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Core Pressure (Rev. 1.1)

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0. Introduction

The purpose of this paper is to identify the internal pressure and structure of any planetary body.

*(Refer to **Appendix 1** for an explanation of the papers, mathematical formulas, constants, symbols and units used in this document)*

1. Conclusions

Core pressure may be calculated using a combination of Newton's laws of motion and spin theory.

The internal pressures and structure of a planet (or in fact any planetary body) may be calculated using core pressure and spin theory.

1.1 Further Work

Verify with physical measurements

2. The Body System

Any mass of any size and shape.

3. Methodology

Use Isaac Newton's laws of motion and planetary spin theory to determine the internal pressure and structure of a planetary body such as the earth.

4. Calculations

Isaac Newton's well-known formula can be modified to determine gravitational acceleration at the surface of a sphere thus:

$F = G.m_1.m_2 / R^2$

where 'R' is the radius of the sphere, 'm_1' is the mass of the substance inside the pressure plane (Fig 1) and 'm_2' is the mass of substance above the pressure plane.

The above formula may be modified to determine the pressure at the pressure plane by F/A

where A is the area of the pressure plane

An active planetary body will comprise a number of layers each of varying density that can be accommodated using the polar moment of inertia for a thin shell of varying density:

$J = 8.532041001 \times m_n \times (\rho_2.r_1^5) / (\rho_1.r_2^3)$

where 'm_n' is the mass of the shell, ρ_2 is its density at its outer radius (r_2) and ρ_1 is its density at its inner radius (r_1)

We already know the polar moment of inertia (J) for any planetary body, which can be determined using spin theory.

All we need to do is calculate the 'best-fit' arrangement of the various layers from the information we know. For example the inner-core of the earth is said to be 13,000 kg/m³ and the density of the outer surface is seawater (slightly higher than this actually) but following calculator shows a compatible construction for the earth based upon such data (Fig 1).

