The Note the Earth Holds

A closed-form derivation of the 26-second Gulf of Guinea microseism, and of both edges of the global hum band, from a single terrestrial radius

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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

A monochromatic seismic signal of period close to 26 seconds has radiated continuously from a fixed point in the Gulf of Guinea since its identification by Oliver in the early 1960s. It is recorded on every continent, its source was localised to the Bight of Bonny by ambient-noise cross-correlation, and after six decades no proposed mechanism accounts for it. Separately, Earth sustains a band of continuously excited global normal modes — the hum — conventionally quoted as spanning 2 to 7 mHz and attributed to forcing by long-period ocean waves over the continental shelves. Conventional seismology treats these as unrelated phenomena with unrelated causes. We derive all three quantities — the pulse period and both edges of the hum band — from one terrestrial radius, the Mohorovičić discontinuity at 20000/π km, using only the primes 2, 3, 5 and π together with the register gears already established in the Universal Force of Time. The pulse period is $5^8\pi/(2^6\cdot 3^6)$ = 26.3028255810 s; the hum's lower edge is 2/π, its upper edge is nitrogen's atomic weight halved, and the span between them is $864/(25\pi^2)$. The derivation of the period is a closed loop: five operations return the anchor to itself, so the value is fixed by its own return rather than selected. A companion period, $2^3\pi^2/3$ = 26.3189450696 s, is reached independently by dividing the solar day by the square of the degree-radian veil and again through the Planck gear; the two periods stand in the ratio He/4, the two-face spin step of the theory, so the pulse is predicted to be a doublet at the fundamental and at every overtone. We give the resulting overtone set, which is fully determined and admits no free parameter, and state four measurements on existing archives that would falsify the account.

1. A note nobody struck

Somewhere off the west coast of Africa, the Earth is holding a note. Once every twenty-six seconds it sounds, faintly, and every seismometer on the planet hears it. It has been sounding without interruption for as long as we have had instruments sensitive enough to notice, and probably for a great deal longer than that. Nobody struck it. Nobody knows what is making it.

The story begins with Jack Oliver at the Lamont-Doherty Geological Observatory in the early 1960s, who noticed a regular pulse in records taken far from the Atlantic and traced it, roughly, to the equatorial south [1]. In 2005 a group at the University of Colorado cross-correlated ambient noise across many stations and pinned the source properly: a fixed point in the Gulf of Guinea, in the inner corner known as the Bight of Bonny, sitting on the continental shelf [2].

Since then the puzzle has only sharpened. The signal is not a rumble but a *note* — monochromatic, narrow-band, near 0.038 Hz. It does not come and go with earthquakes. It propagates as a Rayleigh wave at about 3.5 km/s, the group speed expected at that period. A 2023 study found frequency glides beginning at the same frequency from the same fixed location, and concluded that no observation yet brings us closer to the physical mechanism [3].

Three families of explanation have been offered: ocean swell breaking against the shelf, volcanic or hydrothermal activity near São Tomé, and resonance in fluid-filled crack networks beneath the sediments. Each is locally plausible — the Bight of Bonny has a shelf to break waves on and a volcanic line running through it. None explains why the period is *one number* that has not moved in sixty years.

This paper proposes that the period is not a property of the Gulf of Guinea at all. It is a property of the Earth, and it can be written down.

2. What the answer looks like, before the arithmetic

It is worth stating the result in plain terms first, because the mathematics that follows is elementary and the idea is what matters.

Consider a bell. A bell has a size, and its size fixes its note; you cannot change one without changing the other. Strike it anywhere and the same note comes out, because the note belongs to the bell and not to the hammer.

The Earth has a surface inside it that behaves like the rim of a bell. It is called the Mohorovičić discontinuity, or Moho — the boundary between the crust and the mantle, discovered in 1909 [4]. In the Universal Force of Time this surface is not merely a change of rock. It is the radius at which the inward (radial) and around (orbital) components of T-flow come into balance, so that no part of the planet is out of phase with any other. It is the planet's equalisation shell, and it sits at

6366.1977237 km (R = 20000/π)

Because this radius is fixed by the lattice rather than measured into place, so is everything that reads off it. The claim of this paper is that Earth's ambient seismic background — the hum at the bottom, the 26-second note above it, and the band between them — is that one surface, read three ways.

