

SURFACE WAVES IN MULTILAYERED ELASTIC MEDIA. PART II. HIGHER MODE SPECTRA AND SPECTRAL RATIOS FROM POINT SOURCES IN PLANE LAYERED EARTH MODELS

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ABSTRACT

Phase and amplitude spectra of Rayleigh and Love waves are presented for two Earth models, one oceanic and one continental shield. The spectra of the first three Rayleigh modes and the first four Love modes are tabulated for point sources at selected depths. These tables along with computer algorithms described here allow one to estimate the amplitude spectra at nontabulated source depths.

The use of spectral ratios as a means of determining source depth is investigated. A source depth of 20 km is obtained for the Fallon earthquake of July 20 1962. This depth agrees with previous estimates but the technique requires a fault-plane orientation which differs from radiation pattern solutions.

INTRODUCTION

Phase and amplitude spectra for the fundamental and the first two higher modes of Rayleigh waves and for the fundamental and the first three higher modes of Love waves are presented in this paper at selected source or receiver depths for two Earth models, one oceanic and one continental shield.

The amplitudes are tabulated in a form which can be used to calculate the surface-wave spectra for any point source at that depth. The spectra for intermediate source depths can be interpolated from the tables using a simple computer program.

The theory and computer algorithms used in calculating the tables are given along with the long- and short-period asymptotes.

Theoretical surface-wave spectra have been useful in source mechanism studies involving amplitude equalization and radiation patterns. A potentially important technique is surface-wave spectral ratios. The advantages and disadvantages of using spectral ratios to determine source depth are discussed. The technique is then applied to the Fallon earthquake of July 20 1962.

THEORY

In the following, we will restrict ourselves to the far-field expressions for a point force, couple and double couple derived in Harkrider (1964) and Ben-Menahem and Harkrider (1964). The near-field expressions for surface waves due to a point force can be obtained from Harkrider (1964). The techniques of Ben-Menahem and Toksöz (1963), Haskell (1963), and Ben-Menahem and Harkrider (1964) can be applied to the point force solutions to obtain the far and near fields generated by higher order multipole sources.

The spectral far-field solutions for Love and Rayleigh waves may be written as

$$U = Sk^m e^{-i(1+2m)\pi/4} \chi(\theta, h) E \frac{e^{-ikr}}{r^{1/2}} \quad (1)$$

where U = spectral horizontal Rayleigh or Love surface displacement, S = spectral

source function, $m = 0$, point force and $m = 1$, couple or double couple, $k = \omega/c$ Rayleigh or Love angular wave number, $h =$ source depth, and $\theta =$ azimuth.

$$E_R = \epsilon_0 \underline{A}_R k_R^{-1/2}. \tag{2}$$

$$E_L = \underline{A}_L k_L^{-1/2}. \tag{3}$$

$\epsilon_0 = -[\dot{u}_0^*/\dot{w}_0]$, Rayleigh-wave surface ellipticity, $\underline{A} =$ Rayleigh or Love amplitude response, $r =$ epicentral distance; and the subscripts R and L denote quantities associated with Rayleigh and Love waves, respectively.

TABLE 1
RADIATION PATTERN COEFFICIENTS

Coefficient	Point Force	
	Love	Rayleigh
d_0	0	$\sin \lambda \sin \delta W(h)$
d_1	$\cos \lambda V(h)$	$-\sin \lambda \cos \delta A(h)$
d_2	$-\sin \lambda \cos \delta V(h)$	$-\cos \lambda A(h)$
d_3	0	0
d_4	0	0

Coefficient	Couple	
	Love	Rayleigh
d_0	$-\frac{1}{2} \cos \lambda \sin \delta V(h)$	$\frac{1}{4} \sin \lambda \sin 2\delta B(h)$
d_1	$\cos \lambda \cos \delta G(h)$	$\sin \lambda [W(h) - \cos^2 \delta C(h)]$
d_2	$-\sin \lambda \cos^2 \delta G(h)$	$\cos \lambda \cos \delta [W(h) - C(h)]$
d_3	$\frac{1}{2} \sin \lambda \sin 2\delta V(h)$	$\frac{1}{2} \cos \lambda \sin \delta A(h)$
d_4	$\frac{1}{2} \cos \lambda \sin \delta V(h)$	$-\frac{1}{4} \sin \lambda \sin 2\delta A(h)$

Coefficient	Double Couple	
	Love	Rayleigh
d_0	0	$\frac{1}{2} \sin \lambda \sin 2\delta B(h)$
d_1	$\cos \lambda \cos \delta G(h)$	$-\sin \lambda \cos 2\delta C(h)$
d_2	$-\sin \lambda \cos 2\delta G(h)$	$-\cos \lambda \cos \delta C(h)$
d_3	$\frac{1}{2} \sin \lambda \sin 2\delta V(h)$	$\cos \lambda \sin \delta A(h)$
d_4	$\cos \lambda \sin \delta V(h)$	$-\frac{1}{2} \sin \lambda \sin 2\delta A(h)$

The complex radiation pattern function is

$$\chi(\theta, h) = d_0 + i(d_1 \sin \theta + d_2 \cos \theta) + d_3 \sin 2\theta + d_4 \cos 2\theta. \tag{4}$$

The coefficients d_i are given in Table 1. The quantities $W(h)$, $A(h)$, $C(h)$, $B(h)$, $V(h)$ and $G(h)$ used in Table 1 are given in terms of the Thomson-Haskell displacement-stress vector elements (Haskell, 1953) as

$$W(h) = [\dot{w}_s(h)/\dot{w}_0]$$

$$A(h) = -[\dot{u}_s^*(h)/\dot{w}_0]$$

$$C(h) = -\frac{1}{\mu_s} [\tau_{RS}(h)/(\dot{w}_0/C_R)]$$

$$B(h) = - \left\{ \left(3 - 4 \frac{\beta_s^2}{\alpha_s^2} \right) [\dot{u}_s^*(h)/\dot{w}_0] + \frac{2}{\rho_s \alpha_s^2} [\sigma_{RS}^*(h)/(\dot{w}_0/C_R)] \right\}$$

$$V(h) = [\dot{v}_s(h)/\dot{v}_0] \quad (5)$$

and

$$G(h) = \frac{1}{\mu_s} [\tau_{LS}^*(h)/(\dot{v}_0/C_L)].$$

The quantities in square brackets are the vector elements evaluated at source depth h . It should be noted that the preceding expressions are different from the corresponding formula in Ben-Menahem and Harkrider (1964) in order to eliminate an artificial infinity in their $\chi(\theta)$ which resulted from zeros of $[\dot{w}_s(h)/\dot{w}_0]$ and $[\dot{v}_s(h)/\dot{v}_0]$. In addition their relations for $G(h)$ included a sign misprint.

In order to obtain expressions for higher order multipoles, it is necessary to differentiate the normalized displacement-stress quantities in square brackets with respect to source depth. These derivatives are

$$\frac{\partial}{\partial h} \left[\frac{\dot{u}_s^*(h)}{\dot{w}_0} \right] = k_R \left\{ \left[\frac{\dot{w}_s(h)}{\dot{w}_0} \right] + \frac{1}{\mu_s} \left[\frac{\tau_{RS}(h)}{\dot{w}_0/C_R} \right] \right\}$$

$$\frac{\partial}{\partial h} \left[\frac{\dot{w}_s(h)}{\dot{w}_0} \right] = - \frac{k_R}{(\lambda_s + 2\mu_s)} \left\{ \lambda_s \left[\frac{\dot{u}_s^*(h)}{\dot{w}_0} \right] + \left[\frac{\sigma_{RS}^*(h)}{\dot{w}_0/C_R} \right] \right\}$$

$$\frac{\partial}{\partial h} \left[\frac{\dot{v}_s(h)}{\dot{v}_0} \right] = - \frac{k_L}{\mu_s} \left[\frac{\tau_{LS}^*(h)}{\dot{v}_0/C_L} \right]$$

$$\frac{\partial}{\partial h} \left[\frac{\sigma_{RS}^*(h)}{\dot{w}_0/C_R} \right] = k_R \left\{ \rho_s C_R^2 \left[\frac{\dot{w}_s(h)}{\dot{w}_0} \right] + \left[\frac{\tau_{RS}(h)}{\dot{w}_0/C_R} \right] \right\}$$

$$\frac{\partial}{\partial h} \left[\frac{\tau_{RS}(h)}{\dot{w}_0/C_R} \right] = - k_R \left\{ \frac{\lambda_s}{(\lambda_s + 2\mu_s)} \left[\frac{\sigma_{RS}^*(h)}{\dot{w}_0/C_R} \right] \right.$$

$$\left. + \left[\rho_s C_R^2 - \frac{4\mu_s(\lambda_s + \mu_s)}{(\lambda_s + 2\mu_s)} \right] \left[\frac{\dot{u}_s^*(h)}{\dot{w}_0} \right] \right\} \quad (6)$$

and

$$\frac{\partial}{\partial h} \left[\frac{\tau_{LS}^*(h)}{\dot{v}_0/C_L} \right] = k_L (\rho_s C_L^2 - \mu_s) \left[\frac{\dot{v}_s(h)}{\dot{v}_0} \right],$$

where ρ = density, $\mu = \rho\beta^2$ = rigidity, $(\lambda + 2\mu = \rho\alpha^2)$, β = shear-wave velocity, and α = compressional-wave velocity; the s subscripts denotes quantities evaluated in the source layer. These relations were also used to obtain expressions for $A(h)$, $B(h)$, $C(h)$, and $G(h)$ resulting from differentiation of the point force solutions.

The amplitude response, \underline{A}_R and \underline{A}_L are functions of frequency, mode order, and the elastic properties of the multilayered array. They are independent of source type and

depth and are defined in Harkrider (1964) as

$$\underline{A}_R = \frac{G^*N - L^*H}{\left(\frac{\partial F_R}{\partial k}\right)_\omega} \tag{7}$$

and

$$\underline{A}_L = \frac{1}{\left[\frac{\dot{v}_{n-1}}{\dot{v}_0}\right] \left(\frac{\partial F_L}{\partial k}\right)_\omega}$$

where $[\dot{v}_{n-1}/\dot{v}_0]$ is the normalized Love-wave displacement at the interface between the bottom layer and the terminating halfspace. The F_R and F_L are the Rayleigh- and Love-wave period equations, respectively.

The amplitude response factors can also be expressed in terms of depth integrals as

$$\underline{A}_R = \left[2C_R U_R \int_0^\infty \rho \{ [\dot{u}^*(z)/\dot{w}_0]^2 + [\dot{w}(z)/\dot{w}_0]^2 \} dz \right]^{-1} \tag{8}$$

and

$$\underline{A}_L = \left[2C_L U_L \int_0^\infty \rho [\dot{v}(z)/\dot{v}_0]^2 dz \right]^{-1}$$

(Keilis-Borok and Yanovskaya, 1962; Harkrider and Anderson, 1966; Vlaar, 1966; Vilkovitch *et al.*, 1966; and Saito, 1967 among others) where U is the group velocity. Since ρ is the density, the integrals are proportional to the kinetic energy densities of their respective surface waves.

The displacement-stress elements, the period equations, and the quantities, G^* , N , L^* and H can be expressed in terms of Thomson-Haskell matrices and their products. However, in calculating these terms for Rayleigh waves, the Thomson-Haskell technique results in numerical instabilities as frequency or mode order is increased. The following formulation, which is based on the Dunkin-Thrower algorithms, eliminates this numerical difficulty.

If we define the matrix operations

$$R = T_n^{-1}A = T_n^{-1}(a_{n-1} \cdots a_1) \tag{9}$$

where A is the Rayleigh product matrix of the Thomson-Haskell layer matrices, a_m , for the $n - 1$ solid layers and

$$T_n^{-1} = \begin{bmatrix} i\gamma_n r_{\alpha n}^* & (\gamma_n - 1) & -\frac{i\dot{r}_{\alpha n}^*}{\rho_n C^2} & \frac{1}{\rho_n C^2} \\ -(\gamma_n - 1) & i\gamma_n r_{\beta n}^* & \frac{1}{\rho_n C^2} & \frac{i\dot{r}_{\beta n}^*}{\rho_n C^2} \\ i\gamma_n r_{\alpha n}^* & -(\gamma_n - 1) & -\frac{i\dot{r}_{\alpha n}^*}{\rho_n C^2} & \frac{1}{\rho_n C^2} \\ (\gamma_n - 1) & i\gamma_n r_{\beta n}^* & -\frac{1}{\rho_n C^2} & \frac{i\dot{r}_{\beta n}^*}{\rho_n C^2} \end{bmatrix} \tag{10}$$

the scalars in equation (68) of Harkrider (1964) can be written as

$$L = R_{11} \equiv iR_{11}^*, K = R_{12}, G = G_{13} \equiv iR_{13}^*, R = R_{14}, N = R_{21},$$

$$M = R_{22} \equiv iR_{22}^*, H = R_{23} \text{ and } S = R_{24} \equiv iR_{24}^*. \quad (11)$$

Thus

$$RN - SL = -R \begin{pmatrix} 12 \\ 14 \end{pmatrix}$$

$$GN - HL = -R \begin{pmatrix} 12 \\ 13 \end{pmatrix}$$

$$GM - HK = -R \begin{pmatrix} 12 \\ 23 \end{pmatrix}$$

$$NK - LM = -R \begin{pmatrix} 12 \\ 12 \end{pmatrix} \quad (12)$$

where

$$R \begin{pmatrix} jk \\ lm \end{pmatrix} \equiv R_{jl}R_{km} - R_{jm}R_{kl} = -R \begin{pmatrix} jk \\ ml \end{pmatrix} = R \begin{pmatrix} kj \\ ml \end{pmatrix} \quad (13)$$

The second compound matrices of R are defined here as

$$\mathfrak{R}_{st} = R \begin{pmatrix} jk \\ lm \end{pmatrix}$$

where $S = 1, 2, 3, 4, 5, 6$, corresponds to pairs $jk = 12, 13, 14, 23, 24, 34$ with an identical correspondence of t to lm (Gilbert and Backus 1966; and Throrer, 1965). In this notation, we have

$$NK - LM = -\mathfrak{R}_{11}$$

$$GN - HL = -\mathfrak{R}_{12} \equiv -i\mathfrak{R}_{12}^*$$

$$RN - SL = -\mathfrak{R}_{13}$$

$$GM - HK = -\mathfrak{R}_{14}. \quad (14)$$

An important property of compound matrices is that if

$$R = T_n^{-1}A \quad (15)$$

then

$$\mathfrak{R} = \mathfrak{J}_n^{-1}\mathfrak{A} \quad (16)$$

where \mathfrak{R} , \mathfrak{J}_n^{-1} and \mathfrak{A} are the compound matrices of R , T_n^{-1} and A , respectively. Thus

$$\mathfrak{A} = a_{n-1} \cdots a, \quad (17)$$

where a_m are the layer compound matrices given in Appendix I, and from equation (10) we have

$$\begin{aligned} (\mathfrak{J}_n^{-1})_{11} &= (\gamma_n - 1)^2 - \gamma_n^2 r_{\alpha n}^* r_{\beta n}^* \\ (\mathfrak{J}_n^{-1})_{12} &= i(\rho_n c^2)^{-1} r_{\alpha n}^* \\ (\mathfrak{J}_n^{-1})_{13} &= (\mathfrak{J}_n^{-1})_{14} = (\rho_n c^2)^{-1} [(\gamma_n - 1) - \gamma_n r_{\alpha n}^* r_{\beta n}^*] \\ (\mathfrak{J}_n^{-1})_{15} &= -i(\rho_n c^2)^{-1} r_{\beta n}^* \\ (\mathfrak{J}_n^{-1})_{16} &= (\rho_n c^2)^{-2} (r_{\beta n}^* r_{\alpha n}^* - 1) \end{aligned} \quad (18)$$

which are used to calculate \mathfrak{R}_{11} , \mathfrak{R}_{12} , \mathfrak{R}_{13} and \mathfrak{R}_{14} .

The period equation for Rayleigh waves in a solid array is given by

$$F_R \equiv -\mathfrak{R}_{11} = 0. \quad (19)$$

It was noted by Rosenbaum (1964) and Dunkin (1965) that the coefficient of the dominant term in \mathfrak{R}_{11} at moderate to high frequencies was identically zero for all frequencies. Thus calculating \mathfrak{R}_{11} from its Thomson-Haskell elements causes a loss of significant figures at these frequencies. Dunkin (1965) and Thrower (1965) pointed out that calculating \mathfrak{R} by means of the compound matrices eliminates this loss of significance at high frequencies.

In terms of the compound matrices, the ratio of horizontal to vertical displacement or velocity, i.e., surface ellipticity, is

$$\left[\frac{\dot{u}_0}{\dot{w}_0} \right] = -\frac{RN - SL}{GN - HL} = -\frac{\mathfrak{R}_{13}}{\mathfrak{R}_{12}} = -\frac{\mathfrak{R}_{14}}{\mathfrak{R}_{12}} \quad (20)$$

since

$$RN - SL \equiv GM - HK = -\mathfrak{R}_{14}. \quad (21)$$

This relation holds even if there is a liquid layer at the surface where $[\dot{u}_0/\dot{w}_0]$ is understood to be the ratio at the top of the solid array.

For the surface liquid layer, the period equation takes the form

$$F_R = -\mathfrak{R}_{11} + \mathfrak{R}_{12} T^* \quad (22)$$

where

$$T = \left[\frac{\sigma_0}{\dot{w}_0/C} \right] = iT^* = \frac{i\rho_0 C^2}{r_{\alpha 0}} \tan(kr_{\alpha 0} d_0) \quad (23)$$

and the 0 subscript denotes the physical parameters of the liquid surface layer.

Defining B^m as

$$\begin{aligned}
 B^m &= RA_{m-1}^{-1} \\
 &= T_n^{-1}a_{n-1} \cdots a_m \text{ where } A_m = a_m \cdots a_1,
 \end{aligned}
 \tag{24}$$

we have that

$$B^m = B^{m+1}a_m
 \tag{25}$$

with

$$B^n = RA_{n-1}^{-1} \equiv RA^{-1} = T_n^{-1}.$$

Making use of these relations the normalized displacement stress vector $U_m(z)$ given by

$$U_m(z) = \begin{bmatrix} \frac{\dot{u}_m(z)}{\dot{w}_0} \\ \frac{\dot{w}_m(z)}{\dot{w}_0} \\ \frac{\sigma_m(z)}{\dot{w}_0/C} \\ \frac{\tau_{Rm}(z)}{\dot{w}_0/C} \end{bmatrix} \text{ for } Z_{m-1} \leq Z \leq Z_m
 \tag{26}$$

can be evaluated from the compound matrices by

$$[U_m(z)]_k = \frac{B_{11}^m}{R_{11}} A_m(i_k) + T \frac{B_{1t}^m}{R_{11}} A_m(i_k)
 \tag{27}$$

where T is zero for models without a surface liquid.

Using these relations gives very good results in calculating the fundamental and higher mode spectra at periods down to even a second for realistic earth models.

The source factor, S , in equation (1) is the same for Rayleigh and Love waves for nonpropagating point sources. For propagating sources, this factor will be a function of source dimensions, propagation velocity, and source time history. In general it will differ by terms involving the phase velocity for Rayleigh and Love waves. Representations of S for various deterministic source models can be found in Ben-Menahem (1961), Ben-Menahem and Toksöz (1962), and Haskell (1964). Representations of some "statistical" source models can be found in Haskell (1966) and Aki (1967).

Even for the more complicated models, where S and $\chi(\theta, h)$ cannot be readily separated into factors, the far-field solutions will contain combinations of the displacement-stress quantities or their integrals over the source volume.

NUMERICAL TECHNIQUES

The Rayleigh- and Love-wave calculations presented in this paper were obtained using two programs written in FORTRAN IV for each type of surface wave. The first programs for both Rayleigh and Love waves calculate the dispersion and depth inde-

pendent quantities for a given input period. In addition, the displacement-stress values are calculated for the mid-point depth of each layer. The output from these programs are then used as input to the source depth programs which evaluate the displacement-stress quantities at any number of specified depths.

The flow for the dispersion programs is the same as that described in Press *et al.* (1961) and Harkrider and Anderson (1962) with the exception that the dispersion is calculated for a specified period instead of phase velocity. Thus the programs calculated the roots, k_j of F_R or $F_L = 0$ for an input period. The Love-wave program uses the Thomson-Haskell formulation of F_L and the Rayleigh-wave program uses the compound layer matrix formulation of F_R .

The compound layer matrices for Rayleigh waves are (6×6) . The matrix multiplications in equation (17), which form the compound layer product matrix, appear to require a sequence of (6×6) matrix multiplications. Actually the largest matrix resulting from any multiplication in the program is a (6×3) .

The Rayleigh period equation (19) for the solid array and (22) for a liquid surface layer use only the first column and the first two columns of the compound layer product matrix respectively. This considerably reduces the number of multiplications during the time-consuming root-hunting procedure since each (6×6) layer compound matrix can then multiply the previous (6×1) or (6×2) compound layer product matrix to obtain the next (6×1) or (6×2) compound layer product matrix as indicated by a right to left multiplication of compound matrices in equation (17).

Once a root is found to the desired accuracy, the group velocity, U , the kinetic energy density, and the amplitude responses are calculated in the Rayleigh and the Love programs. In addition, the Rayleigh program uses the second and third columns of the compound product matrix in equation (20) to obtain the surface ellipticity.

The group velocity and the amplitude response are calculated by two different numerical techniques in both programs. In one technique, U and $(\partial F / \partial k)_\omega$ are formed by computing the analytic derivatives with respect to ω and k of the individual layer matrices and then using the chain rules. The second technique forms A and U by analytically computing the depth integrals in equation (8) and in similar equations for the group velocity (Harkrider and Anderson, 1966).

The Rayleigh-wave displacement-stress values at each interface are calculated by means of equation (27). Only the first row of B^m is used, thus, B^m as a (1×4) matrix is calculated and stored for each interface using equations (25). The multiplication of each (1×4) by a (4×4) to yield the desired (1×4) matrices starts at the half-space and proceeds to the surface layer. The first two columns of the compound product matrix of layers from the surface to the desired interface is combined with B^m to yield $[U_m(z)]_k$. The dispersion programs then use the Thomson-Haskell matrix to evaluate $[U_m(z)]_k$ at the layer mid points. The Love-wave dispersion program used the Thomson-Haskell formulation for the entire displacement-stress calculation.

This same process is used for the source depth programs in which period, phase velocity, and ellipticity for Rayleigh waves are used as input. In these programs the Thomson-Haskell matrices continue the displacement-stress vectors from an interface to any specified depth in the adjacent layer.

In order to determine the significance of computed quantities, we try to use at least two theoretically equivalent but numerically different calculations. For the group velocity and the amplitude response this is done by using both the partial derivative and energy integral formulations. It is also possible to compare the very long- and short-period values with their asymptotic limits.

The asymptotic limits of the amplitude response can be obtained easily from the Thomson-Haskell formulation and are given in Appendix II and Appendix III.

NUMERICAL RESULTS

Tables of quantities which can be used to calculate the surface-wave spectra for multipole point sources at depth are presented here for two extreme models of the Earth's crust and mantle structure—one oceanic and one continental shield (Figure 1). The layer thickness, D in km, compressional velocity, α in km/sec, shear velocity, β in km/sec, and density, ρ in gm/cm³, are given in Table 2 for the two models.

The tables include the fundamental and first two higher modes of Rayleigh waves and the fundamental and first three higher modes of Love waves for the two models. The period in seconds, the phase velocity, C in km/sec, the group velocity, U in km/sec and the spectral amplitude response, amplitude in 10^{-11} microns/dyne are given in

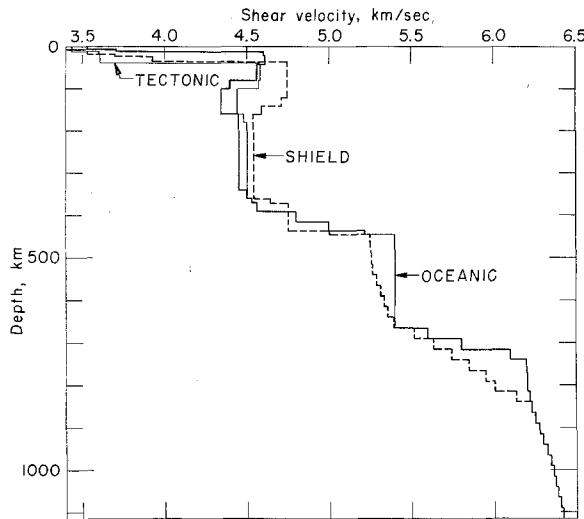


FIG. 1. Shear velocity as a function of depth for oceanic, tectonic, and shield earth models (Anderson and Toksöz, 1966; Anderson, 1966).

Tables 3 and 4 for the oceanic and shield models, respectively, and in Figures 2 to 7. The amplitude response multiplied by $k^{-1/2}$ to form the relative excitation in $10^{-12.5}$ cm^{3/2}/dyne is shown in Figures 6 and 7.

The negative of the Rayleigh-wave surface ellipticity, $[\dot{u}_0^*/\dot{w}_0]$, is tabulated under the label of UO/WO in Table 5.

The depth-dependent terms in $W(h)$, $A(h)$, $C(h)$, $B(h)$, $V(h)$ and $G(h)$ which determine $\chi(\theta, h)$ are tabulated in Tables 6 to 27 for 11 depths in each model. The source depths are 10, 20, 35, 50, 70, 100, 150, 200, 350, 500, and 700 km. The quantities

$$[\dot{u}_s^*(h)/\dot{w}_0], [\dot{w}_s(h)/\dot{w}_0], [\sigma_{RS}(h)/(\dot{w}_0/C_R)], [\tau_{RS}(h)/(\dot{w}_0/C_R)],$$

$$[\dot{v}_s(h)/v_0] \text{ and } [\tau_{LS}(h)/(\dot{v}_0/C_L)]$$

are given in these depth tables under columns labeled respectively UM/WO , WM/WO , $ZM/WO/K$, $XM/WO/K$, VM/VO , and $YM/VO/K$.

Since these quantities are the elements of the Thomson-Haskell displacement-stress

TABLE 3

PHASE VELOCITY, GROUP VELOCITY, AND SPECTRAL-AMPLITUDE RESPONSE OF THE FIRST THREE RAYLEIGH-WAVE MODES AND THE FIRST FOUR LOVE-WAVE MODES FOR AN OCEANIC MODEL

OCEAN

RAYLEIGH				LOVE			
PERIOD	MODE 1,1		AMPLITUDE	PERIOD	MODE 0		AMPLITUDE
	C	U			C	U	
350.	5.3031	4.2744	0.84971E-05	350.	5.3377	4.3815	0.14669E-04
300.	5.0747	3.8317	0.13788E-04	300.	5.1679	4.3094	0.17569E-04
250.	4.7686	3.5593	0.21062E-04	250.	4.9978	4.2819	0.20616E-04
225.	4.6080	3.5242	0.24922E-04	225.	4.9155	4.2819	0.22187E-04
200.	4.4570	3.5466	0.28759E-04	200.	4.8365	4.2892	0.23798E-04
175.	4.3242	3.6118	0.32620E-04	175.	4.7615	4.3020	0.25454E-04
150.	4.2147	3.7052	0.36736E-04	150.	4.6914	4.3191	0.27156E-04
140.	4.1782	3.7468	0.38564E-04	140.	4.6649	4.3268	0.27846E-04
130.	4.146C	3.7892	0.40577E-04	130.	4.6394	4.3351	0.28539E-04
120.	4.1181	3.8311	0.42861E-04	120.	4.6148	4.3438	0.29229E-04
110.	4.0945	3.8713	0.45526E-04	110.	4.5914	4.3528	0.29912E-04
100.	4.0751	3.9089	0.48730E-04	100.	4.5691	4.3622	0.30580E-04
90.	4.0598	3.9430	0.52690E-04	90.	4.5481	4.3717	0.31219E-04
80.	4.0483	3.9734	0.57722E-04	80.	4.5284	4.3812	0.31813E-04
70.	4.0406	4.0003	0.64296E-04	70.	4.5101	4.3906	0.32331E-04
65.	4.0382	4.0125	0.68392E-04	65.	4.5015	4.3951	0.32548E-04
60.	4.0367	4.0237	0.73226E-04	60.	4.4933	4.3993	0.32725E-04
55.	4.0360	4.0334	0.79034E-04	55.	4.4855	4.4033	0.32849E-04
50.	4.0361	4.0406	0.86209E-04	50.	4.4781	4.4068	0.32900E-04
45.	4.0368	4.0434	0.95369E-04	45.	4.4710	4.4097	0.32851E-04
40.	4.0373	4.0383	0.10763E-03	40.	4.4642	4.4117	0.32664E-04
35.	4.0364	4.0190	0.12511E-03	35.	4.4577	4.4124	0.32282E-04
30.	4.0309	3.9740	0.15218E-03	30.	4.4511	4.4112	0.31637E-04
25.	4.0134	3.8764	0.19949E-03	25.	4.4440	4.4067	0.30696E-04
20.	3.9608	3.6252	0.30436E-03	20.	4.4355	4.3965	0.29749E-04
15.	3.6729	2.1397	0.88311E-03	15.	4.4230	4.3750	0.32119E-04
10.	1.964C	1.0306	0.26228E-02	10.	4.3832	4.0285	0.93275E-03

PERIOD	MODE 2,1		AMPLITUDE	PERIOD	MODE 1		AMPLITUDE
	C	U			C	U	
200.	6.4184	6.2270	0.70590E-06	200.	6.4184	6.2270	0.70590E-06
175.	6.3370	5.5006	0.37189E-05	175.	6.3370	5.5006	0.37189E-05
150.	6.1452	4.9676	0.67933E-05	150.	6.1452	4.9676	0.67933E-05
140.	6.0411	4.8078	0.81041E-05	140.	6.0411	4.8078	0.81041E-05
130.	5.9248	4.6788	0.94877E-05	130.	5.9248	4.6788	0.94877E-05
120.	5.7993	4.5753	0.11007E-04	120.	5.7993	4.5753	0.11007E-04
110.	5.6669	4.4889	0.12775E-04	110.	5.6669	4.4889	0.12775E-04
100.	5.5292	4.4106	0.14957E-04	100.	5.5292	4.4106	0.14957E-04
90.	5.3865	4.3353	0.17716E-04	90.	5.3865	4.3353	0.17716E-04
80.	5.2392	4.2678	0.21092E-04	80.	5.2392	4.2678	0.21092E-04
70.	5.0896	4.2233	0.24847E-04	70.	5.0896	4.2233	0.24847E-04
65.	5.0156	4.2147	0.26736E-04	65.	5.0156	4.2147	0.26736E-04
60.	4.9433	4.2163	0.28576E-04	60.	4.9433	4.2163	0.28576E-04
55.	4.8739	4.2272	0.30362E-04	55.	4.8739	4.2272	0.30362E-04
50.	4.8081	4.2458	0.32124E-04	50.	4.8081	4.2458	0.32124E-04
45.	4.7467	4.2700	0.33937E-04	45.	4.7467	4.2700	0.33937E-04
40.	4.6904	4.2973	0.35921E-04	40.	4.6904	4.2973	0.35921E-04
35.	4.6396	4.3257	0.38277E-04	35.	4.6396	4.3257	0.38277E-04
30.	4.5943	4.3529	0.41356E-04	30.	4.5943	4.3529	0.41356E-04
25.	4.5546	4.3769	0.45951E-04	25.	4.5546	4.3769	0.45951E-04
20.	4.5200	4.3942	0.55171E-04	20.	4.5200	4.3942	0.55171E-04
15.	4.4883	4.3879	0.10843E-03	15.	4.4883	4.3879	0.10843E-03
10.	4.4061	4.2893	0.10859E-03	10.	4.4061	4.2893	0.10859E-03

PERIOD	MODE 1,2		AMPLITUDE	PERIOD	MODE 2		AMPLITUDE
	C	U			C	U	
110.	6.4189	6.2371	0.28255E-06	100.	6.4172	6.0780	0.12031E-05
100.	6.3773	5.8055	0.10764E-05	90.	6.3119	5.1070	0.57502E-05
90.	6.2895	5.3668	0.22214E-05	80.	6.1077	4.6920	0.88071E-05
80.	6.1111	4.6128	0.48764E-05	70.	5.8727	4.5957	0.10322E-04
70.	5.8171	4.2455	0.62858E-05	65.	5.7576	4.5815	0.11116E-04
65.	5.6701	4.3037	0.57345E-05	60.	5.6444	4.5472	0.12516E-04
60.	5.5414	4.4048	0.49733E-05	55.	5.5286	4.4672	0.15136E-04
55.	5.4299	4.4748	0.44360E-05	50.	5.4030	4.3384	0.19543E-04
50.	5.3270	4.4665	0.43884E-05	45.	5.2631	4.2086	0.25525E-04
45.	5.2196	4.3569	0.50195E-05	40.	5.1135	4.1396	0.32104E-04
40.	5.0936	4.1893	0.62285E-05	35.	4.9665	4.1380	0.39180E-04
35.	4.9488	4.0906	0.71624E-05	30.	4.8318	4.1761	0.48232E-04
30.	4.8047	4.1038	0.71037E-05	25.	4.7144	4.2289	0.62948E-04
25.	4.6794	4.1762	0.59908E-05	20.	4.6150	4.2773	0.93808E-04
20.	4.5807	4.2674	0.38105E-05	15.	4.5293	4.2937	0.16637E-03
15.	4.5118	4.3554	0.12873E-05	10.	4.4721	4.4204	0.34028E-05
10.	4.4733	4.4174	0.80446E-07				

PERIOD	MODE 3		AMPLITUDE
	C	U	
65.	6.3865	5.4733	0.37586E-05
60.	6.2643	4.8186	0.76193E-05
55.	6.0859	4.5202	0.10261E-04
50.	5.8965	4.5045	0.10837E-04
45.	5.7293	4.6195	0.10322E-04
40.	5.5847	4.6387	0.11601E-04
35.	5.4254	4.3711	0.19251E-04
30.	5.2097	4.1066	0.30599E-04
25.	4.9814	4.0934	0.39205E-04
20.	4.7846	4.1709	0.46993E-04
15.	4.6305	4.2664	0.47983E-04
10.	4.5239	4.3666	0.95348E-05

