

## ***Interactive comment on “A brief history of ice core science over the last 50 yr” by J. Jouzel***

### **Anonymous Referee #2**

Received and published: 9 August 2013

The author presents a lively review on ice core science from its beginning to the present. He focuses on his personal main interests, the interpretation of stable water isotopes and the record of greenhouse gases. This review is thus not an exhaustive history of ice core science, as the author points out. The article is well written and is of high value for young researchers in this field, scientists of neighboring research topics and future generations. Some minor issues are listed below. (Note: I deliberately did not read review #1 before submitting my review. Repetitions are therefore possible)

Specific comments.

p. 3714, l. 14: “..to two related US Army Corps of Engineers research laboratories”. In order to avoid a misinterpretation of two parallel existing labs, I suggest some rephrasing, e.g.: “US teams were very active thanks to two US Army Corps of Engineers research laboratories: the Snow, Ice and Permafrost Research Establishment (SIPRE),

C1683

merged in 1961 with another US Army research laboratory to form the (current) Cold Regions Research and Engineering Laboratory (CRREL).

p. 3714, l. 19: “ The operation moved in Camp Century in North West Greenland in the fall of 1960 and ...” Meaning of this sentence?

p. 3716, l. 15: I suggest indicating the Greenlandic names in parenthesis: Thule (Pituffik), Sondrestrom Fjord (Kangerlussuaq).

p. 3717, l. 12: “One of the novelties was the building of a “Science trench”...”. This is not correct. There was a science trench at Dye 3 (1979-1981), and although the on-site scientific activity was much smaller, there were also cold and warm labs at Camp Century (Langway 2008) and the extensive trench system at Byrd Station provided ample space for science.

p. 3720, l. 8: “An EPICA electromechanical drill was developed based on the Danish Istuk drill.” The design of Istuk was quite different. The direct ancestor of the EPICA drill was rather the Danish “Hans Tausen” drill, with some proven features taken over from Istuk and older drills.

p. 3720, l. 18: Spelling of Community

p. 3721, l. 21: “.. horizontal ice cores ..”. At least, this term should be placed between quotation marks, but I would prefer a short explanation.

p. 3722, l.1: “.. that reached back this period ..”. Which period?

p. 3725, l.18: “ It appeared rapidly that this conventional approach underestimates Greenland past temperature changes by up to a factor of 2...” The construction of this paragraph (and partly the following) could potentially lead to some confusion to an uninitiated reader. First the term “rapidly” is maybe not appropriate. It isn’t put into any relation. What means rapidly? The best is probably to omit it. Second, the order of the statements (factor 2 underestimate – physical explanations – experimental evidence) is in my opinion not ideal. I think the first experimental evidence (borehole temperature)

C1684

should follow the first sentence i.e. precede the explanations. Third, there should be a short discussion why the sensitivity in Greenland is different from Antarctica.

p. 3730, l. 23: ".. due their highest .." ->due to their highest

p. 3731, l. 10: ".. to account both to the changes .." -> both for the changes

p. 3732, l. 16: " .. - then taken a proxy of climate change in the gas phase." Incomplete sentence?

p. 3734, l. 8 +10: "we have focussed", "we have not covered". I suggest using the singular: I have..

p. 3734, l. 18: spelling of "cosmogenic"

Fig. 3 caption: The drilling trench at NEEM.

References:

p. 3716, l. 20 + p. 3718, l. 24: Lorius et al , 1985, not in references

p. 3723, l. 15: Raisbeck et al., 2008, not in references

p. 3723, l. 17: Parrenin et al., 2004, not in references

p. 3728, l. 5: Risi et al. 2013, not in references

p. 3728, l. 24: inconsistent spelling of Steffenssen/Steffensen

p. 3730, l. 2: inconsistent spelling of Luthi/Lüthi

p. 3730, l. 25: Sowers et al., 2006, not in references

p. 3731, l. 6: inconsistent spelling Indermuhle/Indermühle

p. 3731, l. 11: inconsistent spelling Kohler/Köhler

p. 3733, l. 15: inconsistent spelling Dallenbach/Dällenbach

C1685

p. 3763, Fig. 6 caption: Jouzel et al 2007 a or b?

Bazin et al. publication year mismatch

Firestone not in alphabetic order

Dansgaard et al., 1989, not found in text

Johnsen et al., 2001 not found in text

Joussaume and Jouzel, 1993, not found in text

Masson-Delmotte et al., 2011, not found in text

Paterson and Clarke, 1978, not found in text

Raisbeck et al., 2006, not found in text

Sowers et al., 1989, not found in text

---

Interactive comment on Clim. Past Discuss., 9, 3711, 2013.

C1686