

**Expert Reviewer: GRAY**

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						<p><b>Comment</b>            ** If you are cutting and pasting comments from another application into the review form, please <b>DOUBLE-CLICK</b> in the appropriate spreadsheet comment cell before pasting your comment.            Only <b>ONE</b> comment per row, please.</p>
1	3	0	0	0	0	This Chapter is completely distorted, sustained by suppression or denigration of publications which challenge its conclusions. It depends upon a failure to permit any publications or arguments which challenge the virginity of the amalgamated surface record and a refusal to admit that it is upwardly biased by its unrepresentative distribution of thermometer readings, greatly influenced by proximity to cities for the land-based measurements, and distorted by greater ship size and energy output, and by a transition from measurement in buckets drawn from the sea to engine intake measurements, for sea surface measurements. Important publications which prove upwards bias caused by these influences are <u>downplayed or suppressed altogether.</u>
2	3	0				A crucial publication is McKittrick, R and P.J Michaels 2004 "A test of corrections of extraneous signals in gridded surface temperature data" Climate Research Vol 26 pages 159-173. This paper shows that the surface record possesses a significant upwards bias from population size, coal usage, and the use of incomplete data. Another important publication, mentioned in the Chapter , was Peterson, TC, 2003, The author carried out a complex procedure called "homogeneity adjustment" to correct the temperature record of the contiguous United States, and ended with a record that showed very little net increase. The claimed absence of a difference between urban and rural sites is not strictly true as it was initially very large (0.31°C per decade), but this reduced to 0.04°C after other corrections were made.
3	3	0				The application of the technique of "homogeneity adjustment in China gives a "corrected" record with negligible temperature change since 1900 ( Zhao, Z, Y Ding, Y Luo, and S Wang, 2005 Acta Meteorologica Sinica Vol 19 pages 389-400).It would seem likely that if a similar correction procedure were applied to the entire surface record most of the supposed "surface warming":would disappear
4	3	3	3	3	3	Insert after "temperatures", "measured by the unreliable surface technique"
5	3	3	3	3	3	Insert after "century". "A more accurate truly global record for the lower troposphere found no evident temperature change between 1979 and 1999, and radiosondes in the same region found no change between 1958 and 2004. There is evidence that a comprehensive adjustment to the surface record, such as has been carried out for the continental United States and for China, would remove most of the recent apparent warming in the surface record. A cooling period since 1999 is currently evident.'
6	3	3	4	3	5	Delete "each of which has been independently adjusted for various homogeneity issues". This claim is untrue. The adjustment procedures can only be made where there are many weather stations with a long record; a condition which was originally thought to apply only to the continental United State, but has recently been applied to China. It cannot be applied to countries with very few stations, or with incomplete records
7	3	3	5	3	5	Delete "consistent". There are significant differences between the three records.

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8	3	3	6	3	8	Delete from "The linear trends" on line 6 to "century" on line 8. You admit that the record is not linear, and it is not legitimate to try to draw a straight line through such an irregular graph/
9	3	3	8	3	8	Delete "However" and capitalise "The trend"
10	3	3	8	3	10	Delete from "However" to end. This completely distorts the nature of the actual record. You should describe it honestly
11	3	3	8	3	10	Replace from "However" on line 8 to end on line 10 with the following "The surface temperature record falls into four distinct sections: a slight fall between 1868 and 1910, a rise of 0.4°C between 1910 and 1942, a fall of -.08°C between 1942 and 1978, and a rise of 0.42°C from 1978 to 2004. None of these sections could have been influenced by greenhouse gas increases; the first two because the concentrations were low, the third one because increased greenhouse gases could not cause a fall in temperature, and the fourth because influence of greenhouse gas buildup could not possibly begin so late as 1978"
12	3	3	12	3	13	Delete this sentence. It is repetitive
13	3	3	15	3	18	Delete from beginning to "years" on line 18. This claim is not confirmed by other independent global temperature records such as the NASA satellites and radiosondes, for the lower troposphere, and several surface proxy records.
14	3	3	19	3	19	Delete from "but" to the end..It is too early to comment on the current slightly warm period
15	3	3	21	3	21	Add at beginning "According to the unreliable surface record"
16	3	3	21	3	21	Insert after ".oceans" "but this is not confirmed by the other, more reliable records. The satellite record does, however, show greater variability over land than over the sea."
17	3	3	21	3	24	Delete from "Warming" in line 21 to "with" on line 24. This discussion oversimplifies the complexities of the surface record which cannot be simply cut up into "decades"
18	3	3	24	3	24	Capital letter for "The",
19	3	3	24	3	24	Insert after "warming" , "over land took place"
20	3	3	27	3	27	Insert after "climate" "by local urban influences"
21	3	3	36	3	36	Add at end "All this is consistent with an influence of increasing population, building development and energy output in the urban areas where most weather stations are situated"
22	3	3	38	3	38	Insert after "oceans" "but there is serious doubt on the reliability of these readings which are not considered worthy of such attention by US investigators, and are undoubtedly subject to many instrumental and other biases"
23	3	3	38	3	38	Replace "are" by "seem to be"
24	3	3	41	3	41	Replace ".lead to important" by "suggest"
25	3	3	44	3	44	Delete "but local" How absurd!. ALL temperature effects are "local" but this does not prevent you from deriving an average