TABLE 4

PHASE VELOCITY, GROUP VELOCITY, AND SPECTRAL-AMPLITUDE RESPONSE OF THE FIRST THREE RAYLEIGH-WAVE MODES AND THE FIRST FOUR LOVE-WAVE MODES FOR A SHIELD MODEL

SHIELD

RAYLEIGH				LOVE			
PERIOD	MODE 1,1		AMPLITUDE	PERIOD	MODE 0		
	C	U			C	U	AMPLITUDE
350.	5.2358	4.1434	0.90302E-05	350.	5.3418	4.4623	0.13407E-04
300.	5.0010	3.7837	0.13786E-04	300.	5.1893	4.4080	0.15889E-04
250.	4.7184	3.6251	0.19418E-04	250.	5.0377	4.3896	0.18636E-04
225.	4.5800	3.6302	0.22226E-04	225.	4.9644	4.3911	0.20169E-04
200.	4.4542	3.6771	0.25009E-04	200.	4.8939	4.3976	0.21881E-04
175.	4.3461	3.7541	0.27862E-04	175.	4.8265	4.4074	0.23881E-04
150.	4.2593	3.8512	0.30976E-04	150.	4.7628	4.4186	0.26369E-04
140.	4.2312	3.8934	0.32378E-04	140.	4.7384	4.4230	0.27585E-04
130.	4.2069	3.9361	0.33936E-04	130.	4.7145	4.4271	0.28990E-04
120.	4.1867	3.9783	0.35717E-04	120.	4.6913	4.4305	0.30657E-04
110.	4.1704	4.0187	0.37825E-04	110.	4.6685	4.4330	0.32700E-04
100.	4.1580	4.0555	0.40416E-04	100.	4.6461	4.4338	0.35314E-04
90.	4.1492	4.0870	0.43737E-04	90.	4.6239	4.4317	0.38845E-04
80.	4.1437	4.1097	0.48207E-04	80.	4.6013	4.4244	0.43977E-04
70.	4.1402	4.1200	0.54557E-04	70.	4.5774	4.4066	0.52200E-04
65.	4.1387	4.1182	0.58850E-04	65.	4.5641	4.3904	0.58459E-04
60.	4.1369	4.1102	0.64259E-04	60.	4.5493	4.3658	0.67215E-04
55.	4.1340	4.0939	0.71266E-04	55.	4.5318	4.3279	0.79982E-04
50.	4.1291	4.0664	0.80633E-04	50.	4.5097	4.2692	0.99298E-04
45.	4.1206	4.0234	0.93661E-04	45.	4.4796	4.1802	0.12904E-03
40.	4.1059	3.9585	0.11271E-03	40.	4.4363	4.0555	0.17378E-03
35.	4.0804	3.8614	0.14244E-03	35.	4.3732	3.9044	0.23707E-03
30.	4.0362	3.7160	0.19288E-03	30.	4.2849	3.7488	0.32192E-03
25.	3.9578	3.5018	0.28737E-03	25.	4.1691	3.6111	0.43288E-03
20.	3.8204	3.2278	0.47539E-03	20.	4.0296	3.5126	0.57359E-03
15.	3.6112	3.0266	0.81247E-03	15.	3.8777	3.4691	0.74586E-03
10.	3.3885	3.0400	0.13263E-02	10.	3.7314	3.4754	0.96615E-03

PERIOD	MODE 2,1		AMPLITUDE	MODE 1			
	C	U		C	U		
250.	6.409C	6.0322	0.79881E-06	200.	6.4104	6.0345	0.13889E-05
225.	6.3501	5.7579	0.13867E-05	175.	6.3048	5.3546	0.43177E-05
200.	6.2683	5.6160	0.16104E-05	150.	6.0958	4.8793	0.73401E-05
175.	6.1644	5.4233	0.18564E-05	140.	5.9889	4.7455	0.86221E-05
150.	6.0167	5.0928	0.23346E-05	130.	5.8727	4.6422	0.99749E-05
140.	5.9371	4.9286	0.25974E-05	120.	5.7503	4.5632	0.11463E-04
130.	5.8431	4.7704	0.28640E-05	110.	5.6240	4.5003	0.13206E-04
120.	5.7358	4.6411	0.30934E-05	100.	5.4952	4.4444	0.15392E-04
110.	5.6192	4.5530	0.32700E-05	90.	5.3640	4.3879	0.18269E-04
100.	5.4981	4.5003	0.34296E-05	80.	5.2298	4.3289	0.22058E-04
90.	5.376C	4.4629	0.36567E-05	70.	5.0921	4.2760	0.26681E-04
80.	5.2531	4.4165	0.40615E-05	65.	5.0227	4.2574	0.29055E-04
70.	5.1257	4.3480	0.47008E-05	60.	4.9535	4.2474	0.31119E-04
65.	5.0592	4.3113	0.50511E-05	55.	4.8858	4.2487	0.32328E-04
60.	4.9910	4.2834	0.53187E-05	50.	4.8209	4.2647	0.31740E-04
55.	4.9224	4.2729	0.53946E-05	45.	4.7609	4.2995	0.28077E-04
50.	4.8558	4.2639	0.51955E-05	40.	4.7083	4.3542	0.20788E-04
45.	4.7936	4.3140	0.46898E-05	35.	4.6657	4.4176	0.11980E-04
40.	4.7380	4.3564	0.39405E-05	30.	4.6330	4.4698	0.52248E-05
35.	4.6902	4.4034	0.29979E-05	25.	4.6083	4.5015	0.17119E-05
30.	4.6507	4.4479	0.19878E-05	20.	4.5884	4.5169	0.39786E-06
25.	4.6192	4.4839	0.10685E-05	15.	4.5714	4.5241	0.59107E-07
20.	4.5944	4.5076	0.41166E-06	10.	4.5566	4.5298	0.28124E-07
15.	4.5743	4.5200	0.10194E-06				
10.	4.5319	3.7923	0.15097E-03				

PERIOD	MODE 1,2		AMPLITUDE	MODE 2			
	C	U		C	U		
110.	6.4152	6.1023	0.44814E-06	100.	6.3992	5.6607	0.29194E-05
100.	6.3614	5.7054	0.10955E-05	90.	6.2573	4.9151	0.71409E-05
90.	6.2682	5.3634	0.18455E-05	80.	6.0396	4.6035	0.10091E-04
80.	6.1108	4.8094	0.35038E-05	70.	5.8030	4.5335	0.11670E-04
70.	5.8558	4.3605	0.52525E-05	65.	5.6891	4.5328	0.12265E-04
65.	5.7127	4.3303	0.53284E-05	60.	5.5794	4.5261	0.13074E-04
60.	5.5787	4.3831	0.49806E-05	55.	5.4716	4.4953	0.14410E-04
55.	5.4597	4.4588	0.45256E-05	50.	5.3617	4.4315	0.16457E-04
50.	5.3544	4.5105	0.42405E-05	45.	5.2455	4.3507	0.18773E-04
45.	5.2567	4.5083	0.43385E-05	40.	5.1233	4.2962	0.19831E-04
40.	5.1572	4.4448	0.49540E-05	35.	5.0023	4.2990	0.17959E-04
35.	5.0485	4.3614	0.58665E-05	30.	4.8924	4.3496	0.13141E-04
30.	4.9336	4.3354	0.62258E-05	25.	4.7999	4.4162	0.73675E-05
25.	4.8267	4.3801	0.54273E-05	20.	4.7247	4.4679	0.29360E-05
20.	4.7387	4.4468	0.37457E-05	15.	4.6618	4.4917	0.73139E-06
15.	4.6691	4.4468	0.20886E-05	10.	4.6059	4.4989	0.25359E-05
10.	4.5577	4.5269	0.16061E-06				

PERIOD	MODE 3		AMPLITUDE
	C	U	
70.	6.4179	6.0137	0.15209E-05
65.	6.3373	5.0994	0.59667E-05
60.	6.1941	4.7047	0.88770E-05
55.	6.0195	4.5217	0.10923E-04
50.	5.8396	4.4918	0.11768E-04
45.	5.6738	4.5521	0.11520E-04
40.	5.5279	4.6033	0.11410E-04
35.	5.3883	4.5317	0.13328E-04
30.	5.2303	4.3799	0.16261E-04
25.	5.0601	4.3499	0.15546E-04
20.	4.9078	4.4138	0.11871E-04
15.	4.7857	4.4796	0.82130E-05
10.	4.6304	3.7796	0.33624E-03

vector, spectral values below or above the tabulated depths can be obtained by continued multiplication of the vector by the Thomson-Haskell matrix or its inverse, respectively, to the desired depths. The accuracy of the results can be estimated by

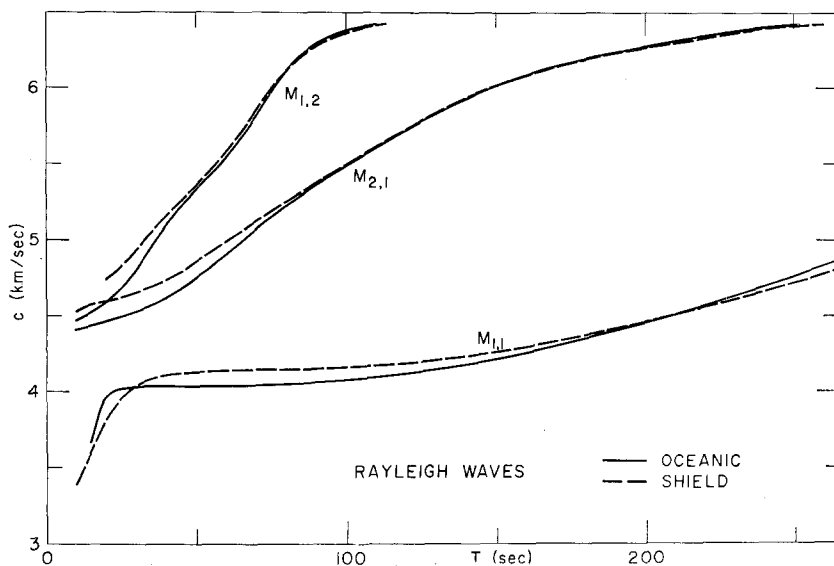


FIG. 2. Rayleigh-wave phase-velocity curves for the fundamental and two higher modes for the oceanic and shield models.

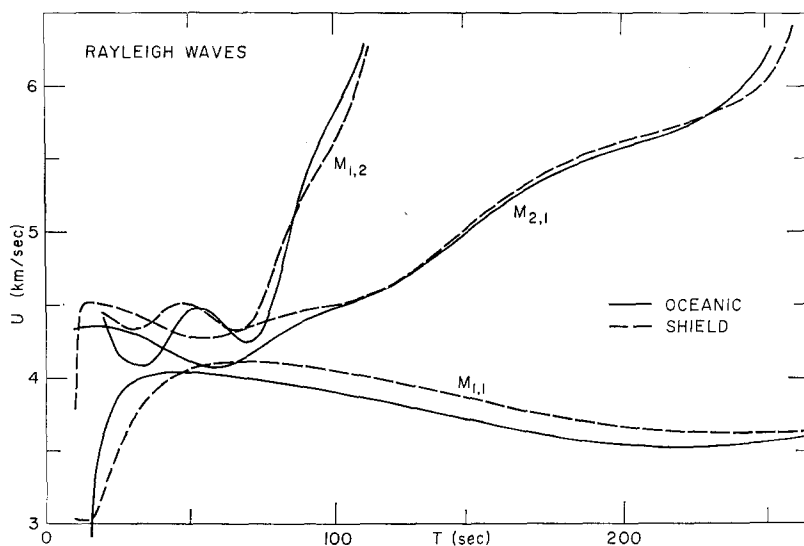


FIG. 3. Rayleigh-wave group-velocity curves for the fundamental and two higher modes for the oceanic and shield models.

comparing two sets of the same intermediate depth values where one set is obtained by downward continuation and the other by upward continuation.

SPECTRAL RATIOS

Using arguments based on the reciprocity theorems of Knopoff and Gangi (1959), Aki (personal communications, 1961) realized that the vertical surface displacement

spectrum of fundamental Rayleigh waves should possess a zero which was dependent on the depth of a horizontal force. This phenomenon was investigated in a series of model experiments (Aki and Healy, personal communications, 1962). Harkrider and

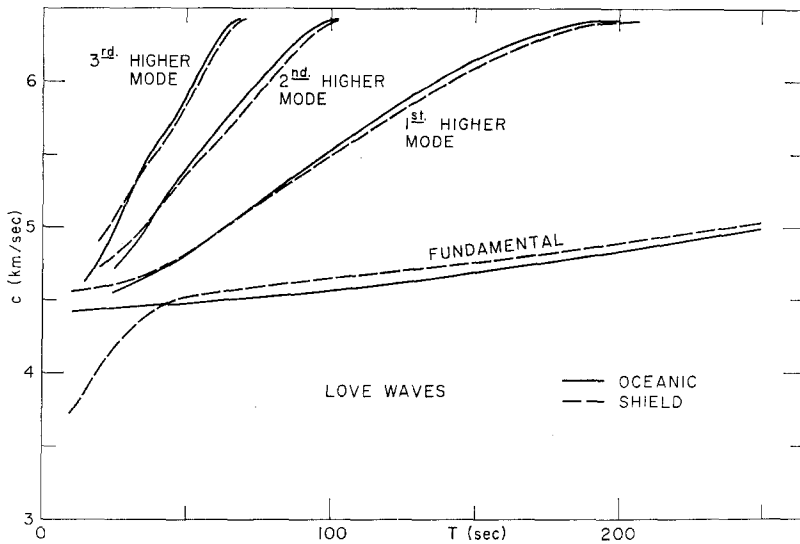


FIG. 4. Love-wave phase-velocity curves for the fundamental and three higher modes for the oceanic and shield models.

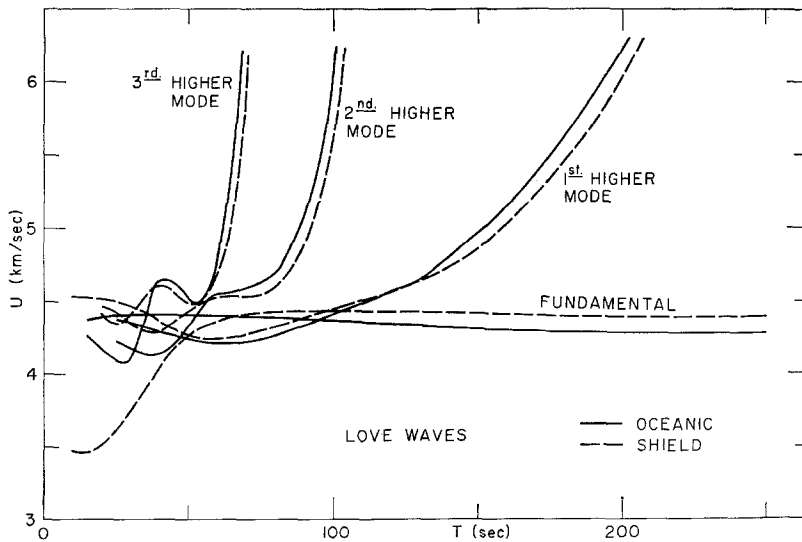


FIG. 5. Love-wave group-velocity curves for the fundamental and three higher modes for the oceanic and shield models.

Anderson (1966) noted that the higher-mode Rayleigh and Love waves possess depth-dependent spectral zeros for vertical as well as horizontal forces.

One of the difficulties encountered in using amplitude spectra for depth determination has been the time-space source function. This function will, in general, have zeros associated with the fault displacement-time function, fault dimensions, and rupture velocity. For stationary point sources, the source factor can be eliminated by dividing

the spectra of different arrivals. This division eliminates all of the effects of distance except the difference in anelastic absorption. For more realistic sources complications arise which will be discussed later.

For small earthquakes, the departure from point-source theory is negligible for periods greater than 20 sec. Tsai (1969) found that the assumption that the source is a

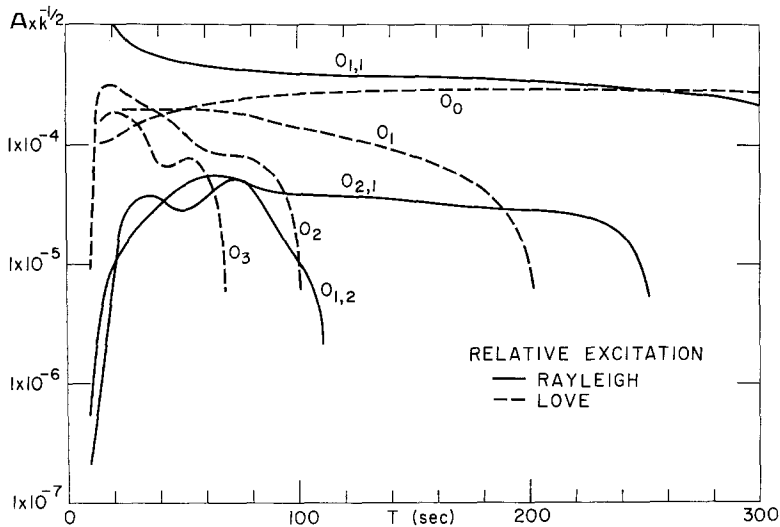


FIG. 6. Relative spectral excitation for the oceanic structure in units of $10^{-12.5} \text{ cm}^{3/2}/\text{dyne}$.

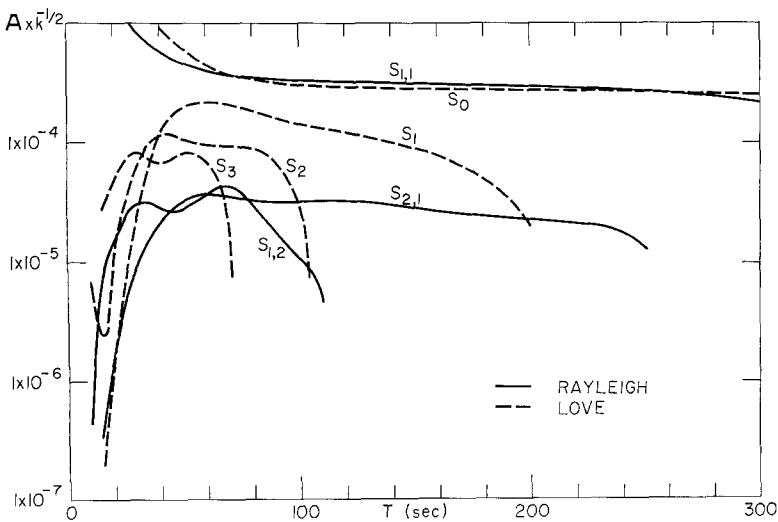


FIG. 7. Relative excitation for the shield structure in units of $10^{-12.5} \text{ cm}^{3/2}/\text{dyne}$.

point in space and a step function in time was adequate for determining the focal depths of earthquakes in the mid-ocean ridges with magnitudes 6.0 or smaller. The depths were determined from the shapes of the Rayleigh-wave spectra by comparing with theoretical spectra from a vertical strike slip fault with a step function rupture in time. The depth estimates were confirmed by observation of P and pP phases.

In order to investigate the use of spectral ratios as a possible measure of source

TABLE 5
SURFACE ELLIPTICITY OF THE FIRST THREE RAYLEIGH-WAVE MODES FOR THE OCEANIC AND SHIELD MODELS

OCEAN							
RAYLEIGH							
MODE 1,1		MODE 2,1		MODE 1,2			
PERIOD	UQ/WQ	PERIOD	UQ/WQ	PERIOD	UQ/WQ	PERIOD	UQ/WQ
350.	-0.71550E 00	250.	-0.15954E-00	110.	0.20100E-00		
300.	-0.66500E 00	225.	-0.80615E-01	100.	0.15240E-00		
250.	-0.63874E 00	200.	-0.28399E-01	90.	0.71850E-01		
225.	-0.63640E 00	175.	-0.90086E-02	80.	-0.51615E-01		
200.	-0.64016E 00	150.	-0.40598E-01	70.	-0.20640E-00		
175.	-0.64882E 00	140.	-0.71730E-01	65.	-0.27333E-00		
150.	-0.66133E 00	130.	-0.11358E-00	60.	-0.32896E-00		
140.	-0.66725E 00	120.	-0.16439E-00	55.	-0.37620E-00		
130.	-0.67368E 00	110.	-0.22123E-00	50.	-0.41954E-00		
120.	-0.68065E 00	100.	-0.28099E-00	45.	-0.46388E-00		
110.	-0.68824E 00	90.	-0.34150E-00	40.	-0.51292E 00		
100.	-0.69660E 00	80.	-0.40231E-00	35.	-0.56473E 00		
90.	-0.70593E 00	70.	-0.46468E-00	30.	-0.61104E 00		
80.	-0.71654E 00	65.	-0.49661E-00	25.	-0.64123E 00		
70.	-0.72881E 00	60.	-0.52852E 00	20.	-0.62725E 00		
65.	-0.73570E 00	55.	-0.55966E 00	15.	-0.30053E-00		
60.	-0.74316E 00	50.	-0.58933E 00	10.	-0.17583E 01		
55.	-0.75123E 00	45.	-0.61702E 00				
50.	-0.75994E 00	40.	-0.64234E 00				
45.	-0.76927E 00	35.	-0.66461E 00				
40.	-0.77914E 00	30.	-0.68199E 00				
35.	-0.78918E 00	25.	-0.68846E 00				
30.	-0.79826E 00	20.	-0.65740E 00				
25.	-0.80212E 00	15.	-0.32418E-00				
20.	-0.78041E 00	10.	-0.17891E 01				
15.	-0.56249E 00						
10.	-0.25945E-01						

SHIELD							
RAYLEIGH							
MODE 1,1		MODE 2,1		MODE 1,2			
PERIOD	UQ/WQ	PERIOD	UQ/WQ	PERIOD	UQ/WQ	PERIOD	UQ/WQ
350.	-0.74245E 00	250.	-0.21130E-00	110.	-0.22614E-01		
300.	-0.71904E 00	225.	-0.16155E-00	100.	-0.81079E-01		
250.	-0.72266E 00	200.	-0.13659E-00	90.	-0.16512E-00		
225.	-0.73475E 00	175.	-0.14435E-00	80.	-0.27977E-00		
200.	-0.75282E 00	150.	-0.20132E-00	70.	-0.42435E-00		
175.	-0.77623E 00	140.	-0.24182E-00	65.	-0.49307E-00		
150.	-0.80442E 00	130.	-0.29273E-00	60.	-0.55123E 00		
140.	-0.81688E 00	120.	-0.35238E-00	55.	-0.59732E 00		
130.	-0.82993E 00	110.	-0.41776E-00	50.	-0.63176E 00		
120.	-0.84347E 00	100.	-0.48547E-00	45.	-0.65523E 00		
110.	-0.85734E 00	90.	-0.55264E 00	40.	-0.66740E 00		
100.	-0.87131E 00	80.	-0.61726E 00	35.	-0.66540E 00		
90.	-0.88497E 00	70.	-0.67771E 00	30.	-0.64143E 00		
80.	-0.89756E 00	65.	-0.70555E 00	25.	-0.58380E 00		
70.	-0.90772E 00	60.	-0.73084E 00	20.	-0.48283E-00		
65.	-0.91116E 00	55.	-0.75228E 00	15.	-0.34497E-00		
60.	-0.91286E 00	50.	-0.76800E 00	10.	-0.25570E-00		
55.	-0.91210E 00	45.	-0.77554E 00				
50.	-0.90788E 00	40.	-0.77173E 00				
45.	-0.89877E 00	35.	-0.75223E 00				
40.	-0.88283E 00	30.	-0.71097E 00				
35.	-0.85759E 00	25.	-0.63978E 00				
30.	-0.82052E 00	20.	-0.53030E 00				
25.	-0.77111E 00	15.	-0.38507E-00				
20.	-0.71670E 00	10.	-0.26862E-00				
15.	-0.67729E 00						
10.	-0.66913E 00						

depth, we have evaluated the ratio of various surface-wave modes as a function of period and depth. The calculations are for a double-couple source with an oceanic propagation path. The orientation of the double couple was chosen in order to represent the far-field spectra from a vertical strike-slip fault. The station azimuth is 22.5° from the fault plane.

The ratio of fundamental Rayleigh to Love spectra are shown in Figure 8. The ratio

TABLE 6

EIGENFUNCTIONS FOR THE RAYLEIGH- AND LOVE-WAVE MODES AT A DEPTH OF 10 KM IN THE OCEANIC MODEL

..... OCEAN

DISPLACEMENT AND STRESS RATIOS AT A DEPTH OF 10 KM

RAYLEIGH					LOVE		
PERIOD	UM/WO	MODE 1,1			PERIOD	MODE 0	
		WM/WO	ZM/WO/K	XM/WO/K		VM/VO	YM/VO/K
350.	-0.69844E 00	0.10042E 01	0.18617E 01	-0.12556E-00	350.	0.99968E 00	0.80452E 00
300.	-0.64420E 00	0.10046L 01	0.20782E 01	-0.23458E-00	300.	0.99958E 00	0.86557E 00
250.	-0.61222E 00	0.10055E 01	0.23426E 01	-0.42961E-00	250.	0.99941E 00	0.94905E 00
225.	-0.60591E-00	0.10062E 01	0.25144E 01	-0.57229E-00	225.	0.99928E 00	0.10055E 01
200.	-0.60472E 00	0.10072E 01	0.27348E 01	-0.75352E 00	200.	0.99910E 00	0.10777E 01
175.	-0.60711E 00	0.10084E 01	0.30305E 01	-0.98339E 00	175.	0.99884E 00	0.11730E 01
150.	-0.61143E 00	0.10100E 01	0.34434E 01	-0.12788E 01	150.	0.99844E 00	0.13037E 01
140.	-0.61334E 00	0.10108E 01	0.36562E 01	-0.14215E 01	140.	0.99822E 00	0.13704E 01
130.	-0.61518E 00	0.10116E 01	0.39056E 01	-0.15826E 01	130.	0.99794E 00	0.14482E 01
120.	-0.61687E-00	0.10126E 01	0.42010E 01	-0.17662E 01	120.	0.99760E 00	0.15400E 01
110.	-0.61828E 00	0.10136E 01	0.45547E 01	-0.19784E 01	110.	0.99716E 00	0.16496E 01
100.	-0.61930E 00	0.10148E 01	0.49843E 01	-0.22278E 01	100.	0.99658E 00	0.17826E 01
90.	-0.61975E 00	0.10162E 01	0.55147E 01	-0.25271E 01	90.	0.99579E 00	0.19468E 01
80.	-0.61937E-00	0.10177E 01	0.61835E 01	-0.28954E 01	80.	0.99470E 00	0.21539E 01
70.	-0.61763E 00	0.10193E 01	0.70501E 01	-0.33626E 01	70.	0.99311E 00	0.24223E 01
65.	-0.61596E-00	0.10202E 01	0.75862E 01	-0.36473E 01	65.	0.99202E 00	0.25883E 01
60.	-0.61348E 00	0.10210E 01	0.82136E 01	-0.39771E 01	60.	0.99066E 00	0.27825E 01
55.	-0.60988E 00	0.10218E 01	0.89574E 01	-0.43638E 01	55.	0.98891E 00	0.30122E 01
50.	-0.60468E 00	0.10224E 01	0.98528E 01	-0.48239E 01	50.	0.98661E 00	0.32881E 01
45.	-0.59716E-00	0.10225E 01	0.10950E 02	-0.53807E 01	45.	0.98351E 00	0.36247E 01
40.	-0.58618E 00	0.10219E 01	0.12325E 02	-0.60695E 01	40.	0.97918E 00	0.40439E 01
35.	-0.56984E-00	0.10194E 01	0.14094E 02	-0.69458E 01	35.	0.97289E 00	0.45787E 01
30.	-0.54468E 00	0.10131E 01	0.16453E 02	-0.81016E 01	30.	0.96324E 00	0.52818E 01
25.	-0.50322E 00	0.99716E 00	0.19753E 02	-0.96933E 01	25.	0.94736E 00	0.62416E 01
20.	-0.42429E-00	0.95010E 00	0.24726E 02	-0.11954E 02	20.	0.91850E 00	0.76139E 01
15.	-0.19992E-00	0.72181E 00	0.32864E 02	-0.14448E 02	15.	0.85772E 00	0.96777E 01
10.	0.49271E-01	0.15415E-00	0.14397E 02	-0.76942E 01	10.	0.69619E 00	0.12582E 02
.....							
PERIOD	UM/WO	MODE 2,1			PERIOD	MODE 1	
		WM/WO	ZM/WO/K	XM/WO/K		VM/VO	YM/VO/K
250.	-0.13990E-00	0.10004E 01	0.31512E 01	0.69179E-01	200.	0.99894E 00	0.20631E 01
225.	-0.58646E-00	0.99973E 00	0.34707E 01	0.24940E-01	175.	0.99862E 00	0.23032E 01
200.	-0.33813E-02	0.99908E 00	0.38497E 01	-0.87451E-02	150.	0.99815E 00	0.25360E 01
175.	-0.29075E-01	0.99854E 00	0.43209E 01	-0.25727E-01	140.	0.99789E 00	0.26284E 01
150.	-0.57669E-02	0.99840E 00	0.49162E 01	-0.20091E-01	130.	0.99758E 00	0.27228E 01
140.	-0.33859E-01	0.99856E 00	0.51978E 01	-0.14517E-01	120.	0.99719E 00	0.28223E 01
130.	-0.72074E-01	0.99891E 00	0.55110E 01	-0.13246E-01	110.	0.99670E 00	0.29306E 01
120.	-0.11850E-00	0.99945E 00	0.58648E 01	-0.24347E-01	100.	0.99606E 00	0.30516E 01
110.	-0.17002E-00	0.10002E 01	0.62734E 01	-0.58080E-01	90.	0.99521E 00	0.31896E 01
100.	-0.22328E-00	0.10011E 01	0.67571E 01	-0.12610E-00	80.	0.99404E 00	0.33509E 01
90.	-0.27569E-00	0.10022E 01	0.73421E 01	-0.24317E-00	70.	0.99237E 00	0.35487E 01
80.	-0.32620E-00	0.10035E 01	0.80606E 01	-0.43411E-00	65.	0.99125E 00	0.36696E 01
70.	-0.37491E-00	0.10051E 01	0.89567E 01	-0.74640E 00	60.	0.98984E 00	0.38126E 01
65.	-0.39828E-00	0.10060E 01	0.94957E 01	-0.97034E 00	55.	0.98805E 00	0.39861E 01
60.	-0.42016E-00	0.10069E 01	0.10121E 02	-0.12517E 01	50.	0.98571E 00	0.42016E 01
55.	-0.43941E-00	0.10077E 01	0.10865E 02	-0.15968E 01	45.	0.98256E 00	0.44752E 01
50.	-0.45498E-00	0.10083E 01	0.11772E 02	-0.20132E 01	40.	0.97818E 00	0.48300E 01
45.	-0.46573E-00	0.10083E 01	0.12906E 02	-0.25112E 01	35.	0.97183E 00	0.53008E 01
40.	-0.47032E-00	0.10073E 01	0.14358E 02	-0.31093E 01	30.	0.96209E 00	0.59428E 01
35.	-0.46664E-00	0.10042E 01	0.16271E 02	-0.38377E 01	25.	0.94608E 00	0.68485E 01
30.	-0.45078E-00	0.99650E 00	0.18892E 02	-0.47457E 01	20.	0.91697E 00	0.81825E 01
25.	-0.41403E-00	0.97770E 00	0.22701E 02	-0.59016E 01	15.	0.85569E 00	0.10236E 02
20.	-0.33076E-00	0.92368E 00	0.28879E 02	-0.73341E 01	10.	0.69474E 00	0.12838E 02
15.	-0.30617E-01	0.63679E 00	0.43550E 02	-0.77380E 01		
10.	-0.56107E 00	0.14777E 01	0.34042E 02	-0.20210E 02	MODE 2		
PERIOD	UM/WO	MODE 1,2			PERIOD	MODE 3	
		WM/WO	ZM/WO/K	XM/WO/K		VM/VO	YM/VO/K
110.	0.24477E-00	0.99271E 00	0.71427E 01	-0.33195E-00	65.	0.99007E 00	0.62576E 01
100.	0.20092E-00	0.99241E 00	0.78106E 01	-0.29750E-00	60.	0.98838E 00	0.65377E 01
90.	0.12673E-00	0.99259E 00	0.85694E 01	-0.21321E-00	55.	0.98635E 00	0.67432E 01
80.	0.12415E-01	0.99370E 00	0.93877E 01	-0.88602E-01	50.	0.98374E 00	0.69559E 01
70.	-0.12876E-00	0.99598E 00	0.10245E 02	-0.56233E-01	45.	0.98023E 00	0.72654E 01
65.	-0.18722E-00	0.99706E 00	0.10771E 02	-0.12808E-00	40.	0.97535E 00	0.77100E 01
60.	-0.23322E-00	0.99783E 00	0.11422E 02	-0.25188E-00	35.	0.96840E 00	0.82148E 01
55.	-0.26937E-00	0.99823E 00	0.12230E 02	-0.42186E-00	30.	0.95818E 00	0.86283E 01
50.	-0.29956E-00	0.99824E 00	0.13223E 02	-0.64946E 00	25.	0.94189E 00	0.90957E 01
45.	-0.32767E-00	0.99785E 00	0.14429E 02	-0.97419E 00	20.	0.91271E 00	0.99120E 01
40.	-0.35589E-00	0.99691E 00	0.15885E 02	-0.14743E 01	15.	0.85157E 00	0.11430E 02
35.	-0.38050E-00	0.99460E 00	0.17699E 02	-0.22414E 01	10.	0.68762E 00	0.14129E 02
30.	-0.39140E-00	0.98826E 00	0.20144E 02	-0.33235E 01		
25.	-0.37985E-00	0.97097E 00	0.23751E 02	-0.47438E 01		
20.	-0.30735E-00	0.91826E 00	0.29755E 02	-0.64880E 01		
15.	-0.13657E-01	0.63002E 00	0.44487E 02	-0.73463E 01		
10.	-0.54209E 00	0.14633E 01	0.35017E 02	-0.18457E 02		

TABLE 7

SHIELD.

