

PRINCIPLES OF SEISMOLOGY

CORRECTIONS (10-4-2008)

Page,	Line,	Equation	
xiii	5 fb		Add period (author.)
7	7, 8 fb		no italics: "At an introductory level there are books by"
11	4 fb		...change of this distance per unit distance .
19	1		adiabatic isentropic process with reversible infinitesimal deformations , there
19	5		..isothermal processes with reversible heat conduction , we introduce....
36		3.39	$\sum_k \frac{\partial}{\partial x_k} \frac{\partial L}{\partial \left(\frac{\partial q_i}{\partial x_k} \right)} + \frac{\partial}{\partial t} \frac{\partial L}{\partial \left(\frac{\partial q_i}{\partial t} \right)} - \frac{\partial L}{\partial q_i} = 0$
67	3 fb		from equations (5.31) and (5.32)
40	19		0.5%
70	Fig 5.4		(arrows in opposite sense)
74		5.55	rx_3
77	6 fb		separating the two media. Notice that as in 5.2.3 W_{SH} is a complex quantity.
79		5.87	$\mu(2\phi_{,13} - \psi_{,33} + \psi_{,11}) = \dots$
		5.88	$\lambda(\phi_{,33} + \phi_{,11}) + 2\mu(\phi_{,33} + \psi_{,13}) =$
		5.89	$\lambda'(\phi'_{,33} + \phi'_{,11}) + 2\mu'(\phi'_{,33} + \psi'_{,13})$
			1st matrix, 4th element: $\lambda(1+r^2) + 2\mu$
			2nd matrix, 3rd element: $\mu(1+s^2)$
			3th matrix, 2nd row: $r \quad -1 \quad r \quad 1$
			3rd row: $2r\mu \quad -\mu(1-s^2) \quad 2\mu'r' \quad -\mu'(1-s'^2)$
			4th row: $-\lambda(1+r^2)-2\mu \quad -2\mu s \quad \lambda'(1+r'^2)+2\mu' \quad 2\mu's'$
82		5.97	$\tau_{33} = \lambda\phi_{,11} + (\lambda + 2\mu)\phi_{,33} + 2\mu\psi_{,13}$
82	5		Using from Snell law the relation $1-s^2 = -(3r^2 + 1)$, the coefficients
103	8		..is twice the difference..
104	fig 6.11		..the reduction velocity is..(twice)
119	5		.. travel times
138	3 fb		delete "such"
157	4 fb		about 75 m
184		10.7-10.9	change k for k^2
187	5		and $e = \mathbf{12^\circ 47' \dots}$
197		10.65	$k(s'H + x_1 - ct)$
199		10.78-10.83	

$$2r'(A'e^{ikr'H} - B'e^{-ikr'H}) + (1-s'^2)(C'e^{iks'H} + D'e^{-iks'H}) = 0 \quad (10.78)$$

$$[\lambda'(1+r'^2) + 2\mu'r'^2](A'e^{ikr'H} + B'e^{-ikr'H}) + 2\mu's'(C'e^{iks'H} + D'e^{-iks'H}) = 0 \quad (10.79)$$

$$A' + B' - s'C' + s'D' = A + sC \quad (10.80)$$

$$r'A' - r'B' + C' + D' = -rA + C \quad (10.81)$$

$$\mu' [2r'(A'-B') + (1-s'^2)(C'+D')] = \mu [2rA + (1-s^2)C] \quad (10.82)$$

$$[\lambda'(1+r'^2) + 2\mu' r'^2] (A'+B') + 2\mu' s'(C'-D') = [\lambda(1+r^2) + 2\mu r^2] A + 2\mu s C \quad (10.83)$$

$$(10.84) \quad = -\mu(1+3r^2) = \mu(1-s^2)$$

200 9 **If in the system of equations (10.78) to (10.83), we put $\mathbf{a}' = \mathbf{k}r'\mathbf{H}$ and $\mathbf{b}' = \mathbf{k}s'\mathbf{H}$, the determinant of the...**

200 (determinant) 1st row: $2r'e^{ia'}$ $-2r'e^{-ia'}$ $(1-s'^2)e^{ib'}$ $(1-s'^2)e^{-ib'}$ 0 0

2nd row: $-(1-s'^2)e^{ia'}$ $-(1-s'^2)e^{-ia'}$ $2s'e^{ib'}$ $2s'e^{-ib'}$ 0 0

4th row: r' $-r'$ 1 1 r -1

5th row: $2\mu'r'$ $-2\mu'r'$ $\mu'(1-s'^2)$ $\mu'(1-s'^2)$ $-2\mu r$ $-\mu(1-s^2)$

203 16 ..Rayleigh waves with **elliptical particle motion, prograde or retrograde depending on the relative properties of the two media, and generally** a vertical major axis.