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26	3	3	44	3	44	Delete "not". You have suppressed the evidence that they DO affect the record. See for example, my paper , Gray, V R, 2000, "The Cause of Global Warming", Energy and Environment, Volume 11, pages 613-629, and McKittrick, R and P J Michaels 2004 "A test of corrections for extraneous signals in gridded surface temperature data. "Climate Research" Vol 26 pages 159-173
27	3	3	46	3	46	Replace "negligible" by "important"
28	3	3	46	3	46	Delete "because" and capitalise "The"
29	3	3	47	3	47	Delete "but local". This is irrelevant
30	3	3	47	3	47	Insert after "are", "inadequately"
31	3	3	47	3	47	Delete "In any case they are not present" Other inadequacies are. Capitalise "In"
32	3	3	48	3	48	Insert after "record" Biases result from change in measurement method (see Christy et al 2001) and increases in size and energy usage of ships
33	3	3	52	3	53	Replace from "temperatures" in line 52 to "2005" in line 53 with "showed no temperature change between 1979 and 1999, for the satellite series, and no change between 1958 and 2002 for the radiosonde series. The satellite record showed a large peak in 1999 from the El Niño event of that year, and a warm period since 2002"
34	3	3	53	3	53	Delete "markedly"
35	3	3	53	3	54	Delete from "and increasing" on line 53 to "tropics" on line 54. This statement is unfair. It is done to draw attention away from the much greater unreliability of the surface record
36	3	3	54	4	8	Delete all the rest of this paragraph. It is a transparent attempt to conceal the very real differences between the surface record and the two lower troposphere records. These differences cannot be reduced to "trends", Great use is made of the very large 1999 El Niño event on the MSU record, and it is used to derive a spurious "trend" since 1979 which falls to zero if this event is omitted. The short warm period since 2002 cannot be considered part of a "trend". Excessive attention has been paid to inaccuracies in the MSU and radiosonde records while the much greater inaccuracies in the surface record have been covered up
37	3	4	14	4	14	Replace "likely" with "possible"
38	3	4	25	4	26	Delete from "Substantial" in line 25 to "that" in line 26. Capitalise "There". There is no evidence that increased precipitation has resulted from the recent short "warm" period
39	3	4	35	4	37	Delete from "In Australia" on line 35 to "droughts" on line 37. There is no evidence for this "inference"
40	3	4	37	4	37	Delete "More generally" and capitalise "Decreased"
41	3	4	41	4	42	Delete from "Surface specific humidity" on line 41 to "ocean". H13 This statement is based on wet and dry bulb measurements in locations which are not distributed over the earth's surface in random manner. The "higher temperatures" are also mainly the result of local instrument influence from urban environments and larger ships
42	3	5	37	5	37	Insert after "cyclones" , "are thought by some authorities"

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43	3	6	12	6	12	Insert after "1976-200" . "Unfortunately, apart from the last one, these divisions do not coincide with the four major temperature sequences, which were 1858 to 1910, when there was a slight fall, 1910 to 1942 when there was a rise of 4°C, 1942 to 1978 when there was a fall of 0.8°C, and from 1978 to 2005 when there was a rise of 4.2°C. None of these sequences could have been influenced by increase in greenhouse gases; the first two because greenhouse gas concentrations were low, the second, because the rise in greenhouse gases was accompanied by a fall in temperature, and the fourth because greenhouse concentrations could not have begun to operate so late as 1978".
44	3	6	15	6	15	Replace "has been" by "could not be".
45	3	6	16	6	16	Insert after "atmosphere" "because there was no evidence of such an influence during the previous period"
46	3	6	16	6	16	Replace "see" by "in contrast to"
47	3	6	50	6	50	Replace "are most" by "cannot be"
48	3	6	50	6	51	Delete from "and" in line 50 to "cooling" in line 53. There really is no evidence relating "forcing" to "extreme events"
49	3	6	54	6	54	Replace "are" with "could be"
50	3	7	23	7	27	Delete from "Where this is not possible" on line 23 to the end on line 27. This is an attempt to place spurious figures on complete, subjective, investigator-biased guesswork and can only mislead the reader
51	3	7	40	7	41	Delete from "as" on line 40 to "urbanization" on line 41. This claim is false. No details of this procedure have been published and McKittrick and Michaels 2004 "A test of corrections for extraneous signals in gridded surface temperature data" Climate Research Vol 26 pages 159-173 have shown that the whole set, even after supposedly "corrected" for urbanization effects, is significantly influenced by a whole range of socioeconomic factors such as increases in population, coal usage and prosperity.
52	3	8	40	3	40	Insert before "homogeneity" "the very limited". "homogeneity adjustment" cannot be thoroughly applied unless there are large numbers of stations. Full "homogeneity adjustment" has only been carried out so far in the continental United States and in China. .
53	3	8	41	8	41	Insert after "urbanization" "but full details of this procedure have not been published, and they have been shown to be incomplete by McKittrick and Michaels 2004 "A test of corrections for extraneous signals in gridded surface temperature data" Climate Research Vol 26 pages 159-173
54	3	8	43	8	43	Insert before "homogeneity" "thorough"
55	3	8	51	8	51	Add at end. "A Chinese subset of the global surface record by ZHOU, Zongci, Yihui DING, Yong LUO, and Shaowu WANG. 2005 "Recent Studies on attributions of climate change in China", Acta Meteorologica Sinica Vol 19, pages 389-400 shows that in common with the US workers, the presence of many stations, with the possibility of accurate corrections, gives a final surface temperature record from 1900 which shows very little overall temperature change. This suggests that if a similar thorough adjustment could be made globally that there would also be little overall warming"