DISPLACEMENT AND STRESS RATIOS AT A DPTH OF 10 KM									
KAYLEIGH					LOVE				
PERIOD	MODE 1,1				PERIOD	MODE 0			
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K		VM/VO	YM/VO/K		
350.	-0.70824E 00	0.10077E 01	0.23998E 01	-0.38319E 00	350.	0.99928E 00	0.13711E 01		
300.	-0.67738E 00	0.10090E 01	0.26700E 01	-0.63224E 00	300.	0.99906E 00	0.14813E 01		
250.	-0.66798E 00	0.10113E 01	0.30132E 01	-0.10647E 01	250.	0.99872E 00	0.16336E 01		
225.	-0.64769E 00	0.10130E 01	0.32413E 01	-0.13762E 01	225.	0.99847E 00	0.17367E 01		
200.	-0.68370E 00	0.10152E 01	0.35337E 01	-0.17719E 01	200.	0.99812E 00	0.18679E 01		
175.	-0.69580E 00	0.10181E 01	0.39220E 01	-0.22779E 01	175.	0.99762E 00	0.20402E 01		
150.	-0.70951E 00	0.10220E 01	0.44563E 01	-0.29368E 01	150.	0.99687E 00	0.22745E 01		
140.	-0.71495E 00	0.10238E 01	0.47285E 01	-0.32579E 01	140.	0.99645E 00	0.23932E 01		
130.	-0.72006E 00	0.10260E 01	0.50456E 01	-0.36214E 01	130.	0.99594E 00	0.25311E 01		
120.	-0.72453E 00	0.10284E 01	0.54185E 01	-0.40363E 01	120.	0.99529E 00	0.26928E 01		
110.	-0.72792E 00	0.10311E 01	0.58617E 01	-0.45143E 01	110.	0.99474E 00	0.28848E 01		
100.	-0.72961E 00	0.10342E 01	0.63994E 01	-0.50719E 01	100.	0.99340E 00	0.31157E 01		
90.	-0.72862E 00	0.10379E 01	0.70476E 01	-0.57315E 01	90.	0.99196E 00	0.33977E 01		
80.	-0.72340E 00	0.10420E 01	0.78593E 01	-0.65248E 01	80.	0.98997E 00	0.37483E 01		
70.	-0.71132E 00	0.10467E 01	0.88916E 01	-0.74982E 01	70.	0.98711E 00	0.41926E 01		
65.	-0.70137E 00	0.10492E 01	0.95184E 01	-0.80723E 01	65.	0.98518E 00	0.44602E 01		
60.	-0.68773E 00	0.10517E 01	0.10240E 02	-0.87189E 01	60.	0.98279E 00	0.47649E 01		
55.	-0.66916E 00	0.10542E 01	0.11077E 02	-0.94519E 01	55.	0.97977E 00	0.51113E 01		
50.	-0.64397E 00	0.10567E 01	0.12057E 02	-0.10287E 02	50.	0.97502E 00	0.55017E 01		
45.	-0.60975E 00	0.10580E 01	0.13216E 02	-0.11524E 02	45.	0.97093E 00	0.59309E 01		
40.	-0.56111E 00	0.10593E 01	0.14596E 02	-0.12341E 02	40.	0.96445E 00	0.63783E 01		
35.	-0.49932E 00	0.10599E 01	0.16247E 02	-0.13605E 02	35.	0.95600E 00	0.68004E 01		
30.	-0.41220E 00	0.10484E 01	0.18212E 02	-0.15056E 02	30.	0.94495E 00	0.71307E 01		
25.	-0.29533E 00	0.10312E 01	0.20455E 02	-0.16730E 02	25.	0.93050E 00	0.72815E 01		
20.	-0.14747E 00	0.99597E 00	0.22635E 02	-0.18709E 02	20.	0.91147E 00	0.71486E 01		
15.	0.16103E 01	0.92691E 00	0.23678E 02	-0.20934E 02	15.	0.88561E 00	0.66357E 01		
10.	0.15517E 00	0.78326E 00	0.21554E 02	-0.21783E 02	10.	0.84662E 00	0.56678E 01		

PERIOD	MODE 2,1				PERIOD	MODE 1			
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K		VM/VO	YM/VO/K		
250.	-0.17196E 00	0.10016E 01	0.41142E 01	0.12375E 00	200.	0.99726E 00	0.35661E 01		
225.	-0.11748E 00	0.10010E 01	0.45271E 01	0.78273E 01	175.	0.99648E 00	0.39479E 01		
200.	-0.86391E 01	0.10005E 01	0.50259E 01	0.45060E 01	150.	0.99536E 00	0.43087E 01		
175.	-0.86024E 01	0.10005E 01	0.56488E 01	0.27667E 01	140.	0.99478E 00	0.44514E 01		
150.	-0.13176E 00	0.10014E 01	0.64362E 01	0.14232E 01	130.	0.99407E 00	0.45989E 01		
140.	-0.16606E 00	0.10023E 01	0.68077E 01	0.51803E 02	120.	0.99321E 00	0.47571E 01		
130.	-0.20982E 00	0.10036E 01	0.72190E 01	0.49899E 01	110.	0.99215E 00	0.49332E 01		
120.	-0.26091E 00	0.10054E 01	0.76810E 01	0.13902E 00	100.	0.99080E 00	0.51349E 01		
110.	-0.31602E 00	0.10078E 01	0.82118E 01	0.29492E 00	90.	0.98904E 00	0.53705E 01		
100.	-0.37134E 00	0.10107E 01	0.88383E 01	0.54116E 00	80.	0.98669E 00	0.56498E 01		
90.	-0.42342E 00	0.10141E 01	0.95967E 01	0.90498E 00	70.	0.98344E 00	0.59891E 01		
80.	-0.46935E 00	0.10182E 01	0.10533E 02	0.14268E 01	65.	0.98130E 00	0.61916E 01		
70.	-0.50602E 00	0.10230E 01	0.11709E 02	0.21757E 01	60.	0.97867E 00	0.64261E 01		
65.	-0.51239E 00	0.10256E 01	0.12415E 02	0.26673E 01	55.	0.97537E 00	0.67054E 01		
60.	-0.52798E 00	0.10283E 01	0.13223E 02	0.32557E 01	50.	0.97111E 00	0.70498E 01		
55.	-0.53002E 00	0.10310E 01	0.14163E 02	0.39503E 01	45.	0.96542E 00	0.74914E 01		
50.	-0.52297E 00	0.10333E 01	0.15279E 02	0.47520E 01	40.	0.95751E 00	0.80818E 01		
45.	-0.50347E 00	0.10347E 01	0.16638E 02	0.56494E 01	35.	0.94593E 00	0.88988E 01		
40.	-0.46687E 00	0.10340E 01	0.18336E 02	0.66153E 01	30.	0.92804E 00	0.10050E 02		
35.	-0.40652E 00	0.10294E 01	0.20519E 02	0.75929E 01	25.	0.89846E 00	0.11693E 02		
30.	-0.31228E 00	0.10169E 01	0.23424E 02	0.84639E 01	20.	0.84479E 00	0.14101E 02		
25.	-0.16845E 00	0.98820E 00	0.27453E 02	0.89729E 01	15.	0.73258E 00	0.17737E 02		
20.	0.48426E 01	0.92404E 00	0.33343E 02	0.85669E 01	10.	0.43789E 00	0.23284E 02		
15.	0.36667E 00	0.77486E 00	0.42478E 02	0.61210E 01	-----				
10.	0.77115E 00	0.39027E 00	0.55998E 02	0.10837E 00	PERIOD	MODE 2			
						VM/VO	YM/VO/K		
					100.	0.98909E 00	0.70893E 01		
					90.	0.98681E 00	0.75409E 01		
					80.	0.98389E 00	0.78977E 01		
					70.	0.97988E 00	0.82836E 01		
					65.	0.97724E 00	0.85285E 01		
					60.	0.97397E 00	0.88239E 01		
					55.	0.96988E 00	0.91744E 01		
					50.	0.96467E 00	0.95774E 01		
					45.	0.95794E 00	0.10028E 02		
					40.	0.94899E 00	0.10541E 02		
					35.	0.93649E 00	0.11188E 02		
					30.	0.91776E 00	0.12106E 02		
					25.	0.88872E 00	0.13498E 02		
					20.	0.83220E 00	0.15662E 02		
					15.	0.71796E 00	0.19620E 02		
					10.	0.42168E 00	0.24118E 02		

PERIOD	MODE 1,2				PERIOD	MODE 3			
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K		VM/VO	YM/VO/K		
110.	0.66142E 01	0.99499E 00	0.93249E 01	-0.17489E 00	70.	0.97772E 00	0.10145E 02		
100.	0.17559E 01	0.99572E 00	0.10181E 02	-0.10661E 00	65.	0.97446E 00	0.10655E 02		
90.	0.53580E 01	0.99742E 00	0.11165E 02	-0.15347E 01	60.	0.97068E 00	0.11029E 02		
80.	-0.15067E 00	0.10007E 01	0.12275E 02	-0.31543E 01	55.	0.96613E 00	0.11341E 02		
70.	-0.27036E 00	0.10065E 01	0.13474E 02	-0.19491E 01	50.	0.96041E 00	0.11679E 02		
65.	-0.32352E 00	0.10099E 01	0.14160E 02	-0.49823E 00	45.	0.95287E 00	0.12143E 02		
60.	-0.36399E 00	0.10132E 01	0.14971E 02	-0.92340E 01	40.	0.94249E 00	0.12810E 02		
55.	-0.38989E 00	0.10161E 01	0.15959E 02	-0.14494E 01	35.	0.92780E 00	0.13681E 02		
50.	-0.40094E 00	0.10182E 01	0.17171E 02	-0.20700E 01	30.	0.90665E 00	0.14663E 02		
45.	-0.39661E 00	0.10193E 01	0.18655E 02	-0.28050E 01	25.	0.87406E 00	0.15856E 02		
40.	-0.37481E 00	0.10185E 01	0.20462E 02	-0.37012E 01	20.	0.81596E 00	0.17696E 02		
35.	-0.33003E 00	0.10144E 01	0.22671E 02	-0.48016E 01	15.	0.69939E 00	0.20778E 02		
30.	-0.25063E 00	0.10030E 01	0.25470E 02	-0.60294E 01	10.	0.41383E 00	0.24529E 02		
25.	-0.11805E 00	0.97544E 00	0.29289E 02	-0.70466E 01					
20.	0.91869E 01	0.91182E 00	0.34919E 02	-0.71754E 01					
15.	0.40370E 00	0.76262E 00	0.43741E 02	-0.52535E 01					
10.	0.78163E 00	0.38524E 00	0.56380E 02	0.23849E 00					

TABLE 8

OCEAN

DISPLACEMENT AND STRESS RATIOS AT A DEPTH OF 35 KM

RAYLEIGH				LÖVE			
PERIOD	MODE 1,1			PERIOD	MODE 0		
	UM/WO	WM/WO	ZM/WO/K		VM/YO	YM/YO/K	
350.	-0.61604E 00	0.10216E 01	0.97874E 01	-0.56897E 01	350.	0.99743E 00	0.29445E 01
300.	-0.54458E 00	0.10233E 01	0.10843E 02	-0.68990E 01	300.	0.99689E 00	0.28323E 01
250.	-0.48691E 00	0.10268E 01	0.12036E 02	-0.90801E 01	250.	0.99613E 00	0.26535E 01
225.	-0.46344E 00	0.10296E 01	0.12759E 02	-0.10685E 02	225.	0.99561E 00	0.25391E 01
200.	-0.44140E 00	0.10331E 01	0.13645E 02	-0.12714E 02	200.	0.99494E 00	0.24077E 01
175.	-0.41826E 00	0.10374E 01	0.14783E 02	-0.15247E 02	175.	0.99404E 00	0.22582E 01
150.	-0.39081E 00	0.10423E 01	0.16305E 02	-0.18410E 02	150.	0.99276E 00	0.20889E 01
140.	-0.37770E 00	0.10444E 01	0.17062E 02	-0.19893E 02	140.	0.99207E 00	0.20151E 01
130.	-0.36286E 00	0.10465E 01	0.17929E 02	-0.21526E 02	130.	0.99125E 00	0.19374E 01
120.	-0.34568E 00	0.10486E 01	0.18927E 02	-0.23334E 02	120.	0.99023E 00	0.18558E 01
110.	-0.32625E 00	0.10505E 01	0.20084E 02	-0.25348E 02	110.	0.98896E 00	0.17700E 01
100.	-0.30332E 00	0.10521E 01	0.21432E 02	-0.27608E 02	100.	0.98732E 00	0.16801E 01
90.	-0.27628E 00	0.10530E 01	0.23012E 02	-0.30166E 02	90.	0.98515E 00	0.15860E 01
80.	-0.24603E 00	0.10526E 01	0.24876E 02	-0.33084E 02	80.	0.98217E 00	0.14882E 01
70.	-0.20506E 00	0.10498E 01	0.27083E 02	-0.36427E 02	70.	0.97790E 00	0.13878E 01
65.	-0.18243E 00	0.10469E 01	0.28336E 02	-0.38275E 02	65.	0.97501E 00	0.13372E 01
60.	-0.15724E 00	0.10424E 01	0.29701E 02	-0.40239E 02	60.	0.97141E 00	0.12868E 01
55.	-0.12902E 00	0.10355E 01	0.31183E 02	-0.42309E 02	55.	0.96680E 00	0.12374E 01
50.	-0.97517E 01	0.10253E 01	0.32783E 02	-0.44449E 02	50.	0.96079E 00	0.11899E 01
45.	-0.62003E 01	0.10098E 01	0.34485E 02	-0.46589E 02	45.	0.95272E 00	0.11458E 01
40.	-0.22114E 01	0.98645E 00	0.36240E 02	-0.48587E 02	40.	0.94193E 00	0.11078E 01
35.	0.22224E 01	0.95026E 00	0.37915E 02	-0.50165E 02	35.	0.92534E 00	0.10806E 01
30.	0.69919E 01	0.89266E 00	0.39177E 02	-0.50766E 02	30.	0.90637E 00	0.10741E 01
25.	0.11645E 02	0.79707E 00	0.39178E 02	-0.49207E 02	25.	0.86034E 00	0.11131E 01
20.	0.14698E 00	0.62674E 00	0.35600E 02	-0.42615E 02	20.	0.78761E 00	0.12763E 01
15.	0.10099E 00	0.25998E 00	0.19268E 02	-0.20423E 02	15.	0.63493E 00	0.19201E 01
10.	0.61347E 03	0.64233E 03	0.36454E 03	-0.13626E 00	10.	0.23949E 00	0.45782E 01
.....							
PERIOD	MODE 2,1			PERIOD	MODE 1		
	UM/WO	WM/WO	ZM/WO/K		VM/YO	YM/YO/K	
250.	-0.42304E 01	0.99918E 00	0.16786E 02	-0.73414E 00	200.	0.98819E 00	0.10602E 02
225.	-0.50534E 01	0.99446E 00	0.18468E 02	-0.40859E 00	175.	0.98489E 00	0.11446E 02
200.	0.12107E 00	0.98961E 00	0.20462E 02	-0.91158E 01	140.	0.98047E 00	0.12144E 02
175.	0.16474E 00	0.98482E 00	0.22939E 02	-0.15827E 00	120.	0.97283E 00	0.12299E 02
150.	0.16675E 00	0.98123E 00	0.26050E 02	0.52524E 01	110.	0.96939E 00	0.12308E 02
140.	0.15334E 00	0.98056E 00	0.27506E 02	-0.22788E 00	100.	0.96527E 00	0.12142E 02
130.	0.13212E 00	0.98047E 00	0.29106E 02	-0.73754E 00	90.	0.96031E 00	0.11854E 02
120.	0.10566E 00	0.98092E 00	0.30879E 02	-0.15471E 01	80.	0.95429E 00	0.11397E 02
110.	0.77625E 01	0.98169E 00	0.32874E 02	-0.27201E 01	70.	0.94662E 00	0.10728E 02
100.	0.52044E 01	0.98240E 00	0.35155E 02	-0.43114E 01	65.	0.94231E 00	0.10309E 02
90.	0.32621E 01	0.98248E 00	0.37793E 02	-0.63865E 01	60.	0.93706E 00	0.98381E 01
80.	0.21852E 01	0.98121E 00	0.40836E 02	-0.90702E 01	55.	0.93079E 00	0.93226E 01
70.	0.21704E 01	0.97753E 00	0.44267E 02	-0.12600E 02	50.	0.92305E 00	0.87722E 01
65.	0.26550E 01	0.97413E 00	0.46120E 02	-0.14764E 02	45.	0.91313E 00	0.81981E 01
60.	0.35714E 01	0.96893E 00	0.48089E 02	-0.17193E 02	40.	0.89985E 00	0.76136E 01
55.	0.50398E 01	0.96089E 00	0.50236E 02	-0.19821E 02	35.	0.88117E 00	0.70360E 01
50.	0.71744E 01	0.94841E 00	0.52640E 02	-0.22545E 02	30.	0.85322E 00	0.64921E 01
45.	0.10028E 00	0.92904E 00	0.55398E 02	-0.25204E 02	25.	0.80803E 00	0.60337E 01
40.	0.13941E 00	0.89877E 00	0.58608E 02	-0.27550E 02	20.	0.72697E 00	0.57869E 01
35.	0.18859E 00	0.85065E 00	0.62376E 02	-0.29137E 02	15.	0.55833E 00	0.61298E 01
30.	0.25022E 00	0.77167E 00	0.66781E 02	-0.29086E 02	10.	0.19142E 00	0.63027E 01
25.	0.32580E 00	0.63556E 00	0.71831E 02	-0.25450E 02		
PERIOD	MODE 2,2			PERIOD	MODE 2		
	UM/WO	WM/WO	ZM/WO/K		VM/YO	YM/YO/K	
110.	0.46331E 00	0.96236E 00	0.37473E 02	0.21368E 01	100.	0.95311E 00	0.20522E 02
100.	0.44218E 00	0.93719E 00	0.40878E 02	0.19870E 01	90.	0.94368E 00	0.21662E 02
90.	0.39792E 00	0.93327E 00	0.44724E 02	0.15219E 01	80.	0.93274E 00	0.21930E 02
80.	0.32375E 00	0.93202E 00	0.48786E 02	0.31351E 01	70.	0.91884E 00	0.21794E 02
70.	0.23828E 00	0.93285E 00	0.52680E 02	-0.24519E 00	65.	0.91003E 00	0.21709E 02
65.	0.21223E 00	0.93069E 00	0.54860E 02	-0.42855E 01	60.	0.89952E 00	0.21609E 02
60.	0.20134E 00	0.92500E 00	0.57444E 02	-0.62007E 01	55.	0.88702E 00	0.21415E 02
55.	0.20358E 00	0.91485E 00	0.60527E 02	-0.81413E 01	50.	0.87249E 00	0.20960E 02
50.	0.21542E 00	0.89927E 00	0.64095E 02	-0.10175E 02	45.	0.85608E 00	0.20048E 02
45.	0.23527E 00	0.87694E 00	0.67981E 02	-0.12483E 02	40.	0.83749E 00	0.18622E 02
40.	0.25937E 00	0.84543E 00	0.71804E 02	-0.15273E 02	35.	0.81508E 00	0.16907E 02
35.	0.28946E 00	0.79876E 00	0.75213E 02	-0.18322E 02	30.	0.78518E 00	0.14768E 02
30.	0.33139E 00	0.72310E 00	0.78282E 02	-0.20413E 02	25.	0.74048E 00	0.12632E 02
25.	0.38806E 00	0.59015E 00	0.81247E 02	-0.19091E 02	20.	0.66444E 00	0.10511E 02
20.	0.45776E 00	0.33157E 00	0.83891E 02	-0.89964E 01	15.	0.53119E 00	0.86002E 01
15.	0.50850E 00	-0.35053E 00	0.80996E 02	0.31502E 02	10.	0.65476E 01	0.10636E 02
10.	0.81010E 00	-0.59616E 00	0.12400E 03	0.50207E 02		
PERIOD	MODE 3			PERIOD	MODE 3		
	UM/WO	WM/WO	ZM/WO/K		VM/YO	YM/YO/K	
65.	0.23527E 00	0.87694E 00	0.67981E 02	-0.12483E 02	65.	0.89122E 00	0.30402E 02
60.	0.25937E 00	0.84543E 00	0.71804E 02	-0.15273E 02	60.	0.87653E 00	0.30955E 02
55.	0.28946E 00	0.79876E 00	0.75213E 02	-0.18322E 02	55.	0.86070E 00	0.30659E 02
50.	0.33139E 00	0.72310E 00	0.78282E 02	-0.20413E 02	50.	0.84211E 00	0.30043E 02
45.	0.38806E 00	0.59015E 00	0.81247E 02	-0.19091E 02	45.	0.81796E 00	0.29651E 02
40.	0.45776E 00	0.33157E 00	0.83891E 02	-0.89964E 01	40.	0.78527E 00	0.29579E 02
35.	0.50850E 00	-0.35053E 00	0.80996E 02	0.31502E 02	35.	0.74366E 00	0.29011E 02
30.	0.81010E 00	-0.59616E 00	0.12400E 03	0.50207E 02	30.	0.69832E 00	0.26510E 02
25.					25.	0.64514E 00	0.22545E 02
20.					20.	0.56552E 00	0.18171E 02
15.					15.	0.41090E 00	0.14169E 02
10.					10.	-0.21993E 01	0.13461E 02

TABLE 9

SHIELD

DISPLACEMENT AND STRESS RATIOS AT A DEPTH OF 20 KM									
RAYLEIGH					LOVE				
PERIOD	UM/WO	MODE 1,1		XM/WO/K	PERIOD	VM/VO	MODE 0		YM/VO/K
		MM/WO	ZM/WO/K				MM/VO	YM/VO/K	
350.	-0.67414E-00	0.10143E 01	0.49792E 01	-0.88246E 00	350.	0.99733E 00	0.27979E 01		
300.	-0.63611E-00	0.10184E 01	0.55315E 01	-0.13998E 01	300.	0.99654E 00	0.30170E 01		
250.	-0.61828E-00	0.10202E 01	0.62230E 01	-0.22888E 01	250.	0.99528E 00	0.33196E 01		
225.	-0.61616E-00	0.10231E 01	0.66773E 01	-0.29243E 01	225.	0.99435E 00	0.35242E 01		
200.	-0.61699E-00	0.10267E 01	0.72552E 01	-0.37266E 01	200.	0.99306E 00	0.37845E 01		
175.	-0.61304E-00	0.10314E 01	0.80161E 01	-0.47456E 01	175.	0.99123E 00	0.41261E 01		
150.	-0.62031E-00	0.10372E 01	0.90530E 01	-0.60614E 01	150.	0.98844E 00	0.45905E 01		
140.	-0.61990E-00	0.10400E 01	0.95774E 01	-0.66985E 01	140.	0.98690E 00	0.48253E 01		
130.	-0.61852E-00	0.10466E 01	0.10185E 02	-0.74162E 01	130.	0.98501E 00	0.50978E 01		
120.	-0.61759E-00	0.10546E 01	0.10895E 02	-0.82307E 01	120.	0.98264E 00	0.54169E 01		
110.	-0.61702E-00	0.10500E 01	0.11732E 02	-0.91635E 01	110.	0.97962E 00	0.57949E 01		
100.	-0.60322E-00	0.10538E 01	0.12732E 02	-0.10243E 02	100.	0.97568E 00	0.62483E 01		
90.	-0.59205E-00	0.10578E 01	0.13979E 02	-0.11508E 02	90.	0.97041E 00	0.68000E 01		
80.	-0.57481E-00	0.10617E 01	0.15420E 02	-0.13012E 02	80.	0.96312E 00	0.74820E 01		
70.	-0.54888E-00	0.10649E 01	0.17264E 02	-0.14827E 02	70.	0.95266E 00	0.83388E 01		
65.	-0.53125E-00	0.10658E 01	0.18361E 02	-0.15879E 02	65.	0.94564E 00	0.88504E 01		
60.	-0.50941E-00	0.10659E 01	0.19601E 02	-0.17047E 02	60.	0.93693E 00	0.94279E 01		
55.	-0.48217E-00	0.10647E 01	0.21006E 02	-0.18346E 02	55.	0.92598E 00	0.10077E 02		
50.	-0.44704E-00	0.10612E 01	0.22602E 02	-0.19787E 02	50.	0.91204E 00	0.10796E 02		
45.	-0.40458E-00	0.10541E 01	0.24411E 02	-0.21375E 02	45.	0.89410E 00	0.11568E 02		
40.	-0.34930E-00	0.10410E 01	0.26441E 02	-0.23099E 02	40.	0.87091E 00	0.12339E 02		
35.	-0.27855E-00	0.10177E 01	0.28655E 02	-0.24897E 02	35.	0.84090E 00	0.13009E 02		
30.	-0.18871E-00	0.97696E 00	0.30889E 02	-0.26602E 02	30.	0.80212E 00	0.13429E 02		
25.	-0.79057E-01	0.90612E 00	0.32621E 02	-0.27829E 02	25.	0.75122E 00	0.13412E 02		
20.	-0.38013E-01	0.78633E 00	0.32420E 02	-0.27770E 02	20.	0.66761E 00	0.12745E 02		
15.	0.12243E-00	0.59846E 00	0.27556E 02	-0.24830E 02	15.	0.60259E 00	0.11241E 02		
10.	0.11801E-00	0.33450E-00	0.16430E 02	-0.16308E 02	10.	0.48044E-00	0.87407E 01		

PERIOD	UM/WO	MODE 2,1		XM/WO/K	PERIOD	VM/VO	MODE 1		YM/VO/K
		MM/WO	ZM/WO/K				MM/VO	YM/VO/K	
250.	-0.13252E-00	0.10013E 01	0.85330E 01	0.15173E-00	200.	0.98988E 00	0.73098E 01		
225.	-0.73389E-01	0.99949E 00	0.93827E 01	0.47373E-01	175.	0.98698E 00	0.80827E 01		
200.	-0.36277E-01	0.99792E 00	0.10410E 02	-0.38033E-01	150.	0.98286E 00	0.88031E 01		
175.	-0.27876E-01	0.99686E 00	0.11695E 02	-0.10133E-00	140.	0.98070E 00	0.90845E 01		
150.	-0.62073E-01	0.99725E 00	0.13323E 02	-0.17269E-00	130.	0.97810E 00	0.93727E 01		
140.	-0.90612E-01	0.99818E 00	0.14093E 02	-0.23560E-00	120.	0.97495E 00	0.96795E 01		
130.	-0.12731E-00	0.99971E 00	0.14945E 02	-0.35343E-00	110.	0.97104E 00	0.10018E 02		
120.	-0.17003E-00	0.10019E 01	0.15901E 02	-0.56464E 00	100.	0.96608E 00	0.10403E 02		
110.	-0.21523E-00	0.10047E 01	0.16995E 02	-0.91388E 00	90.	0.95965E 00	0.10848E 02		
100.	-0.25887E-00	0.10081E 01	0.18276E 02	-0.14776E 01	80.	0.95106E 00	0.11369E 02		
90.	-0.29714E-00	0.10117E 01	0.19812E 02	-0.22181E 01	70.	0.93918E 00	0.11991E 02		
80.	-0.32663E-00	0.10153E 01	0.21681E 02	-0.33006E 01	65.	0.93140E 00	0.12358E 02		
70.	-0.34359E-00	0.10183E 01	0.23979E 02	-0.48189E 01	60.	0.92187E 00	0.12776E 02		
65.	-0.34567E-00	0.10191E 01	0.25328E 02	-0.57962E 01	55.	0.90994E 00	0.13273E 02		
60.	-0.34195E-00	0.10191E 01	0.26842E 02	-0.69480E 01	50.	0.89459E 00	0.13877E 02		
55.	-0.33061E-00	0.10175E 01	0.28562E 02	-0.82839E 01	45.	0.87421E 00	0.14643E 02		
50.	-0.30916E-00	0.10132E 01	0.30552E 02	-0.97928E 01	40.	0.84602E 00	0.15650E 02		
45.	-0.27421E-00	0.10042E 01	0.32902E 02	-0.11434E 02	35.	0.80518E 00	0.17008E 02		
40.	-0.22121E-00	0.98709E 00	0.35735E 02	-0.13123E 02	30.	0.74294E 00	0.18833E 02		
35.	-0.14367E-00	0.95585E 00	0.39218E 02	-0.14694E 02	25.	0.64245E 00	0.21207E 02		
30.	-0.31991E-01	0.89673E 00	0.43561E 02	-0.15808E 02	20.	0.46776E-00	0.24049E 02		
25.	-0.12770E-00	0.79171E 00	0.48985E 02	-0.15729E 02	15.	0.13450E-00	0.26313E 02		
20.	0.35180E-00	0.58153E 00	0.55415E 02	-0.12818E 02	10.	-0.53346E 00	0.20673E 02		
15.	0.63165E-00	0.14349E-00	0.60539E 02	-0.35104E 01					
10.	0.71552E 00	-0.76276E 00	0.46258E 02	0.17915E 02					

PERIOD	UM/WO	MODE 1,2		XM/WO/K	PERIOD	VM/VO	MODE 2		YM/VO/K
		MM/WO	ZM/WO/K				MM/VO	YM/VO/K	
110.	0.15304E-00	0.97999E 00	0.19186E 02	-0.75879E 00	100.	0.95978E 00	0.14409E 02		
100.	0.11417E-00	0.9730E 00	0.20945E 02	-0.70453E 00	90.	0.95142E 00	0.15282E 02		
90.	0.55806E-01	0.9771E 00	0.22973E 02	-0.62424E 00	80.	0.94076E 00	0.15941E 02		
80.	-0.23940E-01	0.98197E 00	0.25266E 02	-0.64957E 00	70.	0.92620E 00	0.16629E 02		
70.	-0.11993E-00	0.98195E 00	0.27724E 02	-0.12121E 01	65.	0.91661E 00	0.17062E 02		
65.	-0.15913E-00	0.98128E 00	0.29094E 02	-0.18616E 01	60.	0.90480E 00	0.17579E 02		
60.	-0.18454E-00	0.99021E 00	0.30678E 02	-0.27471E 01	55.	0.89004E 00	0.18184E 02		
55.	-0.19427E-00	0.98880E 00	0.32364E 02	-0.38261E 01	50.	0.87136E 00	0.18861E 02		
50.	-0.18785E-00	0.98391E 00	0.34824E 02	-0.50808E 01	45.	0.84738E 00	0.19586E 02		
45.	-0.16461E-00	0.97391E 00	0.37205E 02	-0.65334E 01	40.	0.81574E 00	0.20367E 02		
40.	-0.12257E-00	0.95693E 00	0.40409E 02	-0.82354E 01	35.	0.77200E 00	0.21298E 02		
35.	-0.21077E-01	0.92488E 00	0.44153E 02	-0.10189E 02	30.	0.70748E 00	0.22574E 02		
30.	0.61677E-01	0.86897E 00	0.48175E 02	-0.12104E 02	25.	0.60492E 00	0.24266E 02		
25.	-0.18920E-00	0.76257E 00	0.52916E 02	-0.13090E 02	20.	0.42801E-00	0.26378E 02		
20.	0.40153E-00	0.55482E 00	0.58348E 02	-0.11312E 02	15.	0.94167E-01	0.27683E 02		
15.	0.66411E 00	0.12018E-00	0.61998E 02	-0.31906E 01	10.	-0.56121E 00	0.20584E 02		
10.	0.71399E 00	-0.76578E 00	0.45868E 02	0.17409E 02					

PERIOD	UM/WO	MODE 1,1		XM/WO/K	PERIOD	VM/VO	MODE 3		YM/VO/K
		MM/WO	ZM/WO/K				MM/VO	YM/VO/K	
70.	0.91830E 00	0.97391E 00	0.37205E 02	-0.65334E 01	70.	0.91830E 00	0.20377E 02		
65.	0.90650E 00	0.95693E 00	0.40409E 02	-0.82354E 01	65.	0.90650E 00	0.21323E 02		
60.	0.89287E 00	0.92488E 00	0.44153E 02	-0.10189E 02	60.	0.89287E 00	0.21971E 02		
55.	0.87652E 00	0.86897E 00	0.48175E 02	-0.12104E 02	55.	0.87652E 00	0.22467E 02		
50.	0.85609E 00	0.76257E 00	0.52916E 02	-0.13090E 02	50.	0.85609E 00	0.22976E 02		
45.	0.82931E 00	0.55482E 00	0.58348E 02	-0.11312E 02	45.	0.82931E 00	0.23673E 02		
40.	0.79277E 00	0.12018E-00	0.61998E 02	-0.31906E 01	40.	0.79277E 00	0.24671E 02		
35.	0.74173E 00	0.12018E-00	0.61998E 02	-0.31906E 01	35.	0.74173E 00	0.25902E 02		
30.	0.66954E 00	0.12018E-00	0.61998E 02	-0.31906E 01	30.	0.66954E 00	0.27083E 02		
25.	0.56138E 00	0.12018E-00	0.61998E 02	-0.31906E 01	25.	0.56138E 00	0.28175E 02		
20.	0.38069E-00	0.12018E-00	0.61998E 02	-0.31906E 01	20.	0.38069E-00	0.29325E 02		
15.	0.44044E-01	0.12018E-00	0.61998E 02	-0.31906E 01	15.	0.44044E-01	0.29419E 02		
10.	-0.57431E 00	0.12018E-00	0.61998E 02	-0.31906E 01	10.	-0.57431E 00	0.20524E 02		

