

# Everglades Geological Society *BULLETIN*

Volume 15, Number 4

September 2009

**Meeting This Month:** September 15, 2009  
6:00 P.M. at the Edison, Tower Room  
*(Social hour starts at 5:00)*

**Speaker:** Steve Krupa, P.G.  
South Florida Water Management District  
West Palm Beach, Florida

**Topic: Submarine Groundwater Discharge into the near  
shore in Biscayne Bay Miami, Florida:  
Do we really know what is going on?**

**A review of data collected from August 2005 through January 2006.**

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**Everglades Geological Society**  
**P.O. Box 61684**  
**Fort Myers, FL 33906**

The Everglades Geological Society is an organization which seeks to promote interest in and understanding of Geology and the related Earth Sciences, and to provide a common organization for those individuals interested in geology and the related earth sciences. The Bulletin is a publication of the Everglades Geological Society, Inc.

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**EGS MEETING THIS MONTH**  
**TUESDAY September 15, 2009**

**The Edison**  
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*Members and prospective members come  
join us!*

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# An Ode to Geology

A few years ago when I was working thru the Geology program at the University of South Florida. Me and a few of my Geology cohorts started noticing a unique pattern with some of the new "language" we were learning. The text that follows is some of the best and worse of what we came up with during a brain-storming event for ideas for the USF Geology Club t-shirts. Needless to say, I'm sure that there was some form of alcohol involved during the creation of these. There is also a poem from Brenna Lorenz who was also part of our group at USF and contributed to the list.

1. Geology: where subduction always leads to orogeny!
2. Shear Heaven
3. Hit and Miss - Shear Bliss
4. What a lode off my mind
5. Holy Schist, Batman...We made it!
6. What a lode of fuchsite
7. We Dig Mother Earth
8. My Psychologist told me that every decline is a great Break Through
9. Grabben a dike by the cleavage!
10. I'm a geologist and I'm hung like a horst
11. Geologists make the bed rock
12. Cummingtonite?
13. Which bed are you in?
14. Geologists make the bed rock
15. I am a down to "earth" person
16. Follow me, I am looking for gold
17. Lost a rock ? I will find it for you
18. I can guess how old the earth is, but still an amateur in guessing the age of a women
19. Wish the earth's inventor left the specs behind
20. Geologist drill at home and at work
21. Kiss a geologist: get your rocks off!
22. Geologists probe crevasses
23. Geologists get their Rocks Off
24. Mom Loves Geologists
25. Geologists know their plagioclase feldspar
26. Geologists do it in the dirt
27. Try a Geologist for a Volcanic Eruption
28. Thank God! That light WASN'T a train
29. Only a Geologist will carry a rock uphill in the name of science!

## A GEOLOGY POEM

### *Ode to Olivine in Thin Section, a poem by Brenna Lorenz*

In basalt a lurid green  
Bespeaks the savage olivine;  
Mantle's child, born of fire,  
Restless in the open air,  
Little beads of anger bear  
The torture of desire.  
Silica upon its face  
It suffers, helpless, in disgrace,  
Its powers of reaction bound  
By solid's bond and cage,  
In agony confined to rage  
Unstable and unsound.  
Its birefringent power plays  
The sifted light to rare displays;  
The haunting, primal colors tell  
Of fire and fury's flag unfurled,  
Flag of fluid, nether world,  
Beneath the fragile shell.

**As I'm sure you guessed, many of our ideas never made it to the back of the club t-shirts. Thanks for letting me make you laugh!**

**A. Morris**

## *Newly Elected President's Address* **Andrew McThenia**



I think many of you enjoyed my selection of speakers for the 2008 lineup. It was a pleasure and a challenge to be responsible for choosing and inviting those professionals to share their vast knowledge and experience with us. I was honored to be able to use the Everglades Geological Society as part of my official introduction to the speakers. The Society name gave me a very fat foot in the door that I otherwise would not have had. Despite the short notice on several meetings, we were able to muster a pretty decent audience for all of our speakers. My worst fear was that I'd invite someone and then no members would show; I want to thank all of you who participated and prevented one of my nightmares from becoming reality. My only regret is that I was unable to attract the chief scientist from NOAA's Aquarius Reef Base to come up from Key Largo. I console myself with the fact that she often lives underwater and probably only comes up for really important engagements. As an alternative speaker, I gave a passing consideration to inviting a Weekie Watchie Mermaid. Although I admit that my motives may not be entirely related to geology, I would submit that scuba diving on the Florida Reef Tract and hose diving in a first magnitude spring are both professions that would provide unique hydrogeological insights.