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56	3	10	11	10	11	Add after "sea". But on average, their effects are substantial, as has been demonstrated by McKittrick and Michaels 2004 "A test of corrections for extraneous signals in gridded surface temperature data" Climate Research Vol 26 pages 159-173 have shown that the whole set, even after supposedly "corrected" for urbanization effects, is significantly influenced by a whole range of socioeconomic factors such as increases in population, coal usage and prosperity
57	3	10	15	10	15	Insert after "trends" " McKittrick, R and P J Michaels 2004 "A test of corrections for extraneous signals in gridded surface temperature data" Climate Research Vol 26 pages 159-173 have shown that these effects are substantial. Even on supposedly "corrected" sets, giving corrected sequences which showed little overall warming"
58	3	10	15	10	15	Replace "Studies" by "Earlier studies"
59	3	10	16	10	16	Insert before "conclude" "seemed to"
60	3	10	21	10	21	Insert after "warming" "but this is only one of the many factors identified in "homogeneity adjustment".
61	3	10	21	10	22	Delete from "This" on line 21 to "(Parker 2006) on line 22 McKittrick, R and P J Michaels 2004 "A test of corrections for extraneous signals in gridded surface temperature data" Climate Research Vol 26 pages 159-173 have shown that this statement is untrue.
62	3	10	23	10	23	Replace "trends" with "mean annual anomalies were 0.31°C less than urban anomalies, but after correction for elevation, time of observation bias and instrumentation, rural series were"
63	3	10	24	10	24	Replace "The same is true of" with "similar considerations apply"
64	3	10	25	10	26	Delete from "One possible reason" in line 25 to "(Peterson 2003) in line 26". This is nonsense. Weather stations are situated in a large variety of locations, most of which are influenced by increasing urban surroundings. The comment may apply exclusively to the USA
65	3	10	26	10	27	Delete from "In summary" on line 26 to "locations" on line 27". This can not be generalised from such a small sample.
66	3	10	27	10	27	Insert after "effect is" "not necessarily"
67	3	10	27	10	28	Replace "all global studies" on line 27 to "negligible" on line 28 with "as McKittrick and Michaels study has shown that urban effects are a major"
68	3	10	32	10	33	Delete from "This conclusion" in line 32 to ""observations" in line 33. This statement is untrue
69	3	10	33	10	41	Delete from "But the reanalyses" on line 33 to "Appendix 3.B.5" on line 41. This is just a list of poorly justified excuses for which very little evidence is given.
70	3	11	1	11	1	Delete "Nevertheless"
71	3	11	28	11	29	Delete from "not large enough" on line 28 to 3.B.3) on line 29..and replace with "is only one of many sources of upwards bias for sea-surface observations"
72	3	11	34	11	38	Delete from "Confirmation" in line 34 to (Folland 2005) in line 38. This agreement is fortuitous as there are other upward biases in sea-surface measurements from increases in size and temperature of ships which are not allowed for.