204 10.108 $k_s = ()^{1/2}$

204 10.109 $c_s = c_f \left(1 + \frac{9c_f}{4a^2\omega^2} \right)$

205 7 horizontal layers and **those problems are thereby..**

206 9 fb the **(x,z)** plane ...

244 2 vector potential ψ

244 3 vector potential ψ

244 13.24 $\psi = \dots$

269 5 ..becomes **much** more complicated.

287 15.17 $M_w = 2/3 \log M_0 - 6.1$

287 21 ...seismic moment, **in Newton-meter**, that will be

288 15.19 $\log E_s = 2.4 m_b - 1.2$

288 15.20 $\log E_s = 1.5 M_s + 4.8$

288 6 fb of 10^{17} J (10^{24} erg)

288 5 fb of 10^{15} J...

292 3 ...seismic moment M_0 (Nm) is....

292 4fb ...(1.5 MPa). **A numerical value for the two last terms in (15.35) is 9.5.**

292 15.35 $\log M_0 = 3/2 M_s + 4.8 - \log(\eta\sigma/\mu)$

298 6 those for a single force. **For a single force acting at point**

... ξ_i **the displacements at point \mathbf{x}_i are $\mathbf{u}_i(\mathbf{x}_i, \xi_i)$.** If

298	12	Where the comma indicates derivatives with respect to ξ_i which are then put to zero for a force at the origin. For the force.....
299	16.18	$u_i^{TP} = \int_{-\infty}^{\infty} M(T_k T_l - P_k P_l) G_{ik, l} d\tau$
300	16.23	$u_n(x_s, t) =$
303	16.30	$\nabla^2 u(r) = -1/\alpha^2 \rho \delta(r)$
304	16.37	..- $\alpha^2 \nabla^2 \phi = ..$
	16.39	$\Phi = -\nabla \bullet W$
	16.40	$\Psi = \nabla \times W$
	16.41	$\nabla^2 W = -F$
	16.45	$\Phi = \frac{\delta(t)}{4\pi} \frac{\partial}{\partial \xi_1} \left(\frac{1}{r} \right)$
	16.46	$\Psi = -\frac{\delta(t)}{4\pi} \left[0, \frac{\partial}{\partial \xi_3} \left(\frac{1}{r} \right), -\frac{\partial}{\partial \xi_2} \left(\frac{1}{r} \right) \right]$
305	16.49	$\phi = \frac{1}{16\pi^2 \alpha^2 \rho} \int_V \frac{\delta(t - r/\alpha)}{r} \frac{\partial}{\partial \xi_1} \left(\frac{1}{r} \right) dV$
305	1 fb	$4\pi\alpha^2 \tau^2 / r$
305	16.50 + 1	$4\pi\alpha^2 \tau^2 / r$
307	9 fb	Somigliana
330	(17.32)	$M_{ij} = M_0 (T_i T_j - P_i P_j)$
339	18.9dS
339	8	..tends to zero, introducing μ from the factor in (18.1), we obtain,
341	18.21	$\Delta u \ t/\tau,$
343	3fb	P: $\omega_1 = 1.2\alpha/L$
350	18.42	$u(\rho) = ..$
409	21.19	denominator : $[(\omega^2 - \omega_0^2)^2 + (2\omega\omega_0\beta)^2]^{1/2}$
427	4 fb	add: In Cartesian coordinates, the Laplacian of a vector is a vector with components the Laplacians of each component,
		$\nabla^2 F = (\nabla^2 F_1, \nabla^2 F_2, \nabla^2 F_3) \quad A1.38$
		For other coordinates systems the Laplacian of a vector can be derived from (A1.36) ,
		$\nabla^2 F = \nabla(\nabla \cdot F) - \nabla \times \nabla \times F \quad A1.39$
447	Probl. 1.2	(matrix last row) 1 1 2
448	Probl. 1.9	Derive from the ...
454	Probl. 6.6	density ρ'
463	23fb	1867-79

