Atmospheric-Based Gravitic Theory Using Acoustic Bjerknes Forces

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Abstract

This paper introduces a novel reinterpretation of gravitational force as a function of resonant atmospheric wave pressure, generated through solar-induced seismic excitation and propagated through the Earth's atmosphere as infrasonic fields. Drawing from fluid dynamic principles—specifically the Primary Bjerknes Force—this model replaces Newtonian attraction and Einsteinian curvature with impedance-driven acoustic compression. Objects are not pulled to the Earth's center; they are pressed upon from above by persistent oscillatory waveforms that permeate the atmosphere due to the Earth's continuous mechanical resonance. The net result is a downward force that scales with object rigidity, size, and its resistance to the surrounding oscillatory field.

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1. Introduction

Conventional models attribute gravity to either the curvature of spacetime (General Relativity) or to mass-based attraction (Newtonian Mechanics). Both frameworks, while mathematically robust, lack a mechanistic medium-based cause. This theory repositions gravity within a compressible medium—specifically Earth's atmosphere—by treating infrasonic oscillations as the active agent responsible for the net downward force experienced as gravity.

The theory builds upon the Primary Bjerknes Force: a known fluid-dynamic principle where an object immersed in an oscillating pressure field experiences directional force based on its impedance mismatch with the surrounding medium. In this reinterpretation, solid objects on Earth are pressed downward not because of a pull from mass, but because the atmosphere is oscillating in vertical pressure gradients produced by internal seismic excitation and magnetically induced resonance.

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2. Mechanism of Atmospheric Gravity

2.1 Seismic-Acoustic Coupling from Solar Induction

The Sun emits continuous low-frequency electromagnetic energy—including ELF, ULF, and Alfvén waves—via solar wind and coronal disturbances. These waves couple into Earth's magnetosphere, entering preferentially through the polar regions along Birkeland currents. Once coupled into the Earth's

system, this electromagnetic input induces oscillations in the conductive molten outer core, in accordance with Lenz's Law.

These internal oscillations result in a continuous seismic hum that propagates upward through the mantle and crust and into the atmosphere. Upon crossing the crust-atmosphere boundary, these vibrations convert into atmospheric infrasound fields, primarily between 0.001 and 20 Hz.

2.2 Formation of Standing Infrasound Pressure Gradients

These infrasonic waves propagate through the stratified atmosphere, forming vertically oriented standing wave fields. Due to the Earth’s shape, density profile, and resonance, these waves maintain persistent vertical pressure zones.

These zones are not uniform—they vary in phase and intensity depending on solar activity, geomagnetic feedback, and the geophysical properties of the region. Despite this variability, a continuous downward pressure field exists, saturating the atmospheric column with mechanical oscillations.

Solid objects within this field—due to their higher stiffness and density compared to air—cannot respond to the pressure oscillations in phase. This leads to an impedance mismatch. As a result, net pressure builds along the top of the object’s surface with less pressure support below, resulting in a unidirectional force pressing downward: this is experienced as weight.

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3. The Role of Impedance Mismatch and the Bjerknes Force

The Primary Bjerknes Force quantifies how a body in an oscillating pressure field experiences net directional motion when it does not oscillate in perfect phase with the surrounding fluid. Originally formulated for gas bubbles in liquid, the principle is scaled here to describe how solid objects interact with infrasonic wave fields in the atmosphere.

When the pressure field oscillates faster than the response time of the object, the surrounding fluid oscillates around the object while the object remains relatively still. This results in asymmetric pressure—greater on one side (typically the top)—and a resultant net force.

In Earth’s case, this manifests as a downward acceleration. Importantly, this force arises entirely from wave dynamics and phase interference, not from gravitational “pull.” It is a mechanical interaction within a compressible medium driven by continuous oscillation.

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4. Atmospheric Stratification and Vertical Force Gradient

The Earth's atmosphere is stratified into layers of decreasing density and temperature with increasing altitude. These layers—troposphere, stratosphere, mesosphere, and thermosphere—each have different acoustic impedance properties.

As infrasound waves propagate vertically, they are partially reflected, refracted, and attenuated by these layers. This creates a quasi-stable resonant cavity between the Earth's surface and upper atmosphere, sustaining the pressure field. Pressure fluctuations accumulate most significantly near the surface, where density is highest and solid bodies are most impedant. This maximizes the downward pressure at ground level.

This layered waveguide acts like a massive Helmholtz resonator, shaping the frequencies and intensities of infrasonic pressure waves, and hence, modulating the strength and consistency of the downward force experienced across Earth's surface.

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5. Implications for Weight, Mass, and Local Gravity Variation

In this model, **weight** is not a measure of gravitational attraction but a result of the force exerted by the atmospheric pressure wave field on an object’s surface area and impedance. Objects of equal mass but differing impedance profiles may experience subtly different downward pressures depending on geometry, material density, and location within the atmospheric cavity.

Similarly, local variations in gravity—historically attributed to variations in Earth’s mass density—may instead be due to acoustic field phase variations, thermal gradients, or electromagnetic resonance differences between regions.

Weight becomes a measure of **resistance to oscillation in a vertical standing wave field**, not an effect of mass attracting mass.

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6. Conclusion

Gravity, in this framework, is no longer an intrinsic property of matter or a geometric distortion of space. It is a **pressure-based phenomenon**—a mechanical result of wave-induced force fields formed through atmospheric resonance. The Sun acts as the initiator via magnetohydrodynamic excitation. Earth responds with seismic motion, which in turn produces infrasonic wave pressure that organizes into a standing oscillatory field within the atmosphere.

Through the lens of Primary Bjerknes Forces and impedance mismatch, this field exerts a downward force on all solid objects. This theory aligns with known fluid dynamics, observable wave behavior, and recent atmospheric and geomagnetic studies. It invites a reevaluation of gravity not as an invisible pull, but as a tangible acoustic push generated by solar-terrestrial resonance.

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