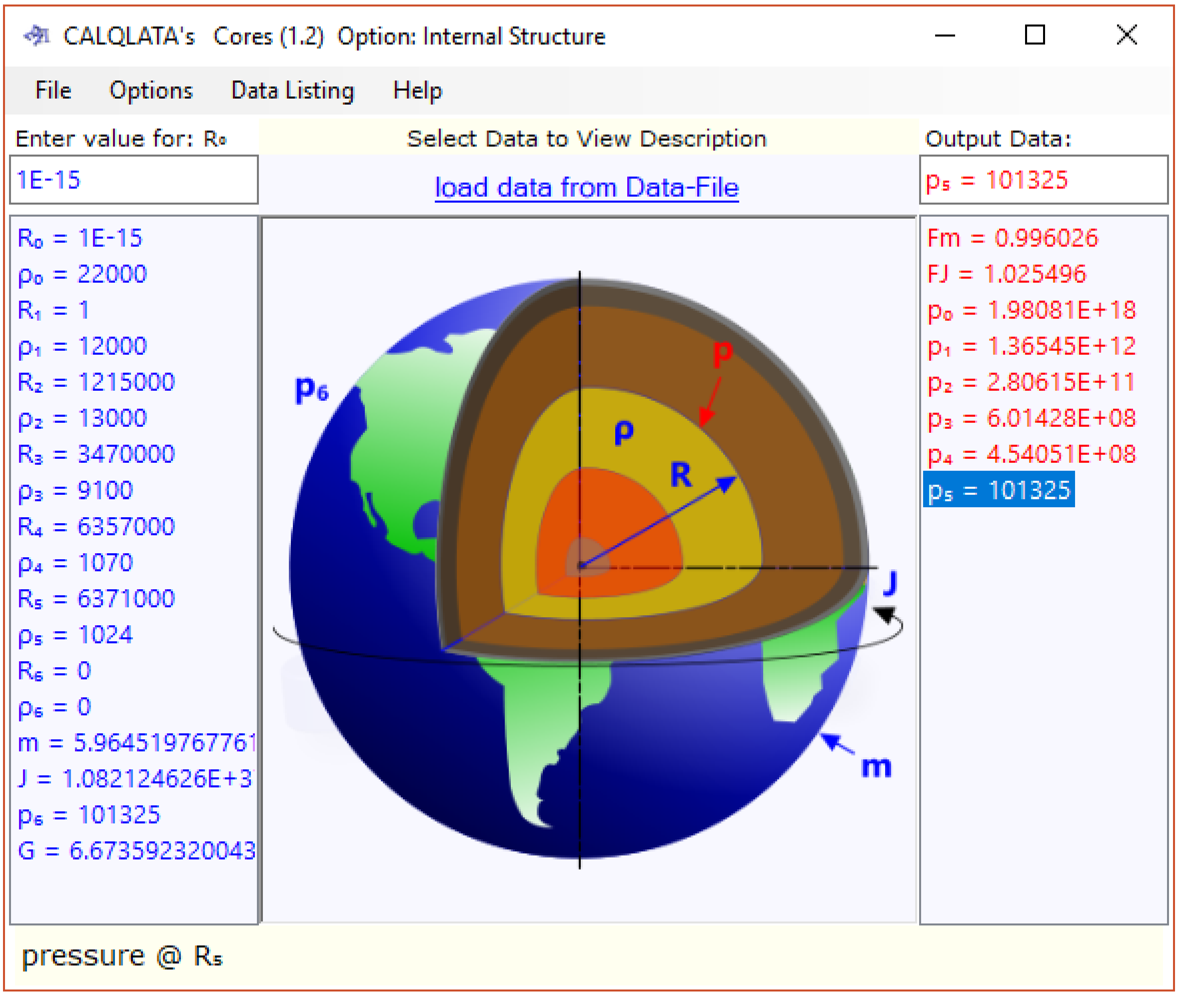

Fig 1 (CalQlata's Core Pressure Calculator)

The above calculation achieves virtually 1.0 for both factors; Fm and FJ (for mass and polar moment of inertia) and reveals the reason why the substructure of mountain ranges falls away from its continental mass; the density of the continental crust upper mantle is higher than the upper mantle, and as such once melted will fall into the mantle.

An earth of constant density (5506.35 kg/m³) would have a polar moment of inertia of 9.68391E+37 kg.s² as shown in Fig 2 in which Fm & FJ are both equal to 1.0