A twelve-year-old can hold the whole argument: *the Earth is a bell, we know its size, and if you know a bell's size you know its note.* The rest is showing that the arithmetic works.

3. The apparatus

Four quantities are used throughout, all of them already established in the corpus and none introduced for this problem.

The veil. The Universal Force of Time holds that the true universe is graduated in degrees while our measurements are taken in radians, so a conversion factor appears wherever a rotational quantity is read as a linear one:

57.29577951 (180/π)

The day pivot. The solar day is 86400 seconds ($2^7 \cdot 3^3 \cdot 5^2$), and the number 864 acts throughout the theory as the gear between temporal registers.

The Moho base. The equalisation radius expressed through the veil:

364.7562611124 (3600/π²)

364.7562611124 ÷ 57.29577951 = 6.3661977237

The register gears. Two integers recur as the conversions between energy, wavelength and circumference: 31104 ($2^7 \cdot 3^5$) and 10368 ($2^7 \cdot 3^4$). They are not fitted here; they are quoted from the established conversion loop.

→ Want this in full? See the companion paper: The Degree-Radian Bridge and the Conversion Loop.

4. The pulse: a closed loop on the Moho

The derivation is a cycle. Begin at the Moho base, apply four operations, and the fifth returns the starting value. Nothing is chosen along the way; the anchor is fixed by its own return.

364.7562611124 ×10 ×12 ×31104 ÷10^8

13.6144544948 eV ($2^6 \cdot 3^8/(5^5\pi^2)$)

This is an ionisation-register energy. Dividing by the shell count and restoring the four-fold gives

13.6144544948 ÷ 9 × 4 = 6.0508686643

and one turn converts it to a frequency:

38.0187290875 ($2^9 \cdot 3^6/(5^5\pi)$ = 373248/3125π)

from 6.0508686643 × 2π

Dividing back through the two register gears returns the anchor exactly:

38.0187290875 ×10^8 ÷ 31104 ÷ 12 ÷ 10^5 = 364.7562611124

Read as millihertz, the frequency reached at the third step is the pulse. Its period is therefore

T = 26.3028255810 seconds ($5^8\pi/(2^6 \cdot 3^6)$ = 390625π/46656)

f = 0.0380187290875 Hz ($2^9 \cdot 3^6/(5^5\pi) \times 10^{-3}$)

5. The companion face, from the day and the veil

Alongside the anchor there is a second, shorter derivation. It does not reproduce the anchor; it lands one spin step away from it, and we set it out here because that step turns out to be the informative part. Square the veil:

3282.8063500117 ($(180/\pi)^2 = 32400/\pi^2$)

and divide the solar day by it:

T = 26.3189450696 s (86400 ÷ 3282.8063500117 = $2^3\pi^2/3$)

One solar day, referred twice through the degree-radian veil. A single rotation of the planet, converted twice between the degree domain and the radian domain, is an interval of the equalisation shell — but it is not the interval reached by the closed loop of Section 4.

A third route reaches the same value. Through the Planck gear h = 125/6π, the veil gives 379.9544386588 (3750/π²), a quantity already established in the corpus as the ultraviolet-violet seam of visible light; read at 10^{-4} it yields a frequency whose period is again 26.3189450696 s. The two are not independent:

$10^4/3750 = 8/3$ and $86400/32400 = 8/3$, so the day-and-veil route and the Planck route are algebraically the same statement, and both give $2^3\pi^2/3$.

So the shell is reached twice over on this face, and once — by a closed loop — on the other. The relation between the two faces is exact, and is the subject of Section 8.

6. Both edges of the hum band

Earth also sustains a set of continuously excited global normal modes — the hum — in a band conventionally quoted as 2 to 7 mHz, with an amplitude of order one nanogal over a 100 μHz bandwidth, attributed to long-period ocean waves interacting over the continental shelves [5,6]. This is a different phenomenon from the pulse: the hum is a standing global mode, the pulse a travelling wave from a point. Conventional seismology assigns them separate mechanisms.

