

Plasma Mass Spectrometry Facility: Instruments

The three argon plasma mass spectrometers in our facility are all designed by [Thermo Electron Corporation](#) (now Thermo Fisher) in Bremen, Germany, and have been installed in 2003 (Neptune, E2) and 2015 (iCAP Qc).

The [Element 2](#) (photo 1, right panel, and photo 2) is rapidly scanning, magnetic sector, single collector mass spectrometers used for elemental analysis of gaseous, aqueous or solid samples.

The [Neptune](#) (photo 1, center) is a large format, magnetic sector, multicollector ICPMS best suited for high precision isotope ratio measurements. It is equipped with eight Faraday cups, eight continuous-dynode electron multipliers (MIC - multiple ion counters) and a central SEM with RPQ for high abundance sensitivity.

The iCAP Qc is our latest addition to the facility (installed in Nov. 2015).

Solid Samples can be directly sampled and introduced into either the Neptune, the Element2, or the iCAP Qc using the New Wave Research UP 193 nm eximer laser ablation sampling device. This system is equipped with a large-format laser ablation cell, the first of its kind in the U.S. (introduced at the 2009 Fall AGU meeting in San Francisco). This cell can hold significantly more samples and standards than regular laser ablation cells.

Aqueous solutions are sampled by a variety of nebulizers and spray chambers from Elemental Scientific Inc. Desolvation of aqueous solutions improves sensitivity and decreases oxide and hydride interferences. We use Apex, Apex-IR, Aridus1 and Aridus2 systems from CETAC Technologies.

Our lab also provides access to a HEPA-filtered exhaust hood, a Millipore water purification system (Elix10, Element) and analytical balances.

Last updated: February 24, 2016

Copyright ©2007 Woods Hole Oceanographic Institution, All Rights Reserved.

Mail: Woods Hole Oceanographic Institution, 266 Woods Hole Road, Woods Hole, MA 02543, USA.

E-Contact: info@whoi.edu; press relations: media@whoi.edu, tel. (508) 457-2000

Problems or questions about the site, please contact webdev@whoi.edu



[Enlarge Image](#)

The WHOI ICPMS facility houses a Neptune multi-collector ICPMS (center), a single-collector Element2 ICPMS, an iCAP Qc quadrupole ICPMS, a 193 nm eximer laser ablation system and complementary sample preparation equipment. (Tom Kleindinst)



[Enlarge Image](#)

Element 2, a high resolution single collector ICPMS.