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

Symbols	*Units*	*Meaning*
V_p	km/sec	Velocity of compressional waves
V_p^o	km/sec	Velocity of compressional waves at zero-porosity
V_S	km/sec	Velocity of shear waves
V_S^o	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^o	kb	Elastic modulus of *j*th mode at zero-porosity
L_S	kb	Longitudinal modulus given by (density × V_p^2)
L_S^o	kb	Longitudinal modulus at zero-porosity
μ	kb	Shear modulus
μ^o	kb	Shear modulus at zero-porosity
K_S	kb	Adiabatic bulk modulus
K_S^o	kb	Adiabatic bulk modulus at zero-porosity
K_T	kb	Isothermal bulk modulus
K_T^o	kb	Isothermal bulk modulus at zero-porosity
Y	kb	Young's modulus
σ_S	None	Poisson's ratio
σ_S^o	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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