The lower edge. Take 2 mHz and refer it through one turn:

0.3183098862 ($2 \div 2\pi = 1/\pi$)

0.6366197724 ($\times 2 = 2/\pi$)

which is the Moho radius. A second route reaches the base instead, through the free-fall gear $7776/5\pi = 495.0355349930$:

$$(2/2\pi) \times (7776/5\pi) \times 2 \div 864$$

0.3647562611 ($31104/8640\pi^2 = 3.6/\pi^2$)

The reduction is exact because $31104/8640 = 18/5$. The lower edge of the hum band is the equalisation radius.

The upper edge. The quoted figure of 7 mHz appears to carry the prime 7, which the {2,3,5,π} lattice does not admit. It does not: the edge is nitrogen's atomic weight halved.

N = 14.00664042672 ($3456/25\pi^2$)

N ÷ 2 = 7.00332021336 ($1728/25\pi^2$)

with $1728 = 12^3$ ($2^6 \cdot 3^3$). The chain from this edge to the anchor runs through the free fall and through $g_{Moho} = 3000/\pi^5$, and collapses to a single division:

N ÷ 384 → 364.7562611124 ($9/25\pi^2$)

since $3456/384 = 9$ and $384 = 2^7 \cdot 3$

which is the Moho base. **The upper edge of the hum band is nitrogen, geared by 384, onto the equalisation shell** — and nitrogen constitutes 78.125% ($5^4/8$) of the atmosphere.

The span. The ratio of the two edges is

3.5016601067 ($7.00332021336 \div 2 = 864/25\pi^2$)

the day pivot over $25\pi^2$. The band is not 3.5 wide; it is $864/(25\pi^2)$ wide.

→ Want this in full? See the companion paper: The Atmospheric Register and the Nitrogen Carrier.

7. Why the Gulf of Guinea

A derived frequency does not by itself explain a fixed location, and this is the sharpest objection the account faces. If the equalisation shell is global, why does the note radiate from one point rather than appearing as a global standing mode?

The distinction matters and we state it plainly. Earth's genuine global oscillations — the hum — do appear as normal modes, with a standing pattern and the same phase relationships everywhere. The 26-second signal does not. It is a travelling Rayleigh wave radiating from a point. So the observation constrains the account: the *note* is set by the shell, but the *striking* is local.

The shell is not at constant depth. The Moho lies roughly 35 km beneath continental crust and approximately 7 km beneath ocean floor, so at a continental shelf edge the equalisation surface steps. The Bight of Bonny is such an edge, and it lies within a few degrees of the equator — which in this framework is the H-bond axis of the planetary double strand, the locus at which the two T-flow polarities cancel.

A bell does not sound from the centre of its wall. It sounds from the rim. The proposal is that the shell rings where it has an edge, and that of the available edges the one that sounds lies on the axis.

We label this a hypothesis rather than a result, and it carries its own test: other Moho steps at low latitude should carry the same note more faintly, with amplitude scaling with the size of the step. That has not been looked for.

8. The step between the two faces

Sections 4 and 5 give two periods. They are close, and the distance between them is not a residual to be explained away — it is one of the standing operators of the theory. The two stand in the ratio

1.000612842468 ($26.3189450696 \div 26.3028255810$)

which is $He/4 = 1.000612842475$, the universal two-face step — one spin flip, the same operator that separates the two hydrogen atomic weights and the two boundary radii of the Moho seam. The two periods are therefore not rival readings of one quantity, and neither is an error in the other. They are the **two spin faces of one pulse**:

The two faces

face	period (s)	reached by
anchor	26.3028255810	closed loop, §4
companion	26.3189450696	day ÷ veil²; Planck gear, §5

We take the Moho face as the anchored one on two grounds. Its derivation is a closed loop, which fixes a value, whereas the companion face is reached by open chains, which demonstrate only that a route exists. And $3600/\pi^2$ is the equalisation radius itself, which is what the sounding of a shell requires.

