عنوان مقاله:

Rigidity and Irregularity Effect on Surface Wave Propagation in a Fluid Saturated Porous Layer

محل انتشار:

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نویسندگان:

R.K Poonia - *Department of Mathematics, Chandigarh University, Gharuan, Mohali-۱۴۰۴۱۳, Punjab, India*

D.K Madan - *Department of Mathematics, Chaudhary Bansi Lal University, Bhiwani Haryana, India*

V Kaliraman - *Department of Mathematics, Chaudhary Devi Lal University, Sirsa-Haryana, India*

خلاصه مقاله:

The propagation of surface waves in a fluid- saturated porous isotropic layer over a semi-infinite homogeneous elastic medium with an irregularity for free and rigid interfaces have been studied. The rectangular irregularity has been taken in the half-space. The dispersion equation for Love waves is derived by simple mathematical techniques followed by Fourier transformations. It can be seen that the phase velocity is strongly influenced by the wave number, the depth of the irregularity, homogeneity parameter and the rigid boundary. The dimensionless phase velocity is plotted against dimensionless wave number graphically for different size of rectangular irregularities and homogeneity parameter with the help of MATLAB graphical routines for both free and rigid boundaries for several cases. The numerical analysis of dispersion equation indicates that the phase velocity of surface waves decreases with the increase in dimensionless wave number. The obtained results can be useful to the study of geophysical prospecting and understanding the cause and estimating of damage due to earthquakes.

کلمات کلیدی:

Surface Waves, Rectangular irregularity, Phase velocity, Dispersion equation, Semi-infinite medium

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