Did I lose some LA-ICP-MS data somewhere?

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The combination of Laser Ablation (LA) and Inductively Coupled Plasma Mass Spectrometry (ICP-MS) provides an analytical tool capable of both high sensitivity elemental analysis and high precision isotopic analysis in a wide variety of matrices. Since its introduction in the mid 1980's LA-ICP-MS has been applied to a very broad range of applications across science in order to provide high spatially resolved chemical and isotopic information at the micron scale in the solid. The technique is now commonly used by researchers across the geochemical sciences.

As a destructive technique, data not captured as a consequence of detection duty cycle and dead time will be forever lost. Only now has a truly simultaneous ICP-MS been coupled to a laser thus eliminating the prior limitations that single spot analysis can only best be done with a restricted number of isotopes or a restricted section of the mass range. This paper will discuss the merits of laser ablation coupled with a truly simultaneous ICP-MS capable of analysing the entire periodic table for each indivudual laser shot. The use of a simultaneous dual detection range ICP-MS for laser ablation is investigated as a means to capture the whole ICP-MS spectrum of a single laser transient signal. The technique will be applied for both elemental mapping and isotopic analysis of mineral phases.

The Early Paleozoic of the Argentine Precordillera: C-isotope Excursions

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Introduction. We have searched for the register of C-isotope excursions in the Upper Cambrian and Ordovician of the Argentine Precordillera. We report the register of the SPICE and SNICE in one same section in the Precordillera. The Darriwilian positive excursion (MDICE) and a Late Sandbian positive C-isotope excursion (GICE) have been registered in two sections. A pre-GICE positive C-isotope excursion (Sandbian S1, *N. gracilis* biozone) with $\delta^{13}C$ peak of ~ +3‰ is, perhaps, equivalent to the positive Spechts Ferry excursion of N. America. A positive $\delta^{13}C$ excursion registered at the base of the Upper Hirnantian La Chilca Fm. probably corresponds to HICE. **Causes**. These C-isotope excursions are probably related to oceanographic events: (a) sea-level rise and vigorous fluctuations in the Steptoean (SPICE), (b) sea-level fall in the Sunwaptan (SNICE), (c) important transgression in the Sandbian (pre-GICE and GICE), and (d) sea-level fall in the Late Hirnantian (HICE). In the Darriwilian and Sandbian stages, organic burial has led to a large ^{12}C sequestration in deep-ocean anoxia with saline bottom water, recorded by the graptoliferous black shales in the Gualcamayo and Los Azules formations, helped the building of the MDICE, one pre-GICE and GICE anomalies. O-isotope values for the Upper Cambrian are likely near-primary signals that point to progressive cooling from the SPICE to the SNICE, whereas for Sandbian carbonates they indicate strong T fluctuations. The $\delta^{13}C$ peaks of the GICE coincide with cooler periods with T progressively cooler towards Late Hirnantian. In the Zonda Fm., $^{87}Sr/^{86}Sr$ ratios vary from 0.7090 to 0.7109 while in Los Azules and Las Aguaditas Fms., they are ~ 0.7090. εNd values plot along the Nd isotopic evolution trend of the Iapetus Ocean.

Conclusions. The register of these excursions in the Precordillera is valuable proxy for the Early Paleozoic stratigraphy, regional/global high-resolution correlations, and sea-level change history.