Chapter 1

3/8/06

#	P.	Line	Original	Correction (c) & Suggestion (s)		Remarks
1	2	Eq. (1.4)	$F_g - F_l - F_d$	c	$F_g - F_b - F_d$	
2	3	41	0.5	c	0.05	
3	4	12	section 1.1.3	c	section 1.1.4	
4	9	footnote	1.1.6	c	1.1.7	
5	10	31	up tp 300	c	up to 30°	
6	13	34	F_2O_3	c	Fe_2O_3	
7	22	12	(1.9)	c	(1.10)	
8	24	13	Tuorila		Tuorilla	
9	24	15	section 1.1.3	c	section 1.1.4	
10	24	34	mmol/L	c	$mmol_c/L$	mmoles of charge per liter is generally used for ion exchange
11	27	18	equation (1.20)	c	equation (1.18)	
12	29	29-31	Bulk densities may….	s		duplicate explanations are given in above senetences.
13	367	index	Feldpar	c	Feldspar	
14	368	index	Montmorillinite	c	Montmorillonite	
15	343	references	Edelman and Favagee	c	Edelman and Favajee	

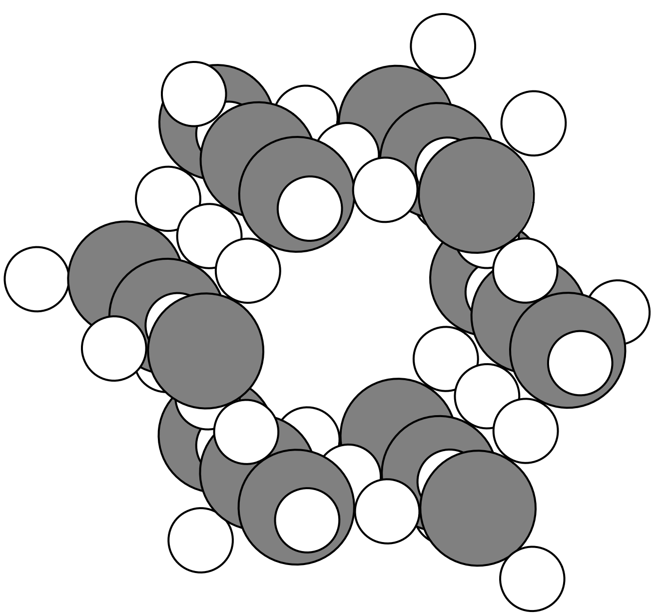
Chapter 2

3/19/06

#	P.	Line	Original	Correction (c) & Suggestion (s)		Remarks
1	38	Fig.2.1		c	see corrected figure at end of this table.	I think this figure is misleading. The oxygen is not next to other oxygen. The hydrogen bonding is not clearly described in this figure. The figure in the fifth edition is fine. I replaced the figure with permission of Bill.
2	40	4	H_F	c	H_f	subscript lowercase
3	40	6	H_V	c	H_v	subscript lowercase
4	40	19	2002	c	2001	
5	40	Table 2.1	3.34×10^4	c	3.34×10^5	Some are mistakes from fifth edition, some are because of transformation to SI units,
6	40	Table 2.1	2.45×10^5	c	2.45×10^6	
7	40	Table 2.1	1.00×10^3	c	4.18×10^3	
8	40	Table 2.1	8.0×10^2	c	8.0×10^1	
9	40	Table 2.1	6.03×10^2	c	6.03×10^1	
10	42	5	P_a	s	P_{air}	$\Delta P = P_a - P_l$ is used in the text although P_{gas} , P_{liq} are used in figures. Isn't it better to use either "air & water" or "liquid & gas" in these figures?
11	42	6	P_l	s	P_{liq}	
12	43	1	P_l	s	P_{liq}	
13	43	4	P_a	s	P_{air}	
14	43	7	P_a	s	P_{air}	
15	43	14	P_l	s	P_{liq}	
16	43	14	P_a	s	P_{air}	
17	44	14	P_l	s	P_{liq}	
18	44	14	P_a	s	P_{air}	
19	45	12	plate is	s	plate (area A) is	
20	46	18	C_s	c	C_l	
21	46	19	C_s	c	C_l	
22	46	19	. M m^3.	c	. *M* m^3.	M is italic
23	46	19	°K	c	K	
24	47	39	erg	c	dyn	
25	50	4	two arms	s	two or three arms	Three-rods probe is widely used.
26	53	29	$\mu_T = \rho_w \psi_T$	c	$\mu_T = \psi_T / \rho_w$	
27	54	Table 2.2	g^{-1}	c	erg g^1	
28	54	Table 2.2	cm^{-3}	c	dyn cm^2	
29	54	3				What are "three steps"?
30	59	8	$\Psi_T = 0$ at A	c	$\Psi_T = \Psi_{T0} = 0$ at point A	
31	58 60	Fig.2.9, Fig.2.10		c		The position of the upper array is different in two figures (bottom, intermediate, or top of the curved surface).
32	60	7	$\Psi_T = \Psi_{T0} = -\pi$ at A	s	$\Psi_T = \Psi_{T0} = -\pi$ at point A	
33	63	17	the manometer reading is	s	the manometer reading X is	
34	64	16	1.49×10^5 erg cm^1	c	-1.49×10^5 dyn cm^2	
35	64	29	psychometric	c	psychrometric	
36	65	8	mPa	c	MPa	

37	65	28	a pressure membrane	s	a pressure plate	
38	66	18	the water measured	c	the water content of the samples measured	Fifth edition, p.62
39	67	3	precalibrated amount			Does “precalibrated amounts” mean necessary amounts for saturated salt solutions? I noticed “saturated” was inserted in the title: “Equilibration over saturated salt solution”
40	67	5	contact with a moist sample	s	contact with a moist sample through a solute membrane	A solute membrane is necessary to have water flow from the soil to the reservoir.
41	67	12	$\Psi_T = \Psi_{s0} - \Psi_s$	c	$\Psi_m = \Psi_{s0} - \Psi_s$	Fifth edition, p.63
42	69	3	$A_m = 1.05 \times 10^{-16}$ cm^2	c	$A_m = 1.05 \times 10^{-19}$ m^2	Water molecule has a radius of 1.83 A: $(1.83A)^2 \times \pi = 1.05 \times 10^{19}$ m^2
43	70	footnote	many monolayers	s		Is “many monolayers” a proper expression?
44	72	8	height of rise of water	s	height of rise of water H	H is used in the solution of p. 306.
45	369	index	standard slate	c	standard state	

