



# *The Florida Surveyor*

*Volume XXVI, Issue 4*

*April 2018*

**FSMS Pioneers:  
John Gargis**

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*A publication of the Florida Surveying and Mapping Society since 1992*



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## President's Message



To everyone that has taken the time over the last few months to renew their membership, and thus their commitment and investment in FSMS and the surveying and mapping profession, give yourself a pat on the back! It seems that a lot of us can get wrapped up in other things this time of year with so much going on, including the March Madness basketball frenzy.

FSMS was very active championing society-building events around the state in February and March. The enthusiasm, excitement and participation of our chapters and members during National Surveyors Week was very encouraging. It was great to see so many local proclamations signed and to attend several tri-chapter meetings, and, overall, to see the surveying profession be proudly recognized throughout the state and country.

At the end of February, a few of us had the opportunity to attend the NSPS spring meeting and Western Regional Survey Conference in Las Vegas. FSMS and the State of Florida were well represented by myself, Tom Steckler (our Executive Director), Ronnie Figueroa (NSPS state director), and Chris Wild (FSMS Young Surveyors Network chair).

The UF Geomatics Senior Class had its annual field trip to Tallahassee, which was attended by 20 students and chaperoned by the esteemed Jack Breed. We had the opportunity to enjoy lunch with the students at our administrative office. We had an informal, yet informative, discussion of the future of our profession and our Society as it relates to the students as they approach graduation and prepare to join our ranks.

National Surveyors Week and Florida Surveyors Week is always something we should look forward to in March. It falls in the third week of March every year, and it is a great opportunity for surveyors to be acknowledged and recognized for the work we do and the contributions we make to our communities and the building of our country. Even President Trump took a minute to write a letter of recognition for National Surveyors Week this year. Like him or not, that does say something about the meaningful profession we embrace and the contributions we make to our society.

National Surveyors Week Proclamations were publicly signed throughout the state, beginning with Commissioner Putnam, Governor Scott and the Florida Cabinet on the state level, and County and City Councils and Commissions on the local level. Thanks again to all the members and chapters who took the time out of your busy work schedules to formally receive this recognition.

Tri-chapter meetings were held this month in Lake City, Port Charlotte, Davie and Lakeland, and all of them were exceptionally well attended. Hundreds of us joined together for invaluable fellowship, conversation and social time. Additional thanks to the chapters and members who hosted picnics and provided school programs and community outreach during this month of recognition.

Finally, the annual Strategic Planning Meeting, led by President-Elect Dianne Collins, was held in Lady Lake at the end of the month. This was also very well attended, and it was a productive session generated by a wealth of wisdom, knowledge and ideas - all brought to the table in order to better the Society and our profession as we move forward along with the growing changes in the Geospatial industry.

“Blessed are those who have not seen, yet still believe” – John 20:29.

Happy Easter to All!

Bob Strayer, Jr.  
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# Surveyors in Government



Richard Allen, PSM, CFM

Greetings and salutations to all of my fellow government surveyors and to all those who read these articles. I am writing this after attending the Tri-Chapter meeting for the Central Florida, Ridge and Tampa Bay chapters of FSMS. The meeting was well attended, and a few government surveyors were in the house, from Pasco and Pinellas Counties.

Meetings such as these are great for networking, but also for bringing together surveyors who may otherwise not get an opportunity to cross paths. There was a regulatory board member present, as well as a diverse mix of professionals, all with the common goal of learning and bettering the profession! Kudos to all of those around the state who put in the effort to coordinate the events to bring surveyors together to celebrate National Surveyors Week!

This month, I am writing about the recent meeting held in West Palm Beach at the offices of the South Florida Water Management District regarding the 2022 datum change. The meeting was put together by Mike O'Brien, Surveying and Mapping Section Administrator for the South Florida Water Management District. This meeting was only open to government surveyors in anticipation of the upcoming change in datums, both vertical and horizontal, to ask questions about

*"This meeting was only open to government surveyors in anticipation of the upcoming change in datums, both vertical and horizontal, to ask questions about preparation for the change."*

preparation for the change. This initial meeting was an introduction into the upcoming changes and was limited to a small number of attendees because of the venue size. There were 40+ in attendance, and not much room for anyone else.

NGS Gulf Region Advisor Denis Riordan and NGS Mid-Atlantic Region Advisor Scott Lokken both spoke at the meeting. They both traveled in for the meeting and gave excellent presentations on what and why this transition is occurring and what the road forward looks like. As stated previously, this was an introductory overview into the pending changes. The hope is to hold this meeting on a bi-annual basis and get more government surveyors involved. Eventually, it will also likely involve private surveyors.



*The meeting was held at the offices of the South Florida Water Management District in West Palm Beach.*





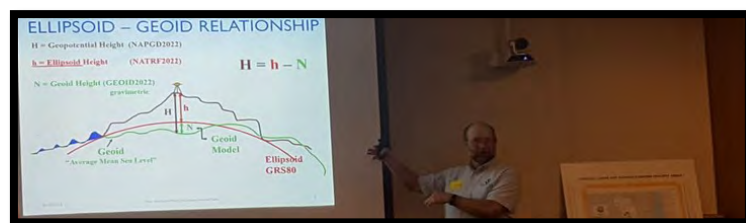
*Denis Riordan presenting at the meeting.*

Now the question is: are we ready for this change? I am not ready as of now, but continued collaboration and sharing of information in preparation for the change will keep us moving in the right direction! Hopefully, all of Florida can move together and keep from having the continuous “why does it have to be in NAVD 88?” debate. Or, the question of “what datum is it?” The one big issue that worries me is the identification of data that is not qualified and trying to guess what it is.

