

## tcd-9-3165-2015 From Doktor Kurowski's Schneegrenze....

### Response to G. Cogley by Roger Braithwaite

I should thank the two referees for all their efforts, especially in providing their reviews so early. I don't think there is any serious discrepancy between what the two referees want, and I am sure that I can revise my discussion paper to satisfy the points they each raise.

It is more convenient for me to respond to Cogley first (here) as I will need to read some journal articles before responding to Rabatel.

I am pleased to see that Cogley values my historic treatment of the Kurowski approach as well as my attempt to test Kurowski's idea against modern mass-balance data. I will make a separate comment on "Balance Ratio" in response to both Cogley and Rabatel.

I summarize Cogley's line-by-line comments in the table below, together with my response. Cogley divides his comments into "substantive" and "stylistic". I am ashamed to notice how many of the latter are due to my carelessness. Readers will be amused to note that Cogley and I (both of English mother tongue) generally disagree about uses of the apostrophe and the definite article in writing English. I could invoke Sir Edward Gower in an attempt to claim that my usages are correct but I learned a long time ago that authors have to defer to referees. I will therefore adjust my style to fit better with Cogley's wishes. My attempt to introduce the apostrophe into the genitive case of German nouns is quite mistaken, and I apologize.

<i>Line</i>	<i>Page</i>	<i>Referee</i>	<i>Comment</i>	<i>Response</i>
25	3168	Cogley	Substantive	Will expand "baseline"
12-13	3172	Cogley	Substantive	Will add reference to Cogley et al (2011)
19-25	3172	Cogley	Substantive	Will add reference to Cogley et al (2011). I quote comments by M. F. Meier on the 1980 papers as the compilation of these comments was one of my editorial achievements for this volume. Modern editors find it too tedious!
18	3172	Author and Cogley	Substantive	$b_i = k \times (h_i - ELA_0)$ is closer to the spirit of Kurowski (1891) who would not have envisaged a time series of balance data $b_{it}$
19	3172	Cogley	Substantive	Will insert ... $k$ is the balance gradient, <u>constant for the whole glacier</u> , and $ELA_0$ is the balanced-budget ELA.
20-21	3175	Cogley	Substantive	Need to think about this
27	3178	Cogley	Substantive	Any kind of mass balance!
23-27	3178	Cogley	Substantive	Am referring to the glaciers whose mass balance data (using measurements of stakes and snowpits) are used in the present study. It would cause confusion if I refer here to elevation changes measured from satellites that cannot be used in the data analysis (no balance-ELA time-series)
6-7	3180	Cogley	Substantive	Good point! I will expand on this.

<i>Line</i>	<i>Page</i>	<i>Referee</i>	<i>Comment</i>	<i>Response</i>
1-3	3181	Cogley	Substantive	Good point! I will rewrite, especially to avoid two different usages of “correlation”
27	3181	Cogley	Substantive	Do not see any problem specific to this line number but I will revise the whole section from line 28 on page 3180. There may be a case to define $E_0 = (ELA_0 - H_{mean})$ and I will see how it looks
7	3183	Cogley	Substantive	Am sorry that the slash is missing! The more general comments by Cogley will be addressed in an extension to the discussion. I can also add some insights from my own glacier-climate modelling
Header	3165	Cogley	Stylistic	Will expand SEED as School of Environment, Education and Development
12	3165	Cogley	Stylistic	Sorry!
23	3166	Cogley	Stylistic	Will have to think very carefully about this! Aside from the lack of definite article that Cogley refers to, the use of the singular rather than the plural may seem odd to some people.
2	3169	Cogley	Stylistic	A comma after Sissons (1974) will serve same purpose.
15	3169	Cogley	Stylistic	Yes!
18	3169	Cogley	Stylistic	Yes!
6	3171	Cogley	Stylistic	Yes!
1	3173	Cogley	Stylistic	Yes!
10	3173	Cogley	Stylistic	Prefer to delete $\bar{h}$ here so sentence will be in plain English.
17	3173	Cogley	Stylistic	Yes!
5	3174	Cogley	Stylistic	Yes!
10	3174	Cogley	Stylistic	Will correct spelling
16	3174	Cogley	Stylistic	OK
22	3175	Cogley	Stylistic	Our readers will enjoy seeing how two English gentlemen can disagree about the apostrophe. I will delete the apostrophe for a quiet life.
10	3176	Cogley	Stylistic	OK
1	3177	Cogley	Stylistic	OK
14	3180	Cogley	Stylistic	Am truly ashamed of my spelling mistake
26	3180	Cogley	Stylistic	Should be line 29. Yes!
4	3183	Cogley	Stylistic	Yes!

<b>Line</b>	<b>Page</b>	<b>Referee</b>	<b>Comment</b>	<b>Response</b>
15	3183	Cogley	Stylistic	<i>When speaking, I distinguish between “Brice Rea” and “Niels Reeh”. I will drop “Brice” when I am writing.</i>
21	3183	Cogley	Stylistic	<i>Missing reference already noted</i>
23	3183	Cogley	Stylistic	<i>OK</i>
7	3184	Cogley	Stylistic	<i>Yes!</i>
19-23	3184	Cogley	Stylistic	<i>Will rephrase</i>
3	3185	Cogley	Stylistic	<i>Glacial geologists often infer precipitation and I am emphasising precipitation that would be measured by a meteorological station if there was one. Will omit “meteorological” for a quiet life.</i>
15	3185	Cogley	Stylistic	<i>Apostrophes again!</i>
26	3185	Cogley	Stylistic	<i>OK</i>
19	3186	Cogley	Stylistic	<i>OK</i>
29	3189	Cogley	Stylistic	<i>This is the apostrophe that I am ashamed of! I have no justification in using it for the genitive case of a German noun.</i>
Table 1	3192	Cogley	Stylistic	<i>Errors already noted</i>
Fig. 2	3195	Cogley	Stylistic	<i>Yes, that is better</i>
Fig. 5	3198	Cogley	Stylistic	<i>In this case, I will add the apostrophe</i>
Fig. 7	3200	Cogley	Stylistic	<i>In this case, I will add the apostrophe</i>
Fig. 9	3202	Cogley	Stylistic	<i>In this case, I will add the apostrophe</i>
Fig. 10	3203	Cogley	Stylistic	<i>In this case, I will add the apostrophe</i>
Fig. 11	3204	Cogley	Stylistic	<i>In this case, I will add the apostrophe</i>
Fig. 5	3198	Cogley	Stylistic	<i>Fischer’s z is more appropriate for smaller sample or for larger sample with non-independent values as studied by Cogley (1999). I will leave the curve as it is as I am only using it as a simple guide to the eye.</i>
Fig. 7	3200	Cogley	Stylistic	<i>Not quite! I will correct typo and rephrase</i>
		Cogley	Stylistic	<i>Cogley applauds provision of a copy of Kurowski (1891).</i>