Figure 2.1



Chapter 3

3/18/06

#	P.	Line	Original		Correction (c) & Suggestion (s)	Remarks
1	81	Eq. (3.16)	$Ks = -\frac{J_w(b+L)}{L}$	c	$Ks = -\frac{J_w L}{(b+L)}$	fifth edition, eq.(3.15)
2	81	34	$[L + b(t)]/L$	s	$[b(t) + L]/L$	$(b + L)$ is used in equations.
3	82	Fig 3.5	$[L + b(t)]$	s	$[b(t) + L]$	same as #2
4	82	Fig 3.5	$J_w = \frac{db(t)}{d(t)}$	c	$J_w = \frac{db(t)}{dt}$	
5	84	3	$H_2 = z + p$	s	$H_2 = p + z$	use a same order as in equations.
6	86	Fig 3.7	z_0, p_0, H_0	c	z_1, p_1, H_1	see Fig. 3.6
7	86	Fig 3.7		s		add point 1, 2, 3, as in Fig. 3.6, see p.87, step 4, "labeled pont 3 in the figure".
8	88	21	$J_w = -K_1 \frac{H_3 - H_1}{z_3 - z_1}$	c	$J_w = -K_2 \frac{H_3 - H_1}{z_3 - z_1}$	
9	91	12	soild-air interface	c	water-air interface	Flow boundaries are solid-water and water-air interfaces.
10	93	2	a unit length	s		The tube can be twisted since L_c is defined in Eq. (3.30). Isn't it better to mention "the volume of each cylinder is the product of cross-section area πr^2 and a unit length"?
11	95	8	lower the liquid pressure	s	lower the liquid suction or increase the liquid pressure	
12	95	Eq. (3.43)	$\cdots - \int_{z_1}^{z_2} \quad = z_1 - z_2$	c	$\cdots - \int_{z_1}^{z_2} dz = z_1 - z_2$	fifth edition, Eq. (3.34)
13	96	5	$z = L$	c	$Z = -L$	fifth edition, p.96, l.2
14	98	Eq (3.51)	$\int_0^{h/a} \frac{dy}{1 - i/K_s - (i/K_s)y^2}$	c	$\int_0^{ay} \frac{ady}{1 - i/K_s - (i/K_s)y^2}$	
15	102	15	Fig 3.14	c	Fig 3.13	same as #19
16	103	Eq (3.64)	$\Delta x \Delta y \Delta z$	c	$\Delta x \Delta y \Delta z \Delta t$	
17	103	19	into (3.61)	c	into (3.60)	fifth edition, p.104
18	104	2	Fig 3.14	c	Fig 3.13	same as #16
19	105	Eq. (3.75)	$\frac{\partial h}{\partial z}$	c	$\frac{\partial \theta}{\partial z}$	fifth edition Eq. (3.75)
20	106	17	$D(\theta)$	c	$D_w(\theta)$	
21	106	Eq. (3.80)	$D(\theta)$	c	$D_w(\theta)$	
22	107	2	in matric potential per unit increase in water content	s	in water content per unit increase in matric potential	Eq. (3.77)
23	107 108	Table 3.6 Example 3.11	$\Theta(h) = [1 + \alpha(-h)^N]^{-M}$	s	$\Theta(h) = \left[1 + (\alpha(-h))^N\right]^{-M}$	See equations for Example 3.11 below this table.
24	108	29	HYDRUS-1	c	HYDRUS-1D	
25	109 110	captions for Figs 3.14-16, Table 3.7	HYDRUS-1	c	HYDRUS-1D	
26	109	Table 3.7	Unit of α is $cm^{1/N}$	c	cm^{-1}	
27	109	Table 3.7	Unit of Ks is $cm\ h^{-1}$	c	$cm\ day^{-1}$	
28	109	7	h_i = -40 cm	c	h_i = -100cm	

29	111	Fig. 3.7 caption	h_i = -40 cm	c	h_i = -100cm	
30	111	Fig. 3.8 caption	h_i = -40 cm	c	h_i = -100cm	
31	112 113	Figs 3.20, 3.21	parameter values			Parameter values seem to be different from the values in the text. I tried several possible sets of parameter values, however, failed to get identical figures as Figs. 3.20-21.
32	113	Fig. 3.21	soil water flux	s	downward water flux	downward flux has minus sign.
33	114	Table 3.8	*z* *h*	s	*z* (cm) *h* (cm)	
34	116		$h(\theta) = -30\left(\frac{0.25}{\theta^2}\right)^{1/2}$	c	$h(\theta) = -30\left(\frac{0.25}{\theta^2} - 1\right)^{1/2}$	see Fifth edition p.119
35	116	10	72 dyn cm^{-1}	c	7.27×10^{-2} J m^{-2}	
36	315	12	equation (3.80)	c	equation (3.58)	
37	317	3	$\frac{L}{K_{eff}} = \int_0^L \frac{dz}{K(z)} dz$	c	$\frac{L}{K_{eff}} = \int_0^L \frac{dz}{K(z)}$	

Example 3.11

$$\frac{d\theta}{dh} = (\theta_s - \theta_r)\frac{d}{dh}\left[1 + (\alpha(-h))^N\right]^{-M}$$

$$= \frac{(\theta_s - \theta_r)(-M)}{\left[1 + (\alpha(-h))^N\right]^{1+M}} \frac{d}{dh}\left[1 + (\alpha(-h))^N\right]$$

$$= \frac{(\theta_s - \theta_r)(-M)\alpha^N N(-1)(-h)^{N-1}}{\left[1 + (\alpha(-h))^N\right]^{1+M}}$$

$$C_w(h) = \frac{\alpha^N (\theta_s - \theta_r)(N-1)(-h)^{N-1}}{\left[1 + (\alpha(-h))^N\right]^{2-1/N}}$$

