عنوان مقاله:

Deformation Field Produced by a Doublet Source in a Half-Space Model

محل انتشار:

تعداد صفحات اصل مقاله: 21

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خلاصه مقاله:

Using Galerkin vector approach closed-form analytic expressions for the displacements and stresses caused by a doublet source buried in a homogenous, isotropic, perfectly elastic half-space have been obtained. Further, the viscoelastic deformation field has been obtained by applying the correspondence principle of linear viscoelasticity, assuming the medium to be elastic in dilatation and Kelvin, Maxwell, or SLS (Standard linear solid) type viscoelastic in distortion. The effect of Poisson's ratio on the deformation field due to a doublet source is examined in elastic half-space. The effect of relaxation time on displacement and stress fields is studied due to a doublet source in viscoelastic half-space. The variation of the displacements and stresses with the epicentral distance is studied graphically using MATLAB software. Stresses for a doublet with axis parallel to x-axis attain minimum value for Poissonian half- space. Viscoelastic displacements and stresses attain maxima for the Maxwell model and minima for the Kelvin model.

کلمات کلیدی:

Elastic half-space, Viscoelastic, Kelvin, Maxwell, Standard linear solid

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