

RESPONSE FUNCTIONS' VARIATIONS OF INTERNAL ORIGIN

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If the frequency sounding condition (FSC), written for spatial harmonic of spatial frequency ν : $\nu^2 \ll k^2 \dots$ (1), where $k^2 = i\omega\mu\sigma$ [or $n(n+1)/r^2 \ll k^2$ for spherical Earth], is satisfied, the response function (RF) should be constant. When a source contains a local part (presented by large ν [or n]) FSC does not hold and RFs change. Character of the changes depends of the mode of local field. For example, impedance and ρ_a ran lower with period rise for magnetic type source while it ran higher for electric type. We draw attention to internal sources which rather local and sometimes can strongly change RF. We review cases of strong ULF (0.01-10 Hz) magnetic field before strong earthquakes Spitak, Loma Prieta, Guam, Grevena -Kozani and Biak with strong enhancement of Z-component, hence with strong variation of tipper and induction arrows. Electromagnetic monitoring reveals variations of impedance (ρ_a and ϕ), tipper and anomalous horizontal magnetic variation tensor. Synchronous monitoring of all this RF can give ground for distinguishing internal (lithospheric) and external (magnetospheric-ionospheric) sources of RF variation. Then, we review the tide variation of crustal conductivity studied with controlled sources which contribute also RF variation.

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