This becomes more critical in my neck of the woods, because the vertical difference the last time

I saw it was 0.3’+/- in the Orlando area. Allen Nobles, President of the Geospatial Users Group, has done a great job of spreading the word about what the potential shift is from the current reference frame to the new frames when the information becomes available to him. Keep watching for that information – and go ahead and join the Geospatial Users Group and get in the know! I am a member and you should be too!

In closing, I would like to take a moment to remember John Gargis, former President of FSMS and continual contributor to the profession of surveying. He and his wife Kay were big promoters of National Surveyors Week and in helping promote surveying in general. John continually wrote articles about surveying and spoke out about issues he saw. He will be sorely missed and I just wanted to take a moment to remember him after his passing last month. He always took time to talk about our wonderful profession to anyone! John will be missed immensely!



*Scott Lokken presenting.*

In the near future sometime after 2022, the change will occur from NAD 83 and NAVD 88 from our current horizontal and vertical reference systems and will now be referred to as a Terrestrial Reference Frame (Horizontal) and Geopotential reference (Vertical):

Horizontal (From NGS):

- **North American Terrestrial Reference Frame of 2022 (NATRF2022)**
- **Pacific Terrestrial Reference Frame of 2022 (PATRF2022)**
- **Mariana Terrestrial Reference Frame of 2022 (MATRF2022)**
- **Caribbean Terrestrial Reference Frame of 2022 (CATRF2022)**

Vertical (From NGS):

- **North American-Pacific Geopotential Datum of 2022 (NAPGD2022)**



#### Why is NGS replacing NAD 83 and NAVD 88?

NAD 83 and NAVD 88, although still the official horizontal and vertical datums of the National Spatial Reference System (NSRS), have been identified as having shortcomings that are best addressed through defining new horizontal and vertical datums.

Specifically, NAD 83 is non-geocentric by about 2.2 meters. Secondly, NAVD 88 is both biased (by about one-half meter) and tilted (about 1 meter coast to coast) relative to the best global geoid models available today. Both of these issues derive from the fact that both datums were defined primarily using terrestrial surveying techniques at passive geodetic survey marks. This network of survey marks deteriorates over time (both through unchecked physical movement and simple removal), and resources are not available to maintain them.

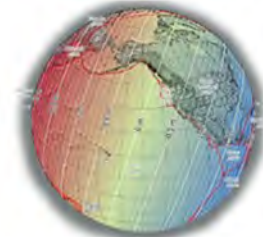
The new reference frames (geometric and geopotential) will rely primarily on Global Navigation Satellite Systems (GNSS) such as the Global Positioning System (GPS) as well as an updated and time-tracked geoid model. This paradigm will be easier and more cost-effective to maintain.

#### What to expect: Your coordinates will change

The magnitude of change will vary based on the datum you are using and your geographic location. View the maps below to see the approximate horizontal and height changes when the new reference frames are adopted.

You can also use online tools to calculate the approximate change in your area. Use **HTDP** to calculate approximate horizontal change and **xGEOID** models to approximate vertical change.

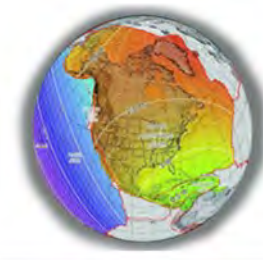
Approximate Ellipsoid Height Change



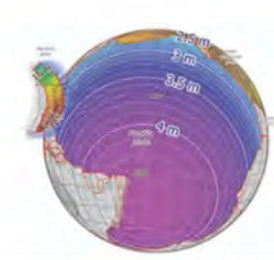
Approximate Orthometric Height Change



Approximate Horizontal Change North American Plate



Approximate Horizontal Change Pacific Plate





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# Echoes from the Hill

FSMS Legislative Update

Compiled by FSMS Lobbyist  
David Daniel:

## Week 8 of 9

The pace has picked up considerably during Week 8. The Legislature is focused on addressing the tragic shooting in Parkland and protecting Florida's students. The House, Senate and Governor's Office each have a plan but finding consensus on several controversial parts has been difficult for them, particularly in the last pressure filled three weeks of the 2018 Legislative Session.

The framework for an budget agreement and allocations were agreed to this week by the presiding officers. Budget conference committees have met most of the week and the Florida Legislature is currently on track for a timely close of session on March 9<sup>th</sup>, or it could all implode this weekend.

### UF/IFAS Geomatics Education – state budget

*HB 5001 – not included in Senate budget*

HB 5001 includes \$636,120 in nonrecurring state funds to the UF/IFAS Geomatics Education Program.

*The House of Representatives continues to hold to their position of full funding this item while the Senate has moved off of no funding and are offering \$250,000. This issue will be resolved in budget conference committee.*

### DSL Funding – state budget

*HB 5001 - SB 2500*

Both House and Senate spending plans include \$500,000 for restoration of corners under line item 1543 on contracted services.