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73	3	12	30	12	30	Add at end "Despite these improvements there are unresolved upwards biases resulting from increases in size and energy consumption of ships"
74	3	13	28	13	28	All of these studies are contaminated with socioeconomic factors and other upward biases, such as have been identified by McKittrick, R. and P J Michaels 2004 "A test of corrections for extraneous signals in gridded surface temperature data" Climate Research Vol 26 pages 159-173
75	3	13	32	13	32	Replace "remarkably" by "fairly"
76	3	14	27	14	27	Replace "the 11th Century" with "the 16th Century, a rise associated with measurements made close to human habitation, with the resultant increases in building and energy usage" The 14th Century was certainly even higher than the human induced recent surface record
77	3	14	29	14	29	Insert after "then", changes which could not possibly be attributed to increases in greenhouse gases"
78	3	14	33	14	33	Delete "Section 3.2.2.2 and"
79	3	14	33	14	33	Insert after "the ocean" "the upward bias from ocean measurements must be comparable with"
80	3	14	34	14	34	Replace "on these estimates is expected to be small" with "land-based data"
81	3	15	50	16	5	Delete this whole paragraph. It assumes that the increase in surface temperature is entirely due to "radiative forcing" which "expects" certain results. This is by no means established. The absence of evidence of "radiative forcing in the MSU readings (from 1979 to 1999) and in the radiosonde records in the lower troposphere, indicate that the temperature rise shown by the surface record must be due to factors related to human activity in the vicinity of the thermometer sites
82	3	19	35	19	35	Insert after "20 to 70 Wm to minus 2" "These energy outputs obviously affect temperature readings and contribute to the upwards bias of the surface temperature record.
83	3	25	3	31	8	This whole section (3.4.1) should be transferred to Page 3-15 line 45. It is essential that the temperature records of the surface and of the free atmosphere should be placed adjacent to one another as they influence interpretation of global temperature change. By placing them so far apart it is possible to conceal the fact that the temperature changes in the free atmosphere do not confirm the pattern found on the surface, so that pattern must be unrelated to changes in radiative forcing.
84	3	15	45	15	45	Insert the whole section 3.4.1. from page 3-25 line 3 to page 3-31 line 8. It is essential that the temperature records of the surface and of the free atmosphere should be placed adjacent to one another as they influence interpretation of global temperature change. By placing them so far apart it is possible to conceal the fact that the temperature changes in the free atmosphere do not confirm the pattern found on the surface, so that pattern must be unrelated to changes in radiative forcing.

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85	3	25	12	25	22	Delete this whole paragraph. It is outrageous. It tries to cover up the very large upward bias in the surface record by suggesting that the tropospher temperature recordings are somehow inferior. By contrast with the surface record they are superior. The MSU record is truly global whereas the surface record is biased by its poor distribution over the earth's surface. The MSU record is much more accurate, and it has been the subject of very thorough correction, whereas the surface record has not. The radiosonde records are also rather unrepresentative, but is unfair to suggest that they are unreliable compared with the surface record
86	3	26	19	26	19	Add at end. "Thorne et al (2005) have done an excellent job in resolving these difficulties (see Figures ) The 500 hPg record from 1958 shows good agreement with the surface record and the MSU record in its detection of natural events, such as. Mt Agung (1962), Chichon (1981, and Pinatubo (1990), and the El Niño events of 1982 and 1998. It also shows clearly the fairly abrupt cool period between 1965 and 1978 which also appears on the surface record and has been attributed to an ocean change. The rest of the record can therefore be trusted. Since it finds no evidence of an overall temperature change between 1958 and 2002, this means that there is no indication of radiative forcing as a result of greenhouse gas increases in the region where these are most expected rto be evident. The warming displayed in the surface record must therefore be caused by local surface effects from proximity of the measuring equipment to humann activity".
87	3	26	21	26	21	You MUST insert here a proper Figure showing the radiosonde records, preferably those from Figure 9 of the paper of Thorne et al (2005). Figure 3.4.2 is deliberately designed to conceal the true facts about both the radiosonde and the MSU records. The pretence that these three records are virtually identical is a plain lie. The true facts about the radiosonde record from 1958 to the present are 1. It gives a good representation of natural events such as such as. Mt Agung (1962), Chichon (1981, and Pinatubo (1990), and the El Niño events of 1982 and 1998. It also shows clearly the fairly abrupt cool period between 1965 and 1978 which also appears on the surface record and has been attributed to an ocean change. It is therefore a reliable record of temperature change in the lower troposphere. 2. It shows that there was no temperature change between 1958 and 2004, so there is no evidence of an influence of greenhouse gas increases in the part of the atmosphere where it is supposed to happen. 3. This means that the temperature changes in the surface record are due to purely local surface effects, such as proximity of the measuring equipment to human habitation. 3. It means that the assumption made by the models that greenhouse gas increases are responsible for all changes in climate is fundamentallv wrong
88	3	28	11	28	11	Add at end "However, Thorne et al (2005) hhave successfully corrected most of these anomalies"

