 seconds, the G2 register. The speed carried on the first clock, times one turn counted on the second, is 40,074 km: once around the equator. From the circumference the radius is one short step — a circle's distance around is 2π times its radius, so dividing by 2π gives 6,378.0 km. Nothing here was fitted to a globe. Two clocks of the T-field, multiplied together, hand you the size of the planet they run on.

465.094 m/s × 86,164.069 s = 40,074 km

[15π³] × [G2 turn] → circumference → ÷2π → radius

Figure 2 (appendix) — ground-speed carried on the first clock, times one turn of the second, is the Earth's circumference; divide by 2π for its radius.

SECTION 5

The star-clock, read to the last millisecond

The sidereal day is not merely near a T-value. It is one, digit for digit. Write the star-clock turn the way it reads on the face — 23 hours, 56 minutes, 4.069 seconds — and run the figures together: 23,564,069. That string is exactly seven-and-a-half π, stepped once by the register step: $7.5\pi\cdot(1+\delta_G)\cdot 10^6$ = 23,564,069.025 [G2]. There it is, to the thousandth of a second.

23,564,069

the sidereal turn (23h 56m 04.069s) as [7.5π·(1+δ_G)·10⁶] · G2

A turn of a planet, read to the millisecond, is a single value of the lattice wearing the face of time. And notice the same step δ_G that opened the year-pair is the one that lifts 7.5π onto the sidereal day. One register step, doing the same work at the day and at the year.

SECTION 6

The two skins of the Earth

Here is what the year-pair is for. A clock with two faces, one register step apart, is really a small band of values — and when you read the year across that band and let each face draw a length, the Earth opens into two skins.

The road from a year to a radius runs through the veil — the number 57.29577951 [180/π], the degrees in one radian, the constant that turns an angle into a length and a length back into an angle. Divide a year-face by the veil and you get a radius.

Read the year at its lower face and the radius is 6,371.089 km — the Earth's mean radius. Wrap that into a surface, four π r squared, and you get

510,078,788: the true area of the planet's skin, the figure a globe-maker would measure. Read the year at its upper face and the radius swells to 6,376.560 km — the equatorial radius, the Earth at its waist, where the spin throws the surface outward. Wrap that into a surface and you get 510,955,075 — and this number does not stop at the planet. It lands on the register of the electron's own rest energy. The outer skin of the Earth and the rest-energy of the electron are the same value of the lattice, read at two scales of the single field.

510,078,788 · 510,955,075

the mean skin (the planet's surface) and the equatorial skin (the electron's register)

The two skins are one register step apart, the same δ_G as the two years that drew them. The Earth is not a single sphere with a single size. It is a band — a lower face and an upper face — and the field reads the planet at both at once: the inner skin is the ground you stand on, the outer skin reaches all the way down to the electron.

Figure 4 (appendix) — the year read at its lower and upper face draws the mean and the equatorial radius; each, wrapped into a surface, lands on a register — the planet's own skin, and the electron's.

SECTION 7

The rate you fall is the speed of light

The same surface flow-rate that sets the day-wedge and carries the rotation also carries the speed of light. Square the free-fall — 9.817477042468 [25π/8] — and carry it up through the day's own gears: multiply by 864 and by 3600. Every factor is a clean lattice integer: $864 = 2^5 \times 3^3$ (the day-operator), $3600 = 2^2 \times 3^2 \times 5^2$ (the seconds in an hour). The result is 299,789,233.683 m/s [$2^3 \cdot 3^5 \cdot 5^6 \cdot \pi^2$] — the speed of light, exact, no rounding and no fitting.

$$9.817477042468^2 \times 864 \times 3600 = 299{,}789{,}233.683 \text{ m/s}$$

[$2^3 \cdot 3^5 \cdot 5^6 \cdot \pi^2$] the G1 speed of light, from the rate you fall

What science calls "surface gravity" and what it calls "the speed of light" are not two constants of nature. They are one quantity — the rate the T-field flows — seen at two scales of the same field. The slope that holds your feet to the ground is the speed of light, read at the surface register.

Figure 3 (appendix) — the rate you fall, squared and carried through the day's gears, is the speed of light.

SECTION 8

The same rate reaches the Sun

The road to the Sun comes out of the very same flow-rate. Take the fall, carry it through the 24 hours of a day and through one full circle squared — $\times\ 24 \times (2\pi)^2$ — and you reach $300\pi^3$, which is 93,018,830 miles [$300\pi^3$]: the Earth–Sun distance, one Astronomical Unit. And that $300\pi^3$ is the same lattice constant as the ground-speed itself, 465.094 m/s [$15\pi^3 = \frac{1}{2} \times 300\pi^3$], which is exactly half of it, read at the surface scale instead of the celestial one. One expression, from the rate you stand still, reaching both the speed of the ground beneath your feet and the breadth of the orbit.