*This funding has been agreed to by both House and Senate.*

### Licensure Fees for Veterans and Surviving Spouses (includes changes to 472)

*HB 29 by Rep. Ponder (R-Destin) and Sen. Broxson (R-Pensacola)*

This legislation changes requirements in specific professions for veterans and surviving spouses. Section 9 and Section 10 of this legislation opens Chapter 472.015 & 472.016 to waive initial license fees for surviving spouses, current members of armed forces or their spouses or a surviving spouse of a veteran who died in active duty.

*HB 29 passed the House by a vote of 115-0 and has been substituted for the SB 1884 and is awaiting final passage in the Senate.*

## BILLS ON LIFE SUPPORT

### Deregulation Legislation

*HB 15 by Rep. Beshears (R-Monticello) – SB 526 by Sen. Brandes (R-St. Petersburg); SB 1114 by Sen. Brandes on Professional Regulation*

The bill removes hair braiders, hair wrappers, body wrappers, nail polishers, makeup applicators, boxing announcers, and boxing timekeepers from DBPR regulation. Additionally, the bill reduces some licensing, training and scope of practice for specified professions. The bill does **NOT** include surveying and mapping. Section 34 of the bill does open up Ch. 287.055 to a conforming change.

### Statewide Procurement Efficiency Task Force

*SB 368 by Sen. Brandes (R-St. Petersburg) – HB 111 by Rep. Albritton (R-Wauchula)*

The bill would create a 14-member Statewide Procurement Efficiency Task Force to evaluate the effectiveness and value of state and local procurement laws and policies. Members are to be appointed by July 31, 2018 with a final report to the Governor, President of the Senate and Speaker by July 1, 2019. The Task Force would terminate December 31, 2019.

### Veterans Identification (includes changes to 472)

*HB 107 by Rep. Williamson (R-Pace) – SB 328 by Sen. Baxley (R-Ocala)*

This legislation would create a veteran identification card to be used as proof of veteran status. Section 2 of this bill makes changes to Chapter 472.015 on licensure to allow for use of a veteran identification card.



## Week 9 of 9

The 2018 Legislative Session concluded the majority of their work late Friday evening. They did extended session until Sunday to give them the required time to pass the state budget and included the tax relief package in the extension, otherwise all other bills died last night.

It was a challenging session to say the least. What began without a whole lot needing to be accomplished turned into a roller coaster ride. Opioids, hurricane impact and recovery, sexual harassment, and the tragedy at Parkland were a few of the big issues that occupied legislators energy during the 2018 Legislative Session.

Now we move to the election season. With races for Governor, Attorney General, CFO and the Commissioner of Agriculture along with the State Senate and House of Representatives, there will be opportunities for us to strengthen our relationships with Florida's elected leaders in support of our profession.

### **DSL Funding – state budget**

*HB 5001 – State Budget*

Both House and Senate spending plans include \$500,000 to the Division of State Lands for restoration of corners under line item 1543 on contracted services.

*This funding has been included in the state budget.*

### **Licensure Fees for Veterans and Surviving Spouses** **(includes changes to 472)**

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*HB 29 passed the House by a vote of 115-0 and the State Senate by a vote of 38-0 and will now head to Governor Scott for consideration.*

## **Did Not Pass Into Law**

### **UF/IFAS Geomatics Education – state budget**

*HB 5001 – State Budget*

HB 5001 included \$636,120 in nonrecurring state funds to the UF/IFAS Geomatics Education Program.

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# FSMS Pioneers

*A series that honors the legends of surveying in the state of Florida*

By Dominic Levings

## John R. Gargis

*Former FSMS President was an ardent lifelong student and advocate of the profession*

On February 15, 2018, John Russell Gargis, PSM #2423, passed away in his sleep at the age of 75.

His obituary reads: “No doubt he is surveying heaven as we speak”.

Perhaps there is not a more succinct way to eulogize a man who seemed to have an incessant passion for the surveying profession.

“If it wasn’t surveying, it didn’t catch his eye,” explained his widow, Kay Gargis.

“John was passionate about surveying – he lived it, he drank it. When he wasn’t working, he immersed himself in the history and the writing about it,” said Susan Jackson, a longtime friend of John and Kay.

John Gargis was born on December 28<sup>th</sup>, 1942 in Havre de Grace, Maryland, a small town on the mouth of the Susquehanna River best known for its excellent duck

hunting. He moved to Melbourne, Florida when he was 8 years old.

He began working on a survey crew at age 19 after graduating high school. Like most surveyors of his generation, he learned on the job. He became a licensed surveyor when he passed the official exam at age 27 in July of 1970.

Kimberley Gargis, John’s daughter, remembers growing up in a surveying household. Their family moved a few times in her youth, and her father would purchase property and survey it himself before building a home on it.

Kim remembers her and her brother, James, helping their father survey the lots.

“We were his rodmen,” she said, laughing. “We had to skunk through the palmetto bushes and around the pine trees.”

“I hated the palmetto bushes, let

me tell you that.”

She remembers her father attending a few night classes when she was young, so he could hone his mathematic skills and supplement what he was learning in the field. However, this was the extent of his formal surveying-related education.

“It wasn’t a formal education, it was all learning through buying books and studying and experimenting,” Kim recalled. “Other than high school he didn’t really have a formal education. It was all learning on the job and absorbing.”

It is now evident that John’s penchant for self-education extended well beyond his time preparing for the official licensing exam. In fact, by any standard, he was a prodigious writer, researcher, and programmer, who consumed, crunched, and relayed any and all surveying-related information.

According to *The Florida Sur-*



veyor archives, John wrote 37 articles for this publication, from May 1997 to December 2014.

