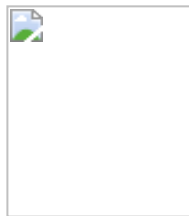


The Granite State Geologist



Newsletter of the New Hampshire Geological Society

Suite 133 * 26 South Main Street * Concord, NH 03301

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Geophysics Explained: Electromagnetics

Paul Hague

Editors Note: This is the second in a series. The first article discussed [Ground Penetrating Radar](#). Other articles will discuss magnetic and seismic techniques.

Electromagnetic (EM) methods operate by generating an electromagnetic field from a transmitting coil built into an EM instrument, and inducing a current flow in the ground. The induced current in turn generates an electromagnetic field, which induces a current flow in a receiving coil in the instrument. By measuring and recording the induced current flow in the receiving coil, a map can be developed depicting variations in terrain conductivity. This information can be very useful in locating metal objects such as pipes or buried drums, or in locating cavities, such as old mine tunnels. Electromagnetic methods are also good for mapping landfill boundaries and contaminant plumes, or for detecting old foundations. Because EM tools are relatively compact, lightweight and easy to use, they are often used as reconnaissance instruments, detecting anomalies for more detailed investigation by other methods such as Ground Penetrating Radar.

The latest EM tool development is a multi-frequency capability. By acquiring data at multiple frequencies, the user can select the frequencies that provide the best results for a specific application. Some subsurface features may be prominent at one frequency and phase, but virtually "invisible" at another. Because the EM instrument measures changes in conductivity, this method can be affected by such things as overhead power lines or chain-link fences or other large metal objects near the site of investigation.

NHGS News and Events

Membership Renewals Due

Please use the enclosed invoice to renew your membership in the New Hampshire Geological Society, and help us update our mailing list at the same time!

Summer Field Trip: Late Wisconsinan Deglacial History of parts of the Contoocook, Souhegan, and Piscataquog Drainage Basins, New Hampshire.

Join Richard Moore and Carol Hildreth on Saturday, July 18, 1998, as they lead us on a reenactment of portions of the 1993 Friends of the Pleistocene (FOP) field trip. We will be meeting at 9:00 AM in Wilton, at the Mobil Station on Route 101, approximately 0.2 miles west of the Route 31 intersection. The trip will last the entire day, rain or shine, so bring appropriate gear. Lunch will not be provided, so pack your own. Because we will be visiting gravel pits, we ask those bringing children to be very careful climbing the slopes. A field guide will be available for \$2.00 (see registration form enclosed). Since it will be a road-side geology field trip, you are encouraged to car pool.

Annual Family Outing: North Conway Area

On Saturday, August 8, 1998. John Fitzgerald and John Creasy have graciously volunteered to lead us on a field trip in the North Conway area to look at some of the rocks of the White Mountain Batholith. This trip will repeat portions of Creasy's 1996 New England Intercollegiate Geologic Conference (NEIGC) field trip. The trip will leave at 8:30 a.m. from the Burger King Restaurant in Conway. A picnic lunch will be provided, to be eaten on the top of White Horse Ledge! The trip will culminate with a 2-hour train ride on the Conway Scenic Railway from North Conway to Bartlett. The train departs at 2:30 p.m. We will be holding 30 seats for those wishing to ride the rails; more seats will be available provided reservations are delivered by July 11, 1998. Costs for lunch are \$8.00 for adults, \$5.00 for children 4-12 years old, and free for children under 4. The train tickets will be \$10.00 for adults, \$5.00 for children 4-12 and free for children under 4. The trip will be held rain or shine.

The **1998 Annual Meeting** of the Society is scheduled for Thursday, October 8, 1998. The meeting will feature the election of officers. Volunteers to run the election are being sought, as are nominations of candidates for the new Board of Directors (see story inside). Openings include President, Vice-President, Treasurer, Secretary, and one Member-at-Large.

Nominations (including self-nominations) should be sent to: Julie Spencer, ENSR, 35 Nagog Park, Acton, MA 01720, telephone: 978-635-9500, fax: 978-635-9180. The deadline for nominations is September 1. Those nominating themselves should provide a brief biography. All biographies will be published in the newsletter prior to the annual meeting.

We wish to thank an anonymous donor and Bob Pomeroy for their donations to the **Mineral Raffle** at our April meeting. A total of \$38.00 was raised; these proceeds have been earmarked for Society's scholarship and grant programs: The Lincoln R. Page Scholarship helps NH Earth-Space Science teachers, and students, attend regional or national conferences. The Classroom Equipment/Materials Grant helps fund purchases of Earth-Space Science equipment and supplies for use in classrooms. We are now soliciting donations for mineral raffles at the October and future meetings. If you wish to donate, please contact Greg Kirby at 603- 271-3624.

NHGS Members: **Please help spread the word** about these grant programs--talk with the teachers in your local school district! They can apply at any time, simply by submitting a brief (1 page) written proposal along with a letter of support from their Principal, to: The New Hampshire Geological Society, Scholarship Requests, Suite 133, 26 South Main St., Concord, NH 03301. Grants normally will not exceed \$300.

Why is this summer newsletter so short? Yes, our publisher did recently have a baby who occupies a lot of his time, but also: YOU did not send in your news! Please, send stuff for the newsletter to: Tim Allen, MS 2001, Keene State College, Keene, NH 03435-2001, telephone: 603-358-2571, fax: 603-358-2897, e-mail: tallen@keene.edu, web-site: <http://kilburn.keene.edu/>

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