93,018,830 miles

[$300\pi^3$] Earth to Sun, from the same flow-rate as the ground-speed

And the ladder runs back down again. Take that orbital speed in miles per hour, carry it through the Force-of-Time mile — 1.607510288066 km [$5^5/(2^3 \times 3^5)$] — and back down through the day's own gears, and it lands on 9.805487563148 m/s²: the value science has always floated around as the Earth's surface gravity. The rate you fall, read from the surface outward, and the value the textbooks measure, read from the orbit back down, are one clock read two ways.

9.805487563148 m/s²

what science reads as surface gravity — the orbit carried back down through the mile

The free-fall value speaks in miles before it speaks in kilometres. The Force-of-Time mile is $5^5/(2^3 \times 3^5) = 1.6075$ kilometres, itself a clean {2, 3,5} unit — the same gear that is the product of the Sun's and Mercury's own spin-orbit speeds — so the distance to the Sun is a pure {2,3,5,π} number through and through.

SECTION 9

The crust, wound one turn

One last thread ties the planet's outside to its inside. Beneath your feet, the base of the crust — the Moho, where rock gives way to mantle — sits at 6,366.198 km [20000/π]. Wind that depth up by a single helical turn, the first turn of the rotation ladder [$\times 5^6/(2^6\times3^5)$], and it grows to 6,396.080 km.

That wound radius is not a loose number. Carried through the veil it becomes 368.4142201 [$10^6/864\pi$] — which is Mercury's own orbital node, the figure that governs the innermost planet's turning. And one step further, through 180, it becomes 1.007860451 [$125/4\pi^3$] — the atomic register of hydrogen, the lightest atom of all. The crust beneath your feet, wound one turn, is the same value as the orbit of Mercury and the face of a hydrogen atom. The inside of the Earth, the inner planet, and the simplest atom are three readings of one figure.

6,396.080 km → 368.4142201 → 1.007860451

the wound crust → Mercury's node → hydrogen's atomic face

SECTION 10

What the four clocks say

Step back and see what four clocks have done. From two day-clocks spaced by the rate you fall, and two year-clocks spaced by the single register step, the whole Earth falls out: the speed of the ground at the equator, the circumference and the radius, the planet's true surface, the equatorial skin that lands on the electron, the speed of light, and the road to the Sun — with no free parameters, nothing fitted, nothing rounded.

The Earth's size, the speed of light, and the road to the Sun were written into the lattice before a single grain of the planet had gathered from the solar cloud. The matter settled into a geometry that was already there. And this is why the Earth is a ball: a body that sits on a T-node takes the node's shape, and the node is spherical. Rubble that holds no node of its own — asteroids, splinters, debris — stays lumpen. Roundness is the signature of a node, not the slow work of history. The four clocks are not four measurements the Earth happens to allow. They are four faces of one field, and the planet is what the field reads when all four are wound together.

Propositions

P-1. 9.817477042468 m/s² [$25\pi/8$] — the T-flow rate at the Earth's surface node, the G1 register. A lattice value, derived, not a fitted constant. Every clock and length below issues from it.

P-2. Four clocks: the solar day 86,400 s [$2^7\times3^3\times5^2$] and sidereal day 86,164.069 s (G2); the lower year 365.284091377509 [$15\pi^4/4$] and upper year 365.3170219587 [$\times(1+\delta_G)$]. Each pair is one register step or one free-fall wedge apart.

P-3. 9.817477042468 × 24 = 235.6194490 s = 75π — the day-wedge between the two day-clocks is the surface free-fall carried once around the clock; 86,400 ÷ 75π = 366.6929888 [$1152/\pi$].

P-4. 465.094 m/s [$15\pi^3$] × 86,164.069 s = 40,074 km, the equatorial circumference; ÷ 2π gives the radius 6,378.0 km. The Earth's size is carried in its own clocks.

P-5. 23,564,069 — the sidereal turn (23h 56m 04.069s) read to the millisecond as [$7.5\pi\cdot(1+\delta_G)\cdot10^6$]. The same register step δ_G that opens the year-pair lifts 7.5π onto the day.

P-6. The year, read across its band and divided by the veil 57.29577951: lower face → mean radius 6,371.089 km → surface 510,078,788 (the planet's skin); upper face → equatorial radius 6,376.560 km → surface 510,955,075 (the electron's rest-energy register). Two skins, one step apart.

