

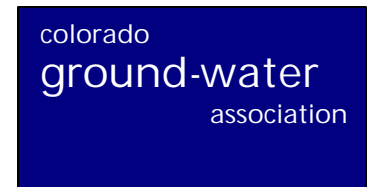


**PROGRAM**  
**2007 COLORADO**  
**GROUND WATER INSTITUTE PROGRAM**  
*Denver, Colorado – July 10-11, 2007*

*Convened by the*  
*American Ground Water Trust in partnership with*  
*the US Geological Survey and the Colorado Ground Water Association*

**Hosted at:**  
**United States Geological Survey Training Facility**  
**Denver Federal Center - Building 810 – Gate 4 off of Union Avenue**

**We thank the following sponsors for their generous support!**



**Barry Gager**  
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**Coors Brewing Company**  
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## Invited Speakers and Topics

**TUESDAY JULY 10, 2007**

**8:00 AM – 8:45 AM**

**Registration and Continental Breakfast**

**8:45 AM – 9:45 AM**

**Class Session**

*Garret Graaskamp, Hydrogeologist, American Ground Water Trust, Concord, NH*

**Ground Water Fundamentals**

- Introduction, Welcome and Institute Objectives
- Overview of the hydrologic system and the geologic environments that influence the nature and occurrence of ground water in Colorado
- How does a Home Water System work (Wells and Pumps)?
- Are ground water, streams and wetlands connected?

# 2007 COLORADO GROUND WATER INSTITUTE PROGRAM

**TUESDAY JULY 10, 2007 (CONTINUED)**

**9:45 AM - 10:45 AM**

## **Class Session**

*Peter Barkmann, CPG, Hydrologist, Colorado Geological Survey, Denver, CO*

### **The Geology and Hydrologic Characteristics of Colorado Aquifers**

- Geologic Setting
- Major Classifications of Aquifer Types in Colorado
- Major Alluvial Aquifers
- Sedimentary Rock Aquifers
- Mountainous Region Aquifers

**10:45 AM – 11:00 AM**

## **Networking Break**

**11:00 AM - 12:00 PM**

## **Class Session**

*William Battaglin, Research Hydrologist,, United States Geological Survey, Denver, CO*

### **Contaminants of Emerging Concern in the Environment: Is there a reason to get excited?**

- **Endocrine disrupting compounds (EDCs) -- What are they?**
- **Observed effects of EDCs -- Signs of disruption in the environment**
- **Potential sources of EDCs -- Industrial, Agricultural and Municipal**
- **Case studies in Colorado and the Rocky Mountain region -- Occurrence in surface and ground waters**

**12:00 PM – 1:00 PM**

## **Lunch (Provided on Site)**

**1:00 PM – 1:45 PM**

## **Class Session**

*Joyce Wallace, Jefferson County, CSU Cooperative Extension, Golden, CO*

### **Teacher Resources and the Colorado State University Cooperative Extension System**

- What is the Cooperative Extension?
- CSU Cooperative Extension Programs for Teachers
- Curriculum Resources

**1:45 PM – 2:45 PM**

## **Class Session**

*Heather Justus , P.G. Leonard Rice Engineers, Inc., Denver, CO*

### **A Day in the Life of a Hydrogeologist**

- What does a consulting hydrogeologist need to have a successful and exciting career?
- What tools do we use to determine water demand versus the supply?
- How does plant growth affect ground water?
  - Impacts versus habitats
  - What type of plants are better for our dryer climate?
- How does ground water pumping effect surface water in rivers / streams?
  - Case Study of the Big Chino Valley and the Verde River
  - Case Study of the Box Elder Creek and the South Platte River
  - Case study of Denver Basin Ground Water Wells
  - Augmentation Case study

American Ground Water Trust  
16 Center Street, Concord, NH 03301  
July 10 - 11, 2007

# 2007 COLORADO GROUND WATER INSTITUTE PROGRAM

**WEDNESDAY JULY 11, 2007**

**2:45 PM – 3:00 PM**

**Networking Break**

**3:00 PM – 4:30 PM**

**Class Session**

*Todd Hinkley, Technical Director, National Ice Core Laboratory, USGS, Denver, CO*

*Eric Cravens, Hydrologist, National Ice Core Laboratory, USGS, Denver, CO*

**Tour of the USGS National Ice Core Facilities and Laboratory**

**8:00 AM – 9:00 AM**

**Class Session**

*Nina Miller, Outreach Coordinator, Water for People, Denver, CO*

**The Water for People Program**

- What is Water for People?
- Case study of implementing rural water supply projects in Honduras
- Involving the community with protecting and managing the new water supply
- The process of evaluating water supply projects in developing countries
- How Colorado schools can become involved with WFP

**9:00 AM – 10:00 AM**

**Class Session**

*Christopher Spears, Meteorologist, KMGH TV, Denver, CO*

**Colorado Drought - We have a great climate but . . . it's darn dry!**

- What is drought?
- Does Colorado get more water from rain or snow and why?
- How is precipitation distributed across Colorado?
- Is drought in Colorado a common historical occurrence?
- How does Colorado's precipitation pattern effect the availability of water resources?

**10:00 AM – 10:30 AM**

**Networking Break**

**10:30 AM – 12:30 PM**

**Field Trip**

*Peter Barkmann, CPG, Hydrologist, Colorado Geological Survey, Denver, CO*

**Tour of Lower Clear Creek Canyon - Geology and Aquifer Characteristics**

- Primary and secondary porosity
- Permeability controls
- Interstitial and fracture porosity

**12:30 AM – 1:30 PM**

**Lunch – (Provided)**

# 2007 COLORADO GROUND WATER INSTITUTE PROGRAM

**WEDNESDAY JULY 11, 2007 (CONTINUED)**

**1:30 PM – 4:15 PM**

## **Field Trip**

### **Tour of Coors Brewing Company - Water Rights Overview and Water Treatment Facility**

- (1:30 to 2:15) The history of the water rights and use at the Coors Brewery  
*Ken Vaught, Manager, Water Resources Development*
- (2:15 to 3:15) The science of brewery water treatment - the water is important!  
*Jeff Tyus, Chief Plant Operator and Gordon Whittaker, Chemist*
- (3:15 to 4:15) Tour of Water Treatment Facility  
*Jeff Tyus, Chief Plant Operator*

**4:15 PM – 4:30 PM**

## **Wrap-up**

*Garret Graaskamp, American Ground Water Trust*

- Where to find additional education materials on ground water and hydrology

## **Institute Adjourns**