TABLE 10

OCEAN

DISPLACEMENT AND STRESS RATIOS AT A DEPTH OF 20 KM													
RAYLEIGH					LOVE								
PERIOD	UM/WO	MODE 1,1			PERIOD	MODE 0		PERIOD	YM/VO/K				
		WM/WO	ZM/WO/K	XM/WO/K		VM/VO	YM/VO/K						
350.	-0.66485E	00	0.10117E	01	0.50539E	01	-0.22957E	01	350.	0.99906E	00	0.17054E	01
300.	-0.60342E	00	0.10129E	01	0.56273E	01	-0.28697E	01	300.	0.99880E	00	0.17077E	01
250.	-0.56050E	00	0.10154E	01	0.63103E	01	-0.39164E	01	250.	0.99840E	00	0.17013E	01
225.	-0.54676E	00	0.10172E	01	0.67444E	01	-0.46960E	01	225.	0.99811E	00	0.16994E	01
200.	-0.53638E	00	0.10197E	01	0.72935E	01	-0.56944E	01	200.	0.99771E	00	0.17026E	01
175.	-0.52729E	00	0.10229E	01	0.80202E	01	-0.69654E	01	175.	0.99715E	00	0.17158E	01
150.	-0.51676E	00	0.10268E	01	0.90206E	01	-0.85955E	01	150.	0.99631E	00	0.17474E	01
140.	-0.51179E	00	0.10287E	01	0.95302E	01	-0.93789E	01	140.	0.99585E	00	0.17683E	01
130.	-0.50565E	00	0.10308E	01	0.10123E	02	-0.10258E	02	130.	0.99528E	00	0.17958E	01
120.	-0.49826E	00	0.10330E	01	0.10819E	02	-0.11251E	02	120.	0.99457E	00	0.18320E	01
110.	-0.48922E	00	0.10354E	01	0.11643E	02	-0.12387E	02	110.	0.99367E	00	0.18797E	01
100.	-0.47867E	00	0.10381E	01	0.12631E	02	-0.13701E	02	100.	0.99249E	00	0.19428E	01
90.	-0.46643E	00	0.10410E	01	0.13830E	02	-0.15246E	02	90.	0.99090E	00	0.20271E	01
80.	-0.46443E	00	0.10440E	01	0.15310E	02	-0.17096E	02	80.	0.98870E	00	0.21412E	01
70.	-0.42345E	00	0.10470E	01	0.17173E	02	-0.19356E	02	70.	0.98550E	00	0.22987E	01
65.	-0.40924E	00	0.10483E	01	0.18295E	02	-0.20684E	02	65.	0.98333E	00	0.24002E	01
60.	-0.39265E	00	0.10493E	01	0.19980E	02	-0.22175E	02	60.	0.98061E	00	0.25221E	01
55.	-0.37303E	00	0.10498E	01	0.21062E	02	-0.23857E	02	55.	0.97712E	00	0.26700E	01
50.	-0.34956E	00	0.10495E	01	0.22787E	02	-0.25763E	02	50.	0.97254E	00	0.28515E	01
45.	-0.32106E	00	0.10476E	01	0.24814E	02	-0.27929E	02	45.	0.96638E	00	0.30776E	01
40.	-0.28592E	00	0.10429E	01	0.27214E	02	-0.30392E	02	40.	0.95782E	00	0.33641E	01
35.	-0.24191E	00	0.10331E	01	0.30069E	02	-0.33177E	02	35.	0.94541E	00	0.37352E	01
30.	-0.18588E	00	0.10133E	01	0.33434E	02	-0.36249E	02	30.	0.92647E	00	0.42291E	01
25.	-0.11356E	00	0.97186E	00	0.37207E	02	-0.39341E	02	25.	0.89551E	00	0.49099E	01
20.	-0.20170E	01	0.87386E	00	0.40489E	02	-0.41094E	02	20.	0.83989E	00	0.58921E	01
15.	-0.85465E	01	0.53186E	00	0.35476E	02	-0.31717E	02	15.	0.72531E	00	0.74053E	01
10.	0.98520E	02	0.15695E	01	0.18905E	01	-0.16109E	01	10.	0.44118E	00	0.94832E	01
MODE 1													
PERIOD	UM/WO	WM/WO	ZM/WO/K	XM/WO/K	PERIOD	VM/VO	YM/VO/K	PERIOD	YM/VO/K				
200.	-0.99625E	00	0.85840E	01	-0.23495E	00	0.54609E	01	200.	0.99625E	00	0.54609E	01
175.	-0.99517E	00	0.94488E	01	-0.15057E	00	0.60362E	01	175.	0.99517E	00	0.60362E	01
150.	-0.99355E	00	0.10474E	02	-0.68227E	01	0.64757E	01	150.	0.99355E	00	0.64757E	01
140.	-0.99286E	00	0.11750E	02	-0.10600E	01	0.66040E	01	140.	0.99286E	00	0.66040E	01
130.	-0.99193E	00	0.13360E	02	-0.96656E	01	0.67055E	01	130.	0.99193E	00	0.67055E	01
120.	-0.99080E	00	0.14962E	02	-0.47510E	00	0.68359E	01	120.	0.99080E	00	0.68359E	01
110.	-0.98942E	00	0.16991E	02	-0.14281E	01	0.68640E	01	110.	0.98942E	00	0.68640E	01
100.	-0.98770E	00	0.18259E	02	-0.22216E	01	0.68581E	01	100.	0.98770E	00	0.68581E	01
90.	-0.98551E	00	0.19769E	02	-0.32967E	01	0.68049E	01	90.	0.98551E	00	0.68049E	01
80.	-0.98264E	00	0.21583E	02	-0.47576E	01	0.66967E	01	80.	0.98264E	00	0.66967E	01
70.	-0.97875E	00	0.23769E	02	-0.68027E	01	0.66259E	01	70.	0.97875E	00	0.66259E	01
65.	-0.97622E	00	0.25038E	02	-0.81283E	01	0.6511E	01	65.	0.97622E	00	0.6511E	01
60.	-0.97313E	00	0.26467E	02	-0.96905E	01	0.64808E	01	60.	0.97313E	00	0.64808E	01
55.	-0.96927E	00	0.28119E	02	-0.11492E	02	0.64270E	01	55.	0.96927E	00	0.64270E	01
50.	-0.96431E	00	0.30073E	02	-0.15351E	02	0.64052E	01	50.	0.96431E	00	0.64052E	01
45.	-0.95774E	00	0.32439E	02	-0.15797E	02	0.64366E	01	45.	0.95774E	00	0.64366E	01
40.	-0.94871E	00	0.35353E	02	-0.18275E	02	0.6513E	01	40.	0.94871E	00	0.6513E	01
35.	-0.93574E	00	0.43664E	02	-0.20916E	02	0.67960E	01	35.	0.93574E	00	0.67960E	01
30.	-0.91605E	00	0.49676E	02	-0.25689E	02	0.72486E	01	30.	0.91605E	00	0.72486E	01
25.	-0.88396E	00	0.57372E	02	-0.25278E	02	0.80490E	01	25.	0.88396E	00	0.80490E	01
20.	-0.83963E	00	0.64738E	02	-0.78649E	01	0.94486E	01	20.	0.83963E	00	0.94486E	01
15.	-0.70788E	00	0.92480E	02	-0.49013E	02	0.10331E	02	15.	0.70788E	00	0.10331E	02
10.	-0.42969E	00							10.	-0.42969E	00		
MODE 2													
PERIOD	UM/WO	WM/WO	ZM/WO/K	XM/WO/K	PERIOD	VM/VO	YM/VO/K	PERIOD	YM/VO/K				
100.	0.98505E	00	0.19315E	02	0.52077E	00	0.10864E	02	100.	0.98505E	00	0.10864E	02
90.	0.98188E	00	0.21104E	02	0.46426E	00	0.11549E	02	90.	0.98188E	00	0.11549E	02
80.	0.97793E	00	0.23138E	02	0.29131E	00	0.11852E	02	80.	0.97793E	00	0.11852E	02
70.	0.97261E	00	0.25324E	02	-0.22444E	00	0.12013E	02	70.	0.97261E	00	0.12013E	02
65.	0.96913E	00	0.27552E	02	-0.16044E	01	0.12111E	02	65.	0.96913E	00	0.12111E	02
60.	0.96488E	00	0.28875E	02	-0.26128E	01	0.12226E	02	60.	0.96488E	00	0.12226E	02
55.	0.95963E	00	0.30433E	02	-0.37645E	01	0.12325E	02	55.	0.95963E	00	0.12325E	02
50.	0.95315E	00	0.32445E	02	-0.50364E	01	0.12333E	02	50.	0.95315E	00	0.12333E	02
45.	0.94512E	00	0.34803E	02	-0.65042E	01	0.12163E	02	45.	0.94512E	00	0.12163E	02
40.	0.93487E	00	0.37557E	02	-0.83461E	01	0.11802E	02	40.	0.93487E	00	0.11802E	02
35.	0.92103E	00	0.40662E	02	-0.10832E	02	0.11328E	02	35.	0.92103E	00	0.11328E	02
30.	0.90884E	00	0.44154E	02	-0.14112E	02	0.10857E	02	30.	0.90884E	00	0.10857E	02
25.	0.89687E	00	0.48324E	02	-0.17902E	02	0.10504E	02	25.	0.89687E	00	0.10504E	02
20.	0.88121E	00	0.53644E	02	-0.21401E	02	0.10401E	02	20.	0.88121E	00	0.10401E	02
15.	0.86737E	00	0.60525E	02	-0.22382E	02	0.10703E	02	15.	0.86737E	00	0.10703E	02
10.	0.84983E	00	0.66589E	02	-0.65650E	01	0.12680E	02	10.	0.84983E	00	0.12680E	02
MODE 3													
PERIOD	UM/WO	WM/WO	ZM/WO/K	XM/WO/K	PERIOD	VM/VO	YM/VO/K	PERIOD	YM/VO/K				
65.	0.96497E	00	0.37557E	02	-0.83461E	01	0.16359E	02	65.	0.96497E	00	0.16359E	02
60.	0.95978E	00	0.40662E	02	-0.10832E	02	0.16813E	02	60.	0.95978E	00	0.16813E	02
55.	0.95377E	00	0.44154E	02	-0.14112E	02	0.16884E	02	55.	0.95377E	00	0.16884E	02
50.	0.94637E	00	0.48324E	02	-0.17902E	02	0.16838E	02	50.	0.94637E	00	0.16838E	02
45.	0.93656E	00	0.53644E	02	-0.21401E	02	0.16959E	02	45.	0.93656E	00	0.16959E	02
40.	0.92308E	00	0.60525E	02	-0.22382E	02	0.17322E	02	40.	0.92308E	00	0.17322E	02
35.	0.90480E	00	0.66589E	02	-0.65650E	01	0.17544E	02	35.	0.90480E	00	0.17544E	02
30.	0.88096E	00	0.98698E	02	-0.43810E	02	0.16900E	02	30.	0.88096E	00	0.16900E	02
25.	0.84677E	00					0.15658E	02	25.	0.84677E	00	0.15658E	02
20.	0.78906E	00					0.14434E	02	20.	0.78906E	00	0.14434E	02
15.	0.67288E	00					0.13703E	02	15.	0.67288E	00	0.13703E	02
10.	0.37476E	00					0.14437E	02	10.	0.37476E	00	0.14437E	02

TABLE 11

SHIELD

DISPLACEMENT AND STRESS RATIOS AT A DEPTH OF 35 KM									
RAYLEIGH					LOVE				
MODE 1,1					MODE 0				
PERIOD	UM/WO	WM/WO	ZM/WO/K	XM/WO/K	PERIOD	VM/VO	YM/VO/K		
350.	-0.62338E-00	0.10224E 01	0.97578E 01	-0.24291E 01	350.	0.99349E 00	0.50615E 01		
300.	-0.57491E-00	0.10251E 01	0.10811E 02	-0.34974E 01	300.	0.99159E 00	0.54047E 01		
250.	-0.54217E 00	0.10301E 01	0.12099E 02	-0.53800E 01	250.	0.98861E 00	0.58750E 01		
225.	-0.53044E-00	0.10338E 01	0.12928E 02	-0.65875E 01	225.	0.98639E 00	0.61936E 01		
200.	-0.51980E 00	0.10384E 01	0.13970E 02	-0.81866E 01	200.	0.98335E 00	0.66003E 01		
175.	-0.50824E-00	0.10439E 01	0.15322E 02	-0.10192E 02	175.	0.97901E 00	0.71354E 01		
150.	-0.49302E-00	0.10504E 01	0.17135E 02	-0.12739E 02	150.	0.97246E 00	0.78642E 01		
140.	-0.48501E-00	0.10532E 01	0.18039E 02	-0.13955E 02	140.	0.96886E 00	0.82328E 01		
130.	-0.47537E-00	0.10561E 01	0.19077E 02	-0.15310E 02	130.	0.96443E 00	0.86599E 01		
120.	-0.46359E-00	0.10589E 01	0.20276E 02	-0.16830E 02	120.	0.95889E 00	0.91592E 01		
110.	-0.44902E-00	0.10615E 01	0.21672E 02	-0.18545E 02	110.	0.95185E 00	0.97487E 01		
100.	-0.43079E-00	0.10636E 01	0.23309E 02	-0.20495E 02	100.	0.94268E 00	0.10452E 02		
90.	-0.40768E-00	0.10645E 01	0.25245E 02	-0.22729E 02	90.	0.93046E 00	0.11302E 02		
80.	-0.37801E-00	0.10634E 01	0.27550E 02	-0.25307E 02	80.	0.91363E 00	0.12339E 02		
70.	-0.33932E-00	0.10583E 01	0.30302E 02	-0.28293E 02	70.	0.88963E 00	0.13617E 02		
65.	-0.31553E-00	0.10531E 01	0.31870E 02	-0.29956E 02	65.	0.87362E 00	0.14363E 02		
60.	-0.28804E-00	0.10452E 01	0.33571E 02	-0.31733E 02	60.	0.85388E 00	0.15186E 02		
55.	-0.25615E-00	0.10332E 01	0.35399E 02	-0.33613E 02	55.	0.82929E 00	0.16082E 02		
50.	-0.21907E-00	0.10155E 01	0.37325E 02	-0.35560E 02	50.	0.79820E 00	0.17026E 02		
45.	-0.17596E-00	0.98915E 00	0.39278E 02	-0.37493E 02	45.	0.75882E 00	0.17954E 02		
40.	-0.12617E-00	0.94962E 00	0.41099E 02	-0.39248E 02	40.	0.70891E 00	0.18729E 02		
35.	-0.69679E-01	0.88980E 00	0.42457E 02	-0.40480E 02	35.	0.64623E 00	0.19125E 02		
30.	-0.84380E-02	0.79860E 00	0.42673E 02	-0.40506E 02	30.	0.56872E 00	0.18844E 02		
25.	0.50435E-01	0.66077E 00	0.40409E 02	-0.38042E 02	25.	0.47512E-00	0.17553E 02		
20.	0.88644E-01	0.46554E-00	0.33433E 02	-0.31155E 02	20.	0.36628E-00	0.14964E 02		
15.	0.79394E-01	0.23935E-00	0.20380E 02	-0.18976E 02	15.	0.24621E-00	0.10972E 02		
10.	0.30125E-01	0.63271E-01	0.61885E 01	-0.58800E 01	10.	0.12262E-00	0.58549E 01		
					MODE 1				
					PERIOD	VM/VO	YM/VO/K		
					200.	0.97496E 00	0.13642E 02		
					175.	0.96786E 00	0.15025E 02		
					150.	0.95785E 00	0.16243E 02		
					140.	0.95261E 00	0.16692E 02		
					130.	0.94637E 00	0.17135E 02		
					120.	0.93882E 00	0.17591E 02		
					110.	0.92949E 00	0.18078E 02		
					100.	0.91774E 00	0.18615E 02		
					90.	0.90260E 00	0.19213E 02		
					80.	0.88257E 00	0.19879E 02		
					70.	0.85516E 00	0.20628E 02		
					65.	0.83738E 00	0.21047E 02		
					60.	0.81576E 00	0.21513E 02		
					55.	0.78891E 00	0.22050E 02		
					50.	0.75472E 00	0.22692E 02		
					45.	0.70938E 00	0.23495E 02		
					40.	0.64860E 00	0.24531E 02		
					35.	0.56160E 00	0.25855E 02		
					30.	0.43301E-00	0.27390E 02		
					25.	0.23613E-00	0.28670E 02		
					20.	-0.72956E-01	0.28163E 02		
					15.	-0.53450E 00	0.20625E 02		
					10.	-0.80072E 00	-0.93388E 01		
					MODE 2				
					PERIOD	VM/VO	YM/VO/K		
					100.	0.90147E 00	0.25382E 02		
					90.	0.88147E 00	0.27751E 02		
					80.	0.85627E 00	0.28604E 02		
					70.	0.82229E 00	0.29364E 02		
					65.	0.80013E 00	0.29829E 02		
					60.	0.77306E 00	0.30378E 02		
					55.	0.73959E 00	0.30988E 02		
					50.	0.69778E 00	0.31594E 02		
					45.	0.64500E 00	0.32103E 02		
					40.	0.57490E 00	0.32455E 02		
					35.	0.48534E-00	0.32680E 02		
					30.	0.35522E-00	0.32783E 02		
					25.	0.16028E-00	0.32390E 02		
					20.	-0.14068E-00	0.29893E 02		
					15.	-0.57566E 00	0.19910E 02		
					10.	-0.77066E 00	-0.11785E 02		
					MODE 3				
					PERIOD	VM/VO	YM/VO/K		
					70.	0.80245E 00	0.36330E 02		
					65.	0.77494E 00	0.37662E 02		
					60.	0.74358E 00	0.38341E 02		
					55.	0.70653E 00	0.38621E 02		
					50.	0.66092E 00	0.38764E 02		
					45.	0.60218E 00	0.39010E 02		
					40.	0.52377E 00	0.39419E 02		
					35.	0.41775E-00	0.39653E 02		
					30.	0.27494E-00	0.38948E 02		
					25.	0.76162E-01	0.36701E 02		
					20.	-0.21647E-00	0.31677E 02		
					15.	-0.62062E 00	0.18613E 02		
					10.	-0.75502E 00	-0.12989E 02		
					MODE 1,2				
PERIOD	UM/WO	WM/WO	ZM/WO/K	XM/WO/K					
110.	0.27839E-00	0.94606E 00	0.36955E 02	-0.20424E 01					
100.	0.25276E-00	0.94067E 00	0.40265E 02	-0.21654E 01					
90.	0.21169E-00	0.93554E 00	0.44072E 02	-0.23234E 01					
80.	0.15504E-00	0.93093E 00	0.48337E 02	-0.27573E 01					
70.	0.89404E-01	0.92662E 00	0.52766E 02	-0.41737E 01					
65.	0.66934E-01	0.92193E 00	0.55104E 02	-0.54902E 01					
60.	0.58257E-01	0.91298E 00	0.57684E 02	-0.71858E 01					
55.	0.64751E-01	0.89759E 00	0.60614E 02	-0.90731E 01					
50.	0.86251E-01	0.87314E 00	0.63930E 02	-0.11154E 02					
45.	0.12220E-00	0.83583E 00	0.67551E 02	-0.13348E 02					
40.	0.17199E-00	0.77970E 00	0.71210E 02	-0.15569E 02					
35.	0.23530E-00	0.69445E 00	0.74395E 02	-0.17494E 02					
30.	0.31341E-00	0.56021E 00	0.76411E 02	-0.18089E 02					
25.	0.40750E-00	0.33827E-00	0.76107E 02	-0.14960E 02					
20.	0.50535E 00	-0.41273E-01	0.70001E 02	-0.34527E 02					
15.	0.52468E 00	-0.65834E 00	0.46037E 02	0.23843E 02					
10.	0.93520E-01	-0.10904E 01	-0.26896E 02	0.56550E 02					

TABLE 13

SHIELD

DISPLACEMENT AND STRESS RATIOS AT A DEPTH OF 50 KM									
RAYLEIGH					LOVE				
PERIOD	UM/WO	MODE 1,1			PERIOD	MODE 0			
		WM/WO	ZM/WO/K	XM/WO/K		VM/YO	YM/YO/K		
350.	-0.57344E-00	0.10295E 01	0.14487E 02	-0.60213E 01	350.	0.98985E 00	0.60826E 01		
300.	-0.51491E-00	0.10324E 01	0.15982E 02	-0.78211E 01	300.	0.98700E 00	0.62991E 01		
250.	-0.46795E-00	0.10378E 01	0.17741E 02	-0.10847E 02	250.	0.98256E 00	0.65853E 01		
225.	-0.44715E-00	0.10417E 01	0.18840E 02	-0.12361E 02	225.	0.97929E 00	0.67844E 01		
200.	-0.42587E-00	0.10465E 01	0.20190E 02	-0.15569E 02	200.	0.97483E 00	0.70476E 01		
175.	-0.40178E-00	0.10518E 01	0.21905E 02	-0.18778E 02	175.	0.96850E 00	0.74078E 01		
150.	-0.37169E-00	0.10574E 01	0.24145E 02	-0.22745E 02	150.	0.95897E 00	0.79173E 01		
140.	-0.35696E-00	0.10595E 01	0.25239E 02	-0.24531E 02	140.	0.95375E 00	0.81813E 01		
130.	-0.34010E-00	0.10612E 01	0.26477E 02	-0.26611E 02	130.	0.94734E 00	0.84912E 01		
120.	-0.32057E-00	0.10624E 01	0.27883E 02	-0.28824E 02	120.	0.93935E 00	0.88579E 01		
110.	-0.29769E-00	0.10627E 01	0.29485E 02	-0.31251E 02	110.	0.92920E 00	0.92956E 01		
100.	-0.27063E-00	0.10614E 01	0.31317E 02	-0.33911E 02	100.	0.91604E 00	0.98230E 01		
90.	-0.23829E-00	0.10576E 01	0.33411E 02	-0.36817E 02	90.	0.89852E 00	0.10464E 02		
80.	-0.19293E-00	0.10395E 01	0.35790E 02	-0.39958E 02	80.	0.87451E 00	0.11251E 02		
70.	-0.15193E-00	0.10336E 01	0.38441E 02	-0.43266E 02	70.	0.84042E 00	0.12216E 02		
65.	-0.12551E-00	0.10212E 01	0.39840E 02	-0.44924E 02	65.	0.81780E 00	0.12773E 02		
60.	-0.94320E-01	0.10043E 01	0.41247E 02	-0.46522E 02	60.	0.79003E 00	0.13376E 02		
55.	-0.61231E-01	0.98117E 00	0.42600E 02	-0.47970E 02	55.	0.75560E 00	0.14009E 02		
50.	-0.25347E-01	0.94943E 00	0.43787E 02	-0.49128E 02	50.	0.71260E 00	0.14626E 02		
45.	0.12817E-01	0.90549E 00	0.44617E 02	-0.49759E 02	45.	0.65879E 00	0.15130E 02		
40.	0.51790E-01	0.84416E 00	0.44752E 02	-0.49485E 02	40.	0.59204E 00	0.15334E 02		
35.	0.88400E-01	0.75804E 00	0.43621E 02	-0.47684E 02	35.	0.51090E 00	0.14958E 02		
30.	0.11634E-00	0.63740E 00	0.40283E 02	-0.43384E 02	30.	0.41538E-00	0.13701E 02		
25.	0.12458E-00	0.4747E-00	0.33402E 02	-0.35290E 02	25.	0.30824E-00	0.11373E 02		
20.	0.99676E-01	0.27110E-00	0.22023E 02	-0.22748E 02	20.	0.19721E-00	0.80553E 01		
15.	0.46206E-01	0.89123E-01	0.88838E 01	-0.89721E 01	15.	0.96582E-01	0.43041E 01		
10.	0.67457E-02	0.11246E-01	0.11638E 01	-0.11823E 01	10.	0.25693E-01	0.12267E 01		
PERIOD	UM/WO	MODE 2,1			PERIOD	MODE 1			
		WM/WO	ZM/WO/K	XM/WO/K		VM/YO	YM/YO/K		
250.	-0.15276E-01	0.99374E 00	0.24931E 02	-0.62011E 00	200.	0.95982E 00	0.16150E 02		
225.	0.57306E-01	0.98715E 00	0.27347E 02	-0.61355E 00	175.	0.94856E 00	0.19838E 02		
200.	0.11179E-00	0.98009E 00	0.30260E 02	-0.61898E 00	150.	0.93288E 00	0.21110E 02		
175.	0.14319E-00	0.97276E 00	0.33894E 02	-0.70900E 00	140.	0.92478E 00	0.21496E 02		
150.	0.14105E-00	0.96621E 00	0.38476E 02	-0.11502E 01	130.	0.91519E 00	0.21825E 02		
140.	0.12911E-00	0.96417E 00	0.40623E 02	-0.15684E 01	120.	0.90365E 00	0.22116E 02		
130.	0.11184E-00	0.96250E 00	0.42973E 02	-0.22357E 01	110.	0.88952E 00	0.22379E 02		
120.	0.91731E-01	0.96096E 00	0.45560E 02	-0.32454E 01	100.	0.87187E 00	0.22625E 02		
110.	0.72579E-01	0.95896E 00	0.48438E 02	-0.46817E 01	90.	0.84935E 00	0.22848E 02		
100.	0.58605E-01	0.95545E 00	0.51686E 02	-0.66034E 01	80.	0.81998E 00	0.23022E 02		
90.	0.53721E-01	0.94882E 00	0.55387E 02	-0.90447E 01	70.	0.78014E 00	0.23120E 02		
80.	0.61308E-01	0.93659E 00	0.59593E 02	-0.12029E 02	65.	0.75465E 00	0.23143E 02		
70.	0.84340E-01	0.91464E 00	0.64256E 02	-0.15559E 02	60.	0.72389E 00	0.23163E 02		
65.	0.10256E-00	0.89786E 00	0.66698E 02	-0.17497E 02	55.	0.68599E 00	0.23208E 02		
60.	0.12585E-00	0.87524E 00	0.69162E 02	-0.19474E 02	50.	0.63809E 00	0.23324E 02		
55.	0.15478E-00	0.84436E 00	0.71608E 02	-0.21345E 02	45.	0.57595E 00	0.23595E 02		
50.	0.19004E-00	0.80147E 00	0.74000E 02	-0.22849E 02	40.	0.49082E-00	0.24146E 02		
45.	0.23216E-00	0.74075E 00	0.76278E 02	-0.23550E 02	35.	0.37113E-00	0.25125E 02		
40.	0.28124E-00	0.65300E 00	0.78307E 02	-0.22746E 02	30.	0.19627E-00	0.26591E 02		
35.	0.33615E-00	0.52330E 00	0.79762E 02	-0.19278E 02	25.	-0.65246E-01	0.28362E 02		
30.	0.39283E-00	0.32683E-00	0.79894E 02	-0.11158E 02	20.	-0.45480E-00	0.29553E 02		
25.	0.43975E-00	0.22479E-01	0.76966E 02	0.50707E 01	15.	-0.94816E 00	0.26359E 02		
20.	0.44533E-00	-0.44778E-00	0.66797E 02	0.34812E 02	10.	-0.67645E 00	-0.19527E-00		
15.	0.31968E-00	-0.10653E 01	0.38553E 02	0.79110E 02					
10.	-0.15331E-00	-0.78381E 00	-0.31244E 02	0.59599E 02	PERIOD	MODE 2			
						VM/YO	YM/YO/K		
100.	0.39936E-00	0.9C471E 00	0.54159E 02	-0.11377E 01	100.	0.84331E 00	0.34473E 02		
110.	0.38531E-00	0.89314E 00	0.58826E 02	-0.14262E 01	90.	0.81243E 00	0.35808E 02		
90.	0.35899E-00	0.88036E 00	0.64135E 02	-0.19105E 01	80.	0.77422E 00	0.36186E 02		
80.	0.32138E-00	0.86586E 00	0.69951E 02	-0.29156E 01	70.	0.72351E 00	0.36194E 02		
70.	0.27958E-00	0.84776E 00	0.75652E 02	-0.52246E 01	65.	0.69080E 00	0.36215E 02		
65.	0.26932E-00	0.83327E 00	0.78425E 02	-0.69663E 01	60.	0.65118E 00	0.36267E 02		
60.	0.27180E-00	0.81140E 00	0.81301E 02	-0.88679E 01	55.	0.60266E 00	0.36304E 02		
55.	0.28754E-00	0.77895E 00	0.85361E 02	-0.10671E 02	50.	0.54286E 00	0.36221E 02		
50.	0.31530E-00	0.73203E 00	0.87544E 02	-0.12125E 02	45.	0.46860E-00	0.35880E 02		
45.	0.35263E-00	0.66334E 00	0.90557E 02	-0.12953E 02	40.	0.37465E-00	0.35221E 02		
40.	0.39561E-00	0.57117E 00	0.92764E 02	-0.12719E 02	35.	0.25091E 00	0.34352E 02		
35.	0.43836E-00	0.43741E-00	0.92118E 02	-0.10536E 02	30.	0.79108E-01	0.33439E 02		
30.	0.47326E-00	0.24288E-00	0.90323E 02	-0.44932E 01	25.	-0.16973E 00	0.32384E 02		
25.	0.48739E-00	-0.49331E-01	0.82562E 02	0.82231E 01	20.	-0.52805E 00	0.30167E 02		
20.	0.44700E-00	-0.48728E-00	0.65596E 02	0.34682E 02	15.	-0.94664E 00	0.22805E 02		
15.	0.26046E-00	-0.10231E 01	0.28657E 02	0.72057E 02	10.	-0.54341E 00	-0.57103E 01		
10.	-0.19585E-00	-0.69273E 00	-0.37663E 02	0.51527E 02	PERIOD	MODE 3			
						VM/YO	YM/YO/K		
70.	0.68974E 00	0.68974E 00	0.68974E 00	0.68974E 00		70.	0.68974E 00	0.68974E 00	
65.	0.64826E 00	0.64826E 00	0.64826E 00	0.64826E 00		65.	0.64826E 00	0.64826E 00	
60.	0.60186E 00	0.60186E 00	0.60186E 00	0.60186E 00		60.	0.60186E 00	0.60186E 00	
55.	0.54794E 00	0.54794E 00	0.54794E 00	0.54794E 00		55.	0.54794E 00	0.54794E 00	
50.	0.48267E 00	0.48267E 00	0.48267E 00	0.48267E 00		50.	0.48267E 00	0.48267E 00	
45.	0.39955E 00	0.39955E 00	0.39955E 00	0.39955E 00		45.	0.39955E 00	0.39955E 00	
40.	0.29159E 00	0.29159E 00	0.29159E 00	0.29159E 00		40.	0.29159E 00	0.29159E 00	
35.	0.14912E 00	0.14912E 00	0.14912E 00	0.14912E 00		35.	0.14912E 00	0.14912E 00	
30.	-0.34853E 01	-0.34853E 01	-0.34853E 01	-0.34853E 01	30.	-0.34853E 01	-0.34853E 01		
25.	-0.27663E 00	-0.27663E 00	-0.27663E 00	-0.27663E 00	25.	-0.27663E 00	-0.27663E 00		
20.	-0.59985E 00	-0.59985E 00	-0.59985E 00	-0.59985E 00	20.	-0.59985E 00	-0.59985E 00		
15.	-0.92790E 00	-0.92790E 00	-0.92790E 00	-0.92790E 00	15.	-0.92790E 00	-0.92790E 00		
10.	-0.47961E 00	-0.47961E 00	-0.47961E 00	-0.47961E 00	10.	-0.47961E 00	-0.47961E 00		