Chapter 4

3/18/06

#	P.	Line	Original	Correction (c) & Suggestion (s)		Remarks
1	120	30	$0.045\ \mathrm{m}^3\ \mathrm{h}^{-1} = 0.62\ \%$	c	$0.045\ \mathrm{m}^3\ \mathrm{h}^{-1} \rightarrow 0.62\ \%$	
2	121	Fig. 4.1	(a)	c	(b)	According to .Holmes and Cloville (1970), Fig.4.1 (a) is for Penola forest, and (b) is for Gambier forest.. This problem originally came from the 4th edition. Furthermore, the matric potential were based on the water contents and water retention curves (not tensiometer readings)
3	121	Fig. 4.1	(b)	c	(a)	
4	122	Fig. 4.2(a)	9 AUGUST 1964	c	8 SEPT 1964	According to .Holmes and Cloville (1970)
5	123	13 to15	A sentence from “Furthermore,” to “5 and 6 m.”	s	Delete this sentence.	In Holmes and Cloville (1970), the measurement value at the 4 m depth was error and the matric potential decreased due to root water uptake.
6	123	14 to 15	A sentence from “This profile “ to “between them”	s	Delete this sentence	Holmes and Cloville (1970) showed that the pulse caused by a concentrated rain disappeared perfectly at 2.7 m depth.
7	123	20 to 26	Sentences from “At the Mount Gambier” to “ the dry profile below”	s	Rewrite these sentences according to the correct water content profile at the Mount Gambier.	It is obvious that these sentences were described in accordance with a mismatched pair of water content and matric potential profiles.
8	129	Eq. (4.25)	$I = \frac{1}{2} S t^{1/2} + A_1 t + A_2 t^{3/2} +$	c	$I = S t^{1/2} + A_1 t + A_2 t^{3/2} + \cdots$	
9	134	11	(4.33) and (4.38)	c	(4.33) and (4.35)	
10	134	Table 4.2	Maximum (4.34)	c	Maximum (4.35)	
11	134	Table 4.2	Shown in Fig.4.4	c	Shown in Fig.4.7	
12	138	21	1/r	c	$1/r_0$	
13	140	13	equation (2.5)	c	equation (2.6)	
14	140	16	$h > \frac{-2\sigma}{R}$	c	$h > \frac{-2\sigma}{\rho_w g R}$	
15	141	10 (equation)	$= -110\ \mathrm{cm/day}^{-1}$	c	$= -110\ \mathrm{cm\ day}^{-1}$	
16	141	10 (equation)	$\approx -1.1\ \mathrm{m}^3/\mathrm{day}^{-1}$	c	$\approx -1.1\ \mathrm{m}^3\ \mathrm{day}^{-1}$	
17	141	13 (equation)	$= 0.366\ \mathrm{m}^3/\mathrm{day}^{-1}$	c	$= 0.366\ \mathrm{m}^3\ \mathrm{day}^{-1}$	
18	141	15	over one-third	c	over one-fourth	
19	141	24 (equation)	$J_w = -100\left(\frac{10+100-0}{10-0}\right)$	c	$J_w = -100\left(\frac{100+10-0}{10-0}\right)$	
20	141	24 (equation)	$= -1100\ \mathrm{cm/day}^{-1}$	c	$= -1100\ \mathrm{cm\ day}^{-1}$	
21	141	25 (equation)	3.5×10^{-6}	c	3.5×10^{-5}	
22	141	25 (equation)	$\mathrm{m}^3/\mathrm{day}^{-1}$	c	$\mathrm{m}^3\mathrm{day}^{-1}$	

23	141	30	equation (2.5)	c	equation (2.6)	
24	143	Fig. 4.15 caption	prior to the study (“dry”) Arrows indicate	c	prior to the study (“dry”) . Arrows indicate	period
25	143	7	surrounding matrix was high,	c	surrounding matrix was low,	
26	147	Fig. 4.19 caption	as $t \rightarrow \infty$	s	as *t* becomes large enough	
27	149	9	average water content θ	c	average water content $\bar{\theta}$	
28	150	13	if $z < -L$	c	if $-L < z < 0$	
29	152	14	in Section 4.4.3,	c	in Section 4.3,	
30	155	Table 4.4	cm/h^{-1}	c	cm h^{-1}	
31	159	13	in the same units of cm/day^{-1}	c	in the same units of cm day^{-1}	
32	160	18	In Example 4.3 for	c	In Example 4.4 for	

Chapter 5

3/18/06

#	P.	Line	Original	Correction (c) & Suggestion (s)		Remarks
1	162	23	$\leq$	c	$<$	
2	163	12	J•s	c	Js	
3	164	Eq.(5.7)	R_{nl}	c	R_{nt}	
4	166	12	$\min^{-l}$	c	$\min^{-1}$	
5	166	15	10^4 A	s	μm	SI unit
6	169	38	Horton et al.(1984b)	s		not included in reference.
7	171	2	Horton et al.(1984a)	s		not included in reference.
8	173	Eq.(5.11)	C_a	s	c_a	Capital C is used for volumetric heat capacity (see section 5.3.3).
9	175	Eq.(5.21) - (5.24)	C_a	s	c_a	same as #8
10	176	Eq.(5.25)	λ dT/dz	c	$-\lambda$ dT/dz	
11	177	16	(5.27)	c	(5.28)	
12	177	17	(5.28)	c	(5.27)	
13	178	9	λ_{eff}	s	λ_e	λ_{eff} is same as λ_e in (5.29) and others.
14	178	22	lower	c	upper	
15	179	14	Fig.3.20	c	Fig.3.13	
16	180	Eq.(5.39)	$\phi - X_0$	c	$1-\phi - X_0$	
17	180	31	$\phi - X_0$	c	$1-\phi - X_0$	
18	181	24	450 nm to 6 nm	c	450 μm to 6 μm	According to the original paper.
19	182	Fig.5.10	1.2, 1.3, 1.4	c	1.1, 1.2, 1.3	These legends are different from those in the text and in the fifth edition.
20	182	Fig. 5.11	$cm^{-2}\ s^{-1}$	c	$cm^2\ s^{-1}$	
21	183	15	Fig.5.11	c	Fig.5.10	
22	184	11	(5.38)	c	(5.36)	
23	186	14	heat flow equation (5.31)	s	heat flux equation (5.31)	
24	187	20	λ_L	c	$-\lambda_L$	
25	191	Eq.(5.56)	$z_2 - z_1$	c	$z_1 - z_2$	
26	191	Eq.(5.57)	$z_2 - z_1$	c	$z_1 - z_2$	
27	192	19	$cm^2 s - 1$	c	$cm^2 s^{-1}$	
28	192	27	12.1	c	8.1	
29	194	Fig.5.18	Δ - - Δ z=60cm × ---- × z=120cm	c	× ---- × z=60cm Δ - - Δ z=120cm	Soil temperature at 120cm depth is higher than at 60cm depth in daytime. See the fifth edition.
30	194	Fig. 5.18		?		Smith (1932) shows different sampling date, intervals and depths.
31	196	Eq.(5.63)	J_H	s	J_w	
32	197	Table	T_{max}	c	T_{min}	
33	198	25	s^{-1}	c	s^{-1}	This is Unit. not Italic.
34	199	problem 5.8	Styrofoam	s	styrofoam	lower case (see the fifth edition).