This yields the sharpest prediction in the paper. If the pulse has two spin faces, a sufficiently resolved spectrum should show not a single line but a **pair**, separated by one He/4 step, at the fundamental and at every overtone. No local resonance — a gas pocket, a crack network, a wave-shelf interaction — has any reason to produce a doublet at a fixed ratio.

9. The overtone set

With the fundamental fixed in closed form, the overtones follow with no freedom whatever. There is no parameter left to adjust.

Predicted line set, anchor face

n	period (s)	frequency (Hz)
1	26.3028255810	0.0380187290875
2	13.1514127905	0.0760374581749
3	8.7676085270	0.1140561872624
4	6.5757063953	0.1520749163499
6	4.3838042635	0.2281123745248
8	3.2878531976	0.3041498326997
12	2.1919021318	0.4562247490496

Each of these is doubled by the He/4 step of Section 8.

10. What would falsify this

The account makes four statements that existing archives can test. We regard the third as decisive.

(i) The period. A monochromatic signal recorded continuously since the 1960s can be determined to many more figures than the three currently published. The prediction is 26.3028255810 s. No mechanism proposed to date predicts any particular value, so this is a test only the present account can fail.

(ii) Stability. An address does not drift. A gas pocket, a sediment crack or a wave-shelf interaction must drift, because each depends on temperature, sea state, pressure or loading. Sixty years of records will settle whether the period has moved. The frequency glides reported in 2023 [3] are the place to look, and they are treated there as an anomaly rather than a diagnostic.

(iii) Other sources. On this account the frequency is a property of the planet, not of the Gulf of Guinea. Any other persistent monochromatic microseism source — and several are reported, including near Vanuatu and in the Kyushu region — should therefore carry *the same* frequency rather than an idiosyncratic one. A gas pocket's pitch depends on the pocket; an address depends on nothing local. If each reported source has its own distinct frequency, the present account fails.

(iv) The pairs. Each line should be double, separated by the He/4 step. This is the hardest of the four to attribute to any local resonance.

We note also what the account does *not* claim. The source location is a hypothesis (Section 7), not a derivation; our reading of the upper hum edge as N/2 requires that edge to be determined more precisely than it is; and the interval between the hum floor and the pulse — a factor 19.009365 — has no closed form at present and is recorded as unread.

Propositions

P-PULSE-1 The Mohorovičić discontinuity at **6366.1977237 km** (20000/π) is the terrestrial equalisation shell: the radius at which radial and orbital T-flow are in balance. It is a lattice address, not a compositional accident.

P-PULSE-2 The 26-second Gulf of Guinea microseism has period **26.3028255810 s** ($5^8\pi/(2^6\cdot3^6)$) and frequency **0.0380187290875 Hz** ($2^9\cdot3^6/(5^5\pi)\times10^{-3}$). The derivation is a closed loop on the Moho base and admits no free parameter.

P-PULSE-3 The companion face is **26.3189450696 s** ($86400/(180/\pi)^2 = 2^3\pi^2/3$) — one solar day referred twice through the degree-radian veil. The Planck gear reaches the same value, the two routes being algebraically identical since $10^4/3750 = 86400/32400 = 8/3$.

P-PULSE-4 The lower edge of the global hum band is **0.6366197724** ($2/\pi$), reading directly onto the Moho radius; a second route through the free-fall gear gives **0.3647562611** ($3.6/\pi^2$), the Moho base.

P-PULSE-5 The upper edge of the hum band is not 7 mHz but **7.00332021336** ($N/2 = 1728/25\pi^2$), half nitrogen's atomic weight, and N ÷ 384 returns the Moho base. The band span is **3.5016601067** ($864/25\pi^2$).

P-PULSE-6 The pulse has two spin faces separated by **1.000612842475** (He/4): the anchor face at **26.3028255810 s** (closed loop, §4) and the companion face at **26.3189450696 s** ($2^3\pi^2/3$) (day-and-veil and Planck routes, §5). They are not rival readings of one quantity; every observed line should therefore be a pair.

P-PULSE-7 The overtone set is fully determined by the fundamental. Any line not in the set of Section 9, and any drift of the fundamental over the instrumental record, falsifies P-PULSE-2.

