

## ***Interactive comment on “Monthly resolved biannual precipitation oxygen isoscape for Switzerland” by Z. Kern et al.***

### **Anonymous Referee #1**

Received and published: 4 June 2013

This manuscript releases a database of precipitation 18O data from Switzerland together with an analysis of the geographical drivers of this parameter, showing different isotope-elevation relationships in winter and summer attributed to the impact of atmospheric boundary layer height. Using a climatology of this parameter from atmospheric analyses, and interpolation and kriging methods, a cartography (isoscape) is established for 1995 and 1996, when the station network is densest.

This manuscript provides several interesting results (the 18O database, the analysis of the isotope-elevation-boundary layer height aspects) but the form and the analyses of the results are not at sufficient quality for allowing publication in the present form.

Major points :

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- insufficient description and analysis of the isotopic records especially the unpublished ones from Bern University. Missing discussion of the quality of the datasets, accuracy of the measurements, homogeneity of the data (calibration).
- lack of discussion of the quality of the PBL data from von Engel and Teixeira, 2013.
- section 3.2, lack of discussion of the results (Figures 3, 4, 5 are almost not described/discussed).
- section 3.3 should be completely revised. The first half of the section should be placed in the introduction. The second half of the section is focused on Greenland and has nothing to do with the work shown here. This should be replaced by a discussion of the results obtained here.
- Figure 1 a (map) could allow a color code showing the start and end dates of the individual records.
- Figures 3, 4, 5 : why selected these months specifically? Please discuss the supplementary information showing the whole set of monthly maps and justify the selected periods. Avoid having a subset of supplementary maps in the main work. Consider releasing the 18O database as supplementary information.
- precipitation weighted 18O : please discuss the uncertainty associated with the information on precipitation amounts.

Minor points :

- p9896, line 13 : allows
- p9903, line 1 : "our suspicion" rather than "our suspect"

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Interactive comment on Atmos. Chem. Phys. Discuss., 13, 9895, 2013.

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