$$\frac{dT_n}{dt} = \frac{1}{\overline{\rho c[z]}_n}\left\{\gamma_n\left(1-\alpha_n^{sky}\right)\left(1-\bar{\alpha}_n\right)S_0 - \tau\sigma_B T_n^4\right\} + \frac{1}{A_n\,\overline{\rho c[z]}_n}\left\{-L_{n-1,n}\,k_{n-1,n}\left(T_n - T_{n-1}\right) + L_{n,n+1}\,k_{n,n+1}\left(T_{n+1} - T_n\right)\right\}$$

w/ i) $\overline{\rho c[z]}_n = f_n^s \rho_s c_s [z_s] + f_n^w \rho_w c_w [z_w] + f_n^i \rho_i c_i [z_i]$; f_n^m = fraction of coverage ; $m = s, w, i$ = land, water, ice
↳ estimate from Google Earth

ii) $\bar{\alpha}_n = f_n^s \alpha_s + f_n^w \alpha_w + f_n^i \alpha_i$

iii) $A_{n:n+1} = 2\pi R^2 \left[\sin\theta_{n+1} - \sin\theta_n\right]$

iv) $L_{n:n+1} = L_{n+1:n} = 2\pi R \cos\theta_n$

v) $\gamma_{n:n+1} = \gamma_{n+1:n} = \frac{1}{2}\left[\sin\theta_{n+1} - \sin\theta_n\right]$

values are now in respective spreadsheets.

Table 1 : values for σ_B, S_0, $R = R_E$, ε, τ, α_{sky}, α_s, α_w, α_i, ρ_s, ρ_w, ρ_i, $[z_s]$, $[z_w]$, $[z_i]$, c_s, c_w, c_i

Table 2 : values for γ_n, a_n

Table 3 : values for $L_{ij} = L_{ji}$ and $k_{ij} = k_{ji}$

- direction flux given by sign of $(T_n - T_{n-1})$ × sign of $L_{n-1:n}\,k_{n-1:n}$

(+) : $F_{n-1:n}$

(-) : $F_{n:n-1}$

- $n-1:n$ denotes "from zone $n-1$ to zone n"