TABLE 14

OCEAN

DISPLACEMENT AND STRESS RATIOS AT A DEPTH OF 70 KM									
RAYLEIGH					LOVE				
PERIOD	MODE 1,1				PERIOD	MODE 0			
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K		VM/YO	YM/YO/K		
350.	-0.50962E-00	0.10366E 01	0.20270E 02	-0.12650E 02	350.	0.98999E 00	0.59579E 01		
300.	-0.41833E-00	0.10364E 01	0.22191E 02	-0.14895E 02	300.	0.98839E 00	0.56117E 01		
250.	-0.33339E-00	0.10376E 01	0.24056E 02	-0.18791E 02	250.	0.98648E 00	0.50792E 01		
225.	-0.29324E-00	0.10387E 01	0.25020E 02	-0.21545E 02	225.	0.98537E 00	0.47349E 01		
200.	-0.25257E-00	0.10398E 01	0.26082E 02	-0.24886E 02	200.	0.98411E 00	0.43303E 01		
175.	-0.20900E-00	0.10400E 01	0.27313E 02	-0.28835E 02	175.	0.98266E 00	0.38538E 01		
150.	-0.15968E-00	0.10380E 01	0.28790E 02	-0.33399E 02	150.	0.98094E 00	0.32855E 01		
140.	-0.13757E-00	0.10360E 01	0.29467E 02	-0.35390E 02	140.	0.98015E 00	0.30254E 01		
130.	-0.11374E-00	0.10329E 01	0.30199E 02	-0.37466E 02	130.	0.97929E 00	0.27422E 01		
120.	-0.87932E-01	0.10282E 01	0.30985E 02	-0.39617E 02	120.	0.97834E 00	0.24319E 01		
110.	-0.59921E-01	0.10214E 01	0.31818E 02	-0.41824E 02	110.	0.97727E 00	0.20891E 01		
100.	-0.29536E-01	0.10116E 01	0.32680E 02	-0.44293E 02	100.	0.97605E 00	0.17068E 01		
90.	0.32564E-02	0.99735E 00	0.33530E 02	-0.46250E 02	90.	0.97462E 00	0.12750E 01		
80.	0.38205E-01	0.97677E 00	0.34220E 02	-0.48312E 02	80.	0.97290E 00	0.77991E-00		
70.	0.74497E-01	0.94698E 00	0.34814E 02	-0.50952E 02	70.	0.97071E 00	0.20019E-00		
65.	0.92632E-01	0.92631E 00	0.34914E 02	-0.50698E 02	65.	0.96936E 00	-0.13129E-00		
60.	0.11029E-00	0.90134E 00	0.34845E 02	-0.51102E 02	60.	0.96777E 00	-0.49819E-00		
55.	0.12692E-00	0.87030E 00	0.34544E 02	-0.51159E 02	55.	0.96583E 00	-0.90875E 00		
50.	0.14173E-00	0.83133E 00	0.33923E 02	-0.50716E 02	50.	0.96341E 00	-0.13742E 01		
45.	0.15363E-00	0.78183E 00	0.32864E 02	-0.49551E 02	45.	0.96028E 00	-0.19102E 01		
40.	0.16098E-00	0.71816E 00	0.31202E 02	-0.47340E 02	40.	0.95606E 00	-0.25394E 01		
35.	0.16144E-00	0.63531E 00	0.28701E 02	-0.43620E 02	35.	0.95003E 00	-0.32947E 01		
30.	0.15161E-00	0.52681E 00	0.25016E 02	-0.37754E 02	30.	0.94069E 00	-0.42234E 01		
25.	0.12678E-00	0.38602E 00	0.19668E 02	-0.28887E 02	25.	0.92438E 00	-0.53864E 01		
20.	0.81788E-01	0.21226E-00	0.12117E 02	-0.16871E 02	20.	0.88923E 00	-0.67954E 01		
15.	0.16271E-01	0.31252E-01	0.23628E 01	-0.27947E 01	15.	0.77498E 00	-0.77438E 01		
10.	-0.	-0.	-0.	-0.	10.	0.89169E-01	0.52140E 00		
					MODE 1				
					PERIOD	VM/YO	YM/YO/K		
					200.	0.94886E 00	0.21815E 02		
					175.	0.93439E 00	0.23880E 02		
					150.	0.91706E 00	0.25105E 02		
					140.	0.90851E 00	0.25296E 02		
					130.	0.89895E 00	0.25302E 02		
					120.	0.88819E 00	0.25120E 02		
					110.	0.87601E 00	0.24739E 02		
					100.	0.86219E 00	0.24125E 02		
					90.	0.84664E 00	0.23206E 02		
					80.	0.82951E 00	0.21876E 02		
					70.	0.81116E 00	0.20031E 02		
					65.	0.80159E 00	0.18899E 02		
					60.	0.79170E 00	0.17629E 02		
					55.	0.78131E 00	0.16229E 02		
					50.	0.77011E 00	0.14708E 02		
					45.	0.75752E 00	0.13073E 02		
					40.	0.74529E 00	0.11328E 02		
					35.	0.72355E 00	0.94718E 01		
					30.	0.69688E 00	0.75066E 01		
					25.	0.65455E 00	0.54562E 01		
					20.	0.57406E 00	0.34794E 01		
					15.	0.37139E 00	0.25019E 01		
					10.	-0.19185E-00	0.61151E 00		
					MODE 2				
					PERIOD	VM/YO	YM/YO/K		
					100.	0.80096E 00	0.41332E 02		
					90.	0.76348E 00	0.43073E 02		
					80.	0.72260E 00	0.42882E 02		
					70.	0.67366E 00	0.41695E 02		
					65.	0.64382E 00	0.40970E 02		
					60.	0.60931E 00	0.40135E 02		
					55.	0.57011E 00	0.39027E 02		
					50.	0.52788E 00	0.37343E 02		
					45.	0.48610E-00	0.34767E 02		
					40.	0.44770E-00	0.31241E 02		
					35.	0.41254E-00	0.27000E 02		
					30.	0.37794E 00	0.22304E 02		
					25.	0.33867E-00	0.17304E 02		
					20.	0.28182E-00	0.12116E 02		
					15.	0.16024E-00	0.72305E 01		
					10.	-0.76268E 00	0.14868E 02		
					MODE 3				
					PERIOD	VM/YO	YM/YO/K		
					65.	0.55539E 00	0.56757E 02		
					60.	0.50276E 00	0.56642E 02		
					55.	0.44989E-00	0.54849E 02		
					50.	0.39145E-00	0.52334E 02		
					45.	0.31821E-00	0.49926E 02		
					40.	0.22290E-00	0.47595E 02		
					35.	0.11355E-00	0.44055E 02		
					30.	0.22345E-01	0.37784E 02		
					25.	-0.45894E-01	0.29902E 02		
					20.	-0.11370E-00	0.21773E 02		
					15.	-0.24636E-00	0.14505E 02		
					10.	-0.10207E 01	0.16263E 02		
					MODE 1,2				
PERIOD	UM/WO	WM/WO	ZM/WO/K	XM/WO/K					
110.	0.75300E 00	0.79300E 00	0.76573E 02	0.53430E 01					
100.	0.75683E 00	0.76483E 00	0.82847E 02	0.53945E 01					
90.	0.74270E 00	0.73294E 00	0.89709E 02	0.48696E 01					
80.	0.70751E 00	0.69653E 00	0.96516E 02	0.37147E 01					
70.	0.66660E 00	0.64906E 00	0.10195E 03	0.15693E 01					
65.	0.66095E 00	0.61301E 00	0.10444E 03	0.57294E 00					
60.	0.66771E 00	0.56388E 00	0.10713E 03	-0.48790E 01					
55.	0.68390E 00	0.49832E-00	0.11002E 03	0.56748E-01					
50.	0.70444E 00	0.41264E 00	0.11281E 03	0.10095E 01					
45.	0.72225E 00	0.30259E-00	0.11478E 03	0.29910E 01					
40.	0.72872E 00	0.16315E-00	0.11480E 03	0.66102E 01					
35.	0.71823E 00	-0.15361E-01	0.11200E 03	0.12371E 02					
30.	0.69203E 00	-0.25623E-00	0.10668E 03	0.23189E 02					
25.	0.65559E 00	-0.60918E 00	0.10009E 03	0.43048E 02					
20.	0.62227E 00	-0.11917E 01	0.94805E 02	0.80941E 02					
15.	0.62037E 00	-0.23783E 01	0.95637E 02	0.16419E 03					
10.	0.13452E 01	-0.60562E 01	0.20275E 03	0.42902E 03					

TABLE 15

SHIELD

DISPLACEMENT AND STRESS RATIOS AT A DEPTH OF 70 KM

RAYLEIGH				LOVE			
PERIOD	MODE 1,1			MODE 0			
	UM/WO	ZM/WO/K	XM/WO/K	VM/VO	YM/VO/K		
350.	-0.50996E-00	0.10384E-01	0.20561E-02	-0.10533E-02	0.98396E-00	0.74376E-01	
300.	-0.43996E-00	0.10383E-01	0.22822E-02	-0.13107E-02	0.97979E-00	0.74845E-01	
250.	-0.37666E-00	0.10426E-01	0.24672E-02	-0.17359E-02	0.97344E-00	0.75251E-01	
225.	-0.34624E-00	0.10455E-01	0.25936E-02	-0.20271E-02	0.96883E-00	0.75651E-01	
200.	-0.31423E-00	0.10487E-01	0.27428E-02	-0.23788E-02	0.96262E-00	0.76378E-01	
175.	-0.27838E-00	0.10519E-01	0.29243E-02	-0.27996E-02	0.95877E-00	0.77662E-01	
150.	-0.23566E-00	0.10527E-01	0.31500E-02	-0.32997E-02	0.94084E-00	0.79870E-01	
140.	-0.21578E-00	0.10522E-01	0.32559E-02	-0.35241E-02	0.93374E-00	0.81138E-01	
130.	-0.19382E-00	0.10506E-01	0.33723E-02	-0.37628E-02	0.92507E-00	0.82708E-01	
120.	-0.16936E-00	0.10475E-01	0.35000E-02	-0.40155E-02	0.91429E-00	0.84655E-01	
110.	-0.14195E-00	0.10422E-01	0.36397E-02	-0.42808E-02	0.90066E-00	0.87079E-01	
100.	-0.11107E-00	0.10337E-01	0.37909E-02	-0.45552E-02	0.88304E-00	0.90110E-01	
90.	-0.76195E-01	0.10201E-01	0.39514E-02	-0.48318E-02	0.85969E-00	0.93917E-01	
80.	-0.36849E-01	0.99879E-00	0.41149E-02	-0.50962E-02	0.82782E-00	0.98701E-01	
70.	0.70843E-02	0.96509E-00	0.42658E-02	-0.53204E-02	0.78283E-00	0.10465E-02	
65.	0.30576E-01	0.94130E-00	0.43269E-02	-0.54014E-02	0.75316E-00	0.10806E-02	
60.	0.54733E-01	0.91102E-00	0.43692E-02	-0.54477E-02	0.71692E-00	0.11166E-02	
55.	0.79008E-01	0.87225E-00	0.43813E-02	-0.54427E-02	0.67236E-00	0.11520E-02	
50.	0.10241E-00	0.82236E-00	0.43457E-02	-0.53635E-02	0.61736E-00	0.11813E-02	
45.	0.12334E-00	0.75779E-00	0.42368E-02	-0.51765E-02	0.54989E-00	0.11926E-02	
40.	0.13904E-00	0.67421E-00	0.40148E-02	-0.48370E-02	0.46887E-00	0.11652E-02	
35.	0.14526E-00	0.56669E-00	0.36245E-02	-0.42863E-02	0.37547E-00	0.10716E-02	
30.	0.13605E-00	0.43180E-00	0.29983E-02	-0.34629E-02	0.27413E-00	0.89278E-01	
25.	0.10556E-00	0.27388E-00	0.20936E-02	-0.23495E-02	0.17338E-00	0.63669E-01	
20.	0.56496E-01	0.12001E-00	0.10267E-02	-0.11157E-02	0.86423E-01	0.35261E-01	
15.	0.13948E-01	0.24534E-01	0.23653E-01	-0.25009E-01	0.27737E-01	0.12359E-01	
10.	0.61051E-03	0.97413E-03	0.98410E-01	-0.10826E-00	0.32006E-02	0.15250E-00	
MODE 1							
PERIOD	UM/WO	ZM/WO/K	XM/WO/K	VM/VO	YM/VO/K		
200.	0.93301E-00	0.24033E-02	0.26080E-02	0.93301E-00	0.24033E-02		
175.	0.91464E-00	0.27368E-02	0.27368E-02	0.91464E-00	0.27368E-02		
150.	0.89676E-00	0.27646E-02	0.27646E-02	0.89676E-00	0.27646E-02		
140.	0.87700E-00	0.27799E-02	0.27799E-02	0.87700E-00	0.27799E-02		
130.	0.86220E-00	0.27818E-02	0.27818E-02	0.86220E-00	0.27818E-02		
120.	0.84663E-00	0.27616E-02	0.27616E-02	0.84663E-00	0.27616E-02		
110.	0.82341E-00	0.27317E-02	0.27317E-02	0.82341E-00	0.27317E-02		
100.	0.79732E-00	0.26822E-02	0.26822E-02	0.79732E-00	0.26822E-02		
90.	0.76461E-00	0.26064E-02	0.26064E-02	0.76461E-00	0.26064E-02		
80.	0.72273E-00	0.25580E-02	0.25580E-02	0.72273E-00	0.25580E-02		
70.	0.66761E-00	0.25044E-02	0.25044E-02	0.66761E-00	0.25044E-02		
65.	0.63295E-00	0.24000E-02	0.24000E-02	0.63295E-00	0.24000E-02		
60.	0.59165E-00	0.23695E-02	0.23695E-02	0.59165E-00	0.23695E-02		
55.	0.54130E-00	0.23798E-02	0.23798E-02	0.54130E-00	0.23798E-02		
50.	0.47812E-00	0.23798E-02	0.23798E-02	0.47812E-00	0.23798E-02		
45.	0.39583E-00	0.23798E-02	0.23798E-02	0.39583E-00	0.23798E-02		
40.	0.32866E-00	0.23798E-02	0.23798E-02	0.32866E-00	0.23798E-02		
35.	0.12357E-00	0.26408E-02	0.26408E-02	0.12357E-00	0.26408E-02		
30.	-0.11345E-00	0.26451E-02	0.26451E-02	-0.11345E-00	0.26451E-02		
25.	-0.47314E-00	0.29689E-02	0.29689E-02	-0.47314E-00	0.29689E-02		
20.	-0.10191E-01	0.34707E-02	0.34707E-02	-0.10191E-01	0.34707E-02		
15.	-0.17203E-01	0.39998E-02	0.39998E-02	-0.17203E-01	0.39998E-02		
10.	-0.88450E-00	0.12420E-02	0.12420E-02	-0.88450E-00	0.12420E-02		
MODE 2							
PERIOD	UM/WO	ZM/WO/K	XM/WO/K	VM/VO	YM/VO/K		
100.	0.74282E-00	0.44292E-02	0.44292E-02	0.74282E-00	0.44292E-02		
90.	0.69468E-00	0.45378E-02	0.45378E-02	0.69468E-00	0.45378E-02		
80.	0.63701E-00	0.44950E-02	0.44950E-02	0.63701E-00	0.44950E-02		
70.	0.56256E-00	0.43784E-02	0.43784E-02	0.56256E-00	0.43784E-02		
65.	0.51539E-00	0.43115E-02	0.43115E-02	0.51539E-00	0.43115E-02		
60.	0.45898E-00	0.42399E-02	0.42399E-02	0.45898E-00	0.42399E-02		
55.	0.39097E-00	0.41563E-02	0.41563E-02	0.39097E-00	0.41563E-02		
50.	0.30877E-00	0.40465E-02	0.40465E-02	0.30877E-00	0.40465E-02		
45.	0.20912E-00	0.38952E-02	0.38952E-02	0.20912E-00	0.38952E-02		
40.	0.86163E-01	0.37011E-02	0.37011E-02	0.86163E-01	0.37011E-02		
35.	-0.72650E-01	0.34893E-02	0.34893E-02	-0.72650E-01	0.34893E-02		
30.	-0.29092E-00	0.33011E-02	0.33011E-02	-0.29092E-00	0.33011E-02		
25.	-0.60557E-00	0.31721E-02	0.31721E-02	-0.60557E-00	0.31721E-02		
20.	-0.10550E-01	0.31030E-02	0.31030E-02	-0.10550E-01	0.31030E-02		
15.	-0.15451E-01	0.29096E-02	0.29096E-02	-0.15451E-01	0.29096E-02		
10.	-0.45164E-00	0.32786E-00	0.32786E-00	-0.45164E-00	0.32786E-00		
MODE 3							
PERIOD	UM/WO	ZM/WO/K	XM/WO/K	VM/VO	YM/VO/K		
70.	0.50144E-00	0.57001E-02	0.57001E-02	0.50144E-00	0.57001E-02		
65.	0.43936E-00	0.57541E-02	0.57541E-02	0.43936E-00	0.57541E-02		
60.	0.37211E-00	0.56556E-02	0.56556E-02	0.37211E-00	0.56556E-02		
55.	0.29633E-00	0.54552E-02	0.54552E-02	0.29633E-00	0.54552E-02		
50.	0.20702E-00	0.51983E-02	0.51983E-02	0.20702E-00	0.51983E-02		
45.	0.96522E-01	0.49189E-02	0.49189E-02	0.96522E-01	0.49189E-02		
40.	-0.44270E-01	0.46136E-02	0.46136E-02	-0.44270E-01	0.46136E-02		
35.	-0.22212E-00	0.42262E-02	0.42262E-02	-0.22212E-00	0.42262E-02		
30.	-0.43970E-00	0.36987E-02	0.36987E-02	-0.43970E-00	0.36987E-02		
25.	-0.71066E-00	0.30761E-02	0.30761E-02	-0.71066E-00	0.30761E-02		
20.	-0.10494E-01	0.24068E-02	0.24068E-02	-0.10494E-01	0.24068E-02		
15.	-0.12989E-01	0.15153E-02	0.15153E-02	-0.12989E-01	0.15153E-02		
10.	-0.26192E-00	0.45045E-01	0.45045E-01	-0.26192E-00	0.45045E-01		

TABLE 17
SHIELD

DISPLACEMENT AND STRESS RATIOS AT A DEPTH OF 100 KM

RAYLEIGH					LOVE				
MODE 1,1					MODE 0				
PERIOD	UM/WO	MM/WO	ZM/WO/K	XM/WO/K	PERIOD	VM/YO	YM/YO/K		
350.	-0.42131E-00	0.10414E 01	0.29175E 02	-0.16770E 02	350.	0.97293E 00	0.94529E 01		
300.	-0.33610E-00	0.10400E 01	0.31599E 02	-0.20115E 02	300.	0.96666E 00	0.92446E 01		
250.	-0.25484E-00	0.10392E 01	0.33902E 02	-0.25467E 02	250.	0.95749E 00	0.89169E 01		
225.	-0.21432E-00	0.10385E 01	0.35081E 02	-0.28999E 02	225.	0.95107E 00	0.87194E 01		
200.	-0.17209E-00	0.10366E 01	0.36339E 02	-0.33112E 02	200.	0.94246E 00	0.85083E 01		
175.	-0.12657E-00	0.10322E 01	0.37706E 02	-0.37769E 02	175.	0.93064E 00	0.82933E 01		
150.	-0.76048E-01	0.10225E 01	0.39180E 02	-0.42984E 02	150.	0.91336E 00	0.80889E 01		
140.	-0.54028E-01	0.10161E 01	0.39786E 02	-0.45158E 02	140.	0.90405E 00	0.80153E 01		
130.	-0.30813E-01	0.10075E 01	0.40388E 02	-0.47348E 02	130.	0.89275E 00	0.79500E 01		
120.	-0.63297E-02	0.99592E 00	0.40965E 02	-0.49508E 02	120.	0.87880E 00	0.7863E 01		
110.	0.19419E-01	0.98022E 00	0.41483E 02	-0.51565E 02	110.	0.86127E 00	0.78593E 01		
100.	0.46300E-01	0.95881E 00	0.41886E 02	-0.53405E 02	100.	0.83875E 00	0.78458E 01		
90.	0.73915E-01	0.92930E 00	0.42079E 02	-0.54448E 02	90.	0.80908E 00	0.78651E 01		
80.	0.10139E-00	0.88813E 00	0.41899E 02	-0.55602E 02	80.	0.76884E 00	0.79291E 01		
70.	0.12695E-00	0.82983E 00	0.41065E 02	-0.55191E 02	70.	0.71241E 00	0.80477E 01		
65.	0.13804E-00	0.79177E 00	0.40264E 02	-0.54318E 02	65.	0.67542E 00	0.81255E 01		
60.	0.14716E-00	0.74599E 00	0.39092E 02	-0.52823E 02	60.	0.63053E 00	0.82057E 01		
55.	0.15341E-00	0.69077E 00	0.37434E 02	-0.50272E 02	55.	0.57582E 00	0.82648E 01		
50.	0.15554E-00	0.62420E 00	0.35132E 02	-0.47215E 02	50.	0.50931E 00	0.82490E 01		
45.	0.15322E-00	0.54418E 00	0.32007E 02	-0.42623E 02	45.	0.42083E 00	0.80674E 01		
40.	0.14084E-00	0.44933E 00	0.27826E 02	-0.36519E 02	40.	0.33878E 00	0.74740E 01		
35.	0.12004E-00	0.34008E 00	0.22404E 02	-0.28757E 02	35.	0.25200E 00	0.63310E 01		
30.	0.88799E-01	0.22183E 00	0.15763E 02	-0.19608E 02	30.	0.14967E 00	0.46051E 01		
25.	0.50410E-01	0.10987E 00	0.85711E 01	-0.10227E 02	25.	0.74048E-01	0.26332E 01		
20.	0.16642E-01	0.31281E-01	0.27307E 01	-0.31014E 01	20.	0.25234E-01	0.10145E 01		
15.	0.17346E-02	0.28358E-02	0.27670E 00	-0.30251E 00	15.	0.42824E-02	0.18954E-00		
10.	-0.	-0.	-0.	-0.	10.	0.21582E-03	0.30990E-02		

MODE 1				
PERIOD	VM/YO	YM/YO/K		
200.	0.87908E 00	0.32488E 02		
175.	0.84696E 00	0.34942E 02		
150.	0.80469E 00	0.36106E 02		
140.	0.78382E 00	0.36162E 02		
130.	0.75987E 00	0.35988E 02		
120.	0.73201E 00	0.35598E 02		
110.	0.69908E 00	0.34996E 02		
100.	0.65955E 00	0.34162E 02		
90.	0.61136E 00	0.33042E 02		
80.	0.55174E 00	0.31540E 02		
70.	0.47635E 00	0.29595E 02		
65.	0.43039E 00	0.28387E 02		
60.	0.37663E 00	0.27124E 02		
55.	0.31199E 00	0.25836E 02		
50.	0.23125E 00	0.24645E 02		
45.	0.12510E 00	0.23776E 02		
40.	-0.23431E-01	0.23623E 02		
35.	-0.24652E 00	0.24797E 02		
30.	-0.59041E 00	0.28229E 02		
25.	-0.11570E 01	0.35657E 02		
20.	-0.21342E 01	0.51037E 02		
15.	-0.37835E 01	0.81167E 02		
10.	-0.23880E 01	0.49909E 02		

MODE 2				
PERIOD	VM/YO	YM/YO/K		
100.	0.54962E 00	0.56334E 02		
90.	0.47212E 00	0.56536E 02		
80.	0.38363E 00	0.54499E 02		
70.	0.27432E 00	0.51229E 02		
65.	0.20709E 00	0.49348E 02		
60.	0.12840E 00	0.47294E 02		
55.	0.35958E-01	0.44972E 02		
50.	-0.72362E-01	0.42243E 02		
45.	-0.19911E-00	0.39020E 02		
40.	-0.35081E-00	0.35459E 02		
35.	-0.54475E 00	0.32066E 02		
30.	-0.81671E 00	0.29642E 02		
25.	-0.12300E 01	0.29363E 02		
20.	-0.18853E 01	0.33429E 02		
15.	-0.28184E 01	0.45422E 02		
10.	-0.71763E 01	0.10526E 02		

MODE 1,2				
PERIOD	UM/WO	MM/WO	ZM/WO/K	XM/WO/K
110.	0.76044E 00	0.66299E 00	0.10457E 03	0.39000E 01
100.	0.76964E 00	0.61176E 00	0.11168E 03	0.38195E 01
90.	0.76923E 00	0.54856E 00	0.11911E 03	0.36646E 01
80.	0.75909E 00	0.46767E 00	0.12696E 03	0.35514E 01
70.	0.74071E 00	0.35952E 00	0.13055E 03	0.38984E 01
65.	0.73399E 00	0.28742E 00	0.13139E 03	0.47025E 01
60.	0.73639E 00	0.19704E 00	0.13133E 03	0.64594E 01
55.	0.72783E 00	-0.83251E-01	0.13028E 03	0.96718E 01
50.	0.72200E 00	-0.59426E-01	0.12790E 03	0.14887E 02
45.	0.70667E 00	-0.23655E 00	0.12346E 03	0.22755E 02
40.	0.67459E 00	-0.45315E 00	0.11603E 03	0.34140E 02
35.	0.62078E 00	-0.71415E 00	0.10501E 03	0.50263E 02
30.	0.54728E 00	-0.10288E 01	0.91014E 02	0.72750E 02
25.	0.46349E 00	-0.14121E 01	0.75881E 02	0.10325E 03
20.	0.38473E 00	-0.18532E 01	0.62228E 02	0.14095E 03
15.	0.31502E 00	-0.20688E 01	0.50361E 02	0.16311E 03
10.	-0.31199E 00	0.86350E 00	-0.48678E 02	-0.71515E 02

MODE 3				
PERIOD	VM/YO	YM/YO/K		
70.	0.16295E 00	0.65990E 02		
65.	0.71951E-01	0.64680E 02		
60.	-0.21594E-01	0.61434E 02		
55.	-0.12176E 00	0.56914E 02		
50.	-0.23428E 00	0.51630E 02		
45.	-0.36708E 00	0.45835E 02		
40.	-0.52679E 00	0.39334E 02		
35.	-0.71271E 00	0.31669E 02		
30.	-0.92085E 00	0.23237E 02		
25.	-0.11717E 01	0.15796E 02		
20.	-0.14958E 01	0.11058E 02		
15.	-0.17388E 01	0.10475E 02		
10.	-0.10577E 00	-0.18161E 01		

TABLE 19

SHEILD

DISPLACEMENT AND STRESS RATIOS AT A DEPTH OF 150 KM

RAYLEIGH					LOVE		
PERIOD	MODE 1,1				PERIOD	MODE 0	
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K		VM/VO	YM/VO/K
350.	-0.29200E-00	0.10371E 01	0.42167E 02	-0.25760E 02	350.	0.94789E 00	0.13016E 02
300.	-0.18958E-00	0.10253E 01	0.44812E 02	-0.29540E 02	300.	0.93771E 00	0.12435E 02
250.	-0.90445E-01	0.10094E 01	0.46478E 02	-0.35167E 02	250.	0.92376E 00	0.11571E 02
225.	-0.42299E-01	0.99822E 00	0.46896E 02	-0.38586E 02	225.	0.91443E 00	0.11030E 02
200.	0.53026E-02	0.98303E 00	0.47009E 02	-0.42241E 02	200.	0.90257E 00	0.10413E 02
175.	0.52296E-01	0.96125E 00	0.46729E 02	-0.45922E 02	175.	0.88680E 00	0.97124E 01
150.	0.97880E-01	0.92853E 00	0.45869E 02	-0.49268E 02	150.	0.86466E 00	0.89142E 01
140.	0.11530E-00	0.91079E 00	0.45292E 02	-0.50376E 02	140.	0.85303E 00	0.85635E 01
130.	0.13192E-00	0.88935E 00	0.44533E 02	-0.51257E 02	130.	0.83914E 00	0.81928E 01
120.	0.14740E-00	0.86321E 00	0.43549E 02	-0.51818E 02	120.	0.82224E 00	0.78006E 01
110.	0.16121E-00	0.83102E 00	0.42273E 02	-0.51935E 02	110.	0.80128E 00	0.73861E 01
100.	0.17260E-00	0.79192E 00	0.40622E 02	-0.51436E 02	100.	0.77469E 00	0.69492E 01
90.	0.18044E-00	0.74083E 00	0.38472E 02	-0.50092E 02	90.	0.74004E 00	0.64917E 01
80.	0.18311E-00	0.67730E 00	0.35657E 02	-0.47588E 02	80.	0.69344E 00	0.60190E 01
70.	0.17822E-00	0.59641E 00	0.31941E 02	-0.43516E 02	70.	0.62852E 00	0.55403E 01
65.	0.17199E-00	0.54798E 00	0.29655E 02	-0.40734E 02	65.	0.58615E 00	0.53012E 01
60.	0.16259E-00	0.49345E 00	0.27028E 02	-0.37367E 02	60.	0.53493E 00	0.50599E 01
55.	0.14956E-00	0.43235E 00	0.24023E 02	-0.33354E 02	55.	0.47292E-00	0.48059E 01
50.	0.13742E-00	0.36472E 00	0.20606E 02	-0.28669E 02	50.	0.39875E-00	0.45090E 01
45.	0.11119E-00	0.29095E 00	0.16809E 02	-0.23312E 02	45.	0.31229E-00	0.41012E 01
40.	0.86064E-01	0.21352E 00	0.12685E 02	-0.17456E 02	40.	0.21928E-00	0.34739E 01
35.	0.58585E-01	0.13709E 00	0.84547E 01	-0.11460E 02	35.	0.13123E-00	0.25566E 01
30.	0.32027E-01	0.70038E-01	0.45490E 01	-0.60107E 01	30.	0.62234E-01	0.14815E 01
25.	0.11623E-01	0.23400E-01	0.16348E 01	-0.20777E 01	25.	0.20624E-01	0.58703E 00
20.	0.18224E-02	0.33141E-02	0.25546E-00	-0.30846E-00	20.	0.37542E-02	0.12438E-00
15.	-0.	-0.	-0.	-0.	15.	0.31648E-03	0.45552E-02
10.	-0.	-0.	-0.	-0.	10.	-0.	-0.

PERIOD	MODE 2,1				PERIOD	MODE 1	
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K		VM/VO	YM/VO/K
250.	0.34679E-00	0.88382E 00	0.76393E 02	-0.33799E 01	200.	0.75129E 00	0.45503E 02
225.	0.45883E-00	0.84073E 00	0.83041E 02	-0.16835E 01	175.	0.68852E 00	0.48195E 02
200.	0.56264E 00	0.78712E 00	0.90803E 02	0.73044E 00	150.	0.60951E 00	0.48689E 02
175.	0.65542E 00	0.71836E 00	0.10002E 03	0.31742E 01	140.	0.57199E 00	0.48194E 02
150.	0.72944E 00	0.62766E 00	0.11062E 03	0.55189E 01	130.	0.53008E 00	0.47308E 02
140.	0.75216E 00	0.58251E 00	0.11506E 03	0.63351E 01	120.	0.48274E-00	0.46040E 02
130.	0.77099E 00	0.53002E 00	0.11942E 03	0.70738E 01	110.	0.42861E-00	0.44392E 02
120.	0.78662E 00	0.46754E-00	0.12352E 03	0.78049E 01	100.	0.36605E-00	0.42331E 02
110.	0.79984E 00	0.39112E-00	0.12715E 03	0.87155E 01	90.	0.29319E-00	0.39785E 02
100.	0.81069E 00	0.29531E-00	0.13003E 03	0.10163E 02	80.	0.20791E-00	0.36651E 02
90.	0.81765E 00	0.17279E-00	0.13177E 03	0.12733E 02	70.	0.10695E-00	0.32862E 02
80.	0.81723E 00	0.13845E-01	0.13175E 03	0.17338E 02	60.	0.48357E-01	0.30750E 02
70.	0.80378E 00	-0.19417E-00	0.12910E 03	0.25380E 02	50.	-0.18425E-01	0.28560E 02
65.	0.79011E 00	-0.32169E-00	0.12649E 03	0.31317E 02	55.	-0.97882E-01	0.26401E 02
60.	0.77104E 00	-0.46871E-00	0.12296E 03	0.38990E 02	50.	-0.19837E-00	0.24470E 02
55.	0.74661E 00	-0.63985E 00	0.11860E 03	0.48864E 02	45.	-0.33705E-00	0.23126E 02
50.	0.71777E 00	-0.84258E 00	0.11367E 03	0.61578E 02	40.	-0.54794E 00	0.23009E 02
45.	0.68677E 00	-0.10895E 01	0.10866E 03	0.78095E 02	35.	-0.89827E 00	0.25237E 02
40.	0.65810E 00	-0.14023E 01	0.10440E 03	0.10001E 03	30.	-0.15239E 01	0.31901E 02
35.	0.64097E 00	-0.18216E 01	0.10241E 03	0.13024E 03	25.	-0.27431E 01	0.47970E 02
30.	0.65533E 00	-0.24300E 01	0.10577E 03	0.17473E 03	20.	-0.54690E 01	0.87489E 02
25.	0.74857E 00	-0.34207E 01	0.12164E 03	0.24740E 03	15.	-0.12674E 02	0.19553E 03
20.	0.10465E 01	-0.53159E 01	0.16877E 03	0.38606E 03	10.	-0.14800E 02	0.21823E 03
15.	0.18572E 01	-0.94332E 01	0.29180E 03	0.68607E 03			
10.	-0.32686E-02	-0.30207E-01	-0.40625E-00	0.22274E 01			

PERIOD	MODE 1,2				PERIOD	MODE 2	
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K		VM/VO	YM/VO/K
110.	0.10192E 01	0.28488E-00	0.13805E 03	0.97436E 01	100.	0.13809E-00	0.67399E 02
100.	0.10200E 01	0.17725E-00	0.14308E 03	0.10456E 02	90.	0.13083E-01	0.64577E 02
90.	0.10019E 01	0.45324E-01	0.14668E 03	0.11769E 02	80.	-0.11839E-01	0.58804E 02
80.	0.96048E 00	-0.12033E-00	0.14737E 03	0.14722E 02	70.	-0.26774E-00	0.51258E 02
70.	0.89420E 00	-0.33307E-00	0.14277E 03	0.21655E 02	65.	-0.35391E-00	0.46991E 02
65.	0.85283E 00	-0.46380E-00	0.13779E 03	0.27211E 02	60.	-0.44985E-00	0.42349E 02
60.	0.80386E 00	-0.61473E 00	0.13080E 03	0.34339E 02	55.	-0.55618E 00	0.37259E 02
55.	0.74306E 00	-0.78793E 00	0.12150E 03	0.43198E 02	50.	-0.67278E 00	0.31707E 02
50.	0.66475E 00	-0.98352E 00	0.10935E 03	0.53954E 02	45.	-0.80106E 00	0.25892E 02
45.	0.56307E 00	-0.11983E 01	0.93816E 02	0.66747E 02	40.	-0.95109E 00	0.20307E 02
40.	0.43973E-00	-0.14266E 01	0.75034E 02	0.81784E 02	35.	-0.11533E 01	0.15645E 02
35.	0.30559E-00	-0.16683E 01	0.54984E 02	0.99709E 02	30.	-0.14764E 01	0.12787E 02
30.	0.18725E-00	-0.19464E 01	0.37585E 02	0.12215E 03	25.	-0.20741E 01	0.13497E 02
25.	0.11512E-00	-0.23240E 01	0.27341E 02	0.15269E 03	20.	-0.27474E 01	0.13497E 02
20.	0.13496E-00	-0.29351E 01	0.30781E 02	0.19992E 03	15.	-0.33513E 01	0.23051E 02
15.	0.33210E-00	-0.38759E 01	0.59151E 02	0.27070E 03	10.	-0.65265E 01	0.59255E 02
10.	-0.11933E 01	0.58490E 01	-0.18065E 03	-0.42485E 03		-0.30240E 01	0.34089E 02

PERIOD	MODE 3	
	VM/VO	YM/VO/K
70.	-0.44233E-00	0.59401E 02
65.	-0.55032E-00	0.52959E 02
60.	-0.64830E 00	0.44943E 02
55.	-0.74006E 00	0.36088E 02
50.	-0.82884E 00	0.26734E 02
45.	-0.91512E 00	0.16755E 02
40.	-0.98983E 00	0.57747E 01
35.	-0.10340E 01	-0.58211E 01
30.	-0.10529E 01	-0.15636E 02
25.	-0.11129E 01	-0.21467E 02
20.	-0.13284E 01	-0.22490E 02
15.	-0.18768E 01	-0.13953E 02
10.	-0.12694E-01	-0.78195E 00