The topics he analyzed and wrote about are wide-ranging and unique, and much of the expansive research he conducted was original. Some of his article topics include: a detailed analysis of nails, reducing overhead costs, interesting stories from the field, and government patents.

He delved into some topics so extensively that they were published in multiple installments. For example, he wrote an eight-part series on Half-Mile Posts, a three-part series on a disputed township survey in Florida in the 1800s, a three-part series on Florida's Initial Point, a four-part series on Swamp and Overflowed Lands, a four-part series on Benchmarks, and a four-part series on plat dedications.

Susan Jackson was the Brevard County Surveyor from 1998-2013. She met John through his wife, Kay, who worked in the county property appraiser's office. She distinctly remembers John's appetite for all things surveying.

"Even after he stopped working, he never stopped sharpening his saw in surveying. He continued to learn and grow. He had a hunger for it," Jackson said.

"In order to love something so much you have to be passionate about it. And that's what John was."

He was particularly interested in the history of surveying. Kim explained that she felt like her father had a certain sense of history and had always enjoyed learning about the lives of past surveyors.

"He was always a history buff for surveying. He had a great appreciation for early surveyors simply because they didn't have a lot of the modern equipment that surveyors have in today's world...they had to slog through undeveloped land that



*John's FSMS President's Portrait from the 1982-1983 year.*

was swampy and marshy," Kim said.

"It was a sense of belonging to the past as well as the future. If he was the first to plot a new piece of land, he had a sense of pride in doing a good job."

John completed his largest historical writing piece in 2011. It is an exhaustive history of Brevard County Surveyors, from the 1850s until the present day. It is a 26-page document that details the lives of the individual county surveyors, culminating with Jackson, who was the incumbent Brevard County Surveyor when John completed the

work in 2011.

It is obvious that methodical and painstaking research was required to write such a lengthy and detailed history on such a narrow and peculiar topic. In fact, John was so thorough, that at one point during his research, he employed Kim to help him.

John was researching the life of Robert Burchfiel, the Brevard County Surveyor from 1887-1895. Burchfiel moved to Kansas in 1895, and died in Harper County, Kansas in 1914. John asked Kim, who lives in Omaha, Nebraska, to drive to Kansas and find the gravestone of Burchfiel.

After a six-hour drive, Kim arrived at the cemetery and began her search, but couldn't find the gravestone. As it would turn out, John accidentally sent her to the wrong cemetery. Needless to say, Kim was not thrilled.

"That's how dedicated he was to being accurate and thorough in everything he did," Kay said of the gravestone story.

John's knowledge of surveying minutiae and his commitment to being accurate and thorough de-



*John (right) presenting an award to a fellow local chapter member.*





*John reviewing one of his articles.*

finished his surveying career. He gained a reputation as a meticulous professional, going to great lengths to be exact and factual in his work.

“He always wanted to make sure his work was correct – he didn’t like sloppy work and he wanted everything to be professional,” Kim explained. “People have always told me he was very helpful to other surveyors.”

One such surveyor was Loren Mercer, a longtime FSMS member who first met John at a Manasota chapter meeting in 1979. After moving away from the Manasota area, Mercer saw John every year at the annual FSMS conference, up until about seven years ago.

Mercer recalled that John was the go-to local expert on mean-high water boundaries, which was an area that was murkily defined back then.

“It was a big deal in those days,” he said. “Who owned the submerged land? Where did the upland start?”

Mercer says that John developed a system for defining mean-high water boundaries by himself, and that the local surveyors used his method until a more modern and formal method was created.

“He was interested in things not too many people knew about,” Mercer said. “It always intrigued me how deep he would go to make sure he was right on anything.”

John was also an extremely pro-

ficient computer programmer. He was especially fluent in DOS coding, the original line-by-line coding system that was a hallmark of early IBM computers.

He developed several survey-related programs. The first program he wrote, on an early computer he purchased from Radio Shack, simplified the process of archiving data points and other records. Instead of having to handle physical documents, a surveyor could store and retrieve pertinent numbers and figures on the computer.

Later, he would write numerous programs that served as calculators and converters for data. A user simply had to input numbers from data gathered in the field, and it would be crunched out into the desired result, instead of having to make the calculations by hand.



*John at a family wedding.*

“He had a fascination with the computer and how it could help the surveyor make his work more efficient,” Kim remembered.

When it came to John’s passion for the profession, and his devotion to bettering it, he perhaps could not have accomplished what he did without one person – his wife, Kay.

“It’s hard to have a conversation about John without having one

about Kay,” explained Jackson. “It was Kay who was such a support system for his passion.”

“It was like a team. You didn’t have one without the other, really.”

Kay is originally from Huntington, West Virginia. She moved to Florida in 1992 and began working in the Charlotte County Property Appraiser’s office, in the mapping department. It was here that she first met John, in 1993.

She recalls that he would come into the property appraiser’s office quite often, asking for old maps and other documents to aid him in his work. Her supervisor and other coworkers always helped him, and he was a familiar face to everyone in the office.

One day, John refused help from one of her coworkers, and asked for Kay instead.

“I guess he’d been checking me out,” she recalled, laughing. “He told me later he didn’t need anything, he was just making it up.”

John would go on to ask Kay to dinner a few times, but she denied, because she said it was against office rules and she would lose her job. Eventually, she agreed to meet him for lunch.

