

## ***Interactive comment on “Basal buoyancy and fast moving glaciers: in defense of analytic force balance” by C. J. van der Veen***

### **Anonymous Referee #1**

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#### General comments:

Throughout the manuscript there is reference to a “Geometric Approach” of T. Hughes. It is not clear to me where this name comes from, as the most recent paper by Hughes (2016) that I reviewed for TCD does not have this in the title. I think that the present manuscript should very early on say specifically where this name appears in the long citation of Hughes’ articles so that readers can go back and see where it first appears.

As far as I can tell from the TC article by Hughes (The Cryosphere, 10, 193-225, 2016), an application of the Geometric Approach is made to both Byrd and Jacobshavan Glaciers. The current manuscript reports to evaluate the implications Hughes approach by application to the Byrd Glacier (lines 38 and 39). I’m not sure, from looking at the 4 figures, where this evaluation is being made. Perhaps the brevity of lines

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38 and 39 could be expanded to explain how this evaluation will be undertaken, i.e., will there be a direct comparison?

line 169-171, It's not clear to me why the result is "surprising" or that there is no credible mechanism. It's important to explain this, as many of the younger readers of the ice-stream literature may not have sufficient experience understanding how difficult early on it was to figure out how and why ice stream flow was possible.

A comment on lines 291 - 293: While this interpretation may have been true in 2009, exchanges of differing opinion and resolution of dispute in the North American nation where I live and work have led to deplorably mean rhetoric and disrespectful and sometime vulgar public discourse. I see this at times leaking over into the way in which colleagues (particularly in my nation) at times communicate to each other. I would thus say that the present manuscript under review does not rise to a state of sufficient negativity to be regarded as a personal attack anymore. In the past, it would be the role of the journal editors to make sure that any kind of vitriol is removed from a paper that comments on a colleague's work. In this day and age, particularly within the social milieu of where I live, it is hard to find language in manuscripts that would rise to the level of what has become commonplace.

Specific comments:

Line 337 - There is a typo in at least one reference. Given that citation accuracy has been criticized heavily in other journals serving the cryospheric community, I suggest that the Author provide proof that each and every citation has been proofread. Probably no such proof exists, however, it cannot be emphasized more that \*someone\* has to take responsibility for proof reading the citation list (and ensuring that it is accurate and in proper form).

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Interactive comment on The Cryosphere Discuss., doi:10.5194/tc-2016-44, 2016.

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