

## **Sulfur Isotope Analyses**

(Marlene Reuschel, Harald Strauss, Univ. Münster, Germany)

A sequential wet chemical extraction procedure was applied to liberate different forms of sulfur: acid volatile sulfide (AVS), representing monosulfides, and chromium reducible sulfur (CRS), representing pyrite sulfur. At first, AVS was extracted with boiling 6 N HCl for 1 h. The resulting H<sub>2</sub>S was precipitated as ZnS using a Zinc-Acetate solution and transferred into Ag<sub>2</sub>S with 0.1 N AgNO<sub>3</sub> solution. Subsequently, CRS was extracted with a boiling 1N CrCl<sub>2</sub> solution (Canfield et al 1986) for 2 hrs. Again, the liberated H<sub>2</sub>S was trapped as ZnS and then converted into Ag<sub>2</sub>S.

Sulfur isotope analyses were performed online via EA-IRMS using a Carbo Era Elemental Analyzer connected to a ThermoFinnigan Delta Plus mass-spectrometer. For the measurements, 0.2 mg of Ag<sub>2</sub>S was mixed with an equal amount of V<sub>2</sub>O<sub>5</sub> in tin cups and combusted under vacuum. Resulting SO<sub>2</sub> was purified and transferred to the mass-spectrometer in a helium stream. Results are reported in the standard delta notation ( $\delta^{34}\text{S}$ ) as per mil difference from the Canyon Diablo Troilite standard (V-CDT). Reproducibility, as determined by replicate analyses, was generally better than  $\pm 0.3\%$ . Measurements were calibrated against international standards (IAEA-S1, IAEA-S2, IAEA-S3 and NBS127).