It was at this lunch that Kay discovered John had a habit for being late. He arrived just as she was about to leave, and he offered to pay the check. Her response was about as cool as it gets.

“I told him, ‘Absolutely not. I have no use for men,’” she said.

But John didn’t give up. He sent flowers to her office every week, sending a fresh bouquet before the previous one died. One arrangement of two dozen roses was so big, it couldn’t fit through the doorway.

He also sent her small gifts, including a watch that ran backwards.

“He told me that he wished time ran backwards so we could have more time together,” Kay said.

A relationship developed, and John and Kay were together for five and half years before marrying in 1999.

John’s first wife had died from cancer, and he had two children – Kim and James. Kay had also been previously married, and had one son and two daughters - Kenneth, Jamie, and Keri. Kay says they didn’t marry earlier because her two daughters were still in high school.

“I didn’t want to subject them to him, and him to them,” she recalled.

Later, Kay asked John what made him stick with her.

“He told me he stayed with me because I was the only one who told him no,” she said. “I was the challenge...I was the only person who refused to go out with him.”

John had already been a member of FSMS for several years prior to meeting Kay and was the society president in 1982-1983. He had also been extremely involved on the local level, serving as the President of the Space Coast, Manasota, Charlotte Harbor, and Peace River chapters. He won the Chapter President of the Year award twice, in 1974 and in 1997.

Jackson remembers that John and Kay were a dynamic duo when it came to their efforts for FSMS. She was a fellow member with them in the Space Coast chapter.

“Everything we did in the community, he was in support of it,” Jackson said.

“Any type of fundraiser or



*A rare occasion when John wasn’t writing. “Note the ever-present thumb drive,” Kay said.*

event we did, it was Kay who was out there in the front, selling tickets or getting the support of FSMS or the community. She just never stopped.”

Jackson said the couple were instrumental in the revitalization of the Space Coast chapter, which had gone through a slump in the mid-2000’s. Along with Jackson, they injected new life into the chapter, which culminated in Space Coast winning the Chapter of the Year Award in 2009 – no small feat for a chapter with a small group of members.

“They were part of the group who resurrected the Space Coast chapter and brought it to the height of winning chapter of the year,” Jackson said. “They were a big part of us winning.”

John had his first stroke in 2010 and was wheelchair-bound until he passed away. But friends and family say his limited mobility did little to curb his commitment to FSMS and the profession.

Kay said that even when he couldn’t move on his own, he would remind her when it was time to go to chapter meetings.

“He loved being at conference, being at seminars, being at chapter meetings, being in the company of other surveyors,” Jackson said.

Kay says John remained a writer

and programmer until the end, sitting at his computer until about six months before his death, when his health declined so much that he could no longer muster to do so.

“The whole time, even in long-term care, he’s sitting at his computer writing programs for surveyors to use in their surveying,” she said.

Those who knew John best will remember him as a man who was committed to the advancement of his profession until the end of his life, who worked year after year to promote surveying and share his love of it with others.

“He wanted the profession to advance and be considered as something to be looked upon as a good career choice,” Kim said.

One specific image comes to mind when Kim thinks back on her father, an image from her youth.

“I mainly remember him hunched over the drafting board, him plotting out things and looking at things,” she said.

There is no doubt that John Gargis is hunched over a drafting board as we speak, surveying heaven.

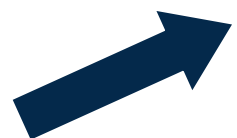
*John's celebration of life is on Thursday, April 5, 2018 at 10am at Royal Palm Memorial Gardens, Punta Gorda, Florida.*



# Around the State



*Allen Nobles of the Geospatial Users Group (GUG) presenting to a group of students at Chaires Elementary in Tallahassee.*



*Matt Simpson, CST (l) and Chris McLaughlin, PSM (r).*

**From Chris McLaughlin:** As part of MacSurvey, Inc.'s activities leading up to National Surveyors Week, we sent two surveyors to volunteer for the PGA ShotLink program at the Valspar Tournament in Palm Harbor March 8-11! ShotLink is the system for measuring the ball location with total stations and laser range finders at each of the 18 holes to compute their shot distances. *(See related article on next page)*

# PGA TOUR Looks Skyward for Improvements to its ShotLink System

**B**ecause the basics of golf—hitting a small ball a long distance into a small cup—have not changed since its accepted genesis in 15th century Scotland, the game seems timeless. But a lot of development has, in fact, taken place, particularly within the last 40 years or so. Equipment technology, including club design and composition is high-tech in every regard. Golf course design has matured as well, making way for the development of courses which are regularly-increasing the degree of challenge and, by extension, improving the skill set of today's professional golfer. Given these advancements, it should come as no surprise that the Professional Golf Association Tour (PGA TOUR), has chosen to further refine ShotLink, an already-impressive system used in scoring, measuring, tracking and statistical gathering for PGA TOUR-sponsored events. Replacing some of ShotLink's existing technology with more accurate, more reliable,

less-intrusive GPS-based equipment from Topcon Positioning Systems, has allowed the PGA TOUR to give its audience—and its members—an improved TOUR event experience.

Working literally in the background, ShotLink has helped dramatically redefine the way we look at golf today. Essentially a data-collection system, it's what happens to that data after it has been gathered that really underscores its value, according to Andrew Marchand, ShotLink Administrator.

