



Labex MATISSE

Axe 4 DIMENSIONALITY AND CONFINEMENT

"The partitioning of highly siderophiles elements during core formation.

Terry-Ann Suer

Hosting laboratories, teams and and thesis supervisors names:

Lab: IMPMC, Equipe: MIP

Co-Encadrants: Guillaume Fiquet, Laurent Remusat, Julien Seibert.



Research project

This research aims to determine if chemical equilibration between iron and silicate melts can account for the high concentration of highly siderophile elements in the Earth's mantle or if other mechanisms such as late accretion are responsible for this observation. To test these hypotheses, we attempt to measure the metal/silicate partitioning behavior of highly siderophile elements at conditions relevant to the base of a primitive magma ocean. We conduct partitioning experiments between basaltic glasses and iron alloys in a diamond anvil cell (DAC) at pressures from 45 to 75 GPa and temperatures of up to 3800 C. The partition coefficients are assessed with measurements done at the NanoSIMS.

Scientific results & impacts

Measurements of known standards have been carried out with the LA-ICPMS and the nanoSIMS. We determined the detection limit for Sulfur and Platinum in a basaltic matrix. Several high pressure partitioning experiments have been conducted and more are in progress.

Main key facts

Poster presented at Accrete Workshop, Nice, May 2014

