

SEARCHING FOR THE EARTHQUAKE PRECURSOR SIGNATURES IN GEOPHYSICAL DATA: A COMPLEX APPROACH

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SEARCHING FOR THE EARTHQUAKE PRECURSOR SIGNATURES IN GEOPHYSICAL DATA: A COMPLEX APPROACH Troyan, V., 1Smirnova, N., 2Hayakawa, M., 3Kopytenko, Yu., 4Peterson, Th. 1St.Petersburg State University, St.Petersburg, Russia; 2The University of Electro-Communications, Tokyo, Japan; 3SPbF IZMIRAN, St.Petersburg, Russia; 4TFPLAB, Cleveland, Ohio, U.S.A. A new complex approach to the Earthquake Prediction problem was recently introduced by the present authors. It is based upon the following principal assumptions: The evolutionary process in the earthquake focal zone is considered as a self-organized critical process, involving interrelated seismo-tectonic and electromagnetic phenomena. The ULF band (0.01-1 Hz) is suggested as the most promising frequency range in which electromagnetic earthquake precursors could be identified. Geophysical diffraction tomography is included in the approach as a very effective method for the recovery of elastic and electromagnetic parameters of the Earth's interior. Perspectives of a ULF seismo-electromagnetic tomography experiment in a seismoactive region are discussed in relation to the earthquake prediction problem. The research was supported by grants 98-05-65554 and 99-05-64127 from Russian Foundation for Basic Research.