"ShotLink was first built by the PGA TOUR in 2000 in an effort both to develop an information archive and to have player data for a particular golf tournament right at its fingertips. It has undergone an impressive evolution since those early days and today is a complex, state-of-the-art networked system which gathers data, instantly disseminates it, generates stats, and feeds an unending stream of information to TV production trailers, the tournament media center, on-course LED scoreboards, PGA TOUR headquarters in Ponte Vedra, and a whole lot more."

**Left:** The change to the PGA TOUR's ShotLink system is designed not just to improve accuracy in the measurement of players' shots, but also to improve the mobility of its volunteers located at each fairway reading, calculating and recording each shot at their location.

>> By Larry Trojak





The equipment located at each fairway “landing-zone” includes (top) an LTI 306B TruPulse Laser Rangefinder, shown here mounted to a Topcon antenna pole; and (bottom) Topcon’s GRS-1 GNSS receiver.

Volunteers, like the one shown below, first undergo pre-tournament training on how to run the equipment and ways to ensure they get accurate statistics and measurement of each player’s shots.



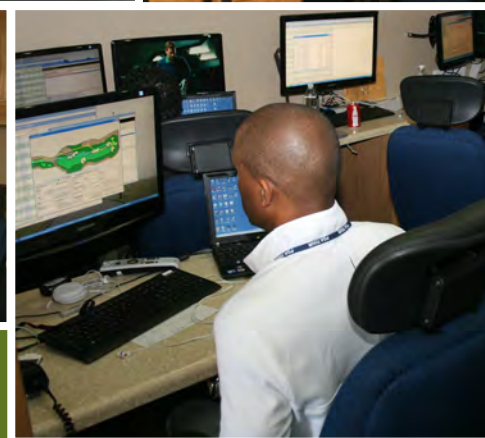
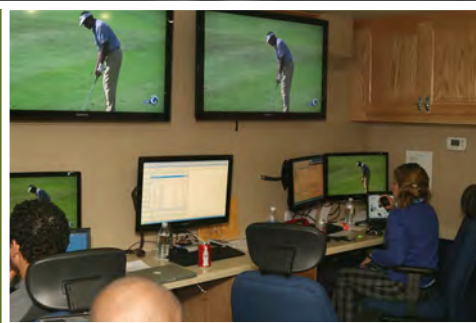
When ShotLink first debuted, it was effective but, because it depended solely upon the use of a walking scorer and a series of greenside reporters, was limited in scope. The scorer would write down the shot count or any relevant stats and at the completion of each hole, would pass that info off to the reporter who would enter the data into a computer. That meant it would only allow updates every 15 minutes or so as each hole was completed.

“The evolution of the process continued with the addition of volunteers operating tripod-mounted laser sighting units to better determine ball distances,” says Marchand. “Those readings were then relayed back to a central collection point via a Palm Pilot-type device. Even that advance in technology, however, was not without its shortcomings. If a player’s shot was off the fairway and near the fairway laser unit, for example, the volunteer would have to move the instrument, making it ineffective for 15 minutes or so until it could be repositioned and recalibrated. As a backup they would write down coordinates, but those are obviously far less accurate than laser measurements. So we were open to any upgrade in the system that could alleviate that problem.”

### Perfect Fit

A new solution designed to improve both ShotLink’s accuracy in measurement and eliminate the instrument repositioning issue came about as a result of a meeting between the PGA TOUR’s ShotLink officials and representatives from Topcon at its Livermore, CA headquarters. According to Jason Killpack, Topcon’s Director of Strategic Partnerships, the fit was a natural one.

“What ShotLink was asking us to do is something we regularly do in mapping applications,” he says. “A typical job for us would be a mapper who wants to measure a tree that is in the distance someplace or in an area that is inaccessible. To do so, he’d use a laser range finder to measure the offset distance and then our GRS-1 receiver would calculate the object’s three dimensional position. So it was a perfect fit for what the PGA TOUR was asking, with the added plus that our instrument for gathering that data is much smaller—it can be hand-held—



The command center for all tournament-related ShotLink operations, this self-contained semi-trailer serves as the production hub for all info generated on the course. Technicians in the truck gather the data live, quickly verify it, then disseminate it to a host of targets including on-course LCD scoreboards, laptops, TV compounds and PGA TOUR headquarters near Jacksonville, Florida. Data is also archived to maintain a statistical record for a period of years.

much easier to use and much lighter than the 35-40 pounds of equipment the volunteers had used in the past.”

Those volunteers were a huge consideration in the determination process. Most of the personnel who come out to work TOUR events are typically retirees who don't have an inherent comfort level dealing with computers, using touch screens, working with GPS data, etc. To address that issue, the PGA TOUR put together a detailed program that they deploy at each event to train the volunteers on which job they're going to do, how they're going to do it, how to best manage their time, and, most importantly, how to run the equipment to ensure they get accurate statistics and shot measurement.

“That is an area in which the inherent user-friendliness of the new Topcon-based system comes into play,” says Jeff Howell, Director of ShotLink Operations. “These are people who only see this equipment once a year, so they don't have a chance to develop any real familiarity with it. But the feedback we're getting since implementation of the new technology has been all positive. The volunteers are finding it to be a lot easier to use—there's no doubt most were tired of having to lean over and look into a heads-up display, through a glowing crosshair, to try to determine where the ball was—

and they love the fact that it is much lighter than the previous system. And, because of the mobility that it provides, we are now able to get some shots much quicker than we would have with the previous system.”

