

p. 8: In Fig. 1-4 the leftmost line label should read 5777 K, not 5762 K.

p. 32: There is a " missing in equation (2.18):

$$\mathbf{w} = \mathbf{w}' - i\mathbf{w}'' \quad (2.18)$$

p. 47: There is a superfluous θ in one numerator of equation (2.95); and a θ missing in the second denominator.

p. 64: The I_b in equation (3.7) should not have directional dependence $\hat{\mathbf{s}}$, i.e.,

$$\epsilon'(T, \hat{\mathbf{s}}) = \frac{I(T, \hat{\mathbf{s}}) \cos \theta d\Omega}{I_b(T) \cos \theta d\Omega} = \frac{I(T, \hat{\mathbf{s}})}{I_b(T)}, \quad (3.7)$$

p. 72: The reflectivity in equation (3.51) should have only one argument, i.e., $\rho(\mathbf{r})$ [not $\rho(\mathbf{r}, \hat{\mathbf{s}})$].

p. 127: There is a typo in Problem 3.7: it should be $\lambda = 1 \mu\text{m}$ (not W/m).

p. 130: In Problem 3.27 an outdated value for q_{sun} is given; it should be $q_{\text{sun}} = 1367 \text{ W/m}^2$.

p. 192: The sketch for Problem 5.14 has a little error: the grooves should be equilateral triangles with 1 cm lengths. (While the problem works fine as given, the answers for equilateral triangles are a little nicer).

p. 255: Just above equation (8.15) it should read "convection and radiation" not "conduction and radiation."

p. 256: There is a superfluous D in the definition of the Stanton number, equation (8.17b): $St = h/\rho c_p u_m$.

p. 257: Incorrect figure reference on 7th line from bottom: reference should be to Fig. 8-4 (not 8-3).

p. 268: Just before the unnumbered intensity expression it should say "...one may calculate the spectral radiative heat flux ..." (not "total spectral radiative heat flux").

p. 273: There should be no $\hat{\mathbf{s}}$ in the argument of G in equation (9.35), i.e., it should be $G_\eta(\tau'_\eta)$, not $G_\eta(\tau'_\eta, \hat{\mathbf{s}})$.

p. 275: There is the prime missing in the ϵ' in equation (9.41).

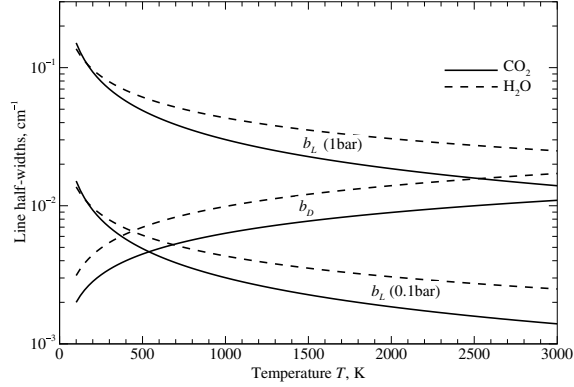
p. 279/80: In equations (9.58), (9.59), (9.61) and (9.63) the upper limit of the optical thickness integral inside the emissivity accompanying the source function should be s'' not s , i.e., this term should read

$$S_\eta(\mathbf{r}', \hat{\mathbf{s}}) \exp \left[- \int_0^{s''} \beta_\eta ds'' \right]$$

p. 290: $(dn_l/dt)_{l \rightarrow u}$ is a negative quantity: there should be a minus sign on the right-hand-side of equation (10.3), and it should be $-(dn_l/dt)_{l \rightarrow u}$ in equation (10.4).