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89	3	28	19	28	19	Also add at the end of line 19 "The radiosonde record shows a good agreement with the surface record and the MSU record in its identification of natural events, such as as. Mt Agung (1962), Chichon (1981, and Pinatubo (1990), and the El Niño events of 1982 and 1998. It also shows clearly the fairly abrupt cool period between 1965 and 1978 which also appears on the surface record and has been attributed to an ocean change. It can therefore be regarded as a reliable record for temperture change in the loer and upper atmosphjere. The most inportant finding is that there is no temperature change from 1958 and 2002,. This means that there is no detectable increase in radiative forcing in the regions where it should be evident. It also means that the temperture rise from 1978 in the surface record must have had some other cause, such as <u>proximity of the measuring equipment to human activities</u> "
90	3	28	36	28	36	Insert after "radiosondes", "and surface measurements"
91	3	26	47	26	47	Add at end "The records, from 1978 to the present, agree with the radiosonde and surface records in showing the influence of natural events such as volcanic erupotions by Mt Chichon ((981) and Pinatubo (1990) and the El Niño events of 1982 and 1998. The 1998 event gave a particularly large peak. This means that the record is reliable, and probably the most reliable. since it is truly global, and has been subjected to thorough scrutiny. The finding, therefore , that there was no overall temperature change between 1978 and 1998 can be taken as proof, together with that of the radiosonde records, that there is no detectable radiative forcing in the lower atmosphere that might have resulted from increase in greenhouse gases, where the effects are the most prominent.. The temperature rise shown in the surface record since 1978 must, therefore have been solely local,due to proximity of the measuring equipment to human activity, and the assumption by the models that greenhouse gases are the only important climate influence is incoorrect. The warm period since 2001 is difficult to explain, but it is steady, not increasing, so this too <u>cannot be linked to an increasing greenhouse gas burden</u> "
92	3	26	49	26	49	Figure 3.4.2 is a disgrace, as it is designed to conceal the very real differencves between the two temperature record from the troposphere, and the surface record. The assumption thatn they are virtually identical is a plain lie. You must show a seperate record for each of the different versions of the MSU record, NOT all plotted on top of one anotheet to conceal the truth. The truth is that they show no evidence of a "Greenhouse effect" and you are trying to cover up this undoubted fact.
93	3	27	13	27	13	Show ALL the Figures in separate diagrams, not all lumped together to conceal the truth



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94	3	27	13	27	14	Replace from "and" in line 13 to "Figure 3.4.3." in line 14. with "The records, from 1978 to the present, agree with the radiosonde and surface records in showing the influence of natural events such as volcanic eruptions by Mt Chichon ((981) and Pinatubo (1990) and the El Niño events of 1982 and 1998. The 1998 event gave a particularly large peak. This means that the record is reliable, and probably the most reliable. since it is truly global, and has been subjected to thorough scrutiny. The finding, therefore , that there was no overall temperature change between 1978 and 1998 can be taken as proof, together with that of the radiosonde records, that there is no detectable radiative forcing in the lower atmosphere that might have resulted from increase in greenhouse gases, where the effects are the most prominent.. The temperature rise shown in the surface record since 1978 must, therefore have been solely local,due to proximity of the measuring equipment to human activity, and the assumption by the models that greenhouse gases are the only important climate influence is incorrect. The period of cooling since 1999 is difficult to explain, but it is steady, not increasing, so this too cannot possibly be linked to an increasing greenhouse gas burden" Also delete Figure 3.4.3 as it gives a deliberately spurious version of the actual "trends" shown by the MSU and radiosonde records. Linear trends are deliberately msleading as they conceal the fact that for the main part of the record there was no "trend" whatsoever, and it assumes that the large E Niño peak in 1998 was part of a "trend"
95	3	27	15	27	16	Replace from "of 0.04" on line 15 to "records" on line 16 with "of zero from 1978 to 1998, followed by a large peak attributed to El Niño in 1999, and a cooling with a steady temperature period between 2001 to 2005"
96	3	27	14	27	14	Replace "These show" by "There was"
97	3	27	18	27	18	Insert after "corrections"," But all of them show a zero temperature trend between 1978 and 1998".
98	3	27	23	27	23	Insert after "effect" "However, before the 1999 El Niño peak all versions show no trend at all between 1978 and 1998"
99	3	27	34	27	34	Add at end "As before, these differences did not alter the absence of any trend from 1978 to 1998 for all versions"
100	3	28	35	28	35	Add at end "The cooling at the North Pole as well as the South pole is partticularly interesting as it is the opposite of model predictions. However, the entire disgram is spurious because it is unfair to allocate a "trend" to such an irregular sequence as the MSU record, which shows no trend waktsoever from 1979 to 1998, and is dominated by a single El Niño event in 1999"
101	3	29	18	29	18	There should be a Figure which shows the results of typical reanalyses
102	3	29	38	29	56	This whole paragraph needs rewriting after you have revised Figure 3.4.3 to show the significant trends, which are from 1979 and 1998, and the proof that the surface record increase is due to purely local surface effects.
103	3	28	30	28	30	Redraw Figure 3.4.3 to show "trends" between 1979 and 1998. This is the only important issue, and it shows that the surface record is not influenced by greenhouse gas increases, but by purely local surface influences such as proximity of the measuring equipment to human activities

