

# **TIDAL PUMPING BY THE SUN'S GRAVITY DRIVES TECTONICS, SUBMARINE VOLCANISM, CONTINENTAL LAND FORMATION, AND THE EL NINO SOUTHERN OSCILLATION**

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**AUTHOR INTRODUCTION:** Retired and Independent researcher. Entire career in the private sector. No employment in academia nor government service. BChE Chemical Engineering Univ. of Detroit-Mercy 1973, MBA Univ. of Delaware 1980, Professional Engineer (non-practicing). Member American Geophysical Union and Geochemical Society. Forty (40) years experience in industrial commodity chemical processes, much as Earth's geochemical processes. Thirty two (32) years with E.I. DuPont de Nemours in Process Engineering, Design, and Project Engineering leadership. This paper is entirely my own based upon my engineering education, experience, literature search, and logical deduction. I have received no funding for this work.

**PURPOSE:** My only wishes are to refute the fiction of man-made climate change, eliminate Energy Poverty from subsidized "unreliable energy" schemes and spur honest scientific study. Claims of man-made climate change have been used to assert political control and deprivation on human activity plus invite government exploitation in the Sciences. Academics continue pseudoscientific fiction in order to secure funding. Government grant funding corrupts all.

**SUMMARY** – Tidal Pumping (Tidal Heating) is the very well-known Astrophysical phenomenon wherein the gravity of a major celestial body exerts a "pumping" or drag force on a smaller orbiting celestial body as it swings through an eccentric orbit to drive tectonics, volcanism, and the movement of continental land masses. Prime examples include the volcanic moons of the gas giants as they swing through their eccentric orbits. Jovian moon Io is the most volcanic celestial body in the Solar System. The rings of the gas giants were formed as moons were ripped apart by Tidal Pumping forces. The Earth and Sun tidally pump Venus, producing circular corona volcanoes, a CO<sub>2</sub>-rich atmosphere and all-encompassing clouds of sulfuric acid. Sulfuric acid's heat capacity is approx. 1/3 that of water, thus sulfuric acid a far less powerful coolant.

The Sun exerts its most significant Tidal Pumping forces as the Earth swings through its Winter Solstice (approx. Dec. 21) followed closely by the Perihelion (the Earth's closest approach to the Sun, approx. Jan. 4). Combined with the counter-clockwise rotation of the planet, the Pacific plate is dragged from Southeast to Northwest. The Australian plate and Indian plate are pushed aside and dragged to the North. The Indian plate thrusts beneath the Eurasian plate and builds the Himalayas. Upwelling magma forms new crust as the East Pacific Rise is pulled westward and the Nazca plate is pushed eastward to subduct beneath the South American plate. The Cocos plate subducts beneath the Caribbean plate. Divergence at the Galapagos Triple Junction introduces seismic heat into the Equatorial Central Pacific, driving the annual El Nino. A fuller explanation of the El Nino Southern Oscillation is borne in "Tidal Pumping, Solar Weather, & Geothermal Heat drive Earth's Weather & Climate", Richard F. Cronin, August 31, 2025 (1).

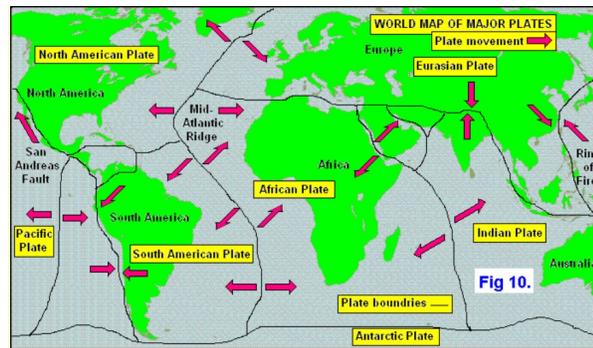
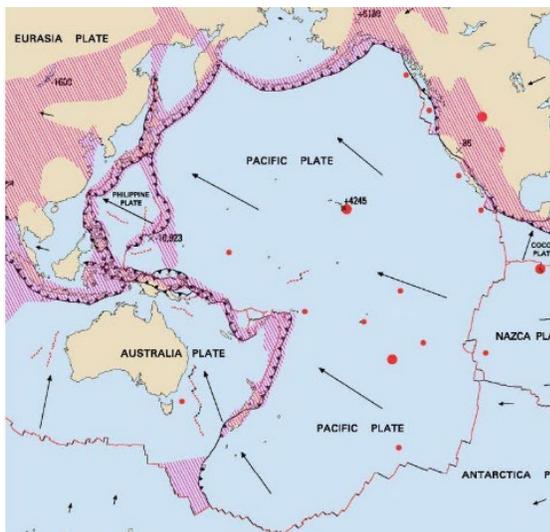
The Hawaiian Island chain was formed as the Pacific plate was dragged from Southeast to Northwest over the mantle plume volcanic source.

In the Northern Hemisphere and given the rotation of the planet, the movement of the Pacific plate changes to more northerly. The Emperor Islands extend North-Northwest. North-going transform faults extend from the Gulf of California, San Andreas fault, Mendocino Triple Junction, Cascadia Subduction Zone, Queen Charlotte Fault, Fairweather Fault, and then to the Aleutian Trench.

The North American plate and Eurasian plate mesh as gears. The North American plate is like the bull gear as it extends above the Eurasian plate in a counterclockwise rotation. The North American plate presses Southwest and the Eurasian plate rotates clockwise. All of this activity explains the concentration of continental lands masses in the Northern Hemisphere.

Tidal Pumping explains how new crust is formed as the Earth is pulled apart in the Southeast Pacific. The Antarctic plate is almost entirely separated by divergence, with only a convergent zone at Cape Horn and the Scotia plate. This represents the counterpoise to the Eurasian/North American juncture. The curved Antarctic Peninsula and the Aleutian island chain are complementary features. The Earth's crust is pushed apart by Expansion Tectonics, principally observed along the Mid-Atlantic spreading ridge system, the Central Indian Ocean Ridge, and the Great East African Rise. At a minimum, exothermic geochemical reactions produce gases and liquids which cause terrestrial expansion (1, 24, 42). Jan Mestan provides his concepts of the Chthonian planet (2) and J.M. Herndon describes "Whole Earth Decompression Dynamics" (56). There are a total of 65 references listed (pages 3 thru 7).

There are deep flaws in the concepts of Mantle Convection, "slab pulling", Supercontinents, and Continental Drift. Man-Made Climate Change is an almost criminal fiction (1)



**DEDICATIONS** - To the most special people in my life, Judy Cronin, love of my life, now departed, and our sons Steven and Robert.

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**AUTHOR AFFILIATIONS** – No affiliations. Semi-retired private consultant and lecturer.

**ETHICS DECLARATION** – I have no ethical conflicts nor outside influences in this work.

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