FORM TO SPECIFY INPUT DATA FOR
SOUND SPEED MODEL CSSPOK2

This model represents the sound speed (squared) as a function of the angle $\alpha$ from a horizontal line at a specified height and latitude. The dependence of $C^2$ on $\alpha$ is as a sequence of linear segments joined by hyperbolic functions.

$$C^2 = C_o^2 + \frac{b_1}{2}(\alpha-\alpha_o) + \sum_{i=1}^{n} \delta_i \left(\frac{b_{i+1} - b_i}{2}\right) \ln\left\{\frac{\cosh\left(\frac{\alpha-\alpha_i}{\delta_i}\right)}{\cosh\left(\frac{\alpha_i-\alpha_o}{\delta_i}\right)}\right\} + \frac{b_{n+1}}{2}(\alpha-\alpha_o)$$

$$\frac{dC^2}{dz} = b_1 + \sum_{i=1}^{n} \left(\frac{b_{i+1} - b_i}{2}\right) \left\{\tanh\left(\frac{\alpha-\alpha_i}{\delta_i}\right) + 1\right\} ,$$

where $b_i = (C_i^2 - C_{i-1}^2)/(\alpha_i - \alpha_{i-1})$, $\alpha = \tan^{-1}((r - r_o)/r_e(\theta - \theta_o)))$, $r_o = r_e + h_o$, $\theta_o = \pi/2 - \lambda_o$, $r_e$ is the Earth radius, r is the radial coordinate of the ray point and $\theta$ is the colatitude of the ray point. Thus, $\delta_i$ is the half-thickness of a region centered at approximately $\alpha_i$, in which $dC^2/d\alpha$ changes from $b_i$ to $b_{i+1}$.

Specify--

the model check for CSSPOK2 = 4.0 (W150)

the input data format code = _____(W151)

an input data set identification number = _____(W152)

an 80-character description of the model with parameters:

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the reference sound speed, $C_{ref}$ = _____km/s (W153)

the height of the horizontal line, $h_o$ = _____km, m (W154)

the latitude of the horizontal line, $\lambda_o$ = _____rad, deg, km (W155)

and the profile values:

the number of points in the profile, n = _____

the profile:

| i | $z_i$ (km) | $C_i$ (km/sec) | $\delta_i$ (km) |
|---|---|---|---|

OTHER MODELS REQUIRED: Any sound-speed perturbation model. Use NPSPEED if no perturbation is desired. FUNCTION ALCOSH.