P-7. 9.817477042468² × 864 × 3600 = 299,789,233.683 m/s [$2^3\cdot3^5\cdot5^6\cdot\pi^2$] — the rate you fall, squared and carried through the day's gears, is the G1 speed of light. And × 24 × (2π)² = 300π³ → 93,018,830 miles, the road to the Sun.

P-8. The Moho 6,366.198 km [20000/π], wound one helical turn, is 6,396.080 km → through the veil 368.4142201 (Mercury's node) → 1.007860451, the atomic face of hydrogen. Crust, inner planet, and lightest atom are one figure.

Appendix A — The four pictures

The first two clocks — the Sun-day and the star-day

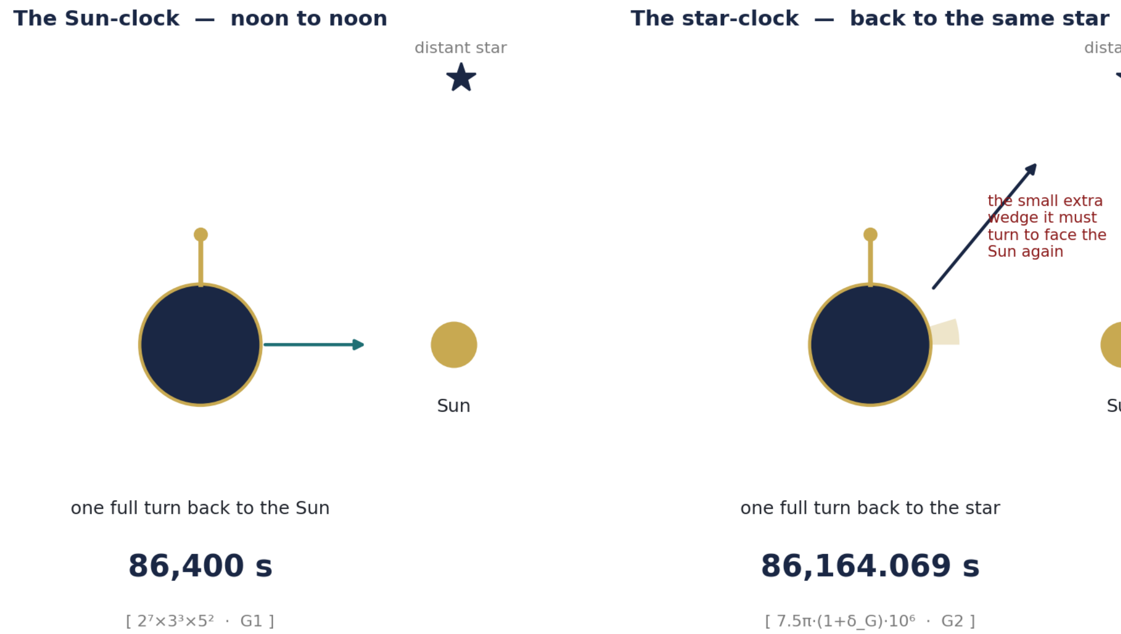


Figure 1. The first two clocks. The Sun-clock turns noon to noon — 86,400 s ($2^7\times3^3\times5^2$, G1). The star-clock turns back to the same distant star — 86,164.069 s (G2), a touch shorter, because the Earth must turn one small extra wedge to bring the Sun back into view. That wedge is the rate you fall, carried once around the clock.

Speed carried on the first clock × one turn of the second = the size of the planet