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p. 300: There are several labels missing in Fig. 10-7:

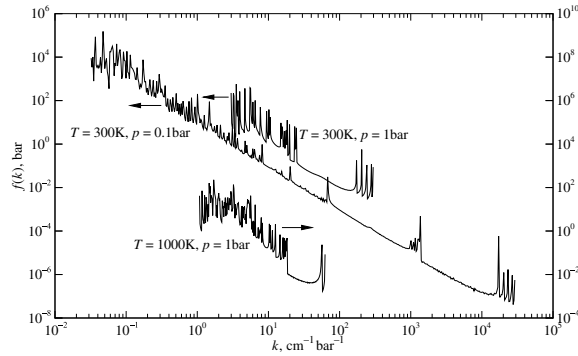


p. 311: The integrand in equation (10.66) should have “1–,” not “l–.”

p. 315: In equation (10.75) a square power is missing, i.e., it should say

$$\left(\frac{b}{d}\right)_{\text{mix}} \left(\frac{S}{d}\right)_{\text{mix}} = \left[\sum_n \sqrt{\left(\frac{b}{d}\right)_n \left(\frac{S}{d}\right)_n} \right]^2. \quad (10.75)$$

p. 319: A couple of identifiers are missing in Fig. 10-13: the top line should be labeled $T = 300 \text{ K}$, 1 bar , and the bottom line $T = 1000 \text{ K}$, 1 bar :



p. 319: In the line above Equation (10.92) the reference to the Malkmus model should be Equation (10.69), not (10.71).

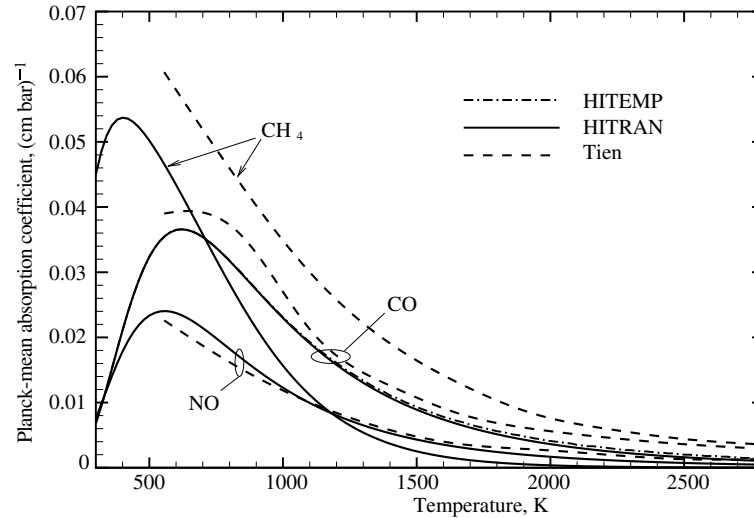
p. 328: In Footnote (b) the units for α_0 should be $\text{cm}^{-1}/(\text{g}/\text{m}^2)$, not cm^{-1} . In footnote (d) (and also in the footnote to p. 329) a set of square brackets is missing in the definition for P_e . The correct expression is given by equation (10.118).

p. 337: In the solution to Example 10.9 it should say “For the water vapor–air mixture of Example 10.6 we have ...” (not 9.6).

p. 338: In Fig. 10-22 the labels for β are missing; should be $\beta = 0.0001 \dots 100$, each value increasing by a factor of 10 over the previous one (from top to bottom of legend).

p. 341–342: Labelling of the ordinates of Figs. 10-24 and 10-25 is incorrect; should be $\epsilon(p_a L, p=1 \text{ bar}, T)$.

- p. 347:** Labelling of the ordinate of Fig. 10-28 is incorrect; should be from 0 to 0.07, not from 0 to 0.6. Also, HITRAN line for NO is missing:



- p. 373:** The subscripts on the efficiency factors in equation (11.46) should be interchanged, i.e., it should read

$$Q_{\text{abs}} = -4\mathfrak{I} \left\{ \frac{m^2 - 1}{m^2 + 2} \right\} x \approx Q_{\text{ext}} \quad (11.46)$$

- p. 376:** The statement about efficiency factors in equation (11.56) should be corrected to: The absorption efficiency is identical to the one for Rayleigh scattering, that is,

$$Q_{\text{abs}} = -4\mathfrak{I} \left\{ \frac{m^2 - 1}{m^2 + 2} \right\} x, \quad (11.56)$$

- p. 378:** Just above equation (11.70), reference should be to equation (3.46) [not (3.5)].

