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The compact electromagnetic device optimization modeling of seismo-electromagnetic processes for the Earth

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1 Abstract

The electromagnetically equivalent device model [1]-[2] is extended as considering the whole Earth like a complete system in this paper. The crustal structures are considered as a complex network of distributed circuits involving slot antenna arrays, open waveguides, cavities, transmission strip lines, attenuators, frequency converters, dividers, couplings in the electromagnetically equivalent device model of the complete system of Earth (EEDMCSE). The variations at the geo-data taken at any port of the EEDMCSE give some functional relationships on the electromagnetic characteristics of the distributed complex network explained above. The mappings said here are based on the transformations among both the temporal and the spatial variations of both geo-data and the electromagnetic characteristics of the distributed complex network [2]. The Finite Difference Time Domain Method is used at the evaluations. The temporal variations at the mappings of EEDMCSE at specific locations extract the mechanisms explaining the relationships among the characteristics of the distributed complex network and seismic phenomena of Earth in the future.

A mapping is established between the parameter space of the geo-data and the characteristics of the electromagnetically equivalent device model. The temporal variations of the geo-data are correlated to the self-optimizing the specific characteristics of the electromagnetically equivalent device. The relationships said here give a possibility of predicting the geo-data. Using the inverses of the mappings generates the evaluations giving the predictability conditions involving restrictions.

The inversion of the mapping exploits a fine model at predicting the natural iterations of the geo-data at future on both the region connected the port and some locations non-related to the port either geologically or seismically or phenomenologically relating to the earth [1] – [5].

2 References

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