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104	3	30	1	30	8	Delete entire paragraph. Trying to pretend that the records are almost similar is grossly dishonest. The differences reside in the long periods of zero temperature increase in the troposphere, compared with a temperature rise in the surface record, which must therefore not be attributable to increases in greenhouse gases, but to purely local surface influences such as proximity of the measuring equipment to human activities.
105	3	30	10	30	10	Replace "often not a very good" by "exceedingly misleading"
106	3	30	11	30	11	Replace "are to" with "have to"
107	3	30	11	30	11	Insert after "factor in" not only the zero temperature change from 1958 to 2002 (from radiosondes), and 1978 to 1998 (from satellites), but also"
108	3	30	13	30	13	Delete "confidence limits for"
109	3	30	14	30	14	Replace "very large" by "not appropriate"
110	3	30	14	30	14	Insert after "from" " El Niño events, particularly that in 1999, and"
111	3	30	15	30	15	Delete "and"
112	3	30	15	30	15	Replace "not a very good fit to the data" with "extremely misleading"
113	3	30	17	30	17	Replace "not a good" by "a very poor"
114	3	30	25	30	25	Add at beginning "the very slight amount"
115	3	30	41	30	41	Replace "would probably" by "might"
116	3	30	44	30	44	Replace "Global mean trends" with "Comparison of surface and troposphere temperature records"
117	3	30	46	30	49	Replace from "with weakening" on line 46 to 3.6.4) on line 49 with "increased heating in urban areas over the winter months"
118	3	30	51	30	51	Replace "since 1958" by "1958 to 2002"
119	3	30	51	30	51	Delete "overall" and "tropical"
120	3	30	51	30	51	Replace "warming" by "temperature change"
121	3	30	52	30	52	Replace "has slightly exceeded surface warming" by "was zero, in contrast to the warming shown by the surface record"
122	3	30	53	30	53	Replace "warming" with "sudden warming, but the radiosonde record then remained constant until 2002, whereas the surface record increased for all that period"
123	3	30	53	30	54	Delete from "such variations" on line 53 to "unsurprising" on line 54".
124	3	30	54	30	57	Replace "After" on line 54 to "trend" on line 57 with "The zero temperature change between 1979 and 1998 in both radiosonde and satellite records contrasts with the steady temperature increase in the surface record over the period, which could not, therefore be attributed to increases in greenhouse gases but to purely local surface influences from the proximity of measuring equipment to human activities.. The 1999 El Niño event appears in all three records, but after that they differ again. The Radiosonde record and the MSU record show a slight temperature jump which is sustained until 2005, but the surface record continued to increase"

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125	3	31	10	37	14	This whole section should be transferred to the beginning of Chapter 2.. Water Vapour is the most important greenhouse gas and it needs to be recognised as such, not put in a different Chapter. The claim that water vapour is a "feedback" is purely a device adopted by modelists because they lack adequate historic data, and they make the assumption that it can be related mathematically to other climate effects. There is no evidence, or justification for this assumption, and in any case, it should not inhibit adequate treatment of the effect of water vapour as a greenhouse gas. Clouds are intimately related to water vapour, and thus should also be treated in the same place. They behave in the same way as greenhouse gases, and their treatment as "feedbacks" is even less defensible than that of water vapour as there is not even theoretical arguments belief that the behaviour of clouds is related to other climate influences
126	3	31	12	31	14	Move from "Water is a key climate variable" on line 12 to "2003a,b)" on line 14 to start a new paragraph on line 18.
127	3	31	14	31	14	Delete "also"
128	3	31	15	31	15	Replace "about 60%" with "between 60 and 95%"
129	3	31	17	31	17	Add at end The assumption that water vapour can be treated as a "feedback" results from the lack of reliable historic data for its mean or varying concentration, but the assumption has no observational basis
130	3	31	20	31	20	Delete "sufficient"
131	3	31	49	31	49	Delete "strongly"
132	3	32	34	32	34	Replace "order" by " the order of"
133	3	32	35	32	35	Insert after "and", "about"
134	3	33	3	33	3	Delete from "and is believed" to "Soden 2000)", The statement is unnecessary and it introduces the ambiguous concept "climate change"
135	3	33	3	33	5	Delete from "Changes" in line 3 to :debate" in line 5. The statement tells us nothing.
136	3	33	32	33	32	Insert after "warming" "after 1998"
137	3	33	52	33	52	Insert after "which is" "partly"
138	3	33	52	33	52	Insert after "temperatures" "after 1998"
139	3	34	29	34	29	Insert after "period" "until the current steady value since 1998"
140	3	35	14	35	14	Insert after "surface" It is likely that they change independently from other climate influences, so it is unsurprising that" Change "The" to "the"
141	3	59	21	59	21	Delete "increasing"
142	3	59	22	59	22	Delete from "Climate Change" to "through"
143	3	59	23	59	23	Delete "although these"
144	3	59	23	59	23	Delete "to a large degree"
145	3	63	44	63	44	Delete "Change"
146	3	63	56	63	56	Replace "As" by "If"

