AOGS 2006
©2006 Asia Oceania Geosciences Society, Singapore

In the Pacific and Any Other Tectonic Belt Seismic and Volcanic Activity Relate to Positive Gravity, Geoidal, and Heat Flow Anomalies, i.e., Excess Mass, And Do Not Relate to Faults

STAVROS TASSOS

Institute of Geodynamics, National Observatory of Athens,
P. O. Box 200 48, 118 10 Athens, Greece, e-mail: s. tassos@gein. noa. gr

A simple observation on relevant maps shows that earthquakes and volcanoes in the Pacific Tectonic Belt, but also in the Hellenic Arc, and in any other tectonic belt, associate with high free-air gravity, geoidal, and heat flow anomalies, i.e., excess mass, and do not associate with faults. For example, the thousands kilometers long transform faults in the Pacific basin are earthquake free. In the context of Excess Mass Stress Tectonics (EMST), Earth's core, in compliance with existing evidence (high Q value, magnetism, etc) is considered to be a highly conductive, cold, high frequency, high potential energy, high tension location (Lagrangian point), in which the synthesis of new atoms of different elements constantly occurs. Z infinity space, as it was proposed by David Ford, treats space as a quantized, limitless, continuous, and perfectly elastic entity, which, due to its mass-inertia is endlessly oscillating at a limited speed, the 299792458 m/s of light speed. Z infinity space is the repository of all mass, and exhibits infinite impedance at speeds greater than light speed. Due to cosmic stretching, the Earth is under continuously increasing tension, i.e., gravitational attraction. Since the tension of space increases approaching infinity, there is a constant and linear frequency increase with time. As a result, the higher the nuclear binding energy of an atom, the later this atom will form. Therefore, iron having the highest nuclear binding energy of all elements, 8.8 MeV per nucleon, should be the last element to form, and the fact that the bulk of iron rich rocks is younger than about 200 m. y. is supportive of that reasoning, and of the juvenility of oceanic crust. Another important property of iron is that under high pressure its 4s orbital is brought down to the 3d orbital that can then be filled with 10 electrons, 5 more than without compression, forming the Fe(2-) anion. The newly formed in the outer core atoms that constitute the Excess Mass (EM) relative to the overlying mantle and crust, are emplaced atom by atom, the great bulk concentrically and the active part vertically, in the preexisting 'old' continental granitic crust, and cause its oceanization, and all other geodynamic phenomena. At depths shallower than 700 km the reduced iron atom is decompressed, acquires its oxidized low pressure configuration of Fe(2, 3+), releases its 4-5 "excess" electrons, and becomes an effective p-hole semiconductor. Thus the matter and energy transfer from the core to the Earth's surface is manifested by the positive gravity, geoidal, and heat flow anomalies, and is the cause of metallogeny and of the seismic and volcanic activity. Faults are a secondary effect and occur when the strength of the rock has been greatly reduced due to the increase of internal pressure, and/or the action of dynamic stress that produced an earthquake.