### Working With the Mesh

One of the real challenges faced by Topcon in melding its technology with that of ShotLink, revolved around the wireless mesh network which ShotLink uses to transmit its data throughout the course area. According to Topcon's Killpack, becoming “mesh-compliant” took some doing.

“That wireless mesh network is the backbone of all transactions and data transmission at any major PGA TOUR event,” he says. “So every Visa card that is swiped at every concession stand runs through that network. The commentary video and audio from most of the broadcasts, as well as the data used to update the numerous LCD video scoreboards located throughout the course, is all transmitted on that wireless mesh network. And most importantly, there are the instruments used by ShotLink volunteers to score, match, measure and register the distances of every ball, every putt. All of that has to coexist on this wireless mesh network.”





Every shot taken using the laser/GRS-1 is cross-referenced by the volunteer to a grid generated by PGA TOUR officials in advance of the tournament.



An overview of one of the fairways at CordeValle in San Martin, Calif. The tournament volunteers can be seen to the right of the crowd making ready for the next group to begin play.

Each one of the three tournaments is supported by 20 GRS-1 rover devices, 20 LTI 306B TruPulse lasers, a NETG3A reference station and TopNET software running inside of the PGA TOUR system. Every week one of three dedicated 18-wheel tractor trailer rigs which act as the ShotLink command center, must be set up to score and measure a new tournament. Once the tournament is over it, equipment is torn down, reloaded onto the truck and taken to the next one.

The screen of the Topcon GRS-1 receiver which each team of fairway volunteers is manning, presents them with a list of three players in each group approaching their hole. The walking scorer waits for the first player to take his tee shot, then contacts the fairway team to tell them which player just hit. Pressing a button on his or her system sends a signal wirelessly down to the fairway team and a golf ball shows up next to that player's name, verifying who took the shot.

"Basically the fairway crew's use of the system involves three major steps, says Marchand. "First, they select a player's name on the GRS-1's touch screen. Then they get the rangefinder, find the shot, press a button on top and fire the laser. The data is instantly transmitted via Bluetooth to the GRS-1 system. The slope distance and compass measurement are combined from the LTI laser with the measurement data from the GPS and a calculation is performed which will include: how far the ball is from the laser, how far it is from the tee box, and how close is it to the pin. They eyeball it one last time, make sure it looks good and if it does, they hit 'Enter' and the data, using the wireless mesh network, is sent to the ShotLink truck for evaluation and system-wide dissemination."

### Back at Work in a Snap

In place now since March 2012, the GRS-1's portability and versatility has proven invaluable. As mentioned, in the previous scenario, an errant ball headed in the direction of the fairway volunteer crew would have disrupted that crew's work for a minimum of 15 minutes, resulting in lost opportunities for valuable data.

"With the new gear, the volunteer can pick up the entire system—it only weighs six or seven pounds—get out of the way, let the player take the shot and move right back in," says Howell. "There is no need to wait while it recalibrates; the GPS just locks back on and they are back up and running in a matter of seconds. And that's important, given the broad range of

He stresses that, while networking data from a GRS-1 is done all day every day at jobsites throughout the world, the challenge arose in working within ShotLink's unique Wi-Fi parameters.

"ShotLink relies solely on the original 802.11a Wi-Fi protocol, whereas all of our GRS-1 receivers come standard with the more modern 802.11B,G and N Wi-Fi," says Killpack. "To remedy that compatibility issue, we worked with a Bay Area company called Socket Communications to utilize a chipset that would allow our GRS-1 to jump onto the older ShotLink 802.11a network. We also had to build an interface to work with the PGA TOUR's existing software. Working with their software vendor, IDS, we helped to modify some things in the PGA TOUR Laser Operator software and to create what might be called 'middleware'—that would make Laser Operator and our receiver work the way we expect it to work. It was a great effort on everyone's part to make it happen."

### ShotLink at Work

Today, the upgraded ShotLink system is in use at every tournament that is a part of the PGA TOUR's Champions TOUR (formerly the Seniors TOUR); Web.com TOUR (formerly the Nationwide TOUR); and the flagship PGA TOUR.





Andrew Marchand, ShotLink Administrator and (right) Jason Killpack, Topcon Director of Strategic Partnerships, review data on the GRS-1 receiver. PGA TOUR officials report an improvement in accuracy of about 25% with the Topcon solution versus that of the previous technology.



In addition to improved accuracy, one of the biggest benefits realized with the ShotLink upgrade was mobility. In the event of errant shots or a request from a player to move, volunteers can now easily pick up the entire group of components and move, then simply step back into position ready for the next shot.

audiences waiting for that info: the players and spectators on the course, the press, the television announcers, PGA TOUR headquarters, and so on. Everyone expects instantaneous delivery of that info and we are able to do that consistently now.”

He adds that accuracy, one of the main criteria for the upgrade, has also been dramatically improved. “We normally run our own accuracy audits four or five times a year, and with the older equipment, we were regularly getting accuracies in the in the 60% range—obviously not that good. With the new Topcon solution, we’ve seen an improvement of about 25%. So now our accuracies are in the high 80% to low 90% range; much more in line with where we wanted to be.”

## Looking Ahead

While they are thrilled with the role the GRS-1 has played in ShotLink’s continued evolution, Topcon’s Killpack sees a number of ways in which GPS technology can benefit the golf industry even further.