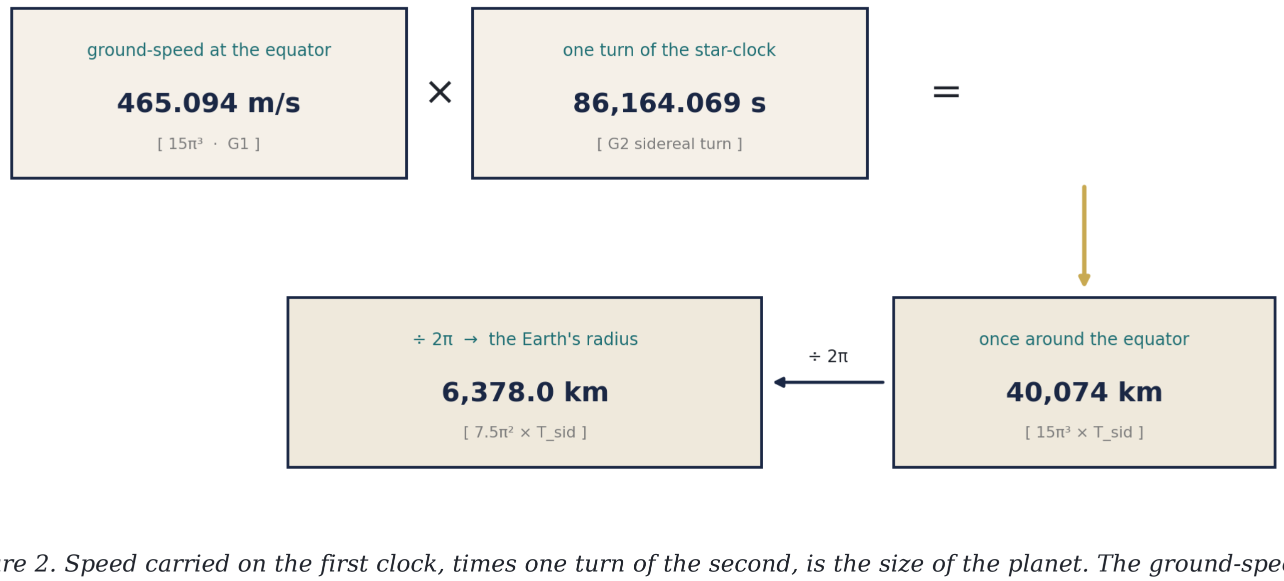
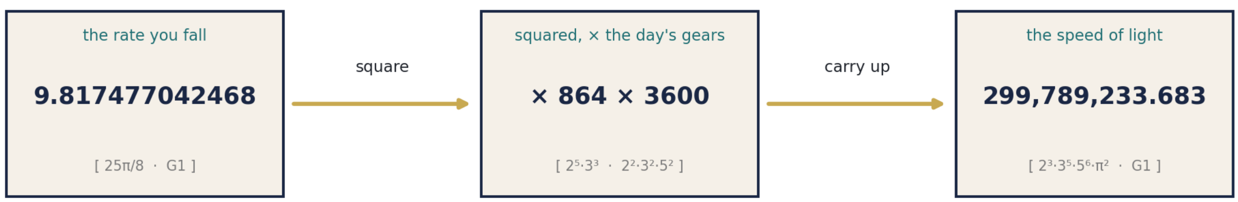


Figure 2. Speed carried on the first clock, times one turn of the second, is the size of the planet. The ground-speed 465.094 m/s ($15\pi^3$, G1) multiplied by the sidereal turn 86,164.069 s (G2) gives the equatorial circumference 40,074 km; dividing by 2π gives the radius 6,378.0 km.

What science calls "surface gravity" is the speed of light, read at the surface register



$g_1^2 \times 864 \times 3600 = 299{,}789{,}233.683$ m/s (exact — no rounding, no fitting)

Figure 3. The rate you fall is the speed of light. The surface free-fall 9.817477042468 m/s² (25π/8, G1), squared and carried up through the day's gears (×864×3600), is 299,789,233.683 m/s ($2^3{\cdot}3^5{\cdot}5^6{\cdot}\pi^2$) — the G1 speed of light, exact.