Chapter 6

3/18/06

#	P.	Line	Original	Correction (c) & Suggestion (s)		Remarks
1	203	6	2.5 and 5.0 $m^{-2}day^{-1}$	c	2.5 and 5.0 g $m^{-2}day^{-1}$	
2	203	8	8 $m^{-2}day^{-1}$	c	8 g $m^{-2}day^{-1}$	
3	203	11	24 $m^{-2}day^{-1}$	c	24 g $m^{-2}day^{-1}$	
4	204	Eq.(6.1)	J_S	c	J_c	J_c is used for chemical flux in Chapter 7.
5	205	Eq. (6.6)	J_c	s	J_{gc}	J_c is chemical flux in Chapter 7
6	208	1	15 mph	s	24 km h^{-}	SI or cgs unit
7	209	Eq. (6.7)	J_g	s	J_{gd}	$J_g = J_{gc} + J_{gd} \approx J_{gd}$
8	211	Eq. (6.12)	+ r_g	c	– r_g	
9	212	16	(6.12)	c	(6.5)	eq number was changed from 5th edition.
10	213	Fig. 6.4 caption	$\Omega=r_gL^2/D^s_g$	c	$\Omega=r_gL^2/D^s_gC_0$	
11	213	9	$\Omega=r_gL^2/D^s_g$	c	$\Omega=r_gL^2/D^s_gC_0$	
12	213	Fig. 6.4 caption	in a root zone as a function *a* for various values…	s	in a root zone for various values…	
13	213	14	(6.8)	c	(6.10)	Eq. number was changed.
14	214	18	rg	c	r_g	
15	214	Eq. (6.30)	C_g	c	J_g	
16	213	3	$C = C_0$	s	$C_g = C_0$	
17	215	Fig. 6.5 caption	$\Omega=r_gL^2/D^s_g$	c	$\Omega=r_gL^2/D^s_gC_0$	
18	215	5	$\Omega=r_gL^2/D^s_g$	c	$\Omega=r_gL^2/D^s_gC_0$	
19	215	Fig. 6.5 caption	in a root zone as a function *a* for various values…	s	in a root zone for various values…	
20	215	5	(6.34)	c	(6.33)	
21	215	8	CO_2 evolution	s	CO_2 concentration	
22	215	14	$\Omega=RL^2/D^s_g=1$	c	$\Omega=RL^2/D^s_g\ C_0=1$	
23	217	28	(6.37)	c	(6.36)	
24	217	Eqs. (6.38) - 6.42)	dx	s	dz	Eq.(6.38) is derived from Eq (6.36) having “dz”.
25	218	fig 6.7	J_v	s	J_{wv}	J_{wv} is used in text.
26	222	Fig 6.10 y-axis-value	0, 1, 2, 3, 4	c	0, 10, 20, 30, 40	
27	223	problem 6.5				Although Millington & Quirk model was used in the solution (p.327) , there is no description about the model in chapter 6.
28	224	1	$J_s = J_s + J_l$	s	$J_c = J_g + J_l$	

Chapter 7

3/20/06

#	P.	Line	Original	Correction (c) & Suggestion (s)		Remarks
1	225	(7.1)		s		J_s is used in (6.1). We decided to use J_c for the chemical flux.
2	226	(7.3)	$J_s = J_l + J_v$	s	$J_s = J_l + J_g$	J_g is used in Section 6.3. We decided to use J_g for the chemical vapor flux.
3	226	footnote	Section 7.4	c	Section 7.5	
4	228	22	$\lambda\,(L)$	c	λ (L)	not italic
5	229	Table 7.1		c		see the corrected table listed below.
6	230	15	t=0	c	t=0	italic
7	231	Fig.7.2	resident concentration	c	flux concentration	see the corrected figure. CXTFIT was used for the calculation.
8	231	10-12		s		The center of the solute does not arrive at the end at the same time for flux concentrations. This is because of the first-type surface boundary condition.
9	231	13	D=0 curve	s	D=0 line	
10	231	(7.18)	erfc [ )	c	erfc ( )	
11	232	(7.21)	$C(l, t)$	c	C(L, t)	
12	233	Fig. 7.3		c	L = 50 cm	BTCs are not for L = 50 cm (probably around 65 cm). I corrected data for L = 50 cm using CXTFIT. See the corrected figure. I think calculated values are ten times smaller than the original values.
13	234	Fig. 7.4	mg m^{-3}	s	g m^{-3}	the unit is μg/ml in 5th edition. see Fig. 1.11.
14	235	15	11.5 m	c	31.5 m	
15	237	(7.30)	K_F	c	K_f	see (1.16)
16	237	Fig. 7.7 & text	mmol m^{-3}	s	mol m^{-3}	The concentration should be same range as for the adsorption isotherm. If g m^{-3} for Fig. 7.4 (see #11), corresponding unit would be mol m^{-3}.
17	239	bottom	cm^3 s^{-1}	c	cm s^{-1}	
18	240	6	the conservation equation (7.1) may be written as	s		(7.31) is not a conservation equation.
19	240	(7.31)	∂	c	∂z	
20	241	5	(7.17) reduces to a convection dipersion model (7.1)	c	MIM reduces to …	
21	243	11	7.34	c	(7.34)	
22	244		$\int_{M_0}^{M(t)} \frac{dM}{M} = \ln \frac{M}{M_0} = -\mu \int_0^t dt = -\mu t$	s	$\int_{M_0}^{M(t)} \frac{dM}{M} = \ln \frac{M(t)}{M_0} = -\mu \int_0^t dt = -\mu t$	
23	245	7	exp (-$\mu L/V$)	c	C_0 exp (-$\mu L/V$)	
24	243	before (7.37)	solute (7.12)	c	solute (7.13)	
25	243	(7.37)	D_s^g	c	D_g^s	
26	247	Table 7.3		c		see the corrected table listed below.
27	248	(7.49)	J_v	c	J_g	see #2
28	248	(7.50)	J_v	c	J_g	