I'd like to express my high regard for a common trait that we share that is intellectual inquisitiveness. I attribute my ongoing quest for knowledge with successfully staving off job burnout and possibly slowing my descent into a pool of intellectual stagnation. The EGS meetings provide me with a sort of intellectual escapism that is part of a healthy mental diet. We don't have to work in order to listen, and the gifts of our speakers are basically free. Many of our professional duties are far from what we might consider stimulating. The daily grind of permits, technical writing, spreadsheets, contract negotiations, etc. is enough to drive a person to apathy or worse. The saving grace that often relieves the tedium of work is often the tidbits of mystery and the small glimpses into human or natural history that I encounter. My pursuit of knowledge is usually tangential to my career and is almost always more stimulating and interesting than what I do for a living. Although I have been criticized for wasting

time by going too far from an intended research target, I have also been praised and encouraged to continue exploration down these tangential paths which often lead to interesting places.

An excellent example of this type of mental meandering happened to me during a reconnaissance in preparation for field work near Yeehaw Junction. I googled the strange name and found that Wickopedia had this to say: *"According to Dr. Ed Petuch of the Pangea Institute, who is trained as a paleontologist, the last known dire wolf in the State of Florida was killed near Yeehaw Junction, Florida in the 1920s. Fossils of the animal are found here once in a while, demonstrating that they were in these parts for quite some time. This would be quite astounding since the species has supposedly been extinct for several thousand years."* It is likely that this is an erroneous report; however, the hint of mystery added a bit of spice to my fieldwork and made the tedium more palatable. I later followed as many links as I could find on dire wolves and even read a several books on megafauna extinctions. One interesting theory explained the lack of megafauna on all continents except Africa as owing to the fact that humans evolved alongside Africa's big game but we invaded every other continent and wiped them out everywhere else. Other examples of fringe interests that I have pursued include: paleotsunamis, paleotempestology (ancient storms), Carolina bays, alligator gastroliths, dinoflagellates, Calusa Indians, and pirate treasure. These seemingly trivial pursuits are a form of continuing education and they help improve my intellectual and emotional fitness. I try to relate at least some aspect of the esoteric element into whatever boring task I might be doing.

I'll conclude with some advice to all, please never stop wondering. I encourage everyone to continue the journey of the mind as far as it will take you and to never become complacent or content with whatever destination you have reached. As geologists, we have a unique perspective on science and the analytical abilities to make us especially fit to continue to explore outside of our comfort zones.



Hello fellow EGS members,

Well it has been sometime since I have written to you and sadly this will be my last address. Now that I am taking up the role of Past President, which probably means I will be leaving the area soon if I follow in the steps of the more recent Past Presidents. Well hopefully not, I've kind of grown fond of this area. This past year has brought us some very interesting guests and unique opportunities to hear subject matter that we may not normally be introduced to in our day-to-day jobs. I want to thank Andy McThenia for doing a great job in tracking down some excellent professionals within their selective fields and I would like to thank everyone who came out in support of our meetings over the last year.

The last year saw some periods of being disorganized and a couple of our meeting notices didn't get out on time for people to make plans to join us on our third Tuesday. Now that we have elected some new blood for the 2009 – 2010 board and we have an Editor that is local, I think we will be on track to having a great season of speakers and meetings at The Edison located at the Fort Myers Country Club.

Even during the current economic conditions, our Society has been able to maintain its membership level. I would like to extend an invitation to anyone within our ranks, if your company would be interested in sponsoring a meeting or placing an advertisement with the Everglades Geological Society, please contact one of the board members and they will provide you with the information for you to present to your company.

I have the recent pleasure of diving on the east coast over the past year. I have about 25 logged dives just in Palm Beach County. Something that I have noticed every time I head out on a dive boat. There are a lot of people fishing in and around the reef system in Palm Beach County. But when I'm down on the reef drift diving, I notice that there really is not that much life left on these reefs. A lot of these areas are being fished out. There are your regular creatures on the

reef's, your tropical reef fish, sea slugs, a few spiny lobsters but not really much else. The Saturday of Labor Day weekend I was off Pompano Beach on the Sea Dog Diver and during my second dive of the morning I was leading a dive with a pair of divers that had only been in the water a hand full of time. As we floated along with the current we passed an anchor that had been dropped directly on the reef. Anchor line reaching up to the surface. Some uneducated boater had dropped anchor right on the reef and had split a fairly large piece of hard coral right in half.

We need to be aware of what our actions do to the environment and this small little planet that is on lease to us. Our actions of today will take many, many years to reverse.

Be aware and let's start conservation at home!!

Take care. Your Past-President  
Anthony Morris



Crystal River dive August 2009

## *THIS MONTH'S TOPIC*

Submarine Groundwater Discharge into the near shore in Biscayne Bay

Miami, Florida:

Do we really know what is going on?

A review of data collected from August 2005 through January 2006.

By

Steve Krupa, P.G.

