The Cryosphere Discuss., 4, C1112–C1115, 2010
www.the-cryosphere-discuss.net/4/C1112/2010/

The Cryosphere Discussions

Interactive comment on "Influence of the Tungurahua eruption on the ice core records of Chimborazo, Ecuador" *by* P. Ginot et al.

P. Ginot et al.

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Received and published: 16 November 2010

Responses to comments of A. Svensson (Referee):

Review by Anders Svensson of the manuscript 'Influence of the Tungurahua eruption on the ice core records of Chimborazo, Ecuador' submitted to The Cryosphere by P. Ginot, U. Schotterer, W. Stichler, M. A. Godoi, B. Francou, and M. Schwikowski. DOI:10.5194/tcd-4-1343-2010 The manuscript presents a study of the influence of a major volcanic eruption on the chemistry of the firn in the nearby Chimborazo glacier in Ecuador. The study shows interesting and convincing results, it is relevant for the journal, and to my knowledge the presented dataset is unique. The manuscript is generally well written although some paragraphs need some polishing. I only have minor comments to the manuscript, and I do recommend publication of the manuscript in TC.

p. 1343: Affiliations: Is Margit Schwikowski now located in Punta Arenas?

→ Corrected

p. 1345: l. 12: 'may disturb' -> 'influences'

→ Corrected

p. 1346: l. 10: 'to' -> 'on'.

→ Corrected

p. 1347: l.6: ': : : analyzed for major ions BY ION CHROMATOGRAPHY?...'

→ Added

p. 1347: l.7: 'ECM' – spell out.

→ Corrected

p. 1347: l.10: 'described' -> 'described AND ANALYZED?'

→ Added

p. 1347: l.17: It would be useful to indicate the annual layers in Figure 2. Eg. Indicate at the corresponding depths '1998 AD', '1997 AD',: : : etc. In this way, the reader gets a feeling for how the core is dated, bimodal peaks, and the degree of preservation of annual layers in the various impurities.

→ I've indicated in figure 2, with 4 arrows, the annual delimitation for 3 well defined bimodal shape contiguous years.

p.1347: l.24: %'already'%.

→ Removed

p.1348: l.27: 'both' -> 'the two'

→ Corrected

p.1349: l.1: ‘both’ -> ‘the’.

→ Corrected

p.1349: l.3-4: ‘For NH+4 and NOôĂĂĂ3 both profiles A and B show the best agreement of all species’ -> ‘Of all species, NH4 and NO3 show the best agreement between the two cores.’

→ Corrected

p.1349: l.6: %’to that’%

→ Removed

p.1349: l.9: ’from’ -> ‘of’.

→ Corrected

p.1350: l.25: Have density profiles been obtained for the two cores? Maybe they can help explaining why the sulphate gets ‘stuck’ at those specific depths? Actually, the density profiles may also give a hint about possible refreezing of melt water in the firn? p.1351: l.2: Okay, density has been measured. Would it make sense to show the density profiles in Figure 2 along with the other profiles (including the cumulated profiles)?

→ Figure 2 was implemented with the density profiles

p.1351: l.12: ‘than’ -> ‘as’.

→ Corrected

p.1354: l.11-12: Syntax check needed.

→ I have removed the sentence “The slight lower ratio between core B and A informs that the Ca2+ elution factor is as little bit higher that Mg2+.”

p.1362: Figure 2 caption: ‘The depth scale of Core B is adjusted to that of Core A by

matching of the d18O records’

→ Added

Interactive comment on The Cryosphere Discuss., 4, 1343, 2010.