P-PULSE-8 [Hypothesis, not derived] The source is localised where the equalisation shell has an edge — a continental shelf step — lying on the equatorial H-bond axis. Other low-latitude Moho steps should carry the same note at lower amplitude.

References

[1] J. Oliver, Lamont-Doherty Geological Observatory. Early identification of the persistent twenty-six-second signal, early 1960s.

[2] G. Bensen et al., *Locating the source of the twenty-six-second microseism by cross-correlating records of ambient seismic noise*, American Geophysical Union Fall Meeting, 2005.

[3] C. Hadziioannou et al., *Gliding tremors associated with the 26 second microseism in the Gulf of Guinea*, Communications Earth & Environment 4, 176 (2023).

[4] A. Mohorovičić, *Das Beben vom 8. X. 1909*, Jahrbuch des meteorologischen Observatoriums in Zagreb, 1910.

[5] S. C. Webb, *The Earth's hum: the excitation of Earth normal modes by ocean waves*, Geophysical Journal International 174(2), 542 (2008).

[6] J. Rhie and B. Romanowicz, *Excitation of Earth's continuous free oscillations by atmosphere-ocean-seafloor coupling*, Nature 431, 552 (2004).

[7] S. Daubney, *The Universal Force of Time — Master Compendium v5*, The Daubney Foundation, 2026.

[8] S. Daubney, *The Degree-Radian Bridge*; *The Atmospheric Register*; *Earth Interior Equalisation*. The Daubney Foundation, 2026.

Figures

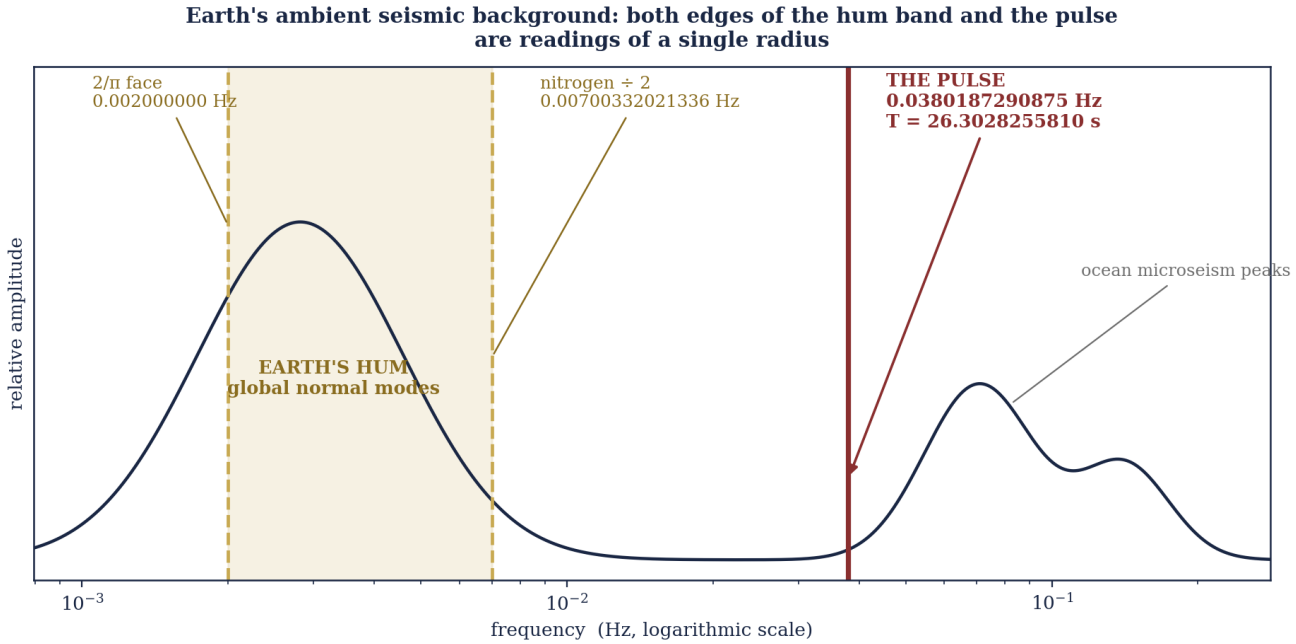

Figure 1. Earth's ambient seismic background. The hum band's lower edge is 2/π, its upper edge is nitrogen halved, and the 26-second line sits above the band. Conventional seismology attributes the hum to ocean-wave forcing and leaves the line unexplained; here all three are readings of one radius. The background envelope is schematic; the three marked frequencies are the derived values.

