$$
\begin{aligned}
F^{\downarrow}_{NIR}(z) &= \sum_i \Delta\nu_i \left\{ S_{\nu_i} \mathcal{T}_i(\infty, z) \mu_0 \right\}, \\
Q_{rad,NIR} &= \frac{1}{\rho_0} \frac{\partial F^{\downarrow}_{IR}(z)}{\partial z}.
\end{aligned}
$$