

Errata UPDATED LIST DATED 15TH FEBRUARY 2014

p.xii: whole final paragraph ‘DS thanks his students...’ etc. to ‘methodologies and paradigm changes.’, should appear in the Acknowledgments section on p.xiii.

- Move to appear in second column on p.xiii, following third line, and before ‘The authors would also like to thank...’ etc.

p.4, section title 1.2: “resolution, revolution” should read “revolution resolution”.

- Delete comma.

p.15, Figure 1.9d: “low frequency weather” should read “macroweather”.

- Make label change, to match part c.

p. 15, Caption 1.9: subharmonic-> harmonic

p16, box 1.1 third line: subharmonic-> harmonic

p. 25, column 1, line 1: “fig. 2.1” should read “fig. 2.2”.

p. 26, column 1, above Eqn. 2.5: “ $\underline{x} = \lambda \underline{x}'$ ” should read “ $\underline{r} = \lambda \underline{r}'$ ”

- Replace \underline{x} with \underline{r} (twice).

p.35, Eqn. 2.70: This equation should read:

$$R(\tau) = \langle v(t)v(t+\tau) \rangle = F(E), \text{ i.e. } \langle v(t)v(t+\tau) \rangle = \int_{-\infty}^{\infty} d\omega e^{-i\omega\tau} E(\omega)$$

- Completely replace Eqn as shown.

p.36, Eqn. 2.79: The upper limits $\sqrt{2}k_{n+1}$ should read $\sqrt{2}k_n$

- Correct all 3 cases in Eqn.

p.37, Fig. 2.8: figure label “ k^3 ” should read “ k^{-3} ”

- Make superscript -3, on right-hand side ONLY.

p. 38, column 1, line 23: “ β_p ” should read “ β_p ”

- Replace subscript with lower-case italic ‘p’.

p.40, fig. 2.12: two changes.

1) top labels, signs are wrong (exponents of 10). Should read “ $10^4, 10^3, 10^2, 10^1, 1, 10^1$ ”

2) internal fig labels -5/3 and -2.4 should be interchanged. Swap these labels.

p. 50, 3 lines above Eqn. 2.87: “vector ($\underline{k}(\underline{u}(\underline{k}, t))$ ” should read “vector ($\underline{k} \underline{u}(\underline{k}, t)$ ”

- Delete extra bracket.

p.51, Eqn. 2.92: The integral should read: $\int_{-\infty}^{\infty} d\omega e^{i\omega t} E(\omega)$

- Correct as shown here.

p.51, Eqn. 2.94: The integral should read: $\int_{-\infty}^{\infty} d\omega E(\omega)(1 - e^{i\omega t})$

- Correct as shown here.

p.53, Eqn 2.98: Eqn should read:

$$e = \frac{1}{2} \langle |v(0)|^2 \rangle = \frac{1}{2} u(0)$$

- Completely replace Eqn as shown here.

p.53, 2 lines following Eqn 2.98: text should read:

“(by spatial homogeneity, there is no \underline{r}' dependence). Introducing the inverse d -dimensional Fourier transform”

- Correct to add prime to \underline{r} and correct transforms to “transform”.

p. 53, line above Eqn. 2.103: “ $v(\underline{x})$ ” should read “ $v(\underline{r})$ ”

p.53, Eqn. 2.103: The equation should read:

$$u(\underline{r}) = \langle v(\underline{r}') \cdot v(\underline{r}' + \underline{r}) \rangle = \int d^d \underline{k} d^d \underline{k}' e^{i\underline{k}\cdot\underline{r}} e^{i(\underline{k}+\underline{k}')\cdot\underline{r}'} \langle \tilde{v}(\underline{k}) \cdot \tilde{v}(\underline{k}') \rangle$$

- Completely replace Eqn as shown here.

p.54, Eqn 2.107: “ $p(\underline{k})$ ” should read “ $P(\underline{k})$ ”

p60, Fig. 3.2a: correct alignments within this figure:

- Left column: top two graphs need to align with others (to left)
- Right column: top four graphs need to align with others (to left)
- Tops of graph axes in left and right columns should align with each other (right column needs to be slightly raised)

p.65, column 2, before 3.2.3: “(i.e. $D_{cor} \approx 0.2$)” should read “(i.e. $C_{cor} \approx 0.2$)”

- Replace C with D (italic).

p.71, Eqn. 3.9: Eqn should read: $N_A(l) \sim \left(\frac{L}{l}\right)^{D_F}$

- Replace whole Eqn as shown here.

p.71, Eqn. 3.13: Eqn should read: $\Pr(B_\lambda \cap A) \sim \frac{N(B_\lambda \cap A)}{N(B_\lambda \subset E)} \approx \frac{\lambda^{D_F(A)}}{\lambda^D}$.