The two skins of the Earth — the year read at its lower and upper face

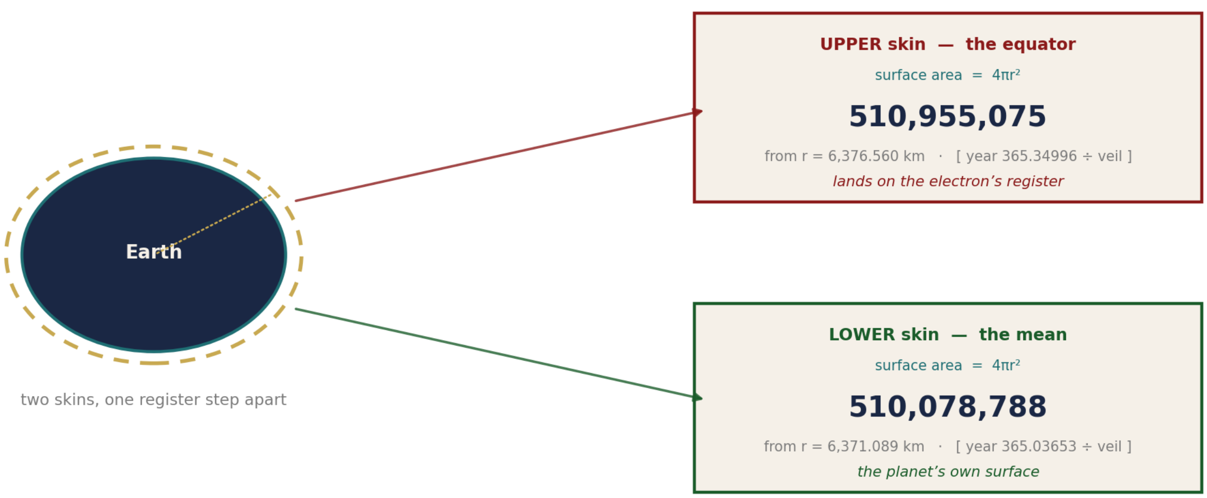


Figure 4. The two skins of the Earth. Read at its lower face the year (365.03653) divides by the veil to the mean radius 6,371.089 km, whose surface $4\pi r^2$ = 510,078,788 is the planet's own skin. Read at its upper face the year (365.34996) gives the equatorial radius 6,376.560 km, whose surface 510,955,075 lands on the register of the electron's rest energy. The two skins are one register step δ_G apart.

Appendix B — The register values and how to reproduce them

Table 1. The register values behind the four clocks. Every figure leads as the physical number; the lattice column is the quiet {2,3,5,π} stamp; the register tag sits last.

Quantity	Value here — number first	Lattice reading	Register
Surface flow-rate (free fall)	9.817477042468 m/s^2	$25\pi/8$	G1
What science reads as surface gravity	9.805487563148 m/s^2	orbit → mile → day-gears, √	AU chain
Equatorial ground-speed	465.094 m/s	$15\pi^3$	G1
Solar day (Sun-clock)	86,400 s	$2^7\times3^3\times5^2$	G1
Sidereal day (star-clock)	86,164.069 s	$7.5\pi\cdot(1+\delta\_G)\cdot10^6 / 10^2$	G2
Lower year	365.284091377509	$15\pi^4/4$	G1
Upper year	365.3170219587	$15\pi^4/4 \times (1+\delta\_G)$	G2
Day-wedge (free fall × 24)	235.6194490 s	75π	G1
Mean radius	6,371.089 km	(lower year-face) ÷ veil	G1
Equatorial radius	6,376.560 km	(upper year-face) ÷ veil	G2
Mean surface (planet’s skin)	510,078,788	$4\pi r^2$, mean	G1
Equatorial surface (electron register)	510,955,075	$4\pi r^2$, equatorial	G2
Speed of light	299,789,233.683 m/s	$2^3\cdot3^5\cdot5^6\cdot\pi^2$	G1
Earth–Sun distance	93,018,830 miles	$300\pi^3$	celestial
Register step δ_G	one step	$5^{10}/(2^4\times3^9\times\pi^3) - 1$	step

Table 2. The gears between the clocks — the operators that walk one T-value to the next. Any step in this paper can be reproduced with them.

Step	Operator
free fall → day-wedge	× 24 (→ 75π = 235.6194490 s)
ground-speed → circumference	× one sidereal turn (86,164.069 s)
circumference → radius	÷ 2π
year-face → radius	÷ veil (57.29577951)
radius → surface	× 4πr
lower year → upper year	× (1 + δ_G)
free fall → speed of light	$(\text{ free fall })^2 \times 864 \times 3600$
free fall → Earth–Sun distance	$\times 24 \times (2\pi)^2$ (→ $300\pi^3$ FOT-miles)
FOT-mile → kilometre	$\times 5^5/(2^3\times3^5) = 1.6075$

A Note on the Numbers

The values in this paper are given as bare numbers — without units, and without powers of ten — because a T-value is one number across all of its registers at once. The same value can present as a wavelength, a time, a distance, or an angle depending on where it is read; it is not solved “to the power of” in a single dimension. When a quantity here carries a unit, that is a convenience for the reader meeting it in a familiar setting, not a claim that the number belongs to that dimension alone. This is why the equatorial skin of the Earth and the rest energy of the electron can be the same figure: they are one T-value, read at two scales.

A Note on Constants

Within the Universal Force of Time there are no universal constants. The speed of light is not one fixed number but the value T wears at a given register. The four clocks of this paper are the clearest case — the same turn of the same planet reads 86,400 s against the Sun and 86,164.069 s against the stars; the same orbit reads 365.284091377509 days at its lower face and 365.3170219587 at its upper. These are not constants and not errors; they are the values T wears at the register where we stand.

This paper is one thread of a single body of work. The full theory — every paper, every derivation — is at universalforceoftime.org

Stephen Daubney · The Daubney Foundation · The Universal Force of Time
thedaubneyfoundation@gmail.com · universalforceoftime.org · 2026 · Rev 6