29	248	after (7.52)	effective vapor and liquid diffusion	s	effective liquid and vapor diffusion	the title is effective liquid-vapor diffusion
30	249	Fig. 7.13	D_{LIQ} D_{VAP}	s	Liquid (or Liquid phase) Vapor	D_{LIQ} and D_{VAP} are not defined. see Jury et al. (1983)
31	249	Fig. 7.13 caption	(7.31)-(7.32)	c	(7.52)	
32	249	4	total diffusion coefficient	c	effective diffusion coefficient	
33	249	10	using (7.41) and (7.51)	s	using (7.12), (7.41) and (7.51) for (7.3)	
34	250	1	the flux equation (7.51) is plugged in to the transport equation (7.37)	c	the flux equation (7.55) is plugged in to the conservation equation (7.1)	
35	251	6	f_{oc}			f_{oc} is not defined in the text.
36	252	Fig. 7.15		c	legends (Evaporation, Zero water flux, Leaching) are missing.	see Fig. 7.11 in 5th edition.
37	252	1-2	>, <	s	>>, <<	see Jury et al. 1984a and 5th edition
38	253	10 & 15	z = 30 cm	c	z = -30 cm	
39	254	Fig. 7.16	z = 30 cm	c	z = -30 cm	
40	255	(7.61)	$T = \frac{tV}{L} = \frac{J_w t\theta}{L\theta}$	c	$T = \frac{tV}{L} = \frac{J_w t}{L\theta}$	
41	255	after (7.63)	diffusive time scale a distance L by diffusion	s	dispersive time scale a distance L by dispersion	
42	255	(7.64)	$\frac{\partial C}{\partial Y}$	c	$\frac{\partial C_m}{\partial Y}$	
43	255 256	(7.64)-(7.66)	B, W	s	β, ω	see Fig. 7.9
44	256	3	extent of immobile water	c	extent of mobile water	
45	258	Figs.7.19, 7.20	J, K	c	j, k	
46	259	9	$C_0(t)$ is given	c	$C_{in}(t)$ is given	(7.70)
47	260		$=\int_0^I \alpha \exp[-\alpha(I-I')]dI'$ $=1-\exp(-\alpha I)$ $=\int_0^{I_s} \alpha \exp[-\alpha(I-I')]dI'$ $=\exp[-\alpha(I-I_s)]-\exp(-\alpha I)$	c	$=C_N\int_0^I \alpha \exp[-\alpha(I-I')]dI'$ $=C_N[1-\exp(-\alpha I)]$ $=C_N\int_0^{I_s} \alpha \exp[-\alpha(I-I')]dI'$ $=C_N\{\exp[-\alpha(I-I_s)]-\exp(-\alpha I)\}$	
48	263	(7.83)	$f_z(I)=\frac{1}{\sqrt{2\pi}\sigma I}\exp\left\{-\frac{[\ln(IL/z)-\mu]^2}{2\sigma I}\right\}$	c	$f_z(I)=\frac{1}{\sqrt{2\pi}\sigma I}\exp\left\{-\frac{[\ln(IL/z)-\mu]^2}{2\sigma^2}\right\}$	
49	265	(7.88)	$V=\frac{z}{\widehat{T}^1}$	c	$V=\frac{z}{\widehat{T}_1}$	
50	265	25	E_z[I], Var[I]	c	$E_z[I]$, Var$[I]$	italic
51	266	Table 7.5	ϕ_m	s		ϕ_m is not defined.
52	266	2	Fig. 7.9	c	Fig. 7.22	
53	267	20	Example 3.11	c	Example 3.10	
54	270	25	the convective-lognormal transfer function (7.83)	c	the convective-lognormal transfer function model (7.83)	
55	269	6		c	7.5.2 Groundwater Contmination	The section title is missing.

56	271	9	Ressler et al. 1999	c	Ressler et al. 1998b	line 7 Ressler et al. 1998 $\rightarrow$ Ressler et al. 1998a References also need to be corrected.
57	271	21	Section 7.4	c	Section 7.35	
58	273	Table 7.26	K_{oc}	s		K_{oc} is not defined.
59	273	14	(1.16)	c	(7.30)	(1.16) and (7.30) are identical.
60	274	Problem 7.4	$\exp(-\mu t_b) = \exp\left(-\frac{t_b \ln 2}{\tau_{1/2}}\right)$	c	$\exp(-\mu t_{bR}) = \exp\left(-\frac{t_{bR} \ln 2}{\tau_{1/2}}\right)$	
61	274	Problem 7.4	Table 7.4	c		Table 7.4 in 5th edition was deleted in 6th edition.
62	274	Problem 7.5	K_{oc}	s		K_{oc} is not defined. see #56
63	275	2	*Jw*	c	J_w	subscript
64	275	Problem 7.5	describe the following process:	s	describe the following process based on (7.19):	

Table 7.1

θ	V	D_{lh}	$\xi_l(\theta)$	D_l^s	D_e	D_{lh}/D_e
0.25	0.80	0.80	0.04	0.04	0.84	0.95
0.30	3.33	3.33	0.07	0.07	3.41	0.98
0.35	5.71	5.71	0.12	0.12	5.84	0.98
0.40	12.50	12.50	0.19	0.19	12.69	0.99

