

of model solids characterizing the elasticity of those materials. In transforming the elasticity of the Earth into solid-state parameters of composition, pressure, and temperature, the properties needed are the intrinsic elastic properties of earth materials (not the apparent properties as one measures on a porous sample).

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Notation

<i>Symbols</i>	<i>Units</i>	<i>Meaning</i>
V_p	km/sec	Velocity of compressional waves
V_p^0	km/sec	Velocity of compressional waves at zero-porosity
V_s	km/sec	Velocity of shear waves
V_s^0	km/sec	Velocity of shear waves at zero-porosity
V_j	km/sec	Velocity of j th mode
M_j	kb	Elastic modulus of j th mode
M_j^0	kb	Elastic modulus of j th mode at zero-porosity
L_s	kb	Longitudinal modulus given by (density $\times V_p^2$)
L_s^0	kb	Longitudinal modulus at zero-porosity
μ	kb	Shear modulus
μ^0	kb	Shear modulus at zero-porosity
K_s	kb	Adiabatic bulk modulus
K_s^0	kb	Adiabatic bulk modulus at zero-porosity
K_T	kb	Isothermal bulk modulus
K_T^0	kb	Isothermal bulk modulus at zero-porosity
Y	kb	Young's modulus
σ_s	None	Poisson's ratio
σ_s^0	None	Poisson's ratio at zero-porosity
f_j	Hz/sec	Pulse-repetition frequency (PRF) of j th mode

f_p	Hz/sec	PRF of compressional mode
f_s	Hz/sec	PRF of shear mode
P	None	Compressional mode
S	None	Shear mode
a	None	Aspect ratio
p	kb	Pressure
T	°K	Temperature
α	per °K	Coefficient of volume expansion
θ	None	Volume fraction of pores.

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