FORM TO SPECIFY INPUT DATA FOR
TEMPERATURE MODEL TTANH5[1]

This model represents the temperature profile by a sequence of linear segments that are smoothly joined by hyperbolic functions:

$$T = T_0 + \frac{c_1}{2}(z - z_0) + \sum_{i=1}^{n} \delta_i \left(\frac{c_{i+1} - c_i}{2}\right) \ln\left\{\frac{\cosh\left(\frac{z-z_i}{\delta_i}\right)}{\cosh\left(\frac{z_i-z_0}{\delta_i}\right)}\right\} + \frac{c_{n+1}}{2}(z - z_0)$$

$$\frac{dT}{dz} = c_1 + \sum_{i=1}^{n} \left(\frac{c_{i+1} - c_i}{2}\right) \left\{\tanh\left(\frac{z - z_i}{\delta_i}\right) + 1\right\}$$

$$c_i = (T_i - T_{i-1})/(z_i - z_{i-1}) \ .$$

$z = r - r_e$, where r_e is the Earth radius, and r is the radial coordinate of the ray point. Thus, δ_i is the half-thickness of a region centered at approximately z_i km, in which dT/dz changes from c_i to c_{i+1}. Start by drawing a profile using linear segments and get T_i and z_i from the corners. Then select δ_i to round the corners. The final profile will not go through (T_i,z_i).

Specify–

the model check for TTANH5 = 7.0 (w200)

the input data-format code = _____ (w201)

an input data-set identification number = _____ (w202)

an 80-character description of the model with parameters:

_____

and the profile values:

the number of points in the profile -2 = n = _____

the profile:

i	z_i (km,m)	T_i (Kelvin)	δ_i (km,m)

[1]OTHER MODELS REQUIRED: Any temperature-perturbation model. Use NTEMP if no perturbations are desired. FUNCTION ALCOSH.