Fig.7.2

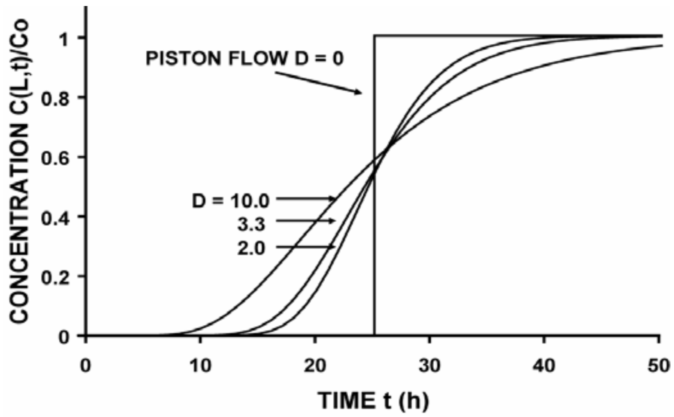


Fig. 7.3

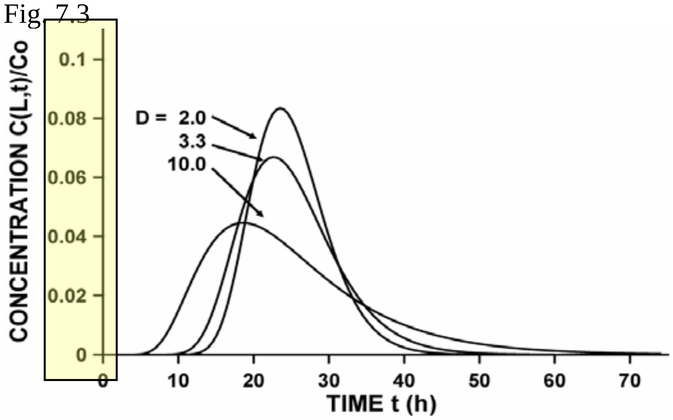


Table 7.3

Compound	$100f_a$	$100f_l$	$100f_g$
Atrazine	90.566	9.434	2.4E-06
Bromacil	80.769	19.231	7.1E-07
DBCP	90.495	9.427	7.8E-02
DDT	99.993	0.007	1.4E-05
Lindane	98.734	1.266	1.6E-04
Phorate	97.536	2.463	7.6E-04

Appendix

3/18/06

#	P.	Line	Original	Correction (c) & Suggestion (s)		Remarks
1	278	7	(A.5)	c	(A.4)	
2	279	19	$cm^2 day^{-1}$	c	$cm^2 day^{-2}$	
3	279	21, 23	Z	c	Z_J	
4	281	Eq.(A.6)	Z_0	c	Z	
5	281	31	the 10	c	the 20	
6	282	last	Table A.1	c	Table A.2	
7	284	6	E[Z)	c	E[Z]	
8	284	7	・・・・E[Z]	c	・・・・E[Z])	
9	285	last 3	$- (E[Y+Z])^2]$	c	$- (E[Y+Z])^2$	
10	287	Eq.(A.27)	E[Z)	c	E[Z]	
11	289	6	$\frac{Z_{\min} - 10}{6}$	c	$\frac{10 - Z_{\min}}{6}$	See the fifth edition.
12	289	10	between 3.92	c	between -3.92	
13	290	2	by (A.5)	c	by (A.4)	
14	290	4	E[Z)=10	c	E[Z]=10	
15	292	1	$-(Z-m^2)/2s^2$	c	$-(Z-m)^2/2s^2$	
16	292	2, 4	z=m	c	Z=m	
17	292	14	$\tilde{Z}$	c	$\hat{Z}$	
18	293	eq.(A.44)	= Pr[Z<	c	= P[Z<	Pr is not defined
19	294	Fig. A.6 axis	(J-.5)/n	s	(J-.5)/N	
20	295	last 6	$\overline{m}$	c	$\overline{X}$	
21	296	eq.(A.51)	$\sum_{J=1}^{N} [Z(x_J) -$	c	$\sum_{J=1}^{N(h)} [Z(x_J) -$	
22	299	eq.(A.57)	$h(C_1 - C_0)[1 - \exp(-\frac{h^2}{\lambda^2})$	c	$(C_1 - C_0)[1 - \exp(-\frac{h^2}{\lambda^2})]$	See the fifth edition
23	299	eq.(A.58)	$h(C_1 - C_0)[1 - \exp(-\frac{h}{\lambda})$	c	$(C_1 - C_0)[1 - \exp(-\frac{h}{\lambda})]$	See the fifth edition
24	301	last 9	・・・・= σ =1.5	c	・・・・= σ^2 =1.5	
25	302	last 4	Table A.5	c	Table A.4	

Solutions

3/20/06

#	P.	problem#	Original	Correction (c) & Suggestion (s)		Remarks
1	303	1.1	Table 2.2	c	Table 2.1	
2	303	1.1 Table 1.		s		Results in Table 1 are slightly different from $0.0011/D^2$ because each values are inserted the equation. Probably liquid density in Table 2.1 was not used. Also better to consider the effective digits (not 108,043).
3	304	1.5	$\phi = \phi_i + \phi_a (1 - \phi_i) = 0.4 + 0.6 \times 0.51$	s	$\phi = \phi_i + (1 - \phi_i) \phi_a = 0.4 + 0.6 \times 0.51$	
4	306 72	2.2	$\rho_m = 2.65$	s	$\rho_m = 2.6$	Although $\rho_m = 2.6$ is given in the problem (p.72), 2.65 is given here. There are some contradictions in significant figures.
5	306	2.2	ρ_m	s	ρ_s	Subscript is different from the text.
6	307	2.3	ψ_t	s	ψ_T	Subscript is different from the text.
7	308	2.4	–100 cm	c	–1000 cm	
8	308	2.4	h_t	s	h_T	Subscript is different from the text.
9	308	2.4	z_b	s	z_B	The point is defined as “B”
10	308	2.4	s_b	s	s_B	The point is defined as “B”
11	308	2.5	h_t	s	h_T	Different subscription from the text.
12	308	2.6	298	c	297	With $\sigma = 0.0727$, $\rho_w = 998$ or 1000, $g = 9.8$ or 9.81.
13	309	2.7	h_t	s	h_T	Subscript is different from the text.
14	309	2.8	log	s	ln	
15	309	2.9	log	s	ln	
16	73	2.10 (in problem)	ρ=1.7	c	ρ=2.7	Problem gives $\rho = 1.7$, but solution re-gives the value of 2.7.
17	114	3.1 (in problem)	semilogarithmic paper(in problem)	s	logarithmic paper	Figure 1is a log-log plot.
18	310	3.1 Table 2		s		Isn’t it better to use the same column format as in Table 3.5?
20	312	3.4	8.33 cm	c	8.33 cm h^{-1}	
21	312	3.4(a)	$J_w = Q/A$	s	$J_w = - Q/A$	
22	312	3.5(a)	$Q = \frac{\rho_w g R^4 (L+d)}{8 L \nu}$	c	$Q = \frac{\rho_w g \pi R^4 (L+d)}{8 L \nu}$	
23	312	3.5(a)	1039	s	1037	The value for ρ_w. is probably not from in Table 2.1.
24	313	3.6	K_S	s	K_{sand}	K_s and K_S are confusing. Better to use the same subscript as in problem 3.3.
25	313	3.6	K_C	s	K_{clay}	
26	116 313	3.6(c)	p.116 (i) clay on top (ii) clay on the bottom p.313 (i) clay on the bottom (ii) clay on top	c	p.116 (i) clay on the bottom (ii) clay on top	
27	313	3.6(c)	101.86	c	101.87	