- p. 384:** In equation (11.88) there are 2 typos, and it should read

$$Q_{\text{ext}} = \frac{C_{\text{ext}}}{2a} = \frac{2}{x} \Re(T(\theta = 0)) = \frac{1}{x} \Re \left\{ b_{0\text{I}} + a_{0\text{II}} + 2 \sum_{n=1}^{\infty} (b_{n\text{I}} + a_{n\text{II}}) \right\} \quad (11.88)$$

- p. 405:** The last equation in Example 11.4 has the wrong soot volume fraction and should read:
“and

$$\sigma_{s,\lambda} \approx 62.8 \times 1.94 \times 10^{-4} \times \frac{3 \times 10^{-5}}{4 \times 5 \times 10^{-6} \text{ cm}} \approx 1.83 \times 10^{-2} \text{ cm}^{-1}.$$

Adding together we find $\beta_{\lambda} = \kappa_{\lambda} + \sigma_{s,\lambda} = 0.1754 + .0183 = 0.1937 \text{ cm}^{-1}$, i.e., while scattering from aggregates is 63 times larger than that from individual particles, and may not be negligible (depending on the physical size of the soot cloud), its impact on the extinction coefficient is fairly small.”

- p. 423:** The statement “, and makes the equation nonlinear” should be deleted from the 5th line.

- p. 425:** There is a superfluous = sign in equation (13.4): should be + not = +.

p. 428: The argument for both I^+ and I^- in equations (13.27) and (13.28) should be τ (not τ').

p. 435: There is a J missing in equation (13.55); it should read

$$q(\tau) = 2J_1 E_3(\tau) - 2J_2 E_3(\tau_l - \tau) + \dots$$

p. 450: Between equations (14.5) and (14.6) it should say "... radiative equilibrium in an *almost transparent* gray medium" (with text in italics added).

p. 467: In the second paragraph it should read "Most often employed is the P_1 or *differential approximation*..." (not P_N).

p. 479: The limits for m in equation (15.49) should be $-l \leq m \leq l$ (not $-N \leq m \leq N$).

p. 485: Inside the sum of equation (15.61) it should be J_j not J_i :

$$J_i = \epsilon_i \pi I_{bi} + (1 - \epsilon_i) \sum_{j=1}^N J_j e^{-\tau_{ij}} F_{i-j}, \quad i = 1, 2, \dots, N,$$

p. 495: In Problem 15.8 at the beginning two lines inadvertently were deleted ; it should read:

15.8 An infinite, black, isothermal plate bounds a semi-infinite space filled with black spheres. At any given distance, z , away from the plate the particle number density is identical, namely $N_T = 6.3662 \times 10^8 \text{ m}^{-3}$. However, the radius of the suspended spheres diminishes monotonically away from the surface as

p. 515: There is a wrong sign in Eq. (16.47) (second-last minus sign should be a plus sign):

$$I_{pi} = \gamma_x I_{x_e i} + (1 - \gamma_x) I_{x_i i} = \gamma_y I_{y_e i} + (1 - \gamma_y) I_{y_i i}$$

p. 521: All γ in Eq. (16.54) should be preceded by a division symbol, i.e.,

$$I_{pi} = \frac{\beta V S_{pi} + |\xi_i| A_x I_{x_i i} / \gamma_x + |\eta_i| A_y I_{y_i i} / \gamma_y + |\mu_i| A_z I_{z_i i} / \gamma_z}{\beta V + |\xi_i| A_{x_e} / \gamma_x + |\eta_i| A_{y_e} / \gamma_y + |\mu_i| A_{z_e} / \gamma_z},$$

p. 534: Reference 111 should be *Journal of Quantitative Spectroscopy and Radiative Transfer*, not *International Journal of Heat and Mass Transfer*.

p. 576: In the last sentence of the solution it should be $c / \sqrt{3}$ rather than $c / \sqrt{3a}$.

p. 584: there is a π missing in the denominator of the integral in equation (19.4).

p. 618: there should not be a subscript b in $I_{b\eta}$ in the first integral in equation (19.114).

p. 622: At the end of the first sentence a part is missing, namely "... where R_u is the universal gas constant, and the units of the molar absorption cross-section, $R_u T_g k / x p$, are in m^2/mol ."

