

PROGRAM SCHEDULE

Ground Source Heating & Cooling for Residential and Commercial Properties

**Latest Technologies, Economic Advantages,
Environmental Impacts and Regulations**

Presented by

American Ground Water Trust

50 Pleasant Street, Concord, NH

Ground Water Information, Awareness & Education Since 1986



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In Cooperation with:

International Ground Source Heat Pump Association



American Ground Water Trust

The American Ground Water Trust is a national not-for-profit public education organization. The Trust's mission:

- ◆ Promoting efficient and effective ground water management
- ◆ Communicating the environmental and economic value of ground water
- ◆ Showcasing ground water science and technology solutions
- ◆ Increasing citizen, community and decision-maker awareness
- ◆ Facilitating stakeholder participation in water resource decisions

Forum Program

7:15 – 8:00 REGISTRATION

8:00 - 8:15 ENERGY & WATER

Andrew Stone, Executive Director, American Ground Water Trust, Concord, NH

- Concept of Resource Sustainability
- Environmental Issues related to "Geothermal" technology
- Role of "Independent Education" in energy issue awareness
- The importance of "doing it right" for geothermal installations (No shortcuts – No one-size-fits-all)

8:15 – 9:00 THE STATUS OF THE "GEOTHERMAL" INDUSTRY

Paul Bony, Director of Residential Market Development, ClimateMaster, Montrose, CO

- Geographic distribution of geothermal installations
- Trends in the growth of geothermal applications
- Market potential and market predictions for the geothermal industry
- How the Geothermal industry is organized nationally, regionally and locally
- What appear to be the barriers to greater acceptance of geothermal installations?

9:00– 9:45 GROUND SOURCE EARTH COUPLING DESIGN PRINCIPLES

Dominic Rodosta, Business Development Manager, James M. Pleasants Company, Norcross, GA

- Explanation of the methods:
 - Closed loop – vertical, horizontal (slinky)
 - Open system – to surface, to diffusion
 - Heat exchanger systems for surface water (ponds and lakes)
- Weighing positives and negative aspects of each earth coupling method
- Design considerations for geothermal wells in bedrock vs. shallow sand & gravel wells
- What makes one well more efficient than another for thermal transfer?

9:45 - 10:00 NETWORKING BREAK

10:00– 10:45 GROUND SOURCE HEAT PUMPS - THE FUNDAMENTALS

Al Andrews, Principal, Andrews, Hammock & Powell, Consulting Engineers, Macon, GA

- Understanding the basic physics of the heat transfer process
- Explanation of terminology (geoexchange, geothermal, ground source, BTUs, tons etc.)
- What happens to the heat transferred underground – where does it go?
- How to measure the efficiency of geothermal systems
- What makes a "good" system? What should a home inspector, Realtor or purchaser look for?
- Aquifer thermal energy – a technology whose time is imminent?
- Computer models available for geothermal design

10:45 – 11:30 GEOEXCHANGE INSTALLATIONS-STATE and LOCAL RULES and REGULATIONS

Bijan Rahbar, UIC Coordinator, Geologist, GA Environmental Protection Division, Watershed Protection Branch, Atlanta, GA

Michael Gillis, Geologist, GA Environmental Protection Division, Regulatory Support Program, Atlanta, GA

- Current federal and state regulatory requirements
- The development of new rules for closed loop heat borings
- Permit application requirements for installation of a geothermal well/system
- Well construction requirements
- Licensing requirements for well and heat-exchange equipment installers
- Environmental and health concerns from geothermal installation/ operation

11:30 – 12:15 STATE AND FEDERAL ENERGY INITIATIVES - GROUND SOURCE ENERGY OVERVIEW

Jennifer Wilson, State Energy Program Manager, GA Environmental Finance Authority, Atlanta, GA

- Overview of state energy Initiatives
- Potential impact of geoexchange technology on energy security
- The state income tax credit for geothermal heat pump installation (residential / commercial)
- How to apply, where to find the link, what key information is required
- Data on geothermal installations throughout the state based on applications received

12:15– 1:15 LUNCH

**1:15 – 2:00 GEOEXCHANGE SYSTEM INSTALLATIONS The LEED PERSPECTIVE
Jackson Kane, Project Manager, Lord Aeck Sargent Architects, Atlanta, GA**

- Overview of the various Green Building rating systems:
 - United States Green Building Council (USGBC)
- Overview of the LEED rating systems - Commercial vs. Residential
- How is a building's heating and cooling system (energy-use) evaluated in the LEED rating system?
- How do Ground Source Heating and Cooling systems achieve LEED rating points?
- Role of Geothermal in energy-neutral design for commercial buildings

**2:00 – 2:45 GEOEXCHANGE WELL / BORE CONSTRUCTION AND LOOP INSTALLATION
Mark Whittle, Senior Field Services Technical Representative, Baroid IDP, Lexington, SC**

- Criteria for selecting a drilling contractor for geothermal projects
- Matching the drilling equipment and drilling methods to the geological and site conditions
- Collecting geologic data for the geothermal designer
- Installing the vertical loop into the drilled bore
- Grouting material properties and options for geothermal projects
- Techniques of grout placement to meet geothermal design specifications

2:45 – 3:00 NETWORKING BREAK

**3:00 – 3:45 FINANCING INNOVATIONS FOR GEOTHERMAL INSTALLATIONS
Paul Bony, Director of Residential Market Development, ClimateMaster, Montrose, CO**

- Best practices for implementation based on financing and geoexchange programs.
- Consumer-friendly long term financing for “new” or “retrofit”
- How utilities can establish geoexchange by leveraging federal tax credits
- On-Bill financing methods
- Utility loop ownership – own the loop and recover cost over time
- Payback calculations for geothermal
- Making space conditioning costs a fixed expense
- Thermal purchase agreements

**3:45 – 4:30 CASE STUDIES OF YOUNG HARRIS COLLEGE’S NEW RESIDENTIAL HALL
Al Andrew, Principal, Andrews, Hammock & Powell, Consulting Engineers, Macon, GA
Jackson Kane, Project Manager, Lord Aeck Sargent Architects, Atlanta, GA**

4:30 ADJOURN

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