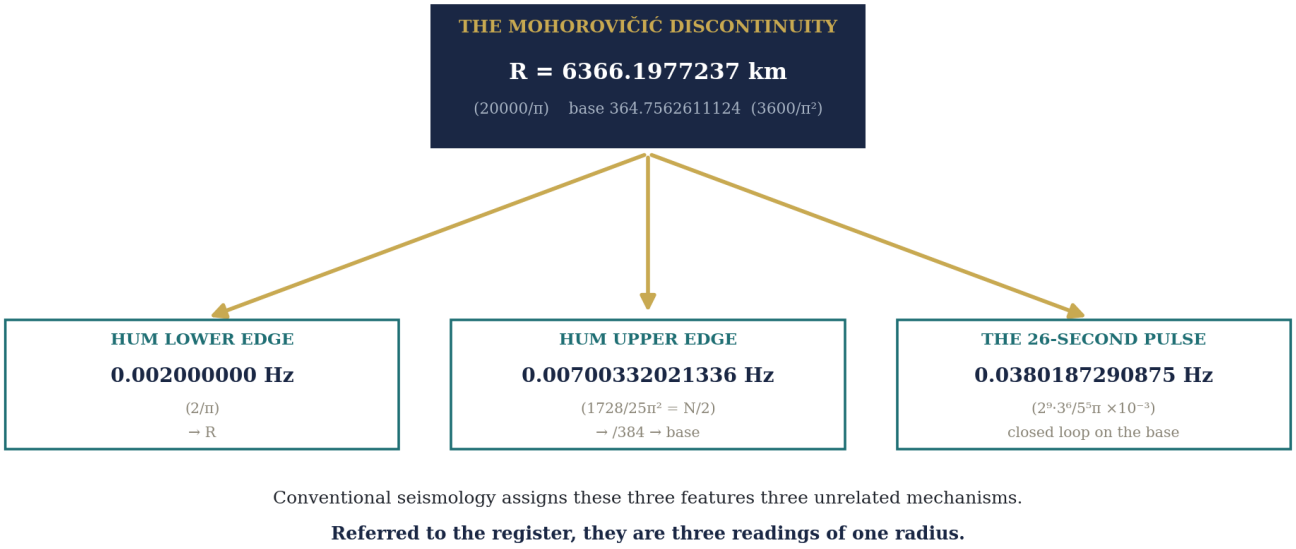

Figure 2. One surface, three features. The route to each differs; the anchor does not.

