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Singular value decomposition (SVD) based orthogonal transform approach for earth's electric field signal processing (Conference Paper)

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Abstract

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The Earth's electric field signal is generated from the released energy through a sudden dislocation of the segment in the earth's crust. Many researchers have reported the use of parametric modeling technique for earth's electric field signal processing. The existing earth's electric signal processing based on parametric modeling technique has suffered from the noise. Therefore, the effective earth's electric field signal processing is necessary in order to process the signal with better performance for the identification. Singular value decomposition (SVD) based parametric modeling technique is applied as feature extraction technique to the Earth's electric field signal. The projection of excitation signal on the right eigenvector of the LPC filter impulse response matrix is involved in this technique. The combination of SVD-based parametric modeling technique has perfectly classified the significant Earth's electric field data prior to the earthquake and the Earth's electric field data on the normal condition after the polynomial kernel function is applied. © 2014 IEEE.

Author keywords

parametric modeling technique Singular value decomposition the Earth's electric field

Indexed keywords

Engineering controlled terms: Electric fields Feature extraction Impulse response Signal processing Structural geology

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