

## **Lithium Isotopic Composition of Guatemalan Jadeitites**

Simons, Kyla K.

<ksimons@ldeo.columbia.edu>

Lamont-Doherty Earth Observatory of Columbia University  
Palisades, NY 10964

Langmuir, Charles H.

<langmuir@eps.harvard.edu>

Department of Earth and Planetary Sciences  
Harvard University, 20 Oxford St, Cambridge, MA 02138

Harlow, George E.

<gharlow@amnh.org>

Dept. Earth and Planetary Sciences,  
American Museum of Natural History  
New York, NY 10024-5192

Lithium (Li) isotopes have been measured on Guatemalan jadeitites using MC-ICP-MS, to better understand the evolution of fluids and fluid exchange during subduction. These jadeitites are high-pressure (>6 Kbar), low-temperature (200 to 400 °C) rocks in serpentinite melange that have metasomatic signatures (including high Li concentrations), and are interpreted as having crystallized from slab-derived fluids. They occur on both sides of the Motagua Fault Zone of Guatemala, which is where the North American and Caribbean plates meet. We have measured the Li isotopic compositions of both jadeite and phengitic muscovite from jadeitites occurring both north and south of the fault. The range in Li isotopes is 0 to -4 ‰, relative to the standard LSVEC, and the precision is  $\pm 0.5$  ‰. There is no large systematic offset in the isotopic ratio north and south of the fault, nor is there a fractionation in isotopic ratio between jadeite and phengite within a given rock. These initial values may suggest that the fluids being sampled by these HPLT phases are isotopically light, compared to the Li isotopic ratio of the mantle (+4 ‰), that of seawater (+30‰) or that of altered ocean crust or sediments (~ 0 to +25 ‰). Further analyses are needed to constrain the source and nature of these fluids as well as the process that generates such a large isotopic fractionation in precipitates of a fluid that equilibrated with an isotopically heavy protolith.

This is:

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