

American Ground Water Trust/ US Geological Survey
GROUND WATER INSTITUTE FOR TEACHERS

To be held at the

U.S. Geological Survey, Center for Coastal and Watershed Studies
600 Fourth Street South, St. Petersburg, FL 33701

Thursday June 9 and Friday June 10, 2005
Register at www.agwt.org (Teacher Institutes)

Contacts:

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Invited presenters / Institute Program

Thursday June 9th, 8:30am to 4:30pm

8:00 – 8:30 **REGISTRATION**

8:30 – 9:00 **INTRODUCTION**

Lisa Robbins, US Geological Survey, St Petersburg, FL

- Welcome to the Institute
- The USGS / American Ground Water Trust Partnership
- Ground water, Florida and Education
- Adding “ground water” to traditional subject areas (math, civics, ecology etc.)

9:00 – 9:45 **HYDROLOGIC SYSTEM: BASICS OF HYDROLOGY & ECONOMICS**

Andrew Stone, American Ground Water Trust, Concord, NH

- Geology fundamentals (rock types/ geologic structure/ aquifer geometry)
- Concept of water balance (hydrologic accounting at local & regional scales)
- Perceptions of water as a shared resource (who owns it?)
- Global & national economic realities of competing water demands

9:45 – 10: 30 **HYDROGEOLOGY IN FLORIDA**

Ann Tihansky, US Geological Survey, Tampa, FL

- Overview of Florida’s geology and hydrologic system
- Ground water flows to the ocean – saline intrusion
- Geologic conditions required for sinkhole development
- Examples of human activities that have induced sinkholes

10:30 – 10:45 **BREAK**

10:45 – 12:00 **HOW SCIENTISTS & ENGINEERS ASSESS AND ACCESS GROUNDWATER**

John Powers, CH2M Hill, Tampa, FL and Ralph Craig, City of St Petersburg, FL

- How data sets can be used to infer hydrogeologic conditions
- How aquifer potential is assessed
- How computer simulation models can assist in water management and aquifer protection
- Case study [St. Petersburg’s deep injection well program and reclaimed water ASR program]

12:00 – 12:45pm **LUNCH**

12:45 – 1:30 **WATER BUDGETS**

Amy Swancar, US Geological Survey, Tampa, FL

- Why is this method of “hydrologic accounting” important?
- Water budget calculation approaches used by the USGS
- Ground water / lake / wetland interactions in Florida
- Ground-water inflow, lake leakage, and lake chemistry

1:30 - 2:15 **GROUND WATER CONTAMINATION PROBLEMS AND SOLUTIONS**

Douglas Grant, Golder Associates Inc., Tampa, FL

- Uncloaking the Mystery: Sources of Groundwater Contamination in Florida
- The Method Behind the Scientific Madness: Assessing Contamination
- Big Brother *Is* Watching: Federal and State Regulations
- A Day In The Life of Joe Consultant: Case Studies
- Becoming Joe Consultant: Student Advocacy

2:15 – 2:30 **BREAK** (watch video)

2:30 – 3:15 **WATER WELLS AND WATER SYSTEMS**

John Mastropietro, Director, International School of Well Drilling, Tampa, FL

- Review of video – “Water Well Basics”
- How water wells are drilled, designed and constructed
- Basic differences among home wells, irrigation wells, utility wells and monitoring wells
- How drillers decide on well depth and estimate well yield
- Water pumps - how they work

3:15 – 4:00 **GROUND WATER TOPICS AND THEIR CONNECTION TO SCIENCE TEACHING**

Andrew Stone, American Ground Water Trust, Concord, NH

- Arsenic in ground water and the impact of the EPA ruling of 10ppb for drinking water
- Water dowsing as a classroom discussion topic!
- In-stream flows, wetlands & ground water
- Aquifer tests (interpreting relationships between well pumping and water level changes)
- The difference between ground water renewability and sustainability

4:00 – 4:30 **REVIEW OF DAY ONE – LINKS TO FIELD TRIP**

Ann Tihansky, US Geological Survey, Tampa, FL

- Background for field trip
- Logistics for day 2

4:30 - **Adjourn for the day**

Friday June 10, 8:30am to 4:15pm

8:30 – 1:00pm **FIELD TRIP**

Ann Tihansky, US Geological Survey, Tampa, FL

Stop 1. South Down Limestone Quarry:

- Stratigraphy of carbonate rock units
- Karst processes
- Land use effects on ground water

Stop 2. Withlacoochee State Forest: (Declared as one of the "10 Coolest Places in North America" by the World Wildlife Fund)

- Cave visit
- Sinkhole and cave formation
- Cave ecology

Stop 3. Wall Springs Park (Lunch in the Park)

- Historic use of the spring
- Spring discharge measurements
- Origins and flow routes of ground water

1:00pm Re-convene at Center for Coastal and Watershed Studies

1:15 – 2:15 **WATER QUALITY ISSUES IN FLORIDA**

Eric DeHaven South West Florida Water Management District, Brooksville, FL

- Nutrients in Florida springs
- Salt-water intrusion in aquifer systems
- Total Maximum Daily Loads (TMDL's) rules and case study

2:15 – 3:30 **EDUCATION RESOURCES/ GROUND WATER IN THE CURRICULUM**

Pauline Luther, EDL Educational Development, Pinellas County Schools

- Sunshine State Standards
- The Environmental Distance Learning Program
- Resources for teachers (tools, quizzes & lesson plans)
- Real-time USGS data for educators

3:30 –3:45 **BREAK**

3:45: 4:15 **FINAL SESSION**

Ann Tihansky, US Geological Survey, Tampa, FL

- USGS Education resources
- Institute wrap-up
- Completion of CEU paperwork and evaluation sheets

4:15 **ADJOURN**