- Replace whole Eqn as shown here.

p.85, column 1, bottom line: “ $\varphi=\varepsilon^{1/3}$ ” should read “ $\varphi=\varepsilon^{1/2}$ ”

- Correct 3 to 2 (superscript).

p.94, 2 lines above Eqn. 4.18: “Eqn 4.2” should read “Eqn 4.4”.

p.100, column 1, line 16: “see Table 4.7, below” should read “see Tables 4.5, 4.7”.

p.104: Caption to fig. 4.8 a), add “lower right: 20CR reanalysis at 45°N”.

p104. Caption to fig. 4.8 b) remove bold.

p.118, Fig. 5.8: the superscript “Ds” is too big. Reduce size to normal superscript.

p.119: column 2, 7th line from the bottom: “Pr λ ” should read “Pr λ ”

- make symbol subscript

p.128, Eqn 5.47: the subscripts should read: $\varepsilon^{(h)} = \lim_{\Lambda \rightarrow \infty} \varepsilon_{\Lambda/\lambda}^{(h)} = \Pi_{\infty}(B_1)$

- Correct as shown here.

p.129, Fig 5.17: the subscript “infinity” symbol on the upper left ‘gamma s’ is too small. Increase size.

p.136, Fig. 5.22: Subscript label within figure should read “q_D”

- Correct q_{D,V} =7.7 to q_{D,IR} =7.7

And q_{D,V} =5.4 to q_{D,DR} =5.4

p.137, below Eqn. 5.58: “ Δx ” should read “ Δr ”.

- Correct x to r (italic).

p.139, 3rd line from bottom: “ $\tau(q)=D(q-1)-K(q)$ ” should read “ $\tau(q)=d(q-1)-K(q)$ ”.

- Correct D to d (italic).

p.142: 2nd column, 3rd line: “ $\langle e^{q\gamma\alpha} \rangle$ ”, the α should be subscript to ‘ α ’: $\langle e^{q\gamma\alpha} \rangle$

p. 149, 4th paragraph (unnumbered Eqn set apart): should read “ $v_{\lambda} = v_1 e^{\Gamma_{\lambda}}$ ”

- Correct as shown here.

p.158, column 1, 14th line from bottom: definition of quadratic Haar, third term:

“ $3s(x-\Delta x/3)$ ” should read “ $3s(x+\Delta x/3)$ ”

- Correct – to +

p.161, column 1, line 12: “Eqn. (5.106)” should read “Eqn. (5.112)”

p.161, column 2, 10 lines below eq. 5.114: “ $h(q)=H$ ” should read “ $h(q)=1+H$ ”

p.169, column 2, 19 lines from end: $|x|^{-d/\alpha}$ should read $|r|^{-d/\alpha}$

- Correct as shown here.

p.169, column 2, 9 lines from end: In-line equation should read: “ $\Gamma = g * \gamma$.”

- Star should be asterisk and should not be superscript. Cf. line below.

p.169, 8 lines from the end:

$I = |x|^{-(d-H)} * e^\Gamma$ should read $I = |r|^{-(d-H)} * e^\Gamma$

- Correct as shown here.

p.176, Eqn 5.154 is missing absolute value sign on both right-hand terms.

- Correct as shown here:

$$(\Delta v(\Delta x))_{\text{end}} = |\mathcal{I}_{\Delta x} v| = \left| \frac{1}{\Delta x} \sum_{x < x' < x + \Delta x} v'(x') \right|$$

p.176, Eqn 5.159 delete extra spacing:

“ $-3s(x+2 \Delta x/3)$ ” should read “ $-3s(x+2\Delta x/3)$ ”

p.186, column 2 above Eqn. 6.11: should read “ f obeys a scalar advection equation”

- Delete “passive”

p.209, Fig. 6.17: vertical axes and labels appear within graph area (figure fault).

- Correct axes to sit outside graph areas for parts a,b,c.

p.215, Fig. 6.23a: graph area (white area) does not extend fully along X axis.

- Extend white area to include final labels on x-axis.

p.216, bottom line in box: “ $H_z \ 2, 3$ ” should read “ $H_z = 2, 3$ ”.

p.217, Eqn. 6.55: Equation should read: $\langle \widetilde{f(\underline{k})} \widetilde{f(\underline{k}')} \rangle = \delta(\underline{k} + \underline{k}') P(\underline{k})$

- Replace whole Eqn as shown here.

p.217, Eqn. 6.58: Eqn should read: $E(k) = \int_{\delta S_k} P(\underline{k}') d^d \underline{k}'$.

- Replace whole Eqn as shown here.

p.225, above Eqn. 6.83: “ $\underline{V} = \underline{X}$ ” should read “ $\underline{V} = \dot{\underline{X}}$ ”

- dot above \underline{X} is missing.

p.235, Eqn. 7.43: “a²” should read “a² 1”

- Correct equation to show as follows: $(G - d\mathbf{1})^{2n} = a^2 \mathbf{1}$

p.235, Eqn. 7.44: the left hand side of the equation should be (note – sign in the exponent):

$$\lambda^{-G} = \lambda^{-d} \lambda^{-(G-d\mathbf{1})}$$

p.238, Fig 7.5 end of caption: “a = 1.6” should read “ $\alpha = 1.6$ ”

p.238, Fig 7.5: the formatting of the arguments of the scale functions is not good.

