



Charity Golf Tournament

Wednesday, Oct. 9, 2013
Hawk's Landing Golf Club
Orlando, FL



- 1:00 PM Shotgun start, four-man scramble
- Contests, door prizes and silent auction
- Sponsorships available
- Registration includes golf and post-play BBQ
- Club rental available
- Play one of the top courses in the state, just three minutes from the Caribe Royale, FRC host hotel
- Proceeds to [Juvenile Diabetes Research Foundation](#)
- You do not have to attend FRC 2013 to play...

Everyone is invited!

Contact Information

Player 1 (contact): _____
Company: _____
Address: _____
City, St, Zip: _____
E-mail: _____
Phone: _____

Additional players in foursome:

Name _____
Name _____
Name _____ Company _____

Single player registration is \$135 (checks payable to NTCC, Inc.) Foursomes registering at the same time are \$450. (Save \$90.) If you'd like to take advantage of the foursome discount, you must submit payment in full (\$450) with this form.

Payment information

☐ Check or ☐ CC: ☐ AmEx ☐ Visa ☐ Mastercard
Name on CC: _____
CC #: _____
Exp.: ____ / ____ Sec. Code: _____ CC Zip: _____

Sponsorships

☐ Regular Holes: \$200
☐ Contest Holes: \$250 + minimum
☐ Closest to Pin
☐ Drive/Ladies
☐ Tee Time

Player Foursomes are SOLD OUT...
But we do have several single player slots still available

Amt. \$ _____
Total _____

Mail to FRC Golf Tournament
PO Box 2175
Goldenrod, FL 32733
FAX to (407) 671-7757 or **E-MAIL to** mreast@enviro-net.com
Questions? Call Mike Eastman at the Florida Remediation Conference at (407) 671-7777 or 1-800-881-6822.

Special thanks to the following companies for their generous support of the 2013 FRC charity golf event

A&D Environmental Services
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Clark Environmental
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EQ - The Environmental Quality Co.
ESC Lab Sciences
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The FGS Group
Flowers Chemical Labs
FMC Environmental Solutions
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SurvTech Solutions
SWIX
SWS Environmental Services
TBAEP
Tech USA
Tetra Tech
US Environmental Rental
Waste Management
WRScompass
ZEBRA Environmental

FGS initiates study of sinkhole vulnerability

By BLANCHE HARDY, PG

The Florida Geological Survey, a division of the Florida Department of Environmental Protection, has initiated a statewide assessment of sinkhole vulnerability in Florida.

The three-year project is funded by a \$1.8 million Federal Emergency Management Agency grant issued in conjunction with the Florida Division of Emergency Management.

Clint Kromhout, PG, a professional geologist with FGS, said the project's goal is to "create a statewide map showing a relative vulnerability to sinkhole formation throughout the state."

Sinkholes are common in Florida and along with related Karst landforms such as springs, caves and disappearing streams, are the result of chemical weathering and dissolution erosion of Florida's ubiquitous soluble limestone and dolomite dominated strata.

"There are several givens when coming to Florida: beaches, sun, hurricanes and sinkholes," said Kromhout. "Sinkholes are nothing new to the state. They have been around for millions and millions of years."

Florida is underlain by thousands of feet of porous limestone, the nature of which, while susceptible to sinkhole subsidence incidence, also accommodates the billions of gallons of fresh water that sustains habitats critical to the viability of Florida's diverse flora and fauna, and is consumed by residents, agriculture and industry.

The Division of Emergency Management was prompted to seek the vulnerability assessment as a result of increased sinkhole subsidence incidents last year.

"In June 2012, Tropical Storm Debbie dumped a tremendous amount of rain. At the same time Florida was experiencing a drought," said Kromhout. "Because of this, the lowered aquifer levels created what was possibly air space within unknown voids across the state."

"The tremendous amount of rain Debbie dropped added a lot of weight to overburden sediments, those being the sands clays and soils above these voids, and in doing so caused a lot of sinkholes to form."

Two 2012 sinkhole subsidence incidents garnered national attention, the first resulting in the fatality of a sleeping resident in February when a sinkhole opened beneath a home in Tampa and a second in August that sent hundreds of tourists scurrying for safety as the central section of a three-story, 24-unit resort villa near the Central Florida attractions corridor collapsed into a sinkhole in Lake County.

"The Florida Division of Emergency Management approached FGS asking if they could provide them a tool for their mitigation section that specifically provides strategies to prevent, or hopefully reduce, the loss of property and life within the state," said Kromhout.

The vulnerability study will take place over three years and includes three phases.

"The one-year pilot study over the first phase will be done in Hamilton, Suwannee and Columbia counties," said DEP Spokesperson Patrick Gillespie. "The second and third phases—over two more years—will extend what was learned in the pilot study to the remainder of the state."

The results of the pilot study will be used to produce a model that will generate a map illustrating the relative vulnerability of the pilot study counties to potential sinkhole formation. FGS scientists will then use the model to produce a statewide sinkhole vulnerability map.

The information will be used to improve Florida's Enhanced Hazard Mitigation Plan risk assessment section on sinkholes and will include enhancement of corresponding mitigation strategies.

Kromhout noted that the resulting statewide sinkhole vulnerability map "will be used by local emergency managers at the county and city level to create their own (local) mitigation strategies," and that "the public can also use the map and see the relative vulnerability to sink hole formation within an area they are interested in."