

DEPARTMENT OF GEOLOGY
College of Arts & Sciences

SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN

APPLICATION DEADLINE: MARCH 1, 2004

The Department of Geology is pleased to offer the following research project(s) for the summer of 2004. Interested students are urged to contact the faculty member(s) directing the project that most interests them. By contacting the faculty member, you can discover more about the project, learn what your responsibilities will be, and if possible, develop a timetable for the twelve-week research period.

Highly Altered Rocks From the Elizabeth Mine Area - Discriminating Seafloor Hydrothermal Effects From Regional Metamorphism

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This project will have an undergraduate student to work on the Elizabeth Mine. This is a recently active mine in New England that has great geological interest and also some important environmental issues associated with its closure and site remediation. The US Geological Society (USGS) has agreed to make its collections of maps and data available to us.

The Elizabeth Mine makes an excellent subject for a metamorphic petrology study. Elizabeth is unusual among New England vms deposits in having a great variety of lithologically (and chemically) unusual rocks with very high Si, Al, Na, Mn, and/or B, in addition to the massive sulfides themselves. Elizabeth is also attractive because excellent surface and underground mine maps are available for it and much data is available for thousands of feet of well-located drill core (and several hundred polished thin sections--most with matching whole-rock geochem data for majors, traces, and REEs). A possible project would focus on the Na- and Al-rich rocks (metamorphosed alteration zones in basalts by my interpretation), which have fascinating textures and mineral assemblages, the latter locally including corundum, staurolite, sillimanite (not present in surrounding pelites!), muscovite-paragonite, and margarite. The P-T history is fairly well established by Tom Menard and Frank Spear (two Journal of Petrology papers in the '90s), so the student could focus on the Elizabeth wall rocks in a known petrologic context.

This would be an ideal project for an undergraduate student and the student will also benefit from the Department's strengths in petrology and geochemistry.