



SEGS “Spring” Meeting and Field Trip Announcement

Florida Caverns and Marianna Hi Cal Pit

DATES and TIMES: SATURDAY and SUNDAY, February 25-26, 2012

Saturday:

- Morning/Afternoon - On your own until our 4:30 CST dinner meeting. Visit the park and observe the karst features from nature trails.
- 4:30 local (Central Standard Time): meet at Madison's Warehouse (restaurant - located at 2881 Madison Street, Marianna, FL; 850-526-4000) for our dinner meeting. The restaurant is approximately 5 – 10 minutes from the park entrance.
- 6:30 and 7:30 – Flashlight tours of the caverns.

Sunday:

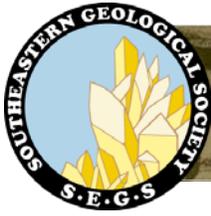
- Morning – Field trip to the Florida Hi Cal Pit

DESCRIPTION:

Florida Caverns – SEGS will have the cave to ourselves Saturday evening for “Flashlight Tours”. These evening tours allow visitors access to more of the cave system and more time in the cave than the afternoon tours. As the tour name implies – the flashlight tours are designed for illumination by flashlight – so we need to bring our own. The park rangers will turn on the lights for us in the two rooms to which electricity has been run if we ask – so we can take photographs or to get a better view of the cave. That is not an option in the other two rooms.

Our dinner speaker and cave tour guide is Mr. Darrel Tremaine. Darrel is a PhD Candidate at the Earth, Ocean, and Atmospheric Science National High Magnetic Field Laboratory at Florida State University. Darrel is conducting research at Florida Caverns State Park.

Darrel is studying stable isotope (carbon and oxygen) and trace element records in cave stalagmites. Changes in isotopic composition are often interpreted as climate changes in rainfall amount, cave air temperature, overlying vegetation and atmospheric pCO₂. However, these records are difficult to verify without direct calibration of changes in cave microclimate (e.g., net rainfall, interior ventilation changes) to contemporaneous variations in dripwater and speleothem chemistry. In his study at Hollow Ridge Cave (HRC) in Marianna, Florida, cave dripwater,



bedrock, and modern calcite (farmed in situ) were collected in conjunction with continuous cave air pCO₂, temperature, barometric pressure, relative humidity, radon activity, airflow velocity and direction, rainfall amount, and drip rate data.

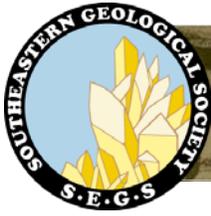
These comparisons show that when the cave is strongly ventilated (during the winter) calcite growth is approximately 10x faster than when the cave is stagnant (summer), suggesting that most HRC speleothems record winter-time climate conditions. Due to ventilation there is a significant gradient in calcite carbon isotopes; “heavier” near the ventilated cave entrance, becoming ~ 7-10‰ “lighter” toward the deep interior during all seasons. Also, farmed calcite trace cation/Ca ratios faithfully track short-term seasonal variations in dripwater chemistry for Na, Mg, Sr, Ba and U. However, speleothem calibrations are unique to each drip site regardless of proximity to one another, suggesting that individual speleothems are unlikely to be useful as a whole-cave hydrologic proxy. [3]

Darrel’s presentation will focus on two themes: (1) air exchange between the atmosphere and cave, and how it affects calcite isotopes; and (2) mixing between rainwater and dissolved limestone, and how mixing affects dripwater chemistry over short time periods.

The Marianna Hi Cal Pit – This limestone quarry is located in the city of Marianna, Florida, and is a limestone mining operation which has exposed several lithostratigraphic units of interest. Eocene and Oligocene limestone is at or near the surface in this area due to a regional positive structural feature called the Chattahoochee anticline. The area surrounding the mine falls within the Marianna Karst Plain geomorphic province. This particular mine is important because it exposes the Eocene/Oligocene boundary and is near the type section for the Bumpnose Member of the Ocala Limestone and is one of the few exposures in the Southeast where this contact is exposed. It has important implications in helping to decipher the climatic and faunal transitions between these two epochs. There will be plenty of opportunities to collect fantastic fossil specimens from each of these units. Some of the more prized fossils include shark teeth, nautiloids and large sea biscuits.

PLEASE BRING: Flashlight, closed toe shoes, and sweater for the cave and safety equipment including sunscreen and eye protection safety sunglasses for quarry. SEGS will provide snacks and hydration fluids for the quarry visit.

IMPORTANT NOTES: Marianna is in the Central Time Zone – so factor that into your travel plans. Bring a reliable flashlight for the cave tour. We are told that



there are stinging nettles on rocks near the cave entrance and off the nature trails so please exercise caution. These nettles are different from the Bull Nettle - a.k.a. Tread Softly or Finger Rot - that many of us are familiar with. See this publication for more information. <http://edis.ifas.ufl.edu/pdf/files/HB/HB00200.pdf>

COST: We request a \$25.00 donation for each adult participating in this field trip. All travel, dining and hotel reservations and costs are on your own.

OVERNIGHT LODGING OPTIONS (reserve ahead of time for best rates):

Fairfield Inn & Suites - about \$89 + taxes 1-866-599-6674 (recommended by AAA)

Microtel Inn & Suites - about \$70 + taxes 1-866-599-6674

Comfort Inn And Suites - about \$85 + taxes 1-866-539-0036

REGISTRATION: The attached waiver and release form must be returned with registration for attending the field trip. Early registration is required so we can arrange the appropriate number of cave tours. For more information contact any of the SEGS officers:

John Herbert at 352-371-5553, jherbert@geohydroconsultants.com

Marc Hurst at 863-293-4343, marc.hurst@independentgeo.com

Harley Means at 850-545-8444, Guy.Means@dep.state.fl.us.

Please confirm your registration and dinner menu selection with an email to John Herbert.

Registration

Name: _____ e-mail (confidential): _____

Affiliation: _____

Mailing Address: _____

Daytime Phone: _____ Cell Phone: _____

***** Please mail your registration and waiver with a \$25 check to SEGS, P.O. Box 1636, Tallahassee, FL 32302 to be received by Wednesday, February 23, 2011. Please email John Herbert to confirm your registration and dinner menu selections.*****

I have read and understand the waiver and release form. Checking this statement is the equivalent of the registrant's signature, acknowledging the SEGS release of liability. Additional waivers may be required day of trip.