28	116	3.7 (in problem)	$h(\theta) = -30\left(\dfrac{0.25}{\theta^2}\right)^{1/2}$	c	$h(\theta) = -30\left(\dfrac{0.25}{\theta^2} - 1\right)^{1/2}$	see 5th edtion
29	313	3.7	from (3.34)	c	from (3.35)	
30	92	related with 3.7	Fig 3.10 in the text $R_n = 2\sigma/\rho g h_n$	s	$R_n = -2\sigma/\rho g h_n$	
31	314	3.7	Table 3, n_J, f_J	c		Values in Table 3 are slightly different
32	314	3.8(b)	$-\dfrac{K_S}{L}$	c	$-\dfrac{K_s}{L}$	subscript lower case
33	315	3.8(c)	$\dfrac{E_{\text{ver}}}{E_{\text{hor}}} = \dfrac{a\pi}{2L}$	c	$\dfrac{E_{\text{ver}}}{E_{\text{hor}}} = -\dfrac{a\pi}{2L}$	add minus
34	315	3.8(c)	$\dfrac{K_s}{2}\left(\sqrt{1+\dfrac{a^2\pi^2}{4L^2}} - 1\right)$	c	$\dfrac{K_s}{2}\left(\sqrt{1+\dfrac{a^2\pi^2}{L^2}} - 1\right)$	delete 4
35	315	3.9	equation (3.80)	c	equation (3.58)	
36	315	3.9	ι_0	s	i_0	
37	316	3.10	log	s	ln	
38	316	3.10	boundary condition	c	initial condition	p 315, line 4 from bottom
39	316	3.11	log	s	ln	
40	317	3.13	$\dfrac{L}{K_{\text{eff}}} = \int_0^L \dfrac{dz}{K(z)} dz$	c	$\dfrac{L}{K_{\text{eff}}} = \int_0^L \dfrac{dz}{K(z)}$	
41	318	4.1	Fig 3.17	c	Fig 3.19	
42	318	4.1 Fig 2	y-axis: L/L_{max} x-axis:$T = K_s T/ L_{max}$	c	y-axis: $X = L/L_{max}$ x-axis:$T = K_s T/ L_{max}\,\theta_s$	
43	318	4.2	$\theta = \theta_s\left[\dfrac{1}{1+(N-1)K_s t/L}\right]^{1/(N-1)}$ $J_w = K_s\left[\dfrac{1}{1+(N-1)K_s t/L}\right]^{N/(N-1)}$	c	$\theta = \theta_s\left[\dfrac{1}{1+(N-1)K_s t/L\theta_s}\right]^{1/(N-1)}$ $J_w = K_s\left(\dfrac{\theta}{\theta_s}\right)^N = K_s\left[\dfrac{1}{1+(N-1)K_s t/L\theta_s}\right]^{N/(N-1)}$	
44	319	4.3	See Figure 3.	s	See Figure 3 and Table 4.	
45	319	4.3 Fig 3		s	K(h)	add K(h) plot.
46	320	4.3 table 4	0.330 (in column K)	c	0.333	
47	320	4.3 table 4	315 (in column D)	c	314	
48	320	4.3 table 4	330 (in column D)	c	333	
49	319	4.4	ΔW is given in kilograms, which is converted into centimeters by dividing by m^2 and kg m^{-3}. This produce … ΔS in meters, which is multiplied by 100	s	ΔW is given in kilograms. Dividing by the cross-sectional area A (4 m^2) and by the water density in units of 1000 kg m^{-3} produce ΔS in meters, which converted into centimeters by multiplied by 100.	
50	320	4.4 table 5	0.025(in column ET)	c	0.25	
51	159	4.4	cm/day^{-1}(in problem)	c	cm day^{-1}	

