Analysis of depleted water
by N. Sturchio @ University of Illinois

- Mixture of depleted water (18O and 2H "free") with standard reference water
- Measurements of samples in a mass separator.
- Weightings by volume with precision pipettes

$D/H < 2 \times 10^{-6}$

$^{18}O/^{16}O < 4 \times 10^{-6}$

Analysis of depleted water
by M. Groening and N. Sturchio @ IAEA Isotope Hydrology Laboratory (Vienna)

- Mixture of depleted water (18O and 2H "free") with standard reference water
- Measurements of samples with wavelength-scanned cavity ring down spectroscopy
- Weightings with precision balance

$D/H = 4.7 \times 10^{-7}$

$^{18}O/^{16}O = 1.8 \times 10^{-4}$

Dear Claudio,

Attached is a spreadsheet showing measured isotopic compositions (page 1) and weights of mixtures (page 2). Isotopic data are given in "delta" values with one std dev error. Delta values of 0.0 have D/H and 18O/16O ratios equal to standard mean ocean water (D/H = 1.56e-4 and18O/16O = 1.995e-3). Definition of delta (per mil) is [(Rsample/Rstandard) - 1] * 1000. Therefore, a delta value for a sample having D/H and 18O/16O values = 0.00 is -1000 per mil.

--Neil

At 05:33 PM 2/2/2010, you wrote:
> Thanks Neil, that's not very good news. Anyway, let us know when you
> have the data from Vienna.
> Claudio
>
>
> Neil C Sturchio wrote:
> > Dear Claudio,
> >
> > I have received the revised isotopic measurements from Vienna. The
> > absolute D/H isotope ratio is around 4.7e-7 (using -997 delta value),
> > but unfortunately the absolute 18-O/16-O ratio is around 1.8 e-4
> > (using -908 delta value). The oxygen ratio could be slightly better,
> > as there is evidence for some isotope exchange in both H and O with
> > time and exposure to atmosphere, but it \probably does not approach
> > the desired purity (18-O/16-O less than e-6).
> >
> > I will forward the email from Vienna with the data attached.
> >
> > --Neil
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