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Abstract

1 Restricted cubic spline

The usual specification for a restricted cubic spline is the following, where $(u)_+ = u$ if $u > 0$ and $(u)_+ = 0$ if $u \leq 0$:

$$x_i = \text{rcs}(x, t_i, t_k, t_{k-1}) = (x-t_i)_+^3 - (x-t_{k-1})_+^3 \frac{t_k - t_i}{t_k - t_{k-1}} + (x-t_k)_+^3 \frac{t_{k-1} - t_i}{t_k - t_{k-1}}, \quad i = 1, \ldots, k-2. \tag{1}$$

To combine this with sine interpolation of temperature, we simply need to integrate the following expression:

$$x_i^{ss} = 2 \int_0^{12} \text{rcs}(S_{ss}(r))dr \tag{2}$$

where r denotes the time of the day.

$$x_i^{ss} = 2 \tag{3}$$