52	321	4.5	$V_F = \dfrac{K(\theta_o) - K(\theta_i)}{\theta_o - \theta_i}$	c	$V_F = \dfrac{K(\theta_0) - K(\theta_i)}{\theta_0 - \theta_i}$	Letter O was used instead of number 0
53	321	4.5	$W_{net} = \ldots = V_f t\,(\theta_s - \theta_i)$..	c	$W_{net} = \ldots = V_F t\,(\theta_s - \theta_i)$.	capital F
54	160	4.7	in Example 4.3 (in problem)	c	in Example 4.4	ex.4.3 in 5th edition is moved to ex.4.4 in 6th ed.
55	322	4.7	$P = i_0 + (i_f - i_0)\exp(-\beta t_{\min})$ $\rightarrow t_{\min} = \dfrac{1}{\beta}\log\dfrac{P - i_f}{i_0 - i_f}$	c	$P = i_f + (i_0 - i_f)\exp(-\beta t_{\min})$ $\rightarrow t_{\min} = -\dfrac{1}{\beta}\ln\dfrac{P - i_f}{i_0 - i_f}$	
56	322	4.7	$Pt_{\max} =$ $i_0 t_{\max} + \dfrac{i_f - i_0}{\beta}[1 - \exp(-\beta t_{\max})]$	c	$Pt_{\max} = i_f t_{\max} + \dfrac{i_0 - i_f}{\beta}[1 - \exp(-\beta t_{\max})]$	
57	322	4.7 $F(t_{\max})$		c	$F(t_{\max}) = 0 = i_f t_{\max} + \dfrac{i_0 - i_f}{\beta}[1 - \exp(-\beta t_{\max})] - Pt_{\max}$	
58	322	5.1	$d = \dfrac{z_2 - z_1}{\log(\Delta T_2 / \Delta T_1)}$	s	$d = \dfrac{z_1 - z_2}{\ln(\Delta T_1 / \Delta T_2)}$	
59	322	5.1	224 cm	s	225 cm	d = 224.7.
60	323	5.1	$T_A = 10$	s	$T_A = 10.00$	same effective digit as in problem 5.1 (p.197)
61	323	5.1	$T_{\max} = T_0 + A\exp(-250 day^{-1})$ $T_{\min} = T_0 - A\exp(-250 day^{-1})$	c	$T_{\max} = T_0 + A\exp(-225/d)$ $T_{\min} = T_0 - A\exp(-225/d)$	
62	323	5.2	λ_{silt}, λ_{equiv}	s	λ_S, λ_{eq}	same subscript as in ex. 5.4
63	323	5.3	d = 215 cm	c	d = 216 cm	
64	323	5.3	$\Delta T = 67$	s	$\Delta T = -67$	
65	323	5.4	about 5.6 ; ± 0.6	c	about 5.7×10^{-3} ; $\pm 0.6 \times 10^{-3}$	the value is 5.68
66	324	5.4	Figure 5, y-axis	c	$K_T(10^{-3} cm^2 s^{-1})$ λ (mcal cm^{-1} s^{-1} K^{-1}) C(cal cm^{-3} K^{-1})	add “Unit “ for each parameter in legend.
67	323	5.4	The maximum and minimum vary about ± 0.6 about the average,	c	The maximum deviation from the average value is about 0.6,	difference between the maximum and the average is 0.62, but between the minimum and the average is 0.17.
68	324	5.5	…25.3 at 20 degree C, λ^* is 233.7 …	c	23.9 at 20 degree C, λ^* is 235.3 …	miscalculation use $H_v = 585$, exp = e, instead of $H_v = 600$, e =2.7.
69	324	5.5 Tabel 6	λ_e $H_v J_v$ r 259 25.3 0.097 275 40.8 0.148 300 66.0 0.220 342 108.0 0.320 411 177.0 0.430	c	λ_e $H_v J_v$ r 259 23.9 0.092 275 39.3 0.143 300 64.8 0.216 342 106.9 0.312 412 176.3 0.428	
70	324	5.6(a)	a = 234	s	a = 235	see #68
71	325	5.6(a)	$J_H = -347$	c	$J_H = -300$	miscalculation
72	325	5.6(b)	$\int_0^T$	c	$\int_{T_0}^T$	
73	325	5.8	λ_{equiv}	s	λ_{eq}	see #62
74	325	5.8	λ_C, λ_S	s	λ_{copper}, λ_{Styro}	same as in p.199
75	326	5.9	given in (5.52)	c	given in (5.48)	

76	327	6.5	$\omega\left(\frac{\phi}{a}\right)^{10/3}$	s		The Millington & Quirk model is not described in this edition (see (6.12) in 5th edition).
77	327	6.5	$\approx\frac{2.5}{a^{10/3}}$	c	$=2.5\left(\frac{0.5}{a}\right)^{10/3}$ or $\frac{0.25}{a^{10/3}}$	
78	328	7.2	C_s	c	C_a	(7.30)
79	328	7.2	$\rho_b\frac{C_s}{\partial t}+\theta\frac{\partial C_l}{\partial t}$ $=D_l^s\frac{\partial^2 C_l}{\partial z^2}-J_w\frac{\partial C_l}{\partial z}$ $=\left(\theta+\rho_b\beta K_f C_l^{\beta-1}\right)\frac{C_l}{\partial t}$	c	$\rho_b\frac{\partial C_a}{\partial t}+\theta\frac{\partial C_l}{\partial t}$ $=\left(\theta+\rho_b\beta K_f C_l^{\beta-1}\right)\frac{\partial C_l}{\partial t}$ $=D_e\frac{\partial^2 C_l}{\partial z^2}-J_w\frac{\partial C_l}{\partial z}$	
80	328	7.2	$\frac{\theta+\rho_b\beta K_f C_2^{\beta-1}/\theta}{\theta+\rho_b\beta K_f C_2^{\beta-1}/\theta}$	c	$\frac{\theta+\rho_b\beta K_f C_2^{\beta-1}/\theta}{\theta+\rho_b\beta K_f C_1^{\beta-1}/\theta}$	
81	329	7.2	5.25	c	5.62	$\left(\frac{1}{1000}\right)^{-0.25}=5.62$
82	329	Table 7 DBCP	t_b=220 M/M_0=0.509	c	t_b=265 M/M_0=0.442	
83	330	7.8	$P_v=\frac{C_v RT}{M}$	c	$P_v=\frac{C_g RT}{M}$	
84	330	7.8	multiply the denominator by …	c	multiply the numerator and the denominator by …	
85	331	A1 table 8	Mean % C S.D. % C CV % C	c	Mean C S.D. C CV C	
86	333	A3(b)	0.692	s	0.693	may be due to rounding errors
87	333	A4(c)	f = …	c	F =	Problem A.4 is described in "F".
88	333	A4(c)	$\exp\left[-\frac{(z)^2}{2}\right]$	s	$\exp\left(-\frac{z^2}{2}\right)$	
89	333	A5	*PC*	c	PC	PC is not italic in problem A5 (p.302).
90	334	A5	$b^2/2N$	c	delete	$b^2/2N$ is wrong.
91	334	A5	$=\sum_{J=1}^{N}(K\Delta x)^2$	c	$=\frac{1}{2N}\sum_{J=1}^{N}(Kb\Delta x)^2$	
92	334	A6 Table 9		c	$L\sqrt{32}$ 8	add between $L\sqrt{29}$ & $L\sqrt{34}$
93	334	A6 Table 9	$L\sqrt{34}$ 2	c	$L\sqrt{34}$ 12	
94	334	A7	N(ξ)	c	N(u)	
95	334	A7	ξ = 2.32	c	u = -2.32	
96	334	A7	$\frac{Vt_0-z}{\sqrt{2Dt_0}}=u$	c	$\frac{Vt_0-z}{\sqrt{2Dt_0}}=-u$	
97	334	A7	/2v	c	2V	remove "/"
98	334	A7	exp(μ+uσ)	c	exp(μ-uσ)	
99	335	A7 table10	112 39 120 54 124 65 140 123	c	103 38 112 54 117 64 139 123	