- Refer to original figures, resupplied with Errata. Alignment of eg $\| r_1 \|$ needs to be improved to better match originals. Occurs 4 times in part a, 6 times in part b, correct all.

p. 256, Eqn. 7.82: The integral should read: $\int d\underline{k} \left(1 - e^{i\widetilde{T}_\lambda \underline{k} T_\lambda \underline{\Delta r}} \right) P(\widetilde{T}_\lambda \underline{k})$

- Correct as shown here.

p.277, Fig 8.2: The label “(c)” is too big.

p.278, Fig 8.3: The label “(c)” is too big.

- Reduce both labels to be consistent with other parts labels in figures.

p308, caption fig. 8.12: subharmonic-> harmonic

p.314: eq. 9.6: on the far right the exponent is $-(1-H)$ not $1-H$

p.316, 6 lines below Eqn. 9.17: “Eqn 9.14” should read “Eqn. 9.17”.

Same notation corrections:

p.317, Eqn 9.23: $i\omega$ should read $-i\omega$

p.326, Eqn 9.50: $i\omega+$ should read $-i\omega+$

p.327, Eqn 9.53: $i\omega$ should read $-i\omega$

p.328, Eqn 9.55: $i\omega'$ should read $-i\omega'$

p.321, column 2, line 7: “ $1.5/10^{-6}$ ” should be “ 0.5×10^{-6} ”.

p.322, Eqn 9.41: “ H_τ ” superscript should be “ H_t ”.

p.323, Table 9.1, right column, 3rd eqn: the exponent “ $5/2-H$ ” should be “ $5/2-H/H_t$ ”

- Correct in superscript, cf. Eqn 9.46 (lower right side)

Also, in right column, second line from the bottom:

$\det\left(\frac{\partial^2 \omega(\underline{k})}{\partial k_i \partial k_j}\right)$ should read $\left[\det\left(\frac{\partial^2 \omega(\underline{k})}{\partial k_i \partial k_j}\right)\right]^{1/2}$

- Replace this section of equation as shown here.

p.323, Eqn 9.46: $\det\left(\frac{\partial^2 \omega(\underline{k})}{\partial k_i \partial k_j}\right)$ should read $\left[\det\left(\frac{\partial^2 \omega(\underline{k})}{\partial k_i \partial k_j}\right)\right]^{1/2}$

- Replace this section of equation as shown here.

p.323: 3 lines & and 4 lines below Eqn. 9.42: “ H_τ ” should be “ H_t ”

- Correct twice.

p.323, Eqn. 9.43: “ H_τ ” superscript should be “ H_t ”

p.323, Eqn. 9.44: both “ H_τ ” superscripts should be “ H_t ”

- Correct twice.

p.323, 3 lines below Eqn 9.44: “ H/H_τ ” should be “ H/H_t ”

p.323, column 2, 11th line from bottom: “ $H_\tau = 2/3$ ” should be “ $H_t = 2/3$ ”.

p.336, Eqn 9.72: all H’s should be italicised.

p.337, section title 10.1.1: should read “climate as an emergent scaling process”

- Delete “change”.

p358 caption 10.15: subharmonic-> harmonic

p.373, Eqn 10.55: should read: $\frac{df}{dt} = \alpha f + \sigma \eta f$

- Insert ‘ f ’ with ‘ α ’

p. 399, Table 11.4: “ $\delta^{18}\text{O}$ from Vostok” should read “ δD from Vostok” in two rows.

- Correct two occurrences, rows 11 and 15.

p406, in the caption the function F should be the same as in equation 11.4 (there is a plus not a minus in the exponent in the denominator).

p. 410, Table 11.7, Outer scale column: second row should read “20 – 40 years”

- Delete “days”

- For columns H, C_1 , α , repeat values of Macroweather for weather and climate rows. I.e, repeat values 0.7 (H), 0.1 (C_1), 1.4 (α) in blank rows above and below current values.

p413, column 2, line 5 from top: subharmonic-> harmonic

p.416, column 2, 10 lines below Eqn 11.12: “Eqn. (11.11)” should be “Eqn. (11.12)”.

p.416: column 2, 4 lines up from end: “Eqn. (11.11)” should be “Eqn. (11.12)”.

p420, Caption fig. 11.10: subharmonic-> harmonic

p.438, Radelescu reference, 3rd line: “In In” should read “In”.

p472: index: subharmonic->harmonic

references update (March 10, 2014):

ch4 and ch8:

The reference:

Pinel,J., Lovejoy,S., and Schertzer,D.(2012)

should be:

[Pinel, J., S. Lovejoy, D. Schertzer, 2014:](#) The horizontal space-time scaling and cascade structure of the atmosphere and satellite radiances, **Atmos. Resear.**, **140–141**, 95–114, doi.org/10.1016/j.atmosres.2013.11.022.

ch. 9:

The reference:

Pinel, J. 2012

should be:

Pinel, J. 2013, The space-time structure of the atmosphere, PhD thesis, McGill University

The reference:

[Pinel, J., S. Lovejoy, 2012](#)

should be:

[Pinel, J., S. Lovejoy, 2014:](#) Atmospheric waves as scaling, turbulent phenomena **Atmos. Chem. Phys. (in press)**.

