

Interactive comment on “Connected subglacial lake drainage beneath Thwaites Glacier, West Antarctica” by Benjamin E. Smith et al.

Anonymous Referee #1

Received and published: 5 September 2016

General comments

The paper describes observations that indicate the existence of connected subglacial lakes beneath Thwaites Glacier. The paper presents the first evidence for subglacial lakes in this region well, in a balanced way in the context of existing literature. As a result I support the publishing of the manuscript with only minor changes.

One question that I had, however, was what the return looks like in the radar data from the AGASEA/Icebridge surveys in this area? I assume there are survey lines that cross these lakes? Is there any evidence supporting the existence of the lakes? Given the timescales of filling and draining in the paper the lake should have been existent at the time of the AGASEA survey?

Secondly, I find that the conclusion makes a number of unqualified statements about

C1

subglacial hydrology in general from the conclusions from the Thwaites Glacier observations. You have observations from one system over one period of time which you then use to make sweeping statements about the importance of subglacial hydrology in general. I suggest you modify the conclusion to qualify some of these statements. In particular, page 9 lines 37- page 10 line 2.

Specific comments

Page 1, line 22: Add some references for the AGASEA and IceBridge campaigns

page 3, line 18: remove the second “was generated” from this sentence

page 4, end of line 7: remove “a”

page 4, line 10: add high <to> low

page 5, line 14: remove “we derived”

page 8, line 5: change “lakes drainage” to “lake drainage”

page 8, line 14: change “its” to “it is”

Interactive comment on The Cryosphere Discuss., doi:10.5194/tc-2016-180, 2016.

C2