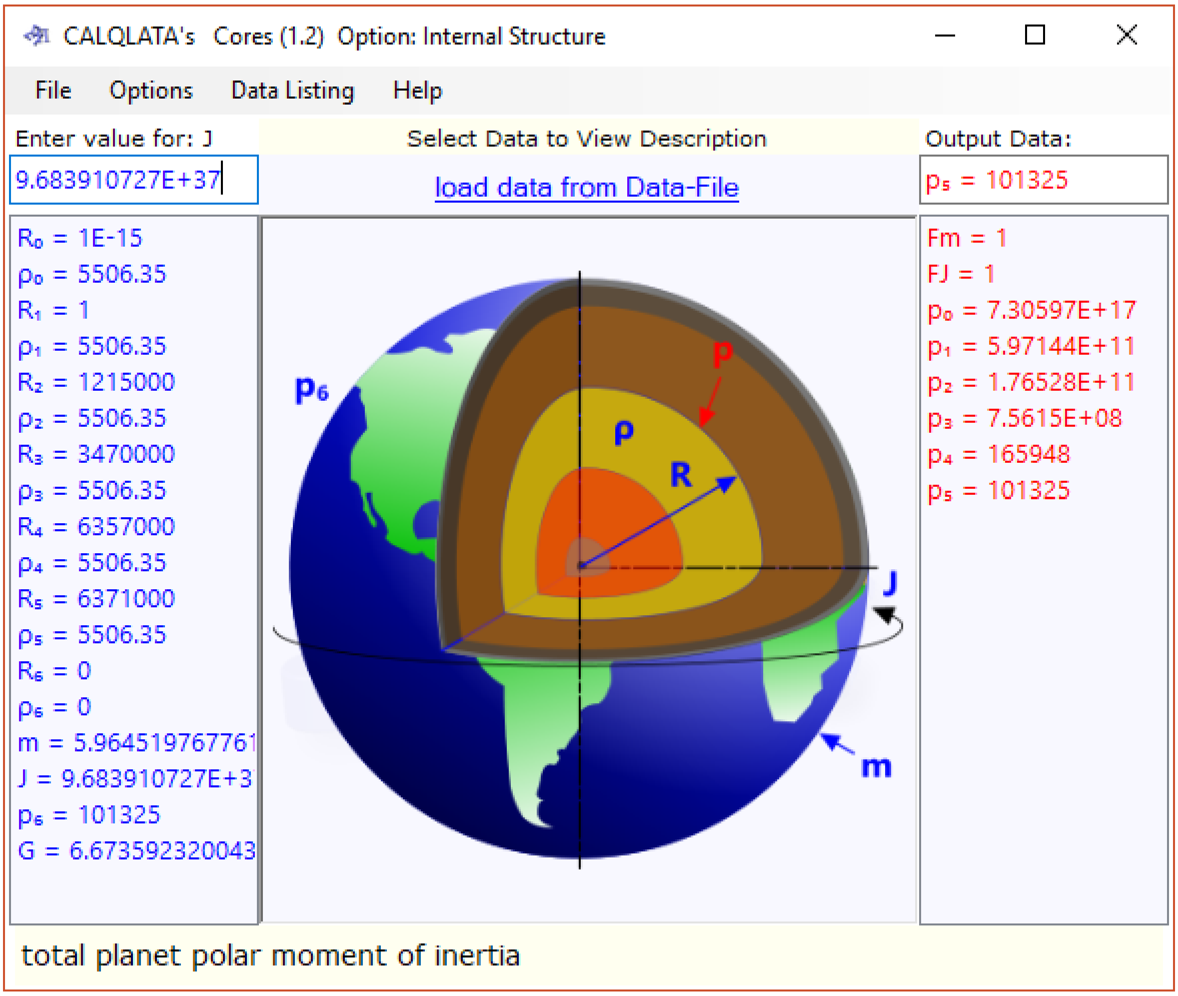

Fig 2 (CalQlata's Core Pressure Calculator)

5.0 Calculation Results

The earth comprises a number of layers similar to those shown in Fig 1 that match its behaviour according planetary spin theory; where J = 1.082125E+37 kg.s²

Given that Newton's laws of motion are known to be correct, and that planetary spin theory accord exactly with Newton's laws of motion as does the above Core Pressure, it is concluded that Fig 1 may be regarded as representative of the earth's construction

5.1 Claims

Claim 1: The pressure at the centre of the earth and probably any other planet (not star) is less than that required to generate Fissionable energy

Claim 2: The density of the earth's upper mantle is significantly less than the continental crust, but far hotter (upper mantle plumes) and sufficient to melt the substructure of mountains

Claim 3: The pressure at the centre of the earth's inner core is 1.35E+07 ≈bar

Appendix 1: Papers, Mathematical Symbols & Units

Isaac Newton's gravitational constant: G = 6.67359232004332E-11 $m^3/kg/s^2$

This paper should be read in conjunction with the following:

http://calqlata.com/Maths/Formulas_Orbits.html

http://calqlata.com/Maths/Formulas_Planetary_Spin.html.

http://calqlata.com/Maths/Formulas_Laws_of_Motion.html

http://calqlata.com/Maths/Formulas_Orbits.html

http://calqlata.com/Maths/Formulas_Planetary_Spin.html

http://calqlata.com/Maths/Formulas_Dark_Matter.html

Refer to CalQlata's **Definitions** (http://calqlata.com/help_definitions.html) for an explanation of the terms used in this paper