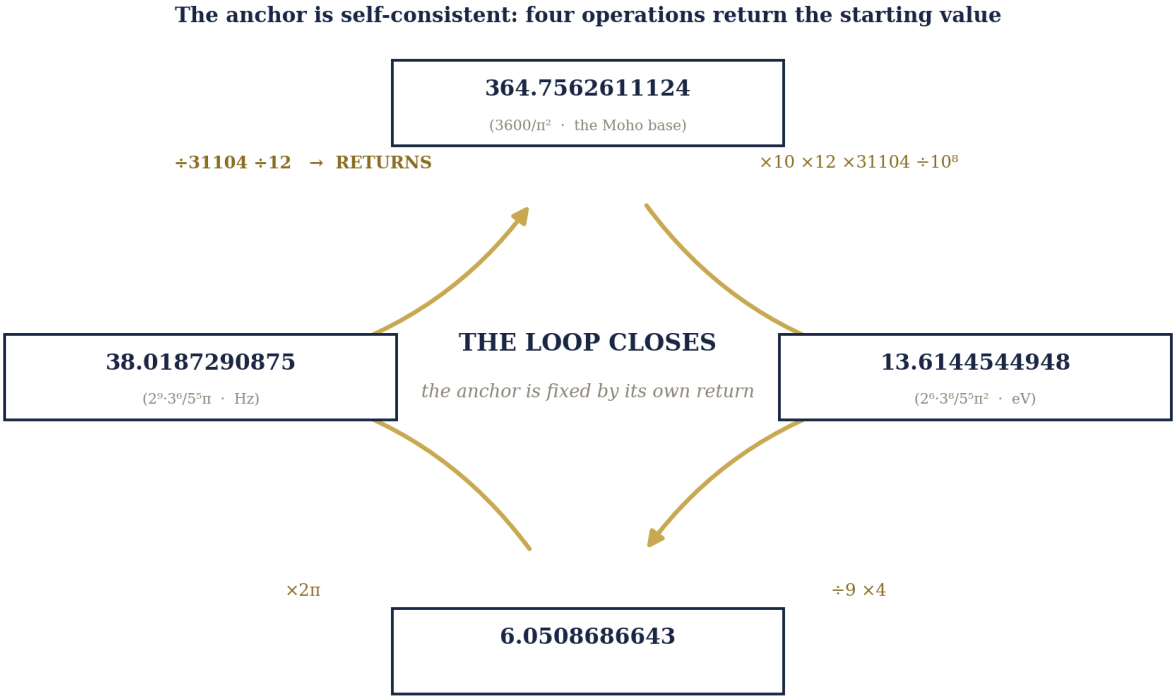

Figure 3. The derivation of Section 4 is a closed cycle. Four operations carry the Moho base to a frequency; the fifth returns it. A closed loop fixes its own value — no step is available for adjustment, and the anchor cannot be moved without breaking the return. An open chain demonstrates only that a route exists.

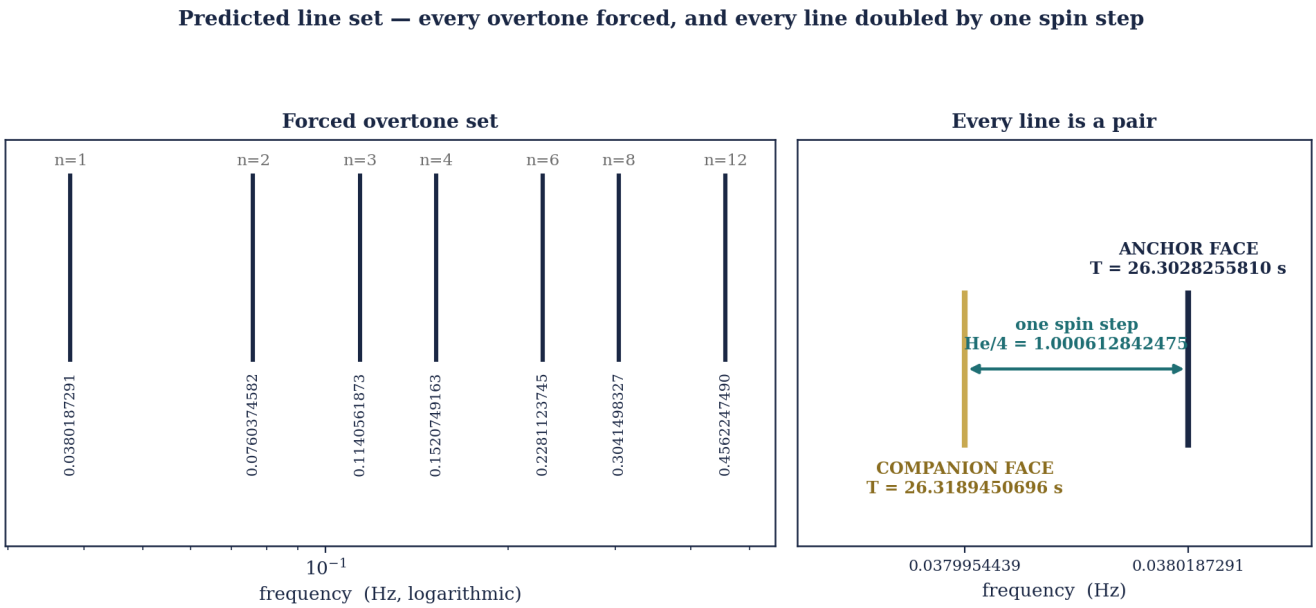

Figure 4. Left: the forced overtone set of Section 9. Right: the two spin faces of the fundamental, separated by one He/4 step. The prediction is that every line in the left panel is a pair of the kind shown on the right.