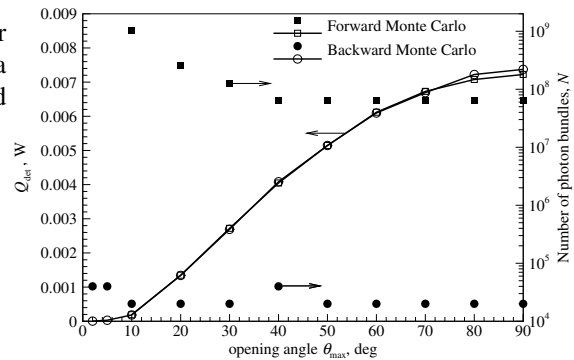
p. 649: The upper limit in the summation in equation (20.9) should be N , not n .

p. 674: In the text following the formula for I_σ it should say "... incidence angle ($\hat{\mathbf{s}} \cdot \hat{\mathbf{k}} > \cos \theta_{\max}$?)," (i.e., the cosine is not squared).

p. 678: There is a typo in the formula for Problem 20.1 (twice an x instead of z); should be

$$\text{si}(z) = - \int_0^{\pi/2} e^{-z \cos x} \cos(z \sin x) dx = \text{Si}(z) - \frac{\pi}{2}.$$

p. 675: As given Fig. 20-11 is for a 5 cm×5 cm detector, not a 2 cm×2 cm detector, which would look like this:



p. 711: In equation (21.90) and the text following it, $I_{b\eta}$ should be replaced by I_η in three places:

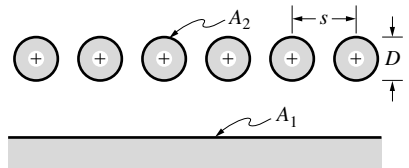
$$\overline{\dot{Q}_R'''} = -\overline{\nabla \cdot \mathbf{q}_R} = - \int_0^\infty \overline{\kappa_\eta \left[4\pi I_{b\eta} - \int_{4\pi} I_\eta d\Omega \right] d\eta} = - \int_0^\infty \left[4\pi \overline{\kappa_\eta I_{b\eta}} - \int_{4\pi} \overline{\kappa_\eta I_\eta} d\Omega \right] d\eta. \quad (21.90)$$

Thus, two *turbulence moments or correlations* are required: the correlations between absorption coefficient and Planck function, $\overline{\kappa_\eta I_{b\eta}}$, and between absorption coefficient and radiative intensity, $\overline{\kappa_\eta I_\eta}$. In some early work Kabashnikov and coworkers [306–308] have suggested that, if the mean free path of radiation is much larger than the turbulence eddy length scale l , then the local radiative intensity is only weakly correlated with the local absorption coefficient, i.e., $\overline{\kappa_\eta I_\eta} \approx \overline{\kappa_\eta} \overline{I_\eta}$. This expression, . . .

p. 743: In Table A.1 the first Planck function constant has an incorrect exponent, it should be $C_1 = 3.7418 \times 10^{-16} \text{ W m}^2$.

p. 768: In the figure for View factor #29 the symbol \bullet should be replaced by ∞ .

p. 773: The areas in the sketch for view factor 51 are mislabelled as A_i and A_j instead of A_1 and A_2 , the sketch should look like this:



p. 785: In program nbkdist.f90 the bar-to-atmosphere conversion on line 104 of the code should be $\text{Patm}=\text{P}/1.01325$ (not $\text{Patm}=1.01325*\text{P}$).

p. 785: In subroutine totabsor.f as well as program Leckner.f the calling argument to totemiss.f should be

```
CALL TOTEMISS(PH20,PCO2,PTOT,TW,XLAD,ABSH20,ABSCO2,ABSTOT)
(i.e., it should have TW not TG).
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p. 786: In program fskdist.f90 the bar-to-atmosphere conversion on line 106 of the code should be $\text{Patm}=\text{P}/1.01325$ (not $\text{Patm}=1.01325*\text{P}$).