South Florida Water Management District

West Palm Beach, Florida

### **A Brief Overview**

Groundwater/surface water interactions are important in all aspects of hydrology, whether it is fresh water seeping into a wetland, river or canal system or fresh water mixing with brackish water in the near shore environment. Groundwater contributions are key in understanding ecological stressors, calculating TMDL's, calculating daily nutrient loads, or balancing a water budget in a numerical model. Recent fieldwork indicates that numerical models may be underestimating groundwater contributions by several orders of magnitude. This presentation will provide an overview of seepage meter fieldwork conducted offshore in Biscayne National Park. The equipment used was a fully automated seepage meter system along with water quality sensors inside and outside the two seepage meter domes. Additional offshore groundwater and surface water data was collected from two wells at 22 and 41 feet below the seafloor. All data has been synthesized in graphic form to illustrate the relationship between seepage, water quality, wind speed, direction, and hydraulic heads offshore. The seepage data presented includes never seen before results for three hurricanes: Rita, Katrina, and Wilma. The eye of Wilma passed just north of the study area and caused massive drainage within Biscayne Bay.

### **BIOGRAPHY**

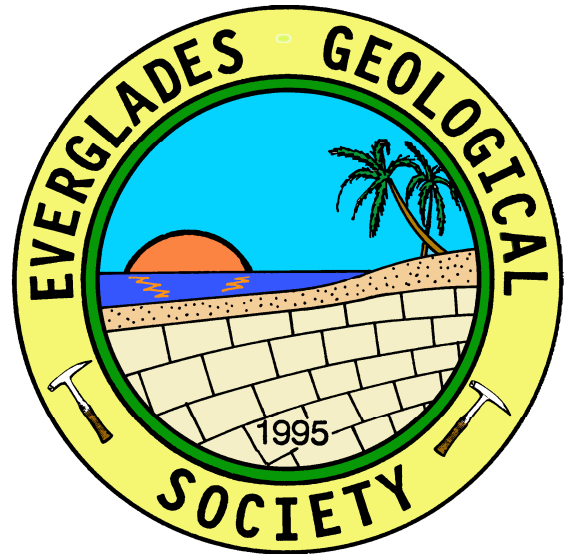
Steve received two Bachelor of Science Degrees in 1986 from Florida Atlantic University (FAU), one degree is in Ocean Engineering and one is in Geology. He received his Masters Degree in Geology from FAU in 1999. His thesis topic was: "*Recognition and Analysis of Secondary Depositional Crusts in the Surficial Aquifer System of Southeast Florida*".

He is a licensed Professional Geologist in the State of Florida and has taken the Engineer in Training examination and is working toward taking the PE test. He is on the Advisory Committee for Geomatics Engineering, Department of Engineering at Florida Atlantic University, Boca Raton, Florida. He is an inventor of the automated seepage system (1998) coined the Krupaseep Seepage Meter System (not by him but by contractors working with him). It is a fully electronic seepage meter coupled with field water quality detection equipment and on-site weather station. There have been numerous publications on the equipment that he developed. He was an invited attendee at the International Submarine Groundwater Discharge Intercomparisons held in Panacea, Florida (July 2001), in Perth, Australia (November 2001), and in Shelter Island, New York (May 2002), all conducted by the International Oceanographic Committee. He has written over twenty peer-reviewed publications.

**Steve Krupa Biography continued**

His background includes working for Amoco Oil offshore, in the private sector for Dames & Moore where he worked throughout the Southeast United States. He has worked in Australia and the United Arab Emirates. He currently is employed by the South Florida Water Management District in the Water Supply Department. He is the section leader of the Hydrogeology Section.

His areas of interest are fluid hydraulics in aquifers, groundwater/surface water interaction, data collection and synthesis and more recently subsurface geophysical techniques to improve aquifer properties and numerical models.



**Everglades Geological Society**

Meets on the Third Tuesday every other month at The Edison on McGregor Blvd at the Fort Myers Country Club in Fort Myers, Florida. Social hour starts at 5:00 PM. The meeting begins at 6:00 PM. No meetings are held in July or August



**EGS MEETING CALENDAR 2009**

**March 17**  
**May 19**  
**September 15**  
**November 17**

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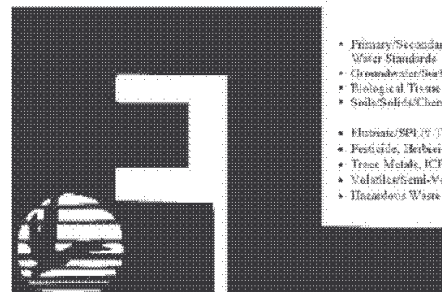
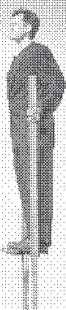
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