The Conditional Contributions of Electromagnetism and QED To Natural Hazards in Both Nano and Macro Cosmic Scales

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The Earth itself with its inwards and outwards is a unique and complete system according to all events effecting the Earth[1]. All the natural events involving hazards are the results of self-controlling mechanism of the complex network of this unique system. Several contributions and reports presented this fact. The classical approaches trying to explain earthquake events, say EQs, and related phenomena may be taken as approximations working for the EQs less than 5.9 Richter in magnitude according to observations coming from the application of this approach. The EQs bigger than 5.9 Richter involve very different ingredients given with dynamics based on the gravity in classical geophysics[1]. The ranges of (5.9+n, 5.9+n+1) for every n=1, 2, 3, ... present different formulations due to validity of the approximations and orders of the variables as relative to the energy density and frequency levels. The fact in here comes with the compactness coming with the electromagnetically equivalent models [1]-[21].

The planetary movements effect both the mechanics and dynamics of tectonic plates like tidal action of Pascal's law modified with stochastic interactions. The Earth's plates may move and collide with each other due to the forces generated by these displacements. The Primary wave comes from these mechanics of plates under planetary effects, tidal effects, and/or effects of extended Pascal's and Archimedes' principles for compressible liquids involving non-adiabatic gasses in semi-open containers. All these effects are effective in vertical direction, totally. P wave is a result of these forces generated by the dynamics of collision of plate-to-plate, plate-to-sea, plate-to-ocean, and/or plate-to-tidal processes coming from planetary motions and acts between plates. Secondary wave come from the effects of Casimir-Polder forces and Van der Waals potentials generated by the nano-displacements occurring among touch-to-touch phases of plates just at the end of P wave phases. These QED effects are effective in horizontal direction in total iff they can generate an EQ. If the plates touch to each other with the effect of forces coming from P wave then this induces Van der Waals potentials and forces like Casimir-Polder force work on the plates generating big amount of energy then big EQs can come to truth. It is possible to model the P wave phases with the deterministic ingredients and processes; however, modelling the S wave phases are not possible without stochastic ingredients and processes. The processes like storms, typhoon, *etc*. developing with the atmospheric events generate the similar effects. The waves coming with EQs propagate in inflective trajectories; therefore, these waves propagate in inflective spaces. This analysis illustrates the gravity interactions of the Earth with other planets generating electromagnetic interactions in both nano-scale and quantum level in Earth's interior as the actual trigger of EQs. The excessive fall works like the insurance for EQs preventing the occurrence of significant EQs and so, reducing the huge damage arriving from significant and/or bigger EQs.

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The Connection of Seismicity and Fall

The possibile correlation between atmospheric phenomena and earthquakes is given in Figure 1.
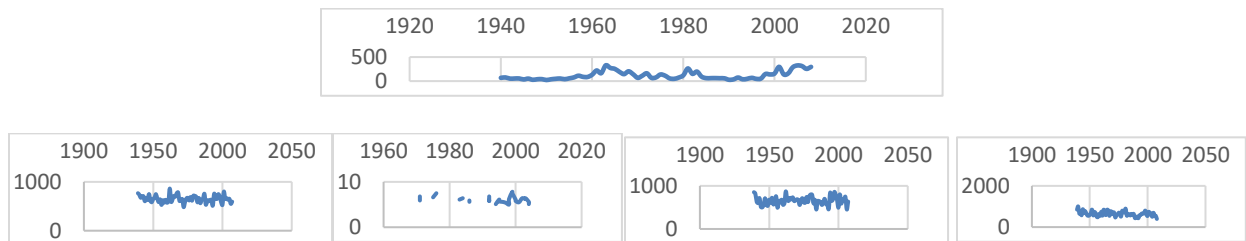

Figure 1. The parameters per year on Turkey: (a) Total number of atmospheric anomalies. (b) Total rainfall (mm). (c) Distribution of magnitudes (M_s) of significant EQs. (d) Total rainfall (mm) in Marmara region. (e) Total rainfall (mm) in Aegean region.

COMPACT NETWORK OF THE EARTH

Completely Compact Earth Network CCEN

Completely Compact Electromagnetically Equivalent Earth Network CCEEEN

The Compact System for the Earth's Natural Events

{Outer Space, Atmosphere, Lands, Oceans/Seas/Rivers, Techtonic Pleates, Magma}

ELECTROMAGNETİC-THERMAL-MECHANİCAL EVENTS

(Coupled) Thermo-electromagnetic problems
Thermal --- The effect of heat on EMF
Mechanical --- The effect of pressure on EMF

All the natural events and hazards involving disasters are the self-control mechanism of the CCEEEN.

PUSH\PULL effect [13]-[14]

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The QED Effect and Seismic Processes

The primary wave may be modeled with deterministic ingredients and processes; however, secondary wave has to be modeled with stochastic ingredients and processes. The primary wave comes from the mechanics of plates and a result of forces between plates generated by the dynamics of colliding plates. The secondary wave comes from the Casimir-Polder like forces and Van der Waals like effects generated by the nano structure occuring amoung touch-to-touch phases of plates just at the end of primary wave phases. The planetary movements effect both mechanics and dynamics of plates (similar to the tide that is visible easily with eye). Plates may move due to the forces generated by these displacements. The plates may collide to each other with the effects of these forces. If the plates touch to each other under the effect of these forces then Van der Waals like effects occur and Casimir-Polder like forces work on the plates generating big amount of energy able to come the big EQs to truth.

The roundtrips of electrons in the atomic orbits generate the periodical and vibrational effects during the EQ activities; therefore the periodicity and vibration of significant EQ activities depend on the periodical processes in the atomic structure instead of relating them with the solar orbit of the Earth. The shortness of the space of time of EQ is related to both the shortness of the periods of these atomic effects and the short-time existence of the nano-scale distances between the tectonic palates and/or faults.

The earthquake is a result of the specific interections among various gravity, electromagnetic, thermodynamical, dynamical, mechanical, and static phases. The hazards like seismicity, tsunami, and/or fire radiates various types of energy like gravity, electromagnetic, thermodynamical, and/or dynamical energy waves so that they may be transformed to the electromagnetic energy.

Earth Quake: Gravity, Electromagnetic, Mechanical, Dynamical, Static phases

---- The sea is a way and transfer medium for waves by Pascal's rule.----

The electromagnetic parameters of the ingredients of the Earth change with the climatic events like falling of rain, snow, etc.; i.e., the admittivities of lands, faults, rock masses, etc. increase with excessively falling of rain. If the end point surfaces of faults and/or tectonic plates are very close or touch to each others then electrical charge transfer between different sides of faults or

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tectonic plates increase and accelerated. This situation prevents the occurences of Van der Waals like potentials, so Casimir-Polder like forces are decreased.

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