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# A critical discussion on 17O definitions and uncertainties and on  factor differences

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There basically exist 4 different definitions for Delta17O. These definitions result, by the use of the same measured delta17O and delta18O, indifferent delta17O values. This is a wrong situation and it will be asked for a unique and single definition.

Attention will be given to the uncertainty of Delta17O calculted values, which generally are reported to be smaller than the uncertainty of the measured delta17O or delta18O values. It will be explained why this is an erroneous situation.

In mass dependent isotopic fractionation, delta17O and delta18O are related to each other by a factor lambda. This factor is close to 0.53. There exist a number of published determinations of this lambda factor, which are deviating from each other slightly - a difference which is assumed to be significant. Since the lambda factors were determined by use of different materials having different matrices, and by different analytical methods, the question may be raised if the 'slight differences' in the lambda factor estimates might be caused by analytical bias. If the uncertainty ranges of the different lambda estimates overlap, no significant difference between the estimated lambda values can be assumed.