



Influence of pH on $\Delta^{17}\text{O}$ using the conventional equilibration device and a comparison to the CoF3 method

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We have analysed precipitation samples taken from Jungfraujoch for pH variations, using a pH sonde (WTW company) with a repeatability of ± 0.01 pH unit. The values range between 3.78 and 6.95 pH units; average of four measurements of each sample. Previously samples have been analysed for stable isotopes (d^{18}O , d^{D}) and from d^{45} , d^{46} , $\Delta^{17}\text{O}$ has been calculated. Elsig and Leuenberger (2008) observed that the pH has a strong influence on the $\Delta^{17}\text{O}$ during the isotope equilibration between water and CO_2 (^{13}C effect) if pH values are above 4 pH units. We rerun all samples, now buffered to pH 4. Those ^{13}C independent values were compared to those obtained by a CoF3 method (Barkan et.al, 2007). The precision of the CoF3 method is superior over the equilibration method even under buffered condition.

References

1. J. Elsig et.al., Measurements of the ^{17}O Excess in water with the equilibration method. *Analytical Chemistry*, 80/9 3244(2008), 10.1021/ac702436t
2. E. Barkan et.al., Diffusivity fractionations of $\text{H}_2^{16}\text{O}/\text{H}_2^{17}\text{O}$ and $\text{H}_2^{16}\text{O}/\text{H}_2^{18}\text{O}$ in air and their implications for isotope hydrology. *Rapid Communication In mass Spectrometry* 21 2999(2007), 10.1002/rcm.3180