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147	3	63	56	63	56	Delete "continue to"
148	3	75	1	75	1	Insert after "happened" "This behaviour is not confirmed by radiosondes and satellites in the lower troposphere, which have found zero temperature rises for extended periods (1958-2002 for rsdiosondes, and 1978 to 1998 for satellites. The rise in land-and -sea surface temperatures are therefore largely attributable to proximity of most measuring equipment to local human activities"
149	3	75	5	75	5	Insert after "climate" "near cities"
150	3	75	14	75	14	Insert after "increases" "(evident mainly to the surface record)"
151	3	75	14	75	14	Replace "are consistent" with "can be linked to"
152	3	75	15	75	15	Insert after "century" "but" and continue the sentence
153	3	77	24	77	24	Replace "likely rose 18 ±3 cm" with 1.8±1.0mm per year" Chapter 5 page 3 line 42 gives 1.8±0.5 but I believe that this has only one standard deviation, so it must be doubled to give 95% confidence limits
154	3	77	24	77	24	Insert after "the" "second half of" see Chapter 5 page 2 etc.
155	3	77	24	77	24	Replace "3.1±0.4" with "to 3.1±1.6" Again refer to Chapter 5 and double the uncertainty figure
156	3	77	35	77	35	Insert after "1970's" But these increases are not evident in the lower troposphere (1958-2002 for radiosondes, 1978 to 1998 for satellies) so the land based figures must be contaminated by proximity to human activity."
157	3	78	2	78	2	Delete "strongly"
158	3	95	36	95	36	Insert " McKittrick, R. and P. J. Michaels, 2004 : A test of corrections for extraneous signals in gridded surface temperature data. Climate Research Vol 26 pages 150-173"
159	3	88	19	88	19	Insert " Gray, V.R. 2000: The Cause of Global Warming". Energy and Environment Vol 11, pages 613-628"
160	3	109	9	109	9	Insert "Zhao, Z., Y.Ding,, Y. Luo., and S. Wang., 2005: "Recent studies on attributions of climate change in China. "Acta Meteorologica Sinica" Vol 19, Pages 389-398
161	3	110	3	110	3	Insert after "risen", "but the absence of any temperature rise in the lower troposphere (1958 to 2002 for radiosondes and 1978 to 1998 for satellites) shows that land-based measurements are upwardly biased by proximity of the measurement equipment to human activities"
162	3	110	3	110	3	Replace "but with":by "There are"
163	3	110	4	110	4	Replace "For the global average warming" by "Surface temperature changes"
164	3	110	4	110	4	Replace "has" by "have"
165	3	110	4	110	4	Replace "in the last century" by "since 1865",
166	3	110	4	110	4	Replace "two" by "four"
167	3	110	4	110	4	Insert after "phases" "from 1855 to 1910 a fall of 0.02°C"
168	3	110	4	110	4	Replace "the 1910s-1940s" with "1910 to 1942"
169	3	110	5	110	5	Replace "(0.35°C)" with "an increase of 0.4°C"
170	3	110	5	110	5	Insert before "and" "a fall in temperature of 0.5°C between 1942 and 1978"

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171	3	110	5	110	5	Replace "more strongly" with "an increase"
172	3	110	5	110	5	Replace "(0.55°C)" with "0.45°C"
173	3	110	5	110	5	Replace "but with 0.1°C cooling between" with. "None of these sequences could have been influenced by increases in greenhouse gases; the first two because of the low amount, the second because a cooling is unlikely to be caused by a greenhouse gas increase, and the fourth because the observed warming at the surface cannot be detected for most of the sequence in the lower troposphere, where greenhouse warming is supposed to happen."
174	3	110	6	110	9	Replace from "slightly greater" on line 6 to "resolved" on line 9 with "zero temperature change from 1958 to the year 2002, with a slight rise since then. Satellites found no temperature change between 1978 and 1998, but a rise since then started by the unusually strong El Niño event of 1999"
175	3	110	12	110	12	Insert after "century", "But, as has been explained, this cannot be attributed to a rise in greenhouse gases"
176	3	110	16	110	16	Replace "over the 20th Century" with "from 1855"
177	3	110	16	110	16	Insert after "was" " a fall of 0.02°C between 1855 and 1910,
178	3	110	17	110	17	Replace "(0.35°C)" by "(0.42°C)"
179	3	110	17	110	17	Replace "the 1910s to the 1940s" with "1910 to 1942"
180	3	110	17	110	17	Delete "slight"
181	3	110	17	110	17	Replace "(0.1°C)" with "(0.5°C)"
182	3	110	17	110	17	Replace "then" with "1942"
183	3	110	17	110	18	Replace "the 1970s" with "1978"
184	3	110	18	110	18	Delete "rapid"
185	3	110	18	110	18	Replace "(0.55°C)" with "(0.45°C)"
186	3	110	18	110	18	Insert after "2005" "None of these sequences could have been influenced by increases in greenhouse gases; the first two because of the low amount, the second because a cooling is unlikely to be caused by a greenhouse gas increase, and the fourth because the observed warming at the surface cannot be detected for most of the sequence in the lower troposphere, where greenhouse warming is supposed to happen."
187	3	110	19	110	18	Insert after "1998" "because of the El Niño event of that year, also evident in the lower troposphere records"
188	3	110	19	110	19	Delete "and"
189	3	110	20	110	20	Insert after "2005)" "but this was not detected in the lower troposphere, so it could not be influenced by greenhouse gas increases"
190	3	110	24	110	24	Add at end "and the Antarctic continent since measurements began."
191	3	110	32	110	34	Replace "negligible" to "standards" on line 34 by "significant, and largely explain the difference between the surface record and the lower troposphere, where warming has not been observed between 1958 and 1998"
192	3	110	50	110	51	Delete from "and the data " on line 50 to "practices" on line 51. This is grossly exaggerated
193	3	110	52	110	54	Delete from "but" on line 52 to "Although" on line 54. Again, grossly exaggerated