TABLE 20

OCEAN

DISPLACEMENT AND STRESS RATIOS AT A DEPTH OF 200 KM									
RAYLEIGH					LOVE				
PERIOD	MODE 1,1		ZM/WO/K	XM/WO/K	PERIOD	MODE 0		ZM/WO/K	XM/WO/K
	UM/WO	WM/WO				VM/VO	YM/VO/K		
350.	-0.20804E-00	0.10142E 01	0.53091E 02	-0.31697E 02	350.	0.90577E 00	0.18687E 02	0.52300E 02	-0.42062E 02
300.	-0.82485E-01	0.97965E 00	0.55597E 02	-0.34532E 02	300.	0.89158E 00	0.17867E 02	0.52300E 02	-0.42062E 02
250.	0.34610E-01	0.93237E 00	0.55614E 02	-0.38289E 02	250.	0.87532E 00	0.16613E 02	0.52300E 02	-0.42062E 02
225.	0.85237E-01	0.90207E 00	0.54403E 02	-0.40287E 02	225.	0.86623E 00	0.15823E 02	0.52300E 02	-0.42062E 02
200.	0.12871E-00	0.86513E 00	0.52300E 02	-0.42062E 02	200.	0.85639E 00	0.14923E 02	0.52300E 02	-0.42062E 02
175.	0.16330E-00	0.81879E 00	0.49211E 02	-0.43287E 02	175.	0.84572E 00	0.13905E 02	0.52300E 02	-0.42062E 02
150.	0.18652E-00	0.75876E 00	0.44974E 02	-0.43508E 02	150.	0.83422E 00	0.12757E 02	0.52300E 02	-0.42062E 02
140.	0.19140E-00	0.72947E 00	0.42907E 02	-0.43168E 02	140.	0.82942E 00	0.12258E 02	0.52300E 02	-0.42062E 02
130.	0.19464E-00	0.69628E 00	0.40599E 02	-0.42496E 02	130.	0.82455E 00	0.11733E 02	0.52300E 02	-0.42062E 02
120.	0.19441E-00	0.65842E 00	0.38027E 02	-0.41414E 02	120.	0.81968E 00	0.11182E 02	0.52300E 02	-0.42062E 02
110.	0.19083E-00	0.61498E 00	0.35164E 02	-0.39831E 02	110.	0.81488E 00	0.10602E 02	0.52300E 02	-0.42062E 02
100.	0.18346E-00	0.56494E 00	0.31978E 02	-0.37640E 02	100.	0.81031E 00	0.99942E 01	0.52300E 02	-0.42062E 02
90.	0.17181E-00	0.50720E 00	0.28438E 02	-0.34722E 02	90.	0.80620E 00	0.93568E 01	0.52300E 02	-0.42062E 02
80.	0.15537E-00	0.44083E-00	0.24516E 02	-0.30964E 02	80.	0.80292E 00	0.86916E 01	0.52300E 02	-0.42062E 02
70.	0.13373E-00	0.36554E-00	0.20198E 02	-0.26297E 02	70.	0.80116E 00	0.80030E 01	0.52300E 02	-0.42062E 02
65.	0.12094E-00	0.32478E-00	0.17901E 02	-0.23625E 02	65.	0.80118E 00	0.76527E 01	0.52300E 02	-0.42062E 02
60.	0.10691E-00	0.28229E-00	0.15529E 02	-0.20749E 02	60.	0.80209E 00	0.73012E 01	0.52300E 02	-0.42062E 02
55.	0.91804E-01	0.23857E-00	0.13104E 02	-0.17704E 02	55.	0.80421E 00	0.69520E 01	0.52300E 02	-0.42062E 02
50.	0.75897E-01	0.19433E-00	0.10663E 02	-0.14546E 02	50.	0.80802E 00	0.66104E 01	0.52300E 02	-0.42062E 02
45.	0.59607E-01	0.15057E-00	0.82575E 01	-0.11357E 02	45.	0.81416E 00	0.62848E 01	0.52300E 02	-0.42062E 02
40.	0.43543E-01	0.10863E-00	0.59598E 01	-0.82479E 01	40.	0.82358E 00	0.59891E 01	0.52300E 02	-0.42062E 02
35.	0.28532E-01	0.70304E-01	0.38669E 01	-0.53698E 01	35.	0.83750E 00	0.57496E 01	0.52300E 02	-0.42062E 02
30.	0.15644E-01	0.37964E-01	0.21047E 01	-0.29179E 01	30.	0.85171E 00	0.55999E 01	0.52300E 02	-0.42062E 02
25.	0.61601E-02	0.14597E-01	0.82285E 00	-0.11292E 01	25.	0.88140E 00	0.56203E 01	0.52300E 02	-0.42062E 02
20.	0.11363E-02	0.24813E-02	0.15063E-00	-0.19641E-00	20.	0.89526E 00	0.58953E 01	0.52300E 02	-0.42062E 02
15.	-0.	-0.	-0.	-0.	15.	0.80179E 00	0.60639E 01	0.52300E 02	-0.42062E 02
10.	-0.	-0.	-0.	-0.	10.	0.22507E-01	0.25647E-00	0.52300E 02	-0.42062E 02
					MODE 1				
					PERIOD	VM/VO	YM/VO/K		
					200.	0.54049E 00	0.57762E 02		
					175.	0.42773E-00	0.60599E 02		
					150.	0.29104E-00	0.60264E 02		
					140.	0.22883E-00	0.59142E 02		
					130.	0.16178E-00	0.57431E 02		
					120.	0.89420E-01	0.55137E 02		
					110.	0.11438E-01	0.52257E 02		
					100.	-0.71865E-01	0.48768E 02		
					90.	-0.15883E-00	0.44643E 02		
					80.	-0.24576E-00	0.39891E 02		
					70.	-0.32720E-00	0.34628E 02		
					65.	-0.36412E-00	0.31876E 02		
					60.	-0.39779E-00	0.29089E 02		
					55.	-0.42787E-00	0.26299E 02		
					50.	-0.45407E-00	0.23532E 02		
					45.	-0.47608E-00	0.20809E 02		
					40.	-0.49346E-00	0.18142E 02		
					35.	-0.50533E 00	0.15538E 02		
					30.	-0.51146E 00	0.12994E 02		
					25.	-0.51057E 00	0.10476E 02		
					20.	-0.50091E 00	0.77714E 01		
					15.	-0.41113E-00	0.34787E 01		
					10.	-0.33037E-00	-0.30599E 01		
					MODE 2				
					PERIOD	VM/VO	YM/VO/K		
					100.	-0.41698E-00	0.62665E 02		
					90.	-0.57894E 00	0.54542E 02		
					80.	-0.72030E 00	0.43380E 02		
					70.	-0.84468E 00	0.30329E 02		
					65.	-0.89849E 00	0.23119E 02		
					60.	-0.94126E 00	0.15463E 02		
					55.	-0.96563E 00	0.76133E 01		
					50.	-0.96383E 00	0.24162E-00		
					45.	-0.93282E 00	-0.56481E 01		
					40.	-0.87604E 00	-0.93975E 01		
					35.	-0.79687E 00	-0.11100E 02		
					30.	-0.69304E 00	-0.11179E 02		
					25.	-0.55606E 00	-0.99904E 01		
					20.	-0.37157E-00	-0.77893E 01		
					15.	-0.10845E-00	-0.52563E 01		
					10.	-0.25274E 01	-0.22520E 02		
					MODE 3				
					PERIOD	VM/VO	YM/VO/K		
					65.	-0.10048E 01	0.60878E 01		
					60.	-0.10003E 00	-0.67028E 01		
					55.	-0.95748E 00	-0.17464E 02		
					50.	-0.87212E 00	-0.26651E 02		
					45.	-0.72093E 00	-0.35140E 02		
					40.	-0.46987E-00	-0.41972E 02		
					35.	-0.13312E-00	-0.43164E 02		
					30.	0.16912E-00	-0.36669E 02		
					25.	0.39672E-00	-0.26945E 02		
					20.	0.59256E 00	-0.17011E 02		
					15.	0.84484E 00	-0.79242E 01		
					10.	0.22464E 01	0.21884E 01		

TABLE 21

SHIELD

DISPLACEMENT AND STRESS RATIOS AT A DEPTH OF 200 KM							
RAYLEIGH				LOVE			
PERIOD	UM/WO	MM/WO	ZM/WO/K	XM/WO/K	PERIOD	VM/VO	YM/VO/K
350.	-0.18770E-00	0.10181E 01	0.53553E 02	-0.33250E 02	350.	0.91184E 00	0.17195E 02
300.	-0.77249E-01	0.99088E 00	0.55836E 02	-0.36804E 02	300.	0.89643E 00	0.16372E 02
250.	0.25510E-01	0.95370E 00	0.56052E 02	-0.41556E 02	250.	0.87642E 00	0.15161E 02
225.	0.71903E-01	0.92894E 00	0.55232E 02	-0.44091E 02	225.	0.86365E 00	0.14405E 02
200.	0.11399E-00	0.89757E 00	0.53708E 02	-0.46419E 02	200.	0.84801E 00	0.13539E 02
175.	0.15031E-00	0.85656E 00	0.51332E 02	-0.48205E 02	175.	0.82808E 00	0.12549E 02
150.	0.17828E-00	0.80121E 00	0.47843E 02	-0.48960E 02	150.	0.80131E 00	0.11409E 02
140.	0.18627E-00	0.77349E 00	0.46052E 02	-0.48808E 02	140.	0.78772E 00	0.10902E 02
130.	0.19190E-00	0.74161E 00	0.43986E 02	-0.48295E 02	130.	0.77178E 00	0.10361E 02
120.	0.19474E-00	0.70470E 00	0.41607E 02	-0.47329E 02	120.	0.75279E 00	0.97803E 01
110.	0.19423E-00	0.66168E 00	0.38865E 02	-0.45797E 02	110.	0.72970E 00	0.91551E 01
100.	0.18971E-00	0.61123E 00	0.35704E 02	-0.43557E 02	100.	0.70096E 00	0.84788E 01
90.	0.18037E-00	0.55179E 00	0.32057E 02	-0.40440E 02	90.	0.66417E 00	0.77440E 01
80.	0.16532E-00	0.48161E-00	0.27858E 02	-0.36254E 02	80.	0.61546E 00	0.69415E 01
70.	0.14356E-00	0.39919E-00	0.23035E 02	-0.30819E 02	70.	0.54849E 00	0.60592E 01
65.	0.12996E-00	0.35311E-00	0.20386E 02	-0.27592E 02	65.	0.50514E 00	0.55818E 01
60.	0.11448E-00	0.30399E-00	0.17581E 02	-0.24032E 02	60.	0.45306E-00	0.50733E 01
55.	0.97277E-01	0.25225E-00	0.14649E 02	-0.20169E 02	55.	0.39091E-00	0.45228E 01
50.	0.78534E-01	0.19911E-00	0.11619E 02	-0.16100E 02	50.	0.31653E-00	0.39097E 01
45.	0.59218E-01	0.14568E-00	0.86252E 01	-0.11912E 02	45.	0.23297E-00	0.32000E 01
40.	0.40073E-01	0.95463E-01	0.57606E 01	-0.79008E 01	40.	0.14768E-00	0.23641E 01
35.	0.22877E-01	0.52373E-01	0.32551E 01	-0.43955E 01	35.	0.75030E-01	0.14488E 01
30.	0.97540E-02	0.21197E-01	0.13779E 01	-0.18116E 01	30.	0.27638E 01	0.64810E 00
25.	0.23901E-02	0.48853E-02	0.33626E 00	-0.42876E 00	25.	0.62389E-02	0.17448E-00
20.	-0.	-0.	-0.	-0.	20.	0.62304E-03	0.20175E-01
15.	-0.	-0.	-0.	-0.	15.	-0.	-0.
10.	-0.	-0.	-0.	-0.	10.	-0.	-0.

PERIOD	UM/WO	MM/WO	ZM/WO/K	XM/WO/K	PERIOD	VM/VO	YM/VO/K
250.	0.49786E-00	0.77716E 00	0.98367E 02	-0.54747E 01	200.	0.57237E 00	0.56823E 02
225.	0.62290E 00	0.70392E 00	0.10599E 03	-0.26671E 01	175.	0.47051E-00	0.58986E 02
200.	0.74151E 00	0.61116E 00	0.11455E 03	0.80355E 00	150.	0.34725E-00	0.57974E 02
175.	0.84945E 00	0.49017E-00	0.12412E 03	0.49845E 01	140.	0.29074E-00	0.56613E 02
150.	0.93540E 00	0.32791E-00	0.13400E 03	0.99413E 01	130.	0.22918E-00	0.54710E 02
140.	0.96024E 00	0.24659E-00	0.13758E 03	0.12263E 02	120.	0.16160E-00	0.52277E 02
130.	0.97818E 00	0.15241E-00	0.14058E 03	0.14930E 02	110.	0.88687E-01	0.49312E 02
120.	0.98826E 00	0.41821E-01	0.14266E 03	0.18141E 02	100.	0.38461E-02	0.45782E 02
110.	0.98893E 00	-0.89864E-01	0.14341E 03	0.22194E 02	90.	-0.88293E-01	0.41627E 02
100.	0.97739E 00	-0.24847E-00	0.14229E 03	0.27524E 02	80.	-0.18967E-00	0.36783E 02
90.	0.94914E 00	-0.44096E-00	0.13865E 03	0.34769E 02	70.	-0.30124E-00	0.31275E 02
80.	0.89850E 00	-0.67547E 00	0.13166E 03	0.44887E 02	65.	-0.36252E-00	0.28336E 02
70.	0.82104E 00	-0.96157E 00	0.12060E 03	0.59346E 02	60.	-0.43052E-00	0.25353E 02
65.	0.77253E 00	-0.11281E 01	0.11354E 03	0.68860E 02	55.	-0.51090E 00	0.22426E 02
60.	0.71917E 00	-0.13140E 01	0.10566E 03	0.80366E 02	50.	-0.61545E 00	0.19719E 02
55.	0.56917E 00	-0.13250E 01	0.97309E 02	0.90337E 02	45.	-0.76892E 00	0.17497E 02
50.	0.60746E 00	-0.17713E 01	0.88935E 02	0.11146E 03	40.	-0.10230E 01	0.16197E 02
45.	0.55565E 00	-0.20711E 01	0.81098E 02	0.13291E 03	35.	-0.14839E 01	0.16525E 02
40.	0.51279E 00	-0.24592E 01	0.74543E 02	0.16091E 03	30.	-0.23800E 01	0.19777E 02
35.	0.48738E-00	-0.30052E 01	0.70465E 02	0.20011E 03	25.	-0.42943E 01	0.29126E 02
30.	0.49625E-00	-0.38651E 01	0.71183E 02	0.26113E 03	20.	-0.90876E 01	0.54269E 02
25.	0.57802E-00	-0.54383E 01	0.82000E 02	0.37160E 03	15.	-0.23881E 02	0.12797E 03
20.	0.83595E-00	-0.89332E 01	0.11711E 03	0.61569E 03	10.	-0.34883E 02	0.15690E 03
15.	0.15298E-01	-0.18146E 02	0.21254E 03	0.12596E 04			
10.	-0.11933E-02	-0.18205E-01	-0.17059E-00	0.12869E 01			

PERIOD	UM/WO	MM/WO	ZM/WO/K	XM/WO/K	PERIOD	VM/VO	YM/VO/K
110.	0.11108E 01	-0.18176E-00	0.14618E 03	0.11461E 02	100.	-0.32956E-00	0.64079E 02
100.	0.10620E 01	-0.13972E-00	0.14335E 03	0.12712E 02	90.	-0.47698E-00	0.56233E 02
90.	0.97455E 00	-0.52397E 00	0.13622E 03	0.15255E 02	80.	-0.61413E 00	0.45625E 02
80.	0.84200E 00	-0.76048E 00	0.12304E 03	0.20840E 02	70.	-0.74758E 00	0.33305E 02
70.	0.67243E 00	-0.99845E 00	0.10291E 03	0.33018E 02	65.	-0.81366E 00	0.26540E 02
65.	0.57512E 00	-0.11428E 01	0.89790E 02	0.41726E 02	60.	-0.87736E 00	0.19314E 02
60.	0.46499E-00	-0.12292E 01	0.74111E 02	0.51558E 02	55.	-0.93519E 00	0.11653E 02
55.	0.33708E-00	-0.14412E 01	0.55392E 02	0.61962E 02	50.	-0.98336E 00	0.37794E 01
50.	0.18788E-00	-0.15751E 01	0.33309E 02	0.72311E 02	45.	-0.10225E 01	-0.38219E 01
45.	0.19218E-01	-0.16763E 01	0.82475E 01	0.81809E 02	40.	-0.10654E 01	-0.10642E 02
40.	-0.15580E-00	-0.17292E 01	-0.17790E 02	0.89741E 02	35.	-0.11447E 01	-0.16665E 02
35.	-0.31040E-00	-0.17427E 01	-0.40838E 02	0.96436E 02	30.	-0.13273E 01	-0.22584E 02
30.	-0.42077E-00	-0.17718E 01	-0.57394E 02	0.10438E 03	25.	-0.17719E 01	-0.29698E 02
25.	-0.48642E-00	-0.19219E 01	-0.67404E 02	0.11934E 03	20.	-0.29672E 01	-0.46027E 02
20.	-0.51946E 00	-0.24250E 01	-0.72720E 02	0.15662E 03	15.	-0.67722E 01	-0.58319E 02
15.	-0.50027E 00	-0.37871E 01	-0.70745E 02	0.25191E 03	10.	-0.42072E 01	-0.17009E 02
10.	-0.10193E 01	0.14431E 02	-0.14115E 03	-0.10081E 04			

PERIOD	UM/WO	MM/WO	ZM/WO/K	XM/WO/K	PERIOD	VM/VO	YM/VO/K
70.	-0.88298E 00	-0.88298E 00	-0.88298E 00	-0.25667E 02			
65.	-0.92931E 00	-0.92931E 00	-0.92931E 00	0.13729E 02			
60.	-0.94683E 00	-0.94683E 00	-0.94683E 00	0.21469E 01			
55.	-0.93724E 00	-0.93724E 00	-0.93724E 00	-0.86000E 01			
50.	-0.89676E 00	-0.89676E 00	-0.89676E 00	-0.18541E 02			
45.	-0.81067E 00	-0.81067E 00	-0.81067E 00	-0.28021E 02			
40.	-0.65066E 00	-0.65066E 00	-0.65066E 00	-0.36844E 02			
35.	-0.39646E 00	-0.39646E 00	-0.39646E 00	-0.43168E 02			
30.	-0.92226E-01	-0.92226E-01	-0.92226E-01	-0.44740E 02			
25.	0.18547E-00	0.18547E-00	0.18547E-00	-0.43239E 02			
20.	0.38406E-00	0.38406E-00	0.38406E-00	-0.42452E 02			
15.	0.30090E-00	0.30090E-00	0.30090E-00	-0.44772E 02			
10.	0.51002E-01	0.51002E-01	0.51002E-01	-0.33783E-00			

TABLE 23

SHEILD

DISPLACEMENT AND STRESS RATIOS AT A DEPTH OF 350 KM									
RAYLEIGH					LOVE				
PERIOD	MODE 1,1				PERIOD	MODE 0			
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K		VM/YO	YM/YO/K		
350.	-0.24414E-02	0.88824E 00	0.78286E 02	-0.51281E 02	350.	0.74769E 00	0.28707E 02		
300.	0.94812E-01	0.80338E 00	0.76667E 02	-0.51750E 02	300.	0.70970E 00	0.27053E 02		
250.	0.16443E-00	0.69676E 00	0.69694E 02	-0.50506E 02	250.	0.66408E 00	0.24731E 02		
225.	0.18477E-00	0.63411E 00	0.64143E 02	-0.48646E 02	225.	0.63713E 00	0.23307E 02		
200.	0.19431E-00	0.56408E 00	0.57334E 02	-0.45592E 02	200.	0.60628E 00	0.21693E 02		
175.	0.19215E-00	0.48597E-00	0.49350E 02	-0.41123E 02	175.	0.57014E 00	0.19860E 02		
150.	0.17719E-00	0.39958E-00	0.40274E 02	-0.35120E 02	150.	0.52657E 00	0.17756E 02		
140.	0.16739E-00	0.36280E-00	0.36367E 02	-0.32289E 02	140.	0.50635E 00	0.16820E 02		
136.	0.15536E-00	0.32489E-00	0.32325E 02	-0.29227E 02	130.	0.48407E-00	0.15818E 02		
120.	0.14114E-00	0.28594E-00	0.28174E 02	-0.25950E 02	120.	0.45929E-00	0.14739E 02		
110.	0.12481E-00	0.24617E-00	0.23948E 02	-0.22491E 02	110.	0.43142E-00	0.13569E 02		
100.	0.10661E-00	0.20587E-00	0.19701E 02	-0.18889E 02	100.	0.39962E-00	0.12289E 02		
90.	0.86926E-01	0.16552E-00	0.15504E 02	-0.15211E 02	90.	0.36265E-00	0.10873E 02		
80.	0.66563E-01	0.12562E-00	0.11479E 02	-0.11528E 02	80.	0.31866E-00	0.92856E 01		
70.	0.46360E-01	0.87626E-01	0.77517E 01	-0.80067E 01	70.	0.26483E-00	0.74794E 01		
65.	0.36872E-01	0.69676E-01	0.60733E 01	-0.63455E 01	65.	0.23306E-00	0.64770E 01		
60.	0.27917E-01	0.53133E-01	0.45360E 01	-0.48203E 01	60.	0.19742E-00	0.54071E 01		
55.	0.19912E-01	0.38074E-01	0.31917E 01	-0.34392E 01	55.	0.15725E-00	0.42581E 01		
50.	0.12088E-01	0.26948E-01	0.19442E 01	-0.24253E 01	50.	0.11489E-00	0.30736E 01		
45.	0.75460E-02	0.14654E-01	0.11796E 01	-0.13125E 01	45.	0.71889E-01	0.19242E 01		
40.	0.36248E-02	0.71134E-02	0.56003E 00	-0.63534E 00	40.	0.35115E-01	0.95580E 00		
35.	0.12912E-02	0.25585E-02	0.19716E-00	-0.22851E-00	35.	0.11632E-01	0.13293E-00		
30.	0.21358E-03	0.66305E-03	0.33378E-01	-0.59651E-01	30.	0.21534E-02	0.64397E-01		
25.	-0.	-0.	-0.	-0.	25.	0.30983E-03	0.10394E-02		
20.	-0.	-0.	-0.	-0.	20.	-0.	-0.		
15.	-0.	-0.	-0.	-0.	15.	-0.	-0.		
10.	-0.	-0.	-0.	-0.	10.	-0.	-0.		

PERIOD	MODE 2,1				PERIOD	MODE 1			
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K		VM/YO	YM/YO/K		
250.	0.75538E 00	0.31859E-00	0.13993E 03	-0.12271E 02	200.	-0.11107E-00	0.69321E 02		
225.	0.87035E 00	0.13861E-00	0.14304E 03	-0.58528E 01	175.	-0.31144E-00	0.63675E 02		
200.	0.96668E 00	-0.86979E-01	0.14384E 03	0.29849E 01	150.	-0.51689E 00	0.52547E 02		
175.	0.10272E 01	-0.37202E-00	0.14032E 03	0.14983E 02	140.	-0.59721E 00	0.46722E 02		
150.	0.10217E 01	-0.73091E 00	0.12881E 03	0.31885E 02	130.	-0.67467E 00	0.40247E 02		
140.	0.99318E 00	-0.89841E 00	0.12087E 03	0.40847E 02	120.	-0.74760E 00	0.33221E 02		
130.	0.96444E 00	-0.10805E 01	0.11052E 03	0.51568E 02	110.	-0.81344E 00	0.25754E 02		
120.	0.87911E 00	-0.12762E 01	0.97410E 02	0.64271E 02	100.	-0.86830E 00	0.17997E 02		
110.	0.78731E 00	-0.14814E 01	0.81099E 02	0.78844E 02	90.	-0.90669E 00	0.10205E 02		
100.	0.66500E 00	-0.16860E 01	0.61068E 02	0.94643E 02	80.	-0.92250E 00	0.28116E 01		
90.	0.50508E 00	-0.18716E 01	0.36893E 02	0.11035E 03	70.	-0.91246E 00	-0.35780E 01		
80.	0.30440E-00	-0.20109E 01	0.88207E 01	0.12399E 03	65.	-0.89924E 00	-0.62178E 01		
70.	0.74259E-01	-0.20773E 01	-0.21075E 02	0.13357E 03	60.	-0.88379E 00	-0.84489E 01		
65.	-0.41441E-01	-0.20821E 01	-0.35307E 02	0.13664E 03	55.	-0.87150E 00	-0.10322E 02		
60.	-0.14951E-00	-0.20750E 01	-0.48116E 02	0.13892E 03	50.	-0.87270E 00	-0.11997E 02		
55.	-0.24486E-00	-0.20667E 01	-0.59003E 02	0.14103E 03	45.	-0.90735E 00	-0.13825E 02		
50.	-0.32552E-00	-0.20709E 01	-0.67909E 02	0.14379E 03	40.	-0.10138E 01	-0.16477E 02		
45.	-0.39356E-00	-0.21039E 01	-0.75300E 02	0.14829E 03	35.	-0.12633E 01	-0.21151E 02		
40.	-0.45512E-00	-0.21891E 01	-0.82186E 02	0.15615E 03	30.	-0.17797E 01	-0.30070E 02		
35.	-0.52191E 00	-0.23675E 01	-0.90309E 02	0.17036E 03	25.	-0.29641E 01	-0.48335E 02		
30.	-0.61419E 00	-0.27281E 01	-0.10294E 03	0.19732E 03	20.	-0.58244E 02	-0.90844E 02		
25.	-0.78152E 00	-0.34931E 01	-0.12738E 03	0.25314E 03	15.	-0.14123E 02	-0.20639E 03		
20.	-0.11545E 01	-0.53040E 01	-0.18323E 03	0.38393E 03	10.	-0.18324E 02	-0.23994E 03		
15.	-0.20755E 01	-0.99711E 01	-0.32002E 03	0.71903E 03					
10.	-0.49949E-03	-0.21772E-02	-0.73773E-01	0.15766E-00					

PERIOD	MODE 1,2				PERIOD	MODE 2			
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K		VM/YO	YM/YO/K		
110.	0.37601E-00	-0.11851E 01	0.20250E 02	0.22976E 02	100.	-0.93835E 00	-0.16342E 02		
100.	0.92166E-01	-0.12129E 01	-0.18324E 02	0.25949E 02	90.	-0.82688E 00	-0.33187E 02		
90.	-0.23479E-00	-0.11551E 01	-0.60752E 02	0.29004E 02	80.	-0.63940E 00	-0.44412E 02		
80.	-0.56918E 00	-0.97816E 00	-0.10141E 03	0.30491E 02	70.	-0.36358E-00	-0.49876E 02		
70.	-0.83995E 00	-0.68119E 00	-0.13096E 03	0.27238E 02	65.	-0.18329E-00	-0.50253E 02		
65.	-0.94154E 00	-0.46831E 00	-0.14042E 03	0.20762E 02	60.	0.28207E-01	-0.48611E 02		
60.	-0.10179E 01	-0.18497E-00	-0.14589E 03	0.88183E 01	55.	0.26608E-00	-0.44468E 02		
55.	-0.10556E 01	0.18562E-00	-0.14559E 03	-0.97056E 01	50.	0.51549E 00	-0.37589E 02		
50.	-0.10277E 01	0.63937E 00	-0.13621E 03	-0.34662E 02	45.	0.75547E 00	-0.28534E 02		
45.	-0.90227E 00	0.11326E 01	-0.11415E 03	-0.63717E 02	40.	0.97849E 00	-0.18758E 02		
40.	-0.67078E 00	0.15772E 01	-0.79222E 02	-0.92082E 02	35.	0.12140E 01	-0.95903E 01		
35.	-0.38410E-00	0.18924E 01	-0.38861E 02	-0.11518E 03	30.	0.15401E 01	-0.11377E 01		
30.	-0.12696E-00	0.21019E 01	-0.40342E 01	-0.13368E 03	25.	0.21171E 01	0.80972E 01		
25.	0.67634E-01	0.23303E 01	0.21853E 02	-0.13408E 03	20.	0.33708E 01	0.22659E 02		
20.	0.23139E-00	0.27695E 01	0.43900E 02	-0.18835E 03	15.	0.67445E 01	0.58248E 02		
15.	0.43538E-00	0.36875E 01	0.71969E 02	-0.23540E 03	10.	0.34646E 01	0.33601E 02		
10.	0.13633E 01	0.70998E 01	0.20335E 03	-0.50884E 03					

PERIOD	MODE 3			
	VM/YO	YM/YO/K		
70.	0.12847E-00	-0.67247E 02		
65.	0.40898E-00	-0.59423E 02		
60.	0.64254E 00	-0.45893E 02		
55.	0.82167E 00	-0.29013E 02		
50.	0.93395E 00	-0.10153E 02		
45.	0.94389E 00	0.10222E 02		
40.	0.77086E 00	0.30444E 02		
35.	0.34198E 00	0.44057E 02		
30.	-0.23502E-00	0.43919E 02		
25.	-0.78505E 00	0.34176E 02		
20.	-0.13179E 01	0.21490E 02		
15.	-0.18905E 01	0.78927E 01		
10.	-0.49358E-01	-0.38676E-00		

TABLE 24

OCEAN

DISPLACEMENT AND STRESS RATIOS AT A DEPTH OF 500 KM									
RAYLEIGH					LOVE				
PERIOD	MODE 1,1				PERIOD	MODE 0			
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K		VM/VO	YM/VO/K		
350.	0.53587E-01	0.74074E 00	0.91315E 02	-0.66329E 02	350.	0.53242E 00	0.34607E 02		
300.	0.12036E-00	0.60128E 00	0.82809E 02	-0.60181E 02	300.	0.46901E-00	0.31083E 02		
250.	0.14524E-00	0.44265E-00	0.65929E 02	-0.49806E 02	250.	0.39862E-00	0.26545E 02		
225.	0.13896E-00	0.36184E-00	0.55029E 02	-0.43073E 02	225.	0.36029E-00	0.23932E 02		
200.	0.12230F-00	0.28286E-00	0.43429E 02	-0.35506E 02	200.	0.31948E-00	0.21111E 02		
175.	0.98419E-01	0.20793E-00	0.31954E 02	-0.27420E 02	175.	0.27590E-00	0.18101E 02		
150.	0.71030E-01	0.13990E-00	0.21395E 02	-0.19304E 02	150.	0.22935E-00	0.14928E 02		
140.	0.59973E-01	0.11538E-00	0.17591E 02	-0.16190E 02	140.	0.20992E-00	0.13622E 02		
130.	0.49252E-01	0.92699E-01	0.14092E 02	-0.13219E 02	130.	0.19006E-00	0.12298E 02		
120.	0.39099E-01	0.72150E-01	0.10931E 02	-0.10447E 02	120.	0.16984E-00	0.10962E 02		
110.	0.29743E-01	0.53996E-01	0.81407E 01	-0.79308E 01	110.	0.14934E-00	0.96204E 01		
100.	0.21410E-01	0.38476E-01	0.57460E 01	-0.57240E 01	100.	0.12868E-00	0.82782E 01		
90.	0.14339E-01	0.25707E-01	0.37760E 01	-0.38652E 01	90.	0.10806E-00	0.69489E 01		
80.	0.88021E-02	0.15398E-01	0.22818E 01	-0.23443E 01	80.	0.87705E-01	0.56425E 01		
70.	0.47282E-02	0.80678E-02	0.12085E 01	-0.12420E 01	70.	0.67946E-01	0.43777E 01		
65.	0.32332E-02	0.54628E-02	0.82020E 00	-0.84450E 00	65.	0.58425E-01	0.37683E 01		
60.	0.20601E-02	0.35074E-02	0.51991E 00	-0.54499E 00	60.	0.49229E-01	0.31796E 01		
55.	0.12170E-02	0.20814E-02	0.30525E 00	-0.32473E 00	55.	0.40443E-01	0.26162E 01		
50.	0.61909E-03	0.11637E-02	0.15518E-00	-0.18260E-00	50.	0.32163E-01	0.20840E 01		
45.	0.29287E-03	0.53068E-03	0.72896E-01	-0.83295E-01	45.	0.24501E-01	0.15904E 01		
40.	0.10684E-03	0.21427E-03	0.26482E-01	-0.33813E-01	40.	0.17593E-01	0.11441E 01		
35.	-0.	-0.	-0.	-0.	35.	0.11597E-01	0.75580E 00		
30.	-0.	-0.	-0.	-0.	30.	0.67086E-02	0.43691E-00		
25.	-0.	-0.	-0.	-0.	25.	0.31439E-02	0.19897E-00		
20.	-0.	-0.	-0.	-0.	20.	0.11615E-02	0.44637E-01		
15.	-0.	-0.	-0.	-0.	15.	-0.	-0.		
10.	-0.	-0.	-0.	-0.	10.	-0.	-0.		
PERIOD	MODE 2,1				PERIOD	MODE 1			
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K		VM/VO	YM/VO/K		
250.	0.64938E 00	-0.11662E-00	0.12857E 03	-0.40675E 01	200.	-0.66301E 00	0.48152E 02		
225.	0.67797E 00	-0.36411E-00	0.11234E 03	0.11293E 02	175.	-0.84382E 00	0.30545E 02		
200.	0.65815E 00	-0.65068E 00	0.87734E 02	0.32012E 02	150.	-0.96059E 00	0.96630E 01		
175.	0.56584E 00	-0.97010E 00	0.51790E 02	0.58181E 02	140.	-0.97978E 00	0.15434E 01		
150.	0.37638E-00	-0.12938E 01	0.30169E 01	0.89559E 02	130.	-0.97855E 00	-0.58776E 01		
140.	0.27429E-00	-0.14129E 01	-0.19076E 02	0.10446E 03	120.	-0.95323E 00	-0.12245E 02		
130.	0.16254E-00	-0.15181E 01	-0.41312E 02	0.11785E 03	110.	-0.89959E 00	-0.17216E 02		
120.	0.47529E-01	-0.15999E 01	-0.62267E 02	0.13198E 03	100.	-0.81557E 00	-0.20450E 02		
110.	-0.62988E-01	-0.16424E 01	-0.80164E 02	0.14419E 03	90.	-0.70026E 00	-0.21633E 02		
100.	-0.15984E-00	-0.18197E 01	-0.92826E 02	0.15144E 03	80.	-0.21622E-00	-0.10981E 02		
90.	-0.23145E-00	-0.14986E 01	-0.97033E 02	0.14934E 03	50.	-0.16325E-00	-0.86866E 01		
80.	-0.26373E-00	-0.12241E 01	-0.92036E 02	0.13348E 03	45.	-0.11780E-00	-0.65294E 01		
70.	-0.24754E-00	-0.91079E 00	-0.75847E 02	0.10393E 03	40.	-0.80044E-01	-0.45958E 01		
65.	-0.22350E-00	-0.73285E 00	-0.65186E 02	0.86647E 02	35.	-0.49999E-01	-0.29583E 01		
60.	-0.19302E-00	-0.57188E 00	-0.54086E 02	0.70057E 02	30.	-0.27567E-01	-0.16724E 01		
55.	-0.16093E-00	-0.43278E-00	-0.43614E 02	0.54807E 02	25.	-0.12437E-01	-0.77066E 00		
50.	-0.12907E-00	-0.32029E-00	-0.34053E 02	0.41814E 02	20.	-0.13912E-02	-0.24263E-00		
45.	-0.99298E-01	-0.23013E-00	-0.25621E 02	0.30874E 02	15.	-0.65707E-03	-0.13997E-01		
40.	-0.70623E-01	-0.16196E-00	-0.17935E 02	0.22288E 02	10.	-0.	-0.		
35.	-0.48602E-01	-0.10115E-00	-0.12092E 02	0.14204E 02					
30.	-0.28689E-01	-0.57241E-01	-0.70248E 01	0.81955E 01					
25.	-0.13563E-01	-0.22607E-01	-0.32706E 01	0.37991E 01					
20.	-0.39654E-02	-0.83085E-02	-0.94429E 00	0.12326E 01					
15.	-0.	-0.	-0.	-0.					
10.	-0.	-0.	-0.	-0.					
PERIOD	MODE 1,2				PERIOD	MODE 2			
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K		VM/VO	YM/VO/K		
110.	-0.65117E 00	-0.57364E 00	-0.17295E 03	0.18560E 02	100.	-0.38196E-01	-0.73442E 02		
100.	-0.75711E 00	-0.18935E-00	-0.17590E 03	-0.37694E-00	90.	0.36758E-00	-0.64407E 02		
90.	-0.70965E 00	0.26923E-00	-0.14718E 03	-0.23607E 02	80.	0.71267E 00	-0.45104E 02		
80.	-0.49463E-00	0.72881E 00	-0.87292E 02	-0.52942E 02	70.	0.96164E 00	-0.22204E 02		
70.	-0.22868E-00	0.11677E 01	-0.22182E 02	-0.97292E 02	65.	0.10222E 01	-0.10577E 02		
65.	-0.99637E-01	0.14044E 01	0.85318E 01	-0.12673E 03	60.	0.10108E 01	0.29798E-00		
60.	0.29695E-01	0.16254E 01	0.38393E 02	-0.15708E 03	55.	0.90696E 00	0.90926E 01		
55.	0.13398E-00	0.17361E 01	0.64986E 02	-0.17989E 03	50.	0.71744E 00	0.14086E 02		
50.	0.25072E-00	0.16909E 01	0.82348E 02	-0.18234E 03	45.	0.49391E-00	0.14435E 02		
45.	0.28645E-00	0.13688E 01	0.83089E 02	-0.15202E 03	40.	0.29953E-00	0.11421E 02		
40.	0.24604E-00	0.88584E 00	0.66120E 02	-0.10601E 03	35.	0.16104E-00	0.73524E 01		
35.	0.16497E-00	0.47228E-00	0.42211E 02	-0.59766E 02	30.	0.74324E-01	0.38386E 01		
30.	0.91263E-01	0.22047E-00	0.22615E 02	-0.29388E 02	25.	0.26891E-01	0.15137E 01		
25.	0.42250E-01	0.90601E-01	0.18233E 02	-0.12617E 02	20.	0.62609E-02	0.37345E-00		
20.	0.15760E-01	0.31165E-01	0.37490E 01	-0.44946E 01	15.	0.68457E-03	0.35386E-01		
15.	0.35394E-02	0.90008E-02	0.83229E 00	-0.13347E 01	10.	-0.	-0.		
10.	-0.	-0.	-0.	-0.					
PERIOD	MODE 3								
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K					
65.	0.57840E 00	0.57840E 00	0.57840E 00	0.57840E 00					
60.	0.21099E-00	0.21099E-00	0.21099E-00	0.21099E-00					
55.	-0.18005E-00	-0.18005E-00	-0.18005E-00	-0.18005E-00					
50.	-0.57995E-00	-0.57995E-00	-0.57995E-00	-0.57995E-00					
45.	-0.95762E-00	-0.95762E-00	-0.95762E-00	-0.95762E-00					
40.	-0.11092E 01	-0.11092E 01	-0.11092E 01	-0.11092E 01					
35.	-0.78677E 00	-0.78677E 00	-0.78677E 00	-0.78677E 00					
30.	-0.34597E-00	-0.34597E-00	-0.34597E-00	-0.34597E-00					
25.	-0.11725E-00	-0.11725E-00	-0.11725E-00	-0.11725E-00					
20.	-0.28765E-01	-0.28765E-01	-0.28765E-01	-0.28765E-01					
15.	-0.39598E-02	-0.39598E-02	-0.39598E-02	-0.39598E-02					
10.	-0.	-0.	-0.	-0.					