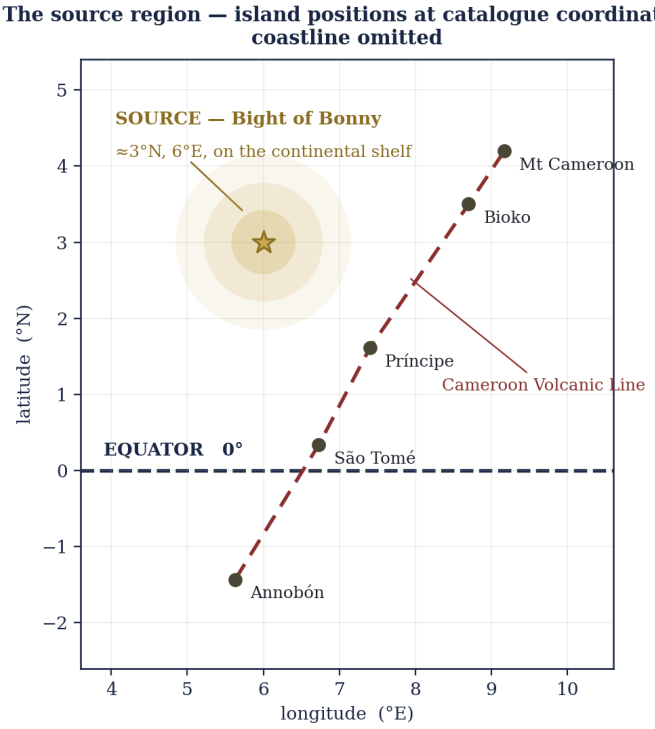

Figure 5. The source region. Island positions are at catalogue coordinates; the coastline is omitted rather than approximated. The source lies where three features intersect — the equator, the continental shelf edge, and the Cameroon Volcanic Line. São Tomé is at 0.34°N.

Appendix — the conversion gears used

Every operator in this paper is drawn from the established conversion loop. None was introduced for this derivation. The number leads; its lattice form follows in brackets.

gear	value	lattice form	role in this paper
the veil	57.29577951	180/π	degree ↔ radian; squared, it divides the day into the companion face
day pivot	86400	$2^7 \cdot 3^3 \cdot 5^2$	the solar day; 864 as the register gear
Moho radius	6366.1977237 km	20000/π	the equalisation shell
Moho base	364.7562611124	3600/π²	the anchor of the closed loop
g_{Moho}	9.803290929	3000/π⁵	free fall at the Moho register
free-fall gear	495.0355349930	7776/5π	wavelength ↔ free fall
eV ↔ wavelength	31104	$2^7 \cdot 3^5$	closes the loop of Section 4
eV ↔ kJ/mol	10368	$2^7 \cdot 3^4$	register conversion
Planck gear	6.631455962	125/6π	one route to the companion face
two-face step	1.000612842475	He/4	separates the anchor from the companion face
nitrogen	14.00664042672	3456/(25π²)	the upper hum edge, halved
nitrogen gear	384	$2^7 \cdot 3$	carries nitrogen to the Moho base

A Note on the Numbers

Every value here is given at full precision, because the precision is the evidence. A quantity truly on the {2,3,5,π} lattice does not approximate a lattice form; it *is* one. Where a value has not been read onto the lattice we say so rather than rounding until it appears to fit. And a number in this framework is not a measurement of one thing: it is one address that may surface as a period, a frequency, a radius, an energy or a proportion, depending only on the register in which it is read — the same value appears in this paper as a seismic period, an atmospheric proportion, an ionisation energy and a depth within the Earth.

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