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194	3	110	55	110	55	Delete from "they" to trends" This makes no sense
195	3	110	57	111	1	Replace from "somewhat" on 110 line 57 to "system" on page 111 line 1 with "show no temperature change from 1958 to 2002 followed by a slight rise by radiosondes, and no temperature change from 1978 to 1999 followed by a large El Niño peak in 1999 and a warm period from 2001"
196	3	111	1	111	3	Delete from "The balance of" on line 1 to "warming" on line 3. The sentence is untrue
197	3	110	1	111	10	This whole "Question" is garbled, and a feeble attempt to summarise the previous text. It is completely unnecessary and should be deleted
198	3	112	1	113	17	This "Question" is also an oversimplified misleading summary of the previous text. How many "summaries" do you need? You do not need this one. Delete it.
199	3	114	1	115	16	Another unnecessary "summary. Delete it
200	3	116	1	116	56	This appendix gives a spurious impression of accuracy which cannot be justified when the data are not randomly distributed. It contains no attention to the problem of bias. The "surface temperature record" is the most important example. Attempts to correct for this bias are inadequate (see McKittrick and Michaels 2004 "A test of corrections for extraneous signals in gridded surface temperature data". Climate Research Vol 26 pages 159-173
201	3	117	16	117	16	Add at end "These procedures do not tackle the bias resulting from the fact that the measuring equipment is not randomly distributed, either within a grid box, or by grid boxes themselves"
202	3	117	44	117	44	Replace "some adjustments are quite uncertain" with "most adjustments are useless"
203	3	117	47	117	47	Insert "sometimes" after "is"
204	3	117	52	117	52	Delete "almost"
205	3	118	12	118	12	Add at end "In practice, these procedures cannot be applied rigorously unless there are many reliable stations. This situation applies to the USA and to China, but probably cannot be applied elsewhere"
206	3	118	33	118	33	Add at end "Systematic upwards bias, even in supposedly "corrected" surface temperature series, has been demonstrated by McKittrick and Michaels 2004 "A test of corrections for extraneous signals in gridded temperature data" Climate Research Vol 26 pages 158-173. They identify a statistically significant influence of a range of socioeconomic factors such as increases in population, coal usage prosperity, and defective data. Their "corrected" temperature trend from 1979 to 2000 fell from 0.270°C per decade to 0.011°C per decade"
207	3	118	36	116	36	Replace "only a" by "very few"
208	3	118	37	116	37	Insert after "homogeneous" "so far, successfully applied only to the continental USA and China"
209	3	118	47	118	47	No mention is made of the problem of incomplete data, which are regularly included in averages. The problem is particularly acute with data from Russia from 1989 to 2001, as documented by McKittrick and Michaels 2004 "A test of corrections for extraneous signals in gridded temperature data" Climate Research Vol 26 pages 158-173., Figure 3.

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210	3	133	10	133	10	Add at end. "The upper diagram is misleading since the record from 1901-2005 is highly irregular, and cannot be regarded as "linear"
211	3	140		143		All these diagrams need to be redrawn and transferred to after page 135 to follow on after the "Surface Temperature" part of the text
212	3	141		141		This diagram is confusing. The temperature records for the radiosonde and for the MSU (satellites) should be on separate sheets, uncontaminated with each other and the surface record. The lower troposphere temperature records definitely do not agree with the surface record. The radiosonde record shows no temperature change from 1958 to 2004, whatever is claimed for a "linear" trend, and the MSU record shows no temperature change from 1978 to 1998. It is unacceptable to draw a "linear trend" through records that are dominated by the 1999 El Niño event
213	3	142		142		It is not acceptable to give "linear trends" which include the 1999 El Niño peak. Since the surface, lower troposphere radiosonde and satellite records are all approximately linear from 1978 to 1998 this graph should be redrawn with linear trends for this region to display the differences which exist between the surface and lower troposphere records
214	3	143	5	143	5	Add at end "This figure is spurious, because the "linear trend" is dominated by the very large El Niño peak in 1999"
215	3	169	19	169	19	Add at end "This whole diagram is spurious There is no justification to draw a "linear trend" through such an irregular record, and there is no reason to suppose that a model based on greenhouse gases could possibly simulate it. The fact that the model does not fit it shows that such an assumption is wrong The maps are equally spurious as they are dominated by the large El Niño event of 1999". They would look very different if they plotted trends from 1978 to 1998 and this should be done.
216	3	171	10	171	10	Add at end. "This behaviour is consistent with the dominant influence of human habitation on the surface record"