TABLE 25

SIELD

DISPLACEMENT AND STRESS RATIOS AT A DEPTH OF 500 KM

RAYLEIGH					LOVE		
PERIOD	UM/WO	MODE 1,1			PERIOD	MODE 0	
		WM/WO	ZM/WO/K	XM/WO/K		VM/VO	YM/VO/K
350.	0.79192E-01	0.73509F 00	0.90623E 02	-0.46599E 02	350.	0.56804E 00	0.33915E 02
300.	0.13922E-00	0.60606E 00	0.82052E 02	-0.59787E 02	300.	0.50932E 00	0.30594E 02
250.	0.15886E-00	0.46257E-00	0.66114E 02	-0.50608E 02	250.	0.44210E-00	0.26514E 02
225.	0.15193E-00	0.38780E-00	0.56034E 02	-0.44572E 02	225.	0.40426E-00	0.24069E 02
200.	0.13548E-00	0.31254E-00	0.45233E 02	-0.37617E 02	200.	0.36278E-00	0.21385E 02
175.	0.11176E-00	0.23829E-00	0.34303E 02	-0.29924E 02	175.	0.31683E-00	0.18455E 02
150.	0.83590E-01	0.16755E-00	0.23872E 02	-0.21861E 02	150.	0.26590E-00	0.15268E 02
140.	0.71835E-01	0.14100E-00	0.19989E 02	-0.18656E 02	140.	0.24327E-00	0.13919E 02
130.	0.60150E-01	0.11589E-00	0.16335E 02	-0.15536E 02	130.	0.22000E-00	0.12528E 02
120.	0.48823E-01	0.92471E-01	0.12959E 02	-0.12548E 02	120.	0.19569E-00	0.11094E 02
110.	0.38081E-01	0.71172E-01	0.98964E 01	-0.97643E 01	110.	0.17035E-00	0.96206E 01
100.	0.28221E-01	0.52298E-01	0.71921E 01	-0.72443E 01	100.	0.14406E-00	0.81112E 01
90.	0.19340E-01	0.36369E-01	0.48606E 01	-0.50882E 01	90.	0.11700E-00	0.65744E 01
80.	0.12261E-01	0.22835E-01	0.30292E 01	-0.32189E 01	80.	0.89488E-01	0.50264E 01
70.	0.65177E-02	0.13036E-01	0.15989E 01	-0.18535E 01	70.	0.62170E-01	0.34985E 01
60.	0.47841E-02	0.85202E-02	0.11515E 01	-0.12118E 01	60.	0.48943E-01	0.27504E 01
55.	0.28952E-02	0.58444E-02	0.70001E 00	-0.83664E 00	55.	0.36337E-01	0.20566E 01
50.	0.18341E-02	0.32372E-02	0.43534E-00	-0.46353E-00	50.	0.24751E-01	0.14088E 01
45.	-0.	-0.	-0.	-0.	45.	0.14766E-01	0.84728E 00
40.	-0.	-0.	-0.	-0.	40.	0.71259E-02	0.41430E-00
35.	-0.	-0.	-0.	-0.	35.	0.24399E-02	0.14471E-00
30.	-0.	-0.	-0.	-0.	30.	0.52016E-03	0.27576E-01
25.	-0.	-0.	-0.	-0.	25.	-0.	-0.
20.	-0.	-0.	-0.	-0.	20.	-0.	-0.
15.	-0.	-0.	-0.	-0.	15.	-0.	-0.
10.	-0.	-0.	-0.	-0.	10.	-0.	-0.
MODE 1							
PERIOD	UM/WO	WM/WO	ZM/WO/K	XM/WO/K	PERIOD	VM/VO	YM/VO/K
200.	-0.62447E 00	-0.14037E-00	0.14042E 03	-0.25387E-00	200.	-0.62447E 00	0.51517E 02
175.	-0.80335E 00	-0.38981E-00	0.12805E 03	-0.15173E 02	175.	-0.80335E 00	0.34945E 02
150.	-0.92700E 00	-0.16294E 00	0.10773E 03	0.35319E 02	150.	-0.92700E 00	0.15255E 02
140.	-0.95323E 00	-0.10152E 01	0.75809E 02	0.60374E 02	140.	-0.95323E 00	0.74757E 01
130.	-0.96226E 00	-0.13632E 01	0.29260E 02	0.90656E 02	130.	-0.96226E 00	0.19604E-00
120.	-0.95074E 00	-0.14977E 01	0.70014E 01	0.10449E 03	120.	-0.95074E 00	-0.63086E 01
110.	-0.91461E 00	-0.16238E 01	-0.16270E 02	0.19399E 03	110.	-0.91461E 00	-0.11764E 02
100.	-0.84948E 00	-0.17352E 01	-0.39355E 02	0.13501E 03	100.	-0.84948E 00	-0.15864E 02
90.	-0.75231E 00	-0.18199E 01	-0.60794E 02	0.19502E 03	90.	-0.75231E 00	-0.18263E 02
80.	-0.62490E 00	-0.18567E 01	-0.78975E 02	0.16263E 03	80.	-0.62490E 00	-0.18643E 02
70.	-0.47826E 00	-0.18142E 01	-0.91837E 02	0.16850E 03	70.	-0.47826E 00	-0.16932E 02
65.	-0.40401E 00	-0.16561E 01	-0.96778E 02	0.16301E 03	65.	-0.40401E 00	-0.15417E 02
60.	-0.33331E 00	-0.13665E 01	-0.91347E 02	0.14259E 03	60.	-0.33331E 00	-0.13616E 02
55.	-0.26923E 00	-0.11838E 01	-0.84618E 02	0.12723E 03	55.	-0.26923E 00	-0.11692E 02
50.	-0.21458E 00	-0.99226E 00	-0.75784E 02	0.10985E 03	50.	-0.21458E 00	-0.98337E 01
45.	-0.17163E 00	-0.80702E 00	-0.65681E 02	0.91979E 02	45.	-0.17163E 00	-0.82340E 01
40.	-0.14167E 00	-0.64010E 00	-0.55232E 02	0.75006E 02	40.	-0.14167E 00	-0.70527E 01
35.	-0.12389E 00	-0.49756E 00	-0.45201E 02	0.59824E 02	35.	-0.12389E 00	-0.63411E 01
30.	-0.11455E 00	-0.38019E 00	-0.36081E 02	0.46793E 02	30.	-0.11455E 00	-0.59790E 01
25.	-0.10748E 00	-0.28580F 00	-0.28112E 02	0.35918E 02	25.	-0.10748E 00	-0.56862E 01
20.	-0.94075E 01	-0.21091E 00	-0.21348E 02	0.27004E 02	20.	-0.94075E 01	-0.50097E 01
15.	-0.60748E 01	-0.15126F 00	-0.15665E 02	0.19691E 02	15.	-0.60748E 01	-0.32874E 01
10.	-0.	-0.10109E 00	-0.10633E 02	0.13361E 02	10.	-0.	-0.
MODE 2							
PERIOD	UM/WO	WM/WO	ZM/WO/K	XM/WO/K	PERIOD	VM/VO	YM/VO/K
100.	-0.13522E-00	-0.57466E-01	-0.66661E 01	0.77124E 01	100.	-0.13522E-00	-0.71181E 02
90.	0.22718E-00	-0.	-0.	-0.	90.	0.22718E-00	-0.64461E 02
80.	0.55845E 00	-0.	-0.	-0.	80.	0.55845E 00	-0.48499E 02
70.	0.83781E 00	-0.	-0.	-0.	70.	0.83781E 00	-0.28182E 02
65.	0.94172E 00	-0.	-0.	-0.	65.	0.94172E 00	-0.17277E 02
60.	0.10009E 01	-0.	-0.	-0.	60.	0.10009E 01	-0.63944E 01
55.	0.99316E 00	-0.	-0.	-0.	55.	0.99316E 00	0.36358E 01
50.	0.90362E 00	-0.	-0.	-0.	50.	0.90362E 00	0.11478E 02
45.	0.74480E 00	-0.	-0.	-0.	45.	0.74480E 00	0.15775E 02
40.	0.56196E 00	-0.	-0.	-0.	40.	0.56196E 00	0.16235E 02
35.	0.40120E-00	-0.	-0.	-0.	35.	0.40120E-00	0.14334E 02
30.	0.27984E-00	-0.	-0.	-0.	30.	0.27984E-00	0.13501E 02
25.	0.19170E-00	-0.	-0.	-0.	25.	0.19170E-00	0.86544E 01
20.	0.12306E-00	-0.	-0.	-0.	20.	0.12306E-00	0.59292E 01
15.	0.60884E 01	-0.	-0.	-0.	15.	0.60884E 01	0.30602E 01
10.	0.31415E-02	-0.	-0.	-0.	10.	0.31415E-02	0.50178E-01
MODE 3							
PERIOD	UM/WO	WM/WO	ZM/WO/K	XM/WO/K	PERIOD	VM/VO	YM/VO/K
70.	0.85387E 00	0.17950E 01	0.71013E 02	-0.18367E 03	70.	0.85387E 00	0.24493E 02
65.	0.67543E 00	0.14558E 01	0.75301E 02	-0.15596E 03	65.	0.67543E 00	0.47701E 02
60.	0.40391E 00	0.97336E 00	0.62530E 02	-0.10929E 03	60.	0.40391E 00	0.59306E 02
55.	0.72132E-01	0.55309E 00	0.42208E 02	-0.65062E 02	55.	0.72132E-01	0.60457E 02
50.	-0.30494E-00	0.28148E 00	0.24339E 02	-0.34528E 02	50.	-0.30494E-00	0.53504E 02
45.	-0.71178E 00	0.12668E 00	0.11930E 02	-0.16088E 02	45.	-0.71178E 00	0.39878E 02
40.	-0.10513E 01	0.15335E 01	0.10390E 02	-0.1318E 03	40.	-0.10513E 01	0.19722E 02
35.	-0.10896E 01	0.17604E 01	0.21594E 02	-0.16279E 03	35.	-0.10896E 01	-0.26297E 01
30.	-0.77506E 00	0.11276E 00	0.18806E 01	0.50712E 02	30.	-0.77506E 00	-0.14565E 02
25.	-0.42679E 00	0.22785E 00	0.17950E 01	0.18347E 03	25.	-0.42679E 00	-0.13323E 02
20.	-0.18973E 00	0.27835E 00	0.14558E 01	0.15596E 03	20.	-0.18973E 00	-0.75303E 01
15.	-0.54904E 01	0.24972E 00	0.14558E 01	0.15596E 03	15.	-0.54904E 01	-0.24912E 01
10.	-0.	0.26972E 00	0.62530E 02	-0.10929E 03	10.	-0.	-0.

TABLE 26

OCEAN

DISPLACEMENT AND STRESS RATIOS AT A DEPTH OF 700 KM									
RAYLEIGH					LOVE				
PERIOD	MODE 1,1				PERIOD	MODE 0			
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K		VM/YO	YM/VO/K		
350.	0.80791E-01	0.55999E 00	0.91782E 02	-0.79247E 02	350.	0.34099E-00	0.33321E 02		
300.	0.10373E-00	0.39388E-00	0.74344E 02	-0.62755E 02	300.	0.26985E-00	0.27668E 02		
250.	0.92237E-01	0.23281E-00	0.49872E 02	-0.41846E 02	250.	0.19901E-00	0.21124E 02		
225.	0.78882E-01	0.16477E-00	0.37052E 02	-0.31265E 02	225.	0.16441E-00	0.17658E 02		
200.	0.56430E-01	0.10848E-00	0.25304E 02	-0.21581E 02	200.	0.13083E-00	0.14163E 02		
175.	0.37208E-01	0.64843E-01	0.15509E 02	-0.13419E 02	175.	0.98802E-01	0.10737E 02		
150.	0.20942E-01	0.33818E-01	0.81880E 01	-0.72187E 01	150.	0.69122E-01	0.75085E 01		
140.	0.13687E-01	0.24753E-01	0.59896E 01	-0.53334E 01	140.	0.58152E-01	0.63074E 01		
130.	0.11270E-01	0.17369E-01	0.42059E 01	-0.37748E 01	130.	0.47830E-01	0.51758E 01		
120.	0.76724E-02	0.11641E-01	0.27996E 01	-0.25437E 01	120.	0.38261E-01	0.41271E 01		
110.	0.48778E-02	0.75248E-02	0.17239E 01	-0.16253E 01	110.	0.29559E-01	0.31751E 01		
100.	0.16353E-02	0.60827E-02	0.70169E 00	-0.12898E 01	100.	0.21839E-01	0.23338E 01		
90.	-0.	-0.	-0.	-0.	90.	0.15222E-01	0.16161E 01		
80.	-0.	-0.	-0.	-0.	80.	0.98056E-02	0.10327E 01		
70.	-0.	-0.	-0.	-0.	70.	0.56519E-02	0.58982E 00		
65.	-0.	-0.	-0.	-0.	65.	0.40661E-02	0.41989E-00		
60.	-0.	-0.	-0.	-0.	60.	0.27674E-02	0.28525E-00		
55.	-0.	-0.	-0.	-0.	55.	0.17759E-02	0.18115E-00		
50.	-0.	-0.	-0.	-0.	50.	0.10805E-02	0.10348E-00		
45.	-0.	-0.	-0.	-0.	45.	0.65351E-03	0.47749E-01		
40.	-0.	-0.	-0.	-0.	40.	0.43393E-03	0.10490E-01		
35.	-0.	-0.	-0.	-0.	35.	-0.	-0.		
30.	-0.	-0.	-0.	-0.	30.	-0.	-0.		
25.	-0.	-0.	-0.	-0.	25.	-0.	-0.		
20.	-0.	-0.	-0.	-0.	20.	-0.	-0.		
15.	-0.	-0.	-0.	-0.	15.	-0.	-0.		
10.	-0.	-0.	-0.	-0.	10.	-0.	-0.		
PERIOD	MODE 2,1				PERIOD	MODE 1			
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K		VM/YO	YM/VO/K		
250.	0.44879E-00	-0.52213E 00	0.97014E 02	0.35943E 02	200.	-0.91118E 00	0.10947E 02		
225.	0.44189E-00	-0.75504E 00	0.61777E 02	0.64254E 02	175.	-0.92460E 00	-0.13812E 02		
200.	0.35334E-00	-0.98103E 00	0.18093E 02	0.97391E 02	150.	-0.82312E 00	-0.32177E 02		
175.	0.20888E-00	-0.11547E 01	-0.33874E 02	0.13007E 03	140.	-0.75195E 00	-0.35895E 02		
150.	0.13125E-01	-0.11998E 01	-0.86980E 02	0.15232E 03	130.	-0.66615E 00	-0.37071E 02		
140.	-0.68086E-01	-0.11656E 01	-0.10434E 03	0.15540E 03	120.	-0.56834E 00	-0.35679E 02		
130.	-0.14084E-00	-0.10990E 01	-0.11673E 03	0.15397E 03	110.	-0.46178E-00	-0.31922E 02		
120.	-0.19693E-00	-0.10009E 01	-0.12222E 03	0.14731E 03	100.	-0.35124E-00	-0.26256E 02		
110.	-0.22896E-00	-0.87268E 00	-0.11927E 03	0.13466E 03	90.	-0.24397E-00	-0.19453E 02		
100.	-0.23161E-00	-0.71527E 00	-0.10701E 03	0.11538E 03	80.	-0.14980E-00	-0.12603E 02		
90.	-0.20303E-00	-0.53280E 00	-0.85754E 02	0.89560E 02	70.	-0.78210E-01	-0.68760E 01		
80.	-0.14818E-00	-0.34091E-00	-0.58248E 02	0.59571E 02	65.	-0.52419E-01	-0.46939E 01		
70.	-0.84434E-01	-0.17273E-00	-0.31197E 02	0.31357E 02	60.	-0.33075E-01	-0.30088E 01		
65.	-0.56929E-01	-0.11057E-00	-0.20464E 02	0.20447E 02	55.	-0.19424E-01	-0.17904E 01		
60.	-0.35039E-01	-0.69985E-01	-0.12113E 02	0.12843E 02	50.	-0.10445E-01	-0.97252E 00		
55.	-0.20454E-01	-0.36367E-01	-0.70051E 01	0.69518E 01	45.	-0.50141E-02	-0.47017E-00		
50.	-0.10820E-01	-0.18601E-01	-0.36294E 01	0.36025E 01	40.	-0.20967E-02	-0.19243E-00		
45.	-0.51493E-02	-0.86521E-02	-0.16958E 01	0.16928E 01	35.	-0.74209E-03	-0.60662E-01		
40.	-0.	-0.	-0.	-0.	30.	-0.	-0.		
35.	-0.	-0.	-0.	-0.	25.	-0.	-0.		
30.	-0.	-0.	-0.	-0.	20.	-0.	-0.		
25.	-0.	-0.	-0.	-0.	15.	-0.	-0.		
20.	-0.	-0.	-0.	-0.	10.	-0.	-0.		
15.	-0.	-0.	-0.	-0.					
10.	-0.	-0.	-0.	-0.					
PERIOD	MODE 1,2				PERIOD	MODE 2			
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K		VM/YO	YM/VO/K		
110.	-0.75845E 00	0.86794E 00	-0.17301E 03	-0.86465E 02	100.	0.90430E 00	-0.27914E 02		
100.	-0.61825E 00	0.12170E 01	-0.11013E 03	-0.13044E 03	90.	0.97337E 00	0.73719E 01		
90.	-0.33567E-00	0.12946E 01	-0.25067E 02	-0.14966E 03	80.	0.88376E 00	0.29968E 02		
80.	-0.16633E-01	0.10399E 01	0.49461E 02	-0.13337E 03	70.	0.71296E 00	0.36655E 02		
70.	0.15310E-00	0.75514E 00	0.78997E 02	-0.10985E 03	65.	0.59757E 00	0.34527E 02		
65.	0.18509E-00	0.65966E 00	0.81518E 02	-0.10105E 03	60.	0.46013E-00	0.29045E 02		
60.	0.19132E-00	0.56981E 00	0.78090E 02	-0.90874E 02	55.	0.30962E-00	0.21017E 02		
55.	0.17738E-00	0.46116E-00	0.67682E 02	-0.75891E 02	50.	0.17085E-00	0.12377E 02		
50.	0.13660E-00	0.32331E-00	0.49904E 02	-0.54609E 02	45.	0.73439E-01	0.56536E 01		
45.	0.80721E-01	0.17612E-00	0.28402E 02	-0.30494E 02	40.	0.24226E-01	0.19687E 01		
40.	0.32911E-01	0.66309E-01	0.11179E 02	-0.11794E 02	35.	0.60391E-02	0.51198E 00		
35.	0.88585E-02	0.16596E-01	0.29130E 01	-0.30368E 01	30.	0.10938E-02	0.88441E-01		
30.	0.16187E-02	0.27803E-02	0.51533E 00	-0.52231E 00	25.	0.20514E-03	0.16757E-02		
25.	-0.	-0.	-0.	-0.	20.	-0.	-0.		
20.	-0.	-0.	-0.	-0.	15.	-0.	-0.		
15.	-0.	-0.	-0.	-0.	10.	-0.	-0.		
10.	-0.	-0.	-0.	-0.					
PERIOD	MODE 3								
	UM/WO	WM/WO	ZM/WO/K	XM/WO/K					
65.	-0.90667E 00	0.25259E 02							
60.	-0.98426E 00	-0.74936E 02							
55.	-0.91833E 00	-0.28055E 02							
50.	-0.81731E 00	-0.37217E 02							
45.	-0.68503E 00	-0.37752E 02							
40.	-0.44949E-00	-0.27693E 02							
35.	-0.15353E-00	-0.10392E 02							
30.	-0.21186E-01	-0.15876E 01							
25.	-0.15639E-02	-0.11541E-00							
20.	-0.	-0.							
15.	-0.	-0.							
10.	-0.	-0.							

TABLE 27

SIELD

DISPLACEMENT AND STRESS RATIOS AT A DEPTH OF 700 KM									
RAYLEIGH					LOVE				
PERIOD	UM/WO	MODE 1,1			PERIOD	VM/YO	MODE 0		
		WM/WO	ZM/WO/K	XM/WO/K			YM/YO/K		
350.	0.98352E-01	0.54339E 00	0.90442E 02	-0.75646E 02	350.	0.37046E-00	0.33785E 02		
300.	0.11762E-00	0.38801E-00	0.73311E 02	-0.60099E 02	300.	0.30189E-00	0.28488E 02		
250.	0.10348E-00	0.24030E-00	0.50203E 02	-0.41134E 02	250.	0.23118E-00	0.22247E 02		
225.	0.86476E-01	0.17661E-00	0.38167E 02	-0.31531E 02	225.	0.19531E-00	0.18865E 02		
200.	0.66207E-01	0.12196E-00	0.26943E 02	-0.22552E 02	200.	0.15934E-00	0.15379E 02		
175.	0.45543E-01	0.77308E-01	0.17260E 02	-0.14699E 02	175.	0.12365E-00	0.11870E 02		
150.	0.27142E-01	0.43309E-01	0.96533E 01	-0.84020E 01	150.	0.88945E-01	0.84495E 01		
140.	0.20922E-01	0.32718E-01	0.72677E 01	-0.63854E 01	140.	0.75609E-01	0.71420E 01		
130.	0.15480E-01	0.23894E-01	0.52573E 01	-0.46816E 01	130.	0.62756E-01	0.58892E 01		
120.	0.10935E-01	0.16634E-01	0.36331E 01	-0.32698E 01	120.	0.50538E-01	0.47074E 01		
110.	0.72138E-02	0.11176E-01	0.23377E 01	-0.21823E 01	110.	0.39139E-01	0.36152E 01		
100.	0.44285E-02	0.73423E-02	0.13558E 01	-0.13756E 01	100.	0.28776E-01	0.26335E 01		
90.	-0.	-0.	-0.	-0.	90.	0.19693E-01	0.17840E 01		
80.	-0.	-0.	-0.	-0.	80.	0.12147E-01	0.10887E 01		
70.	-0.	-0.	-0.	-0.	70.	0.63811E-02	0.56527E 00		
65.	-0.	-0.	-0.	-0.	65.	0.42157E-02	0.37171E-00		
60.	-0.	-0.	-0.	-0.	60.	0.25496E-02	0.22269E-00		
55.	-0.	-0.	-0.	-0.	55.	0.13787E-02	0.11550E-00		
50.	-0.	-0.	-0.	-0.	50.	0.61625E-03	0.49204E-01		
45.	-0.	-0.	-0.	-0.	45.	0.20976E-03	0.15055E-01		
40.	-0.	-0.	-0.	-0.	40.	0.64321E-04	0.12991E-02		
35.	-0.	-0.	-0.	-0.	35.	-0.	-0.		
30.	-0.	-0.	-0.	-0.	30.	-0.	-0.		
25.	-0.	-0.	-0.	-0.	25.	-0.	-0.		
20.	-0.	-0.	-0.	-0.	20.	-0.	-0.		
15.	-0.	-0.	-0.	-0.	15.	-0.	-0.		
10.	-0.	-0.	-0.	-0.	10.	-0.	-0.		
					MODE 1				
					PERIOD	VM/YO	YM/YO/K		
					200.	-0.90381E 00	0.12705E 02		
					175.	-0.92400E 00	-0.10839E 02		
					150.	-0.83958E 00	-0.28257E 02		
					140.	-0.77770E 00	-0.31998E 02		
					130.	-0.70161E 00	-0.33541E 02		
					120.	-0.61279E 00	-0.32868E 02		
					110.	-0.51309E 00	-0.30107E 02		
					100.	-0.40550E-00	-0.25556E 02		
					90.	-0.29540E-00	-0.19733E 02		
					80.	-0.19177E-00	-0.13452E 02		
					70.	-0.10621E-00	-0.77706E 01		
					65.	-0.73333E-01	-0.54674E 01		
					60.	-0.47766E-01	-0.36239E 01		
					55.	-0.29202E-01	-0.22508E 01		
					50.	-0.16723E-01	-0.13069E 01		
					45.	-0.90089E-02	-0.71229E 00		
					40.	-0.46347E-02	-0.36706E-00		
					35.	-0.23491E-02	-0.17349E-00		
					30.	-0.14049E-02	-0.49810E-01		
					25.	-0.	-0.		
					20.	-0.	-0.		
					15.	-0.	-0.		
					10.	-0.	-0.		
					MODE 2				
					PERIOD	VM/YO	YM/YO/K		
					100.	0.85873E 00	-0.30470E 02		
					90.	0.94224E 00	0.43474E-00		
					80.	0.88850E 00	0.21326E 02		
					70.	0.75225E 00	0.29741E 02		
					65.	0.65538E 00	0.29619E 02		
					60.	0.53834E 00	0.26793E 02		
					55.	0.40010E-00	0.21603E 02		
					50.	0.25926E-00	0.14986E 02		
					45.	0.13966E-00	0.85991E 01		
					40.	0.61239E-01	0.38996E 01		
					35.	0.22032E-01	0.15147E 01		
					30.	0.64967E-02	0.44259E-00		
					25.	0.18001E-02	0.82783E-01		
					20.	-0.	-0.		
					15.	-0.	-0.		
					10.	-0.	-0.		
					MODE 3				
					PERIOD	VM/YO	YM/YO/K		
					70.	-0.53836E 00	0.56947E 02		
					65.	-0.84470E 00	0.30817E 02		
					60.	-0.96640E 00	0.43336E 01		
					55.	-0.96225E 00	-0.15256E 02		
					50.	-0.88867E 00	-0.26466E 02		
					45.	-0.76593E 00	-0.30207E 02		
					40.	-0.56550E 00	-0.26198E 02		
					35.	-0.28699E-00	-0.14941E 02		
					30.	-0.78171E-01	-0.45415E 01		
					25.	-0.11522E-01	-0.73815E 00		
					20.	-0.12987E-02	-0.32781E-01		
					15.	-0.	-0.		
					10.	-0.	-0.		
					MODE 1,2				
PERIOD	UM/WO	WM/WO	ZM/WO/K	XM/WO/K					
110.	-0.83546E 00	0.72285E 00	-0.19091E 03	-0.67834E 02					
100.	-0.72151E 00	0.11582E 01	-0.13617E 03	-0.11569E 03					
90.	-0.45222E-00	0.13943E 01	-0.54464E 02	-0.14797E 03					
80.	-0.99843E-01	0.13047E 01	-0.30138E 02	-0.14955E 03					
70.	-0.14567E-00	0.10282E 01	-0.77155E 02	-0.13041E 03					
65.	0.20293E-00	0.90328E 00	0.84586E 02	-0.12033E 03					
60.	0.22741E-00	0.78896E 00	0.84528E 02	-0.10960E 03					
55.	0.22412E-00	0.66679E 00	0.77769E 02	-0.95852E 02					
50.	0.19363E-00	0.51914E 00	0.64057E 02	-0.76751E 02					
45.	0.13943E-00	0.34957E 00	0.44444E 02	-0.52359E 02					
40.	0.76754E-01	0.17772E-00	0.23707E 02	-0.27582E 02					
35.	0.29479E-01	0.63109E-01	0.88523E 01	-0.10176E 02					
30.	0.75772E-02	0.15498E-01	0.22207E 01	-0.25337E 01					
25.	0.12324E-02	0.25357E-02	0.35539E-00	-0.42777E-00					
20.	-0.	-0.	-0.	-0.					
15.	-0.	-0.	-0.	-0.					
10.	-0.	-0.	-0.	-0.					

of first higher mode to fundamental mode are displayed in Figures 9 and 10 for Rayleigh and Love waves, respectively. Figure 11 shows the ratio of the second higher mode to the fundamental Rayleigh mode. The ratio zeros and infinities for this double-couple orientation are determined by the nodal periods in horizontal displacement at the source depth. Thus the spectra of each higher mode has one more zero than the next lower mode. For a given mode the displacement zeros migrate downward in depth with increasing period. Therefore successively deeper sources have spectral zeros at successively longer periods.

Even though all the spectral ratios shown in Figures 8 to 11 have nodes and infinities which are sensitive to the source depth, the most promising is the fundamental Rayleigh to Love ratio. The easily identified large amplitudes of fundamental surface waves in the time domain are important to taking meaningful spectral ratios. The interference of similar signals can cause spectral holes which, along with spectral zeros due to source time history and finiteness, make identification of the source depth mini

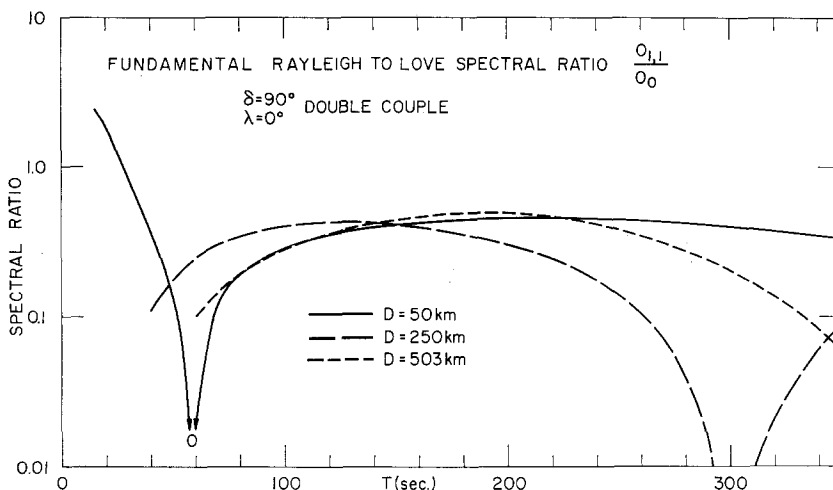


FIG. 8. Spectral ratio (Rayleigh fundamental-mode/Love fundamental-mode) for a double couple at several values of depth in an oceanic model.

mum improbable. If there is enough energy in the observed fundamental Love wave, the minimums in Love spectra will be due to interferences, such as multipath arrivals, and source time and finiteness functions. Thus ratios should not be formed at periods for which there is a lower power level in the Love-wave spectrum.

