

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

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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.

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Specific comments:

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

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

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

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

p. 1347: l.7: 'ECM' – spell out.

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

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.

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

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

p.1349: l.1: 'both' -> 'the'.

p.1349: l.3-4: 'For NH<sub>4</sub> and NO<sub>3</sub> both profiles A and B show the best agreement of all species' -> 'Of all species, NH<sub>4</sub> and NO<sub>3</sub> show the best agreement between the two cores.'

p.1349: l.6: '%to that'%

p.1349: l.9: 'from' -> 'of'.

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 den-

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sity profiles in Figure 2 along with the other profiles (including the cumulated profiles)?

p.1351: l.12: 'than' -> 'as'.

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

p.1362: Figure 2 caption: 'The depth scale of Core B is adjusted to that of Core A by matching of the d18O records'.

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

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