

## **Multicollector ICP-MS with a desolvating nebulizer system for U-series dating of Late Pleistocene terrestrial snails**

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Multicollector ICP-MS instruments are very specialized devices for high precision isotope ratio measurements. For useful measurement of low abundant isotopes and mass-limited samples, signal enhancement is often required. In addition, sample preparation and/or sample aerosol desolvation may be necessary to reduce or eliminate mass spectral interferences such as oxides and hydrides.

This poster will examine the application of MC-ICP-MS with a desolvating nebulizer accessory for U-series dating of Late Pleistocene terrestrial snails. Experimental details such as sample preparation steps, MC-ICP-MS operating conditions, and desolvating nebulizer gas flows (Ar sweep gas and N<sub>2</sub> addition gas) will be presented.

The MC-ICP-MS signal enhancement provided via a desolvating nebulizer system enables the use of less sample (1 to 10 mg) for dating measurements. For terrestrial gastropods to be used in paleoclimate or archaeological studies, absolute errors on ages must be accurate and well constrained. Our first results show that, for aragonitic samples, there is enough U to produce meaningful ages with small absolute errors. For example, NM-Gstro-1, having a U concentration of 2.6 ppm, yielded an age of 23,344 ± 107 years beore present from only 6 mg of sample. The desolvating nebulizer system makes these measurements routinely possible.