

Scanning Electron Microscope Facility

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The Scanning Electron Microscope (SEM) facility comprises a Carl Zeiss Leo 1450VP SEM. Imaging is achieved using both secondary and back-scattered electrons, to produce topographical and/or compositional-based images.

Services Available

A range of imaging and micro-analytical work is undertaken using these teaching and research facilities, within Ocean, Earth and Environmental Science at the University of Southampton and other universities, both in the U.K. and worldwide. Also, an electron microscopy service for academic and commercial partners is available in the fields of geology, metallurgical/ materials analysis, environmental science and archaeology.

Electron beam, vacuum sensitive materials, and uncoated samples, can be imaged using the SEM reduced vacuum capability. Preparation facilities include gold sputter coating and carbon coating.

Imaging

Samples up to several cm in size can be imaged, using a magnification range of from 50X through to 100,000X. Automated imaging of mm- to cm-scale sample areas can also be undertaken.

Chemical Analysis

Micro-analytical work is undertaken using an Oxford Instruments X-Act 10mm² area Silicon Drift Detector, incorporating the AZtec Energy software system. Analytical techniques available include; qualitative and quantitative elemental spot and area analysis, incorporating recognized mineral standards, together with elemental line scans and mapping with mineral/ chemical phase analysis.



Carl Zeiss Leo 1450VP SEM with Oxford Instruments Energy Dispersive Spectrometer

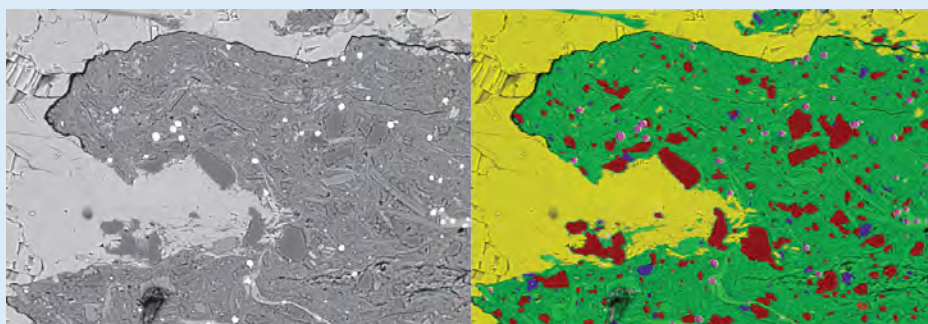
Imaging and energy dispersive x-ray elemental analysis

Elemental mapping and mineral/chemical phase analysis

Analysis of geological, environmental, biological and metallurgical samples

Spurr resin embedding of wet unconsolidated sediment samples

Backscatter image and mineral phase analysis of evaporite sediment. Courtesy of TW:eed Project.



For more information

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