The ratio minima are dependent on the fault orientation parameters of dip, δ and slip, λ , as well as source depth. The ratio of fundamental Rayleigh to Love has a true node at all azimuths only for fault models, (δ, λ) of $(90^\circ, 0^\circ)$ and $(90^\circ, 180^\circ)$. The $(45^\circ, 90^\circ)$ and $(45^\circ, 270^\circ)$ faults can have true nodes at azimuthal angles from the strike of $\theta = 45^\circ, 135^\circ, 225^\circ,$ and 315° .

The nodal period as a function of source depth for the vertical pure strike-slip fault model, $(90^\circ, 0^\circ)$, is shown in Figure 12. For the oceanic and shield Earth structures, the relation between period and source depth is almost linear down to depths of 150 km. A rough estimate of the source depth can be obtained by equating the depth in kilometers to the nodal period in seconds. For a homogeneous Poisson solid half-space, the relation between source depth, h , and the nodal period is given by

$$h = (0.19) \times (CT)$$

(Ben-Menahem and Toksöz, 1963). The ratio of source depth to this critical wavelength, $\lambda_c = CT$, versus source depth is shown in Figure 13 for the two models.

Figure 14 illustrates the effects of varying the fault geometry parameters (δ , λ). For changes in dip and slip of less than 10° from the vertical pure strike-slip fault (90° , 0°), the minimum near 60 sec is recognizable and essentially stable. However, at an observer azimuth of $\theta = 22.5^\circ$ a change of 15° in δ or λ can virtually eliminate the mini-

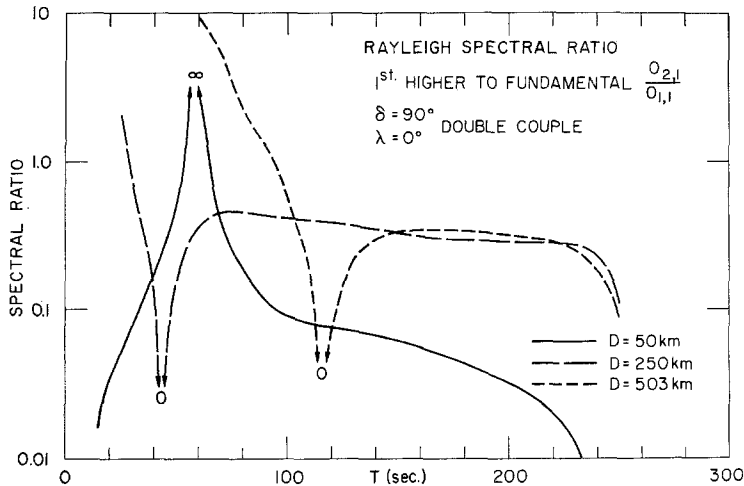


Fig. 9. Spectral ratio (Rayleigh first-mode/Rayleigh fundamental-mode) for a double couple at several values of depth in an oceanic model.

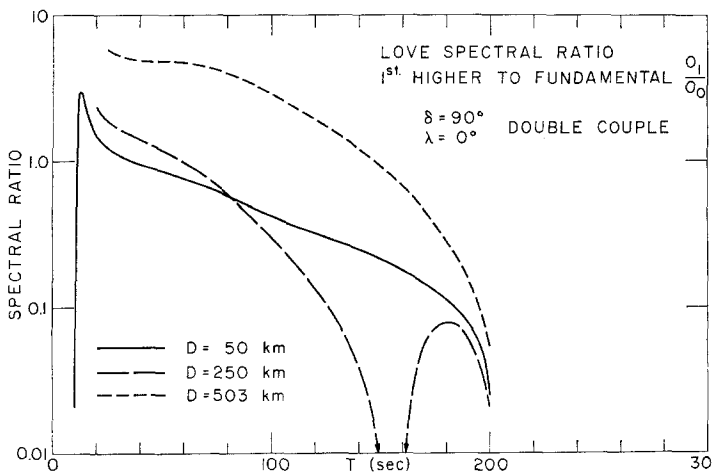


Fig. 10. Spectral ratio (Love first-mode/Love fundamental-mode) for a double couple at several values of depth in an oceanic model.

imum. On the other hand, at an azimuth of 30° , the spectral ratio has an easily identified minimum at 60 sec for the (75° , 15°) model. Another complicating factor, then, is that the minima are sensitive to azimuth. It should also be remembered that these are spectral ratio minima. Except for geometries where the minima are near zero, their presence may not be evident in either the Rayleigh or the Love spectra until the ratio has been formed.

The complications inherent in these spectral techniques can be demonstrated by

considering the magnitude 5.2 Fallon earthquake of July 20 1962 (Toksöz *et al.*, 1965). The fundamental Rayleigh and Love spectra measured at Ruth, Nevada, are shown in Figure 15. Taking their spectral ratio, R_z/L , we obtain a minimum near 26 sec which corresponds to focal depth of 20 km for a vertical strike-slip fault ($90^\circ, 0^\circ$)

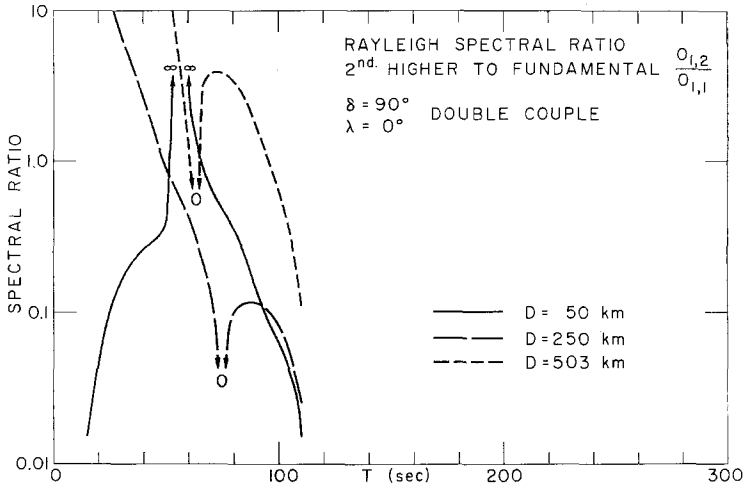


Fig. 11. Spectral ratio (Rayleigh second-mode/Rayleigh fundamental-mode) for a double couple at several values of depth in an oceanic model.

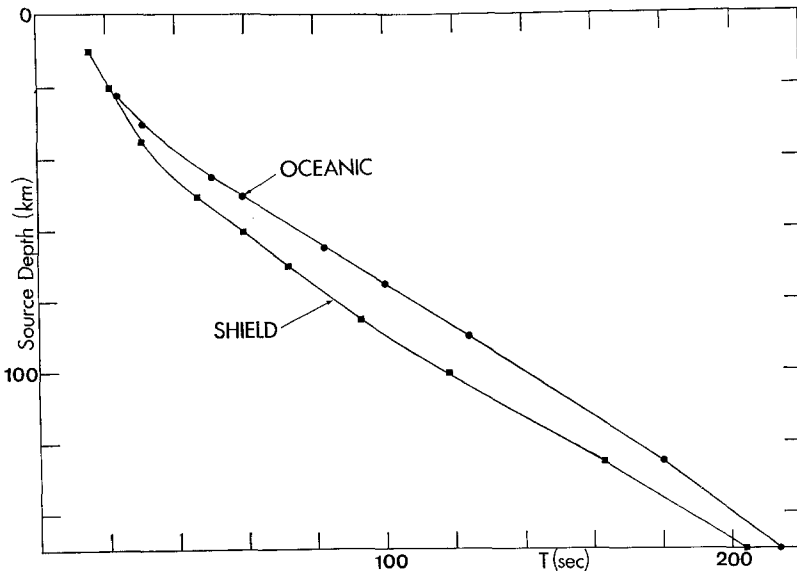


Fig. 12. Periods of spectral ratio minimum (Rayleigh fundamental-mode/Love fundamental-mode) versus source depth of a double couple in an oceanic and shield model.

and a Fallon-to-Ruth propagation path (Figure 16). The minimum is also apparent in the observed R_z .

The depth is the same as that obtained in Toksöz *et al.* (1965) by comparing the observed and theoretical spectra for the surface waves at Ruth, Pasadena and Jamestown. As in Tsai (1969), the assumed source-time variation was a step function. In order to fit the observed spectra at these stations, they required a fault orientation of

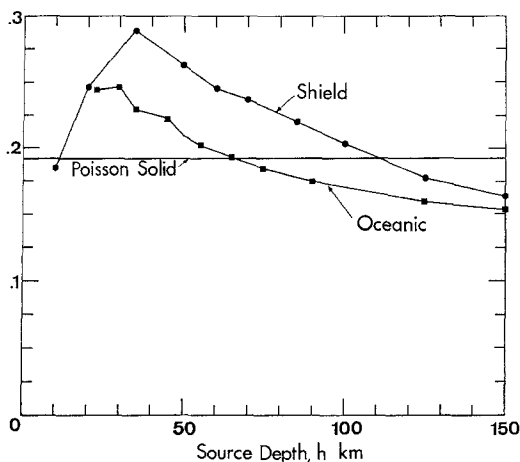


FIG. 13. Ratio of source depth to critical wavelength for the two earth models and a Poisson solid.

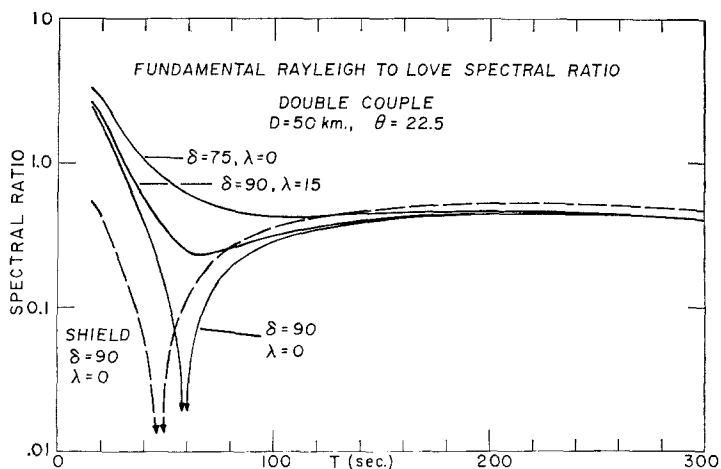


FIG. 14. Spectral ratio (Rayleigh fundamental-mode/Love fundamental-mode) for a double couple at selected fault orientations in an oceanic model.

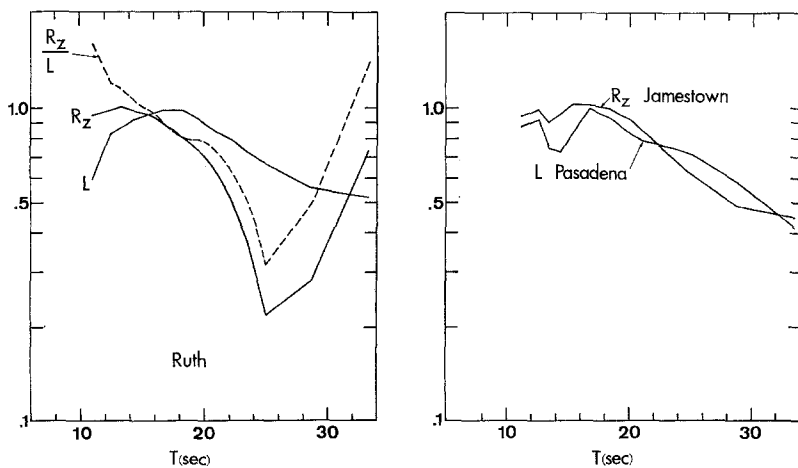


FIG. 15. Observed ground displacement spectra of Rayleigh and Love waves for the July 20 1962 Fallon earthquake.

($76^\circ, 230^\circ$) and a strike azimuth of 355° . This corresponds to an azimuthal angle from the strike of $\theta = 100^\circ$ at Ruth. The ($90^\circ, 0^\circ$) faults at a depth of 20 and 26 km require a $\theta = 50^\circ - 55^\circ$ or $\theta = 125^\circ - 130^\circ$ at Ruth in order to obtain a reasonable spectral ratio (Figure 16). This results in an unacceptable theoretical spectral ratio at Jamestown which is two orders of magnitude less than observed there. The spectral ratios for their ($76^\circ, 230^\circ$) fault have barely perceptible minima only at θ near 40° and 145° . There are no minima in R_z at any azimuth for periods less than 40 sec.

The fault orientation was determined from a three-station fit of a radiation pattern of the Love- to Rayleigh-wave peak amplitudes ($T = 16$ sec). Flinn, Lambert and Archambeau (1970), using the Fallon earthquake Rayleigh and Love waves recorded at 17 LRSM stations, found that the radiation pattern for the 16-sec ratio could be fit best by a 20-km-depth ($82^\circ, 196^\circ$) fault plane with a strike azimuth of 10° . Since the radiation pattern of the ratio at a given period is relatively insensitive to source depth, the 20-km source depth was determined from the individual Love and Rayleigh radi-

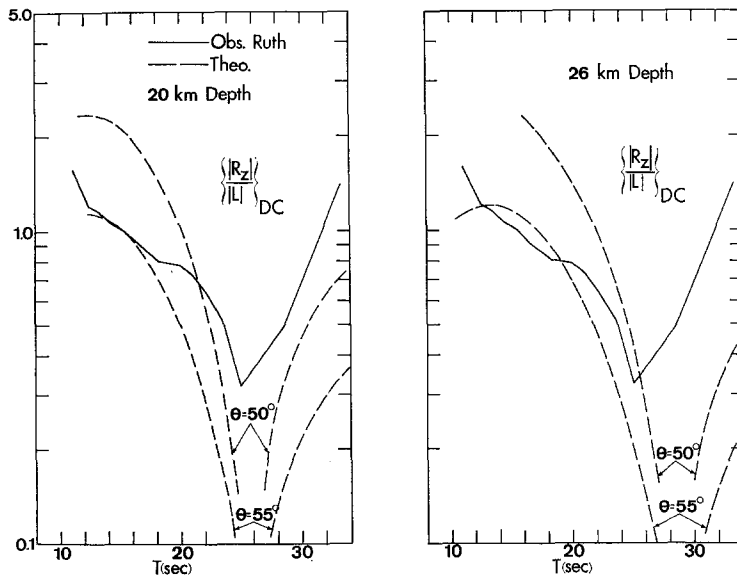


FIG. 16. Theoretical and observed spectral ratios at Ruth for two depths and azimuths.

tion patterns at various frequencies. The shapes of these individual patterns also admit a fault orientation of ($82^\circ, 174^\circ$) (Flinn *et al.*, 1970).

The spectral ratios at selected azimuths for the two LRSM determined fault solutions are shown in Figure 17 with the observed Ruth ratio. Again we cannot fit the Ruth data ($\theta = 85^\circ$) without violating the strike azimuth. The range of azimuth in which there is a detectable minimum in the R_z/L ratio and in R_z for a step function source are shown in Figure 18 for the LRSM fault solutions. In the same figure, we show the 16-sec Love to Rayleigh radiation patterns.

Another piece of evidence that the fault strike azimuth is within 15° of North as in Toksöz *et al.* (1965) and Flinn *et al.* (1970) can be found in the small dips in the absolute spectra of the Jamestown and Pasadena stations (Figure 15). Assuming that the Fallon event was due to a rupture moving to the North with a uniform velocity of 2.2 km/sec along a fault segment of length 20 km, these dips can be explained as the first minimums of the source propagation factor (Ben-Menahem, 1960). This factor would cause a minimum in the Rayleigh- and Love-wave spectra at just below the 10-sec

period at Ruth, at 14 sec at Pasadena, and at 12 to 14 sec at Jamestown. The minimum necessary length of 20 km is considered large for an earthquake of this magnitude (King and Knopoff, 1968). On the other hand, the shallowness of the minima can be explained by the rupture strength being much smaller at the ends of the fault relative to the center (Ben-Menahem and Toksöz, 1962). Thus the effective length contributing

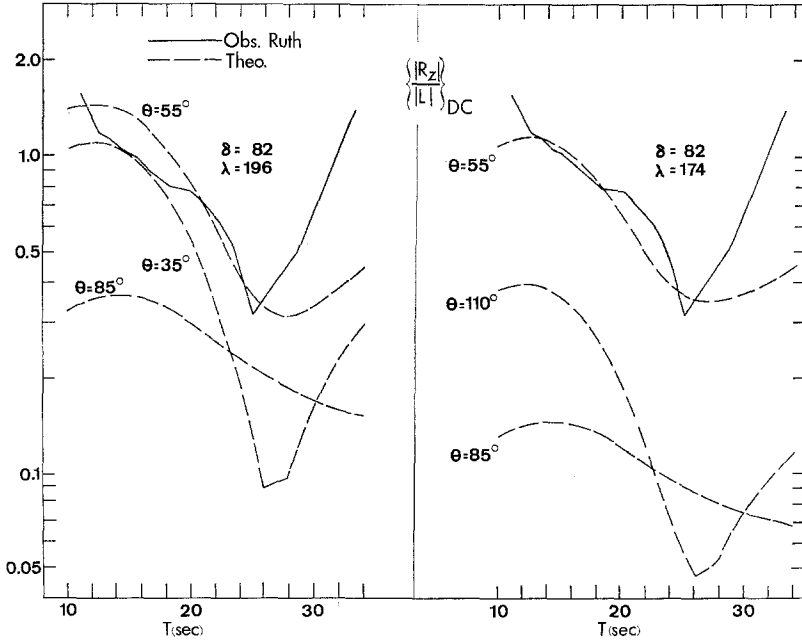


FIG. 17. Theoretical and observed spectral ratios at Ruth for two fault orientations and three azimuths for a 20-km source depth.

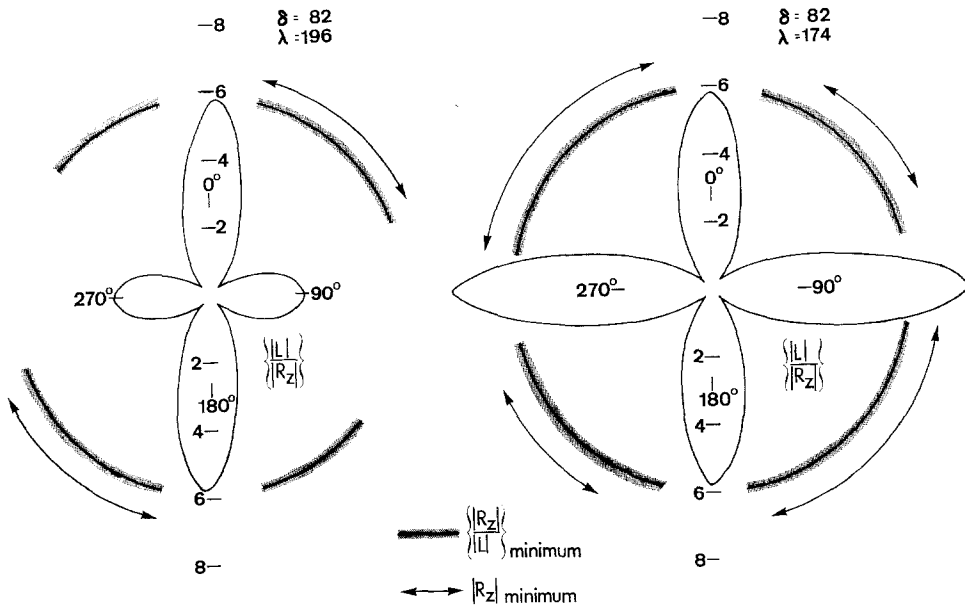


FIG. 18. Radiation patterns and ranges of azimuth with detectable spectral minima for two LRSM determined fault solutions.

most of the seismic energy could be much smaller and the spectra would still have the same minimal locations found in Figure 15.

Unless the solutions obtained from the three Caltech and the 17 LRSM stations are incorrect or can be shifted in strike azimuth a minimum of 25° to the east, the dip in the Ruth, Nevada, Rayleigh spectrum and the Rayleigh to Love spectra ratio at 26 sec must be due to mechanisms other than source depth (Toksöz *et al.*, 1965).

CONCLUSIONS

The tables of Rayleigh and Love displacement-stress or eigenvectors presented in this paper can be linearly combined for point sources or integrated for volume sources to calculate the spectra of surface waves. As an example of their use, spectral ratios were formed for various fault models in order to determine the feasibility of using spectral minimums or "holes" for source depth determinations.

For the minimum associated with the fundamental Rayleigh wave, the following conclusions can be made.

- (1) The period for the spectral minimum is strongly dependent on fault slip, strike and station azimuth as well as source depth.
- (2) For the vertical, pure strike-slip fault, a rough estimate of source depth in kilometers is given by the nodal periods in seconds.
- (3) The fault orientation must be known from independent determinations in order to obtain the source depth.

The necessity of determining the fault orientation was demonstrated by the Fallon earthquake. If a vertical strike-slip fault had been assumed for this event, the minimum measured at Ruth, Nevada, would have corresponded to a depth equal to the USCGS reported depth. However, using fault solutions obtained from the spectra at other stations, it was found that the minimum was not related to the source depth.

Considering the difficulties and the sources of possible spectral contamination, it is hard to visualize spectral ratios playing an important role in the determination of focal mechanisms except for events where there is consistent and adequate station coverage, high signal-to-noise levels, and some supplementary information on the fault and propagation path.

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APPENDIX I

COMPOUND MATRIX ELEMENTS

Expressions for the compound layer matrix are

$$\begin{aligned}
 a_{11} = a_{66} &= -2\gamma(\gamma - 1) + (2\gamma^2 - 2\gamma + 1)CP \cdot CQ - \gamma^2STP \cdot STQ \\
 &\quad - (\gamma^2 - 1)SDP \cdot SDQ \\
 a_{12} = a_{56} &= i(\rho c^2)^{-1}[CP \cdot SDQ + CQ \cdot STP] \\
 a_{13} = a_{14} = a_{36} &= -(\rho c^2)^{-1}[(2\gamma - 1)(1 - CP \cdot CQ) + (\gamma - 1)SDP \cdot SDQ \\
 &\quad + \gamma STP \cdot STQ] \\
 &= a_{46}
 \end{aligned}$$

$$a_{15} = a_{26} = -i(\rho c^2)^{-1}[CQ \cdot SDP + CP \cdot STQ]$$

$$a_{16} = (\rho c^2)^{-2}[2(1 - CP \cdot CQ) + STP \cdot STQ + SDP \cdot SDQ]$$

$$a_{21} = a_{65} = i(\rho c^2)[(\gamma - 1)^2 CQSDP + \gamma^2 CPSTQ]$$

$$a_{22} = a_{55} = CP \cdot CQ$$

$$a_{23} = a_{24} = a_{35} = a_{45} = i[(\gamma - 1)CQ \cdot SDP + \gamma CP \cdot STQ]$$

$$a_{25} = SDP \cdot STQ$$

$$a_{31} = a_{41} = a_{63} = (\rho c^2)[\gamma(\gamma - 1)(2\gamma - 1)(1 - CP \cdot CQ) + (\gamma - 1)^3 SDP \cdot SDQ + \gamma^3 STP \cdot STQ]$$

$$= a_{64}$$

$$a_{32} = a_{42} = -i[(\gamma - 1)CP \cdot SDQ + \gamma CQ \cdot STP]$$

$$= a_{53} = a_{54}$$

$$a_{33} = a_{44} = 1 + 2\gamma(\gamma - 1)(1 - CP \cdot CQ) + (\gamma - 1)^2 SDP \cdot SDQ + \gamma^2 STP \cdot STQ$$

$$a_{34} = a_{33} - 1 = a_{43}$$

$$a_{51} = a_{62} = -i(\rho c^2)[(\gamma - 1)^2 CP \cdot SDQ + \gamma^2 CQ \cdot STP]$$

$$a_{52} = STP \cdot SDQ$$

$$a_{61} = (\rho c^2)^2[2\gamma^2(\gamma - 1)^2(1 - CP \cdot CQ) + (\gamma - 1)^4 SDP \cdot SDQ + \gamma^4 STP \cdot STQ]$$

where

$$CP = \cos(kr_\alpha d), \quad CQ = \cos(kr_\beta d)$$

$$STP = r_\alpha \sin(kr_\alpha d), \quad STQ = r_\beta \sin(kr_\beta d)$$

$$SDP = \frac{\sin(kr_\alpha d)}{r_\alpha}, \quad SDQ = \frac{\sin(kr_\beta d)}{r_\beta}$$

$$\gamma = 2 \left(\frac{\beta}{c} \right)^2$$

and the layer m subscript has been suppressed in the notation.

Combining the product matrix with its inverse as given in Harkrider (1964), we have the following identities for the compound product matrix, a .

$$a_{13} \equiv a_{14} \qquad a_{31} \equiv a_{41}$$

$$a_{23} \equiv a_{24} \qquad a_{32} \equiv a_{42}$$

$$a_{33} \equiv a_{34} + 1 \qquad a_{33} \equiv a_{43} + 1$$

$$a_{43} \equiv a_{44} - 1 \qquad a_{34} \equiv a_{44} - 1$$

$$a_{53} \equiv a_{54} \qquad a_{35} \equiv a_{45}$$

$$a_{63} \equiv a_{64} \qquad a_{36} \equiv a_{46}$$

$$a_{33} \equiv a_{44}$$

$$a_{34} \equiv a_{43}$$

and from the definition.

$$a_{26} \equiv a_{15}, \quad a_{35} \equiv a_{23}, \quad a_{36} \equiv a_{13}, \quad a_{53} \equiv a_{32}, \quad a_{55} \equiv a_{22}, \quad a_{56} \equiv a_{12},$$

$$a_{62} \equiv a_{51}, \quad a_{63} \equiv a_{31}, \quad a_{65} \equiv a_{21}, \quad \text{and} \quad a_{66} \equiv a_{11}$$

APPENDIX II

LONG-PERIOD LIMITS

Using the limits of the Thomson-Haskell matrices at long periods, we obtain the following Love-wave limits for $c > 0$ as ω and $k \rightarrow 0$

$$F_L \equiv -(A_L)_{21}^* - \mu_n r_{\beta_n}^* (A_L)_{11} = 0$$

$$F_L \rightarrow -k \sum_{j=1}^{n-1} \mu_j r_{\beta_j}^2 d_j - \mu_n r_{\beta_n}^* \rightarrow \mu_n \left(1 - \frac{c^2}{\beta_n^2}\right)^{1/2}$$

thus $c \rightarrow \beta_n$ (1)

$$\frac{\partial F_L}{\partial k} \rightarrow - \sum_{j=1}^{n-1} \mu_j \left(1 + \frac{c^2}{\beta_j^2}\right) d_j - \mu_n \frac{c^2}{\beta_n^2} \frac{1}{kr_{\beta_n}^*}$$

$$\frac{\partial F_L}{\partial \omega} \rightarrow -2 \sum_{j=1}^{n-1} c \rho_j d_j + \mu_n \frac{c}{\beta_n^2} \frac{1}{kr_{\beta_n}^*}$$

thus

$$U = - \left(\frac{\partial F_L}{\partial k}\right) / \left(\frac{\partial F_L}{\partial \omega}\right) \rightarrow c \rightarrow \beta_n, \tag{2}$$

and

$$A_L = \frac{1}{(A_L)_{11}} \frac{\partial F_L}{\partial k} \rightarrow -k \frac{r_{\beta_n}^*}{\mu_n}$$

$$\rightarrow - \frac{\mu_p}{\mu_n^2} h_p \left(1 - \frac{\beta_n^2}{\beta_p^2}\right) k^2$$

$$\rightarrow O(k^2) \tag{3}$$

since $F_L = 0$ implies from above that

$$\mu_n r_{\beta_n}^* \rightarrow -k \sum_{j=1}^{n-1} \mu_j r_{\beta_j}^2 d_j = -kh_p \mu_p \left(\frac{c^2}{\beta_p^2} - 1\right)$$

where

$$h_p \equiv \sum_{j=1}^{n-1} h_j, \beta_p^2 \equiv \frac{\mu_p}{\rho_p}, \mu_p \equiv \sum_{j=1}^{n-1} \mu_j d_j / h_p$$

and

$$\rho_p \equiv \sum_{j=1}^{n-1} \rho_j d_j / h_p$$

The summation over j is from layer 1 to layer $n - 1$, with n denoting the solid half-space.

The p subscript was used above because for Love waves in a multilayered free plate

$$F_L \equiv (A_L)_{21}^* = 0$$

and at long periods

$$(A_L)_{21}^* \rightarrow k \sum_{j=1}^{n-1} \mu_j r_{\beta_j}^2 d_j \rightarrow -kh_p \mu_p \left(1 - \frac{c^2}{\beta_p^2} \right),$$

thus $F_L = 0$ can be satisfied by $c = \beta_p$ for small k .

For Rayleigh waves for an all solid model as ω and $k \rightarrow 0$

$$\begin{aligned} F_R &= NK + L^*M^* = 0 \\ F_R &\rightarrow -[(\gamma_n - 1)^2 + \gamma_n^2 r_{\alpha n} r_{\beta n}] \\ \frac{\dot{u}_0^*}{\dot{w}_0} &= \frac{K}{L^*} \rightarrow \frac{(\gamma_n - 1)}{\gamma_n r_{\alpha n}^*} \\ GN^* - L^*H &\rightarrow -\frac{r_{\alpha n}^*}{\rho_n c^2} \end{aligned} \tag{4}$$

where

$$\gamma_n = 2 \left(\frac{\beta_n}{c} \right)^2$$

thus $F_R = 0$ implies $c \rightarrow V_{Rn}$: the root of Rayleigh's equation (4),

$$\begin{aligned} \frac{\partial F_R}{\partial k} &\rightarrow \frac{4}{k} \left\{ (\gamma_n - 1) + \frac{\beta_n^2 \gamma_n^2 [2C^2 - \alpha_n^2 - \beta_n^2]}{C^2 \alpha_n^2 (\gamma_n - 1)^2} \right\} \\ \frac{\partial F_R}{\partial \omega} &\rightarrow \frac{1}{C} \frac{\partial F_R}{\partial k} \end{aligned}$$

thus

$$U = - \left(\frac{\partial F_R}{\partial k} \right) / \left(\frac{\partial F_R}{\partial \omega} \right) \rightarrow C \rightarrow V_{Rn} \tag{5}$$

and

$$A_R = \frac{[G^*N - L^*H]}{\left(\frac{\partial F_R}{\partial k} \right)}$$

thus

$$\begin{aligned} A_R &\rightarrow \frac{r_{\alpha n}^*}{4\rho_n V_{Rn}^2 \left\{ (\gamma_n - 1) + \frac{\beta_n^2 \gamma_n^2 [2V_{Rn}^2 - \alpha_n^2 - \beta_n^2]}{V_{Rn}^2 \alpha_n^2 (\gamma_n - 1)^2} \right\}} \cdot k \\ &\rightarrow O(k). \end{aligned} \tag{6}$$

For Rayleigh waves in a multilayered free plate

$$F_R = [A_{32}^* A_{41}^* + A_{31} A_{42}]$$

$$F_R \rightarrow k^2 C^4 \sum_{j=1}^{n-1} \rho_j d_j \cdot \sum_{j=1}^{n-1} \rho_j \left[1 - 2\gamma_j \left(1 - \frac{\beta_j^2}{\alpha_j^2} \right) \right] d_j,$$

retaining first order terms as $k \rightarrow 0$, thus $F_R = 0$ can be satisfied by a c such that

$$\sum_{j=1}^{n-1} \rho_j \left[1 - 2\gamma_j \left(1 - \frac{\beta_j^2}{\alpha_j^2} \right) \right] d_j = 0$$

for small k ; i.e.

$$c^2 = \frac{\sum_{j=1}^{n-1} \rho_j V_{pj}^2 d_j}{\sum_{j=1}^{n-1} \rho_j d_j}$$

where

$$V_{pj}^2 = 4\beta_j^2 \left(1 - \frac{\beta_j^2}{\alpha_j^2} \right).$$

APPENDIX III

SHORT-PERIOD LIMITS

At short periods, the relations for Love waves in a multilayered half-space reduce to those for Love waves in the top layer over a half-space with second layer properties. Thus as $k \rightarrow \infty$

$$F_L \rightarrow -\mu_1 r_{\beta_1} \sin Q_1 - \mu_2 r_{\beta_2}^* \cos Q_1 = 0$$

and as $c \rightarrow \beta_1$

$$kd_1 \rightarrow \frac{(2m+1)}{2} \pi [(c/\beta_1)^2 - 1]^{-1/2} \rightarrow \infty,$$

$$\frac{\partial F_L}{\partial k} \rightarrow \left[\mu_1 d_1 + \mu_2 \left(1 - \frac{\beta_1^2}{\beta_2^2} \right)^{1/2} kd_1^2 \right] \frac{2}{(2m+1)\pi}$$

$$\frac{\partial F_L}{\partial \omega} \rightarrow - \left[\mu_1 \frac{d_1}{\beta_1} + \mu_2 \left(1 - \frac{\beta_1^2}{\beta_2^2} \right)^{1/2} \frac{kd_1^2}{\beta_1} \right] \frac{2}{(2m+1)\pi}$$

thus

$$U = - \left(\frac{\partial F_L}{\partial k} \right) / \left(\frac{\partial F_L}{\partial \omega} \right) \rightarrow \beta_1$$

and

$$A_L \rightarrow \frac{1}{\mu_1 \theta_1}.$$

For Rayleigh waves, the multilayered solid half-space reduces to a half-space of the top-layer properties and the short-period limits are the same as the long-period limits in Appendix II with the subscript 1 replacing the n .

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