“With our agreement with the PGA TOUR, we are now the official GNSS supplier to the TPC Network,” he says. “That means that golf course superintendents who manage the TPC Network of golf courses have access to the same equipment which can help them locate, map and understand different parts of the golf course assets they manage. That can include everything from their irrigation system, to the square footage or acreage of sand traps, to the linear feet of fairway, and so on.”

The PGA TOUR’s Jeff Howell sees the success they’ve had with the upgraded ShotLink fairways system translating to

possible future changes in the way accuracies are measured on tournament greens.

“To accommodate the spotters, we currently have to construct elevated platforms at each of the 18 holes on every course on a PGA TOUR stop,” he says. That’s a costly and labor-intensive practice that could be eliminated by utilizing this same technology and bringing the measurement down to greenside. And by doing so, we could have both the mobility and a centimeter-grade level of accuracy.”

Killpack says a good deal of progress has already been made in bringing that about, adding that they’ve really only scratched the surface in making GPS more a prominent fixture at today’s courses. “There are so many real possibilities. I’m certain we have the tools to help golf course superintendents improve the overall value of their courses, to assist firms involved in course re-design and reconstruction, and much more. We’re definitely excited for what lies ahead.” *AS*

**Larry Trojak** is a communications writer for his own firm, Trojak Communications, in the town of Ham Lake, Minnesota. He is a frequent contributor to construction and survey magazines.



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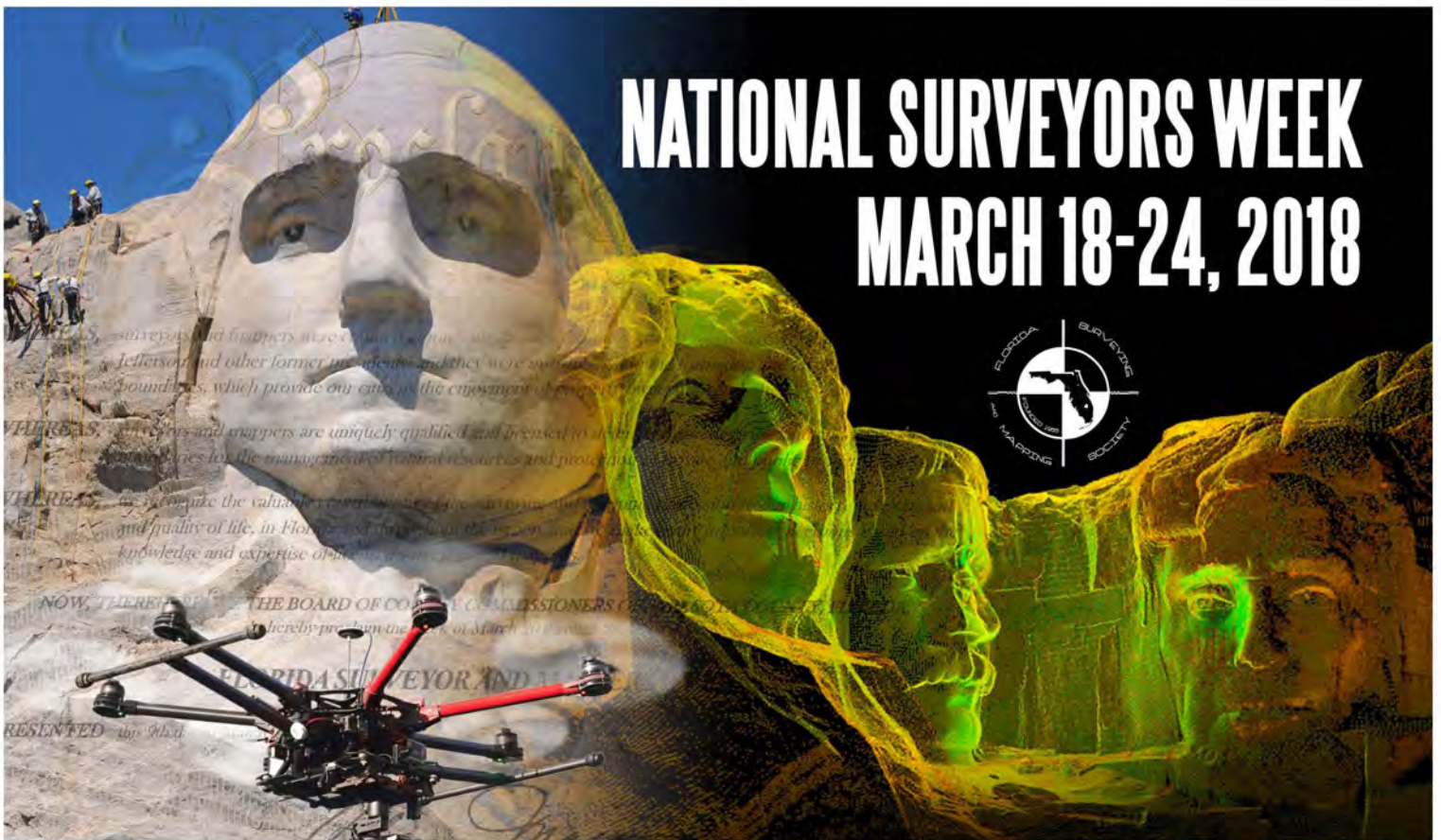
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# NATIONAL SURVEYORS WEEK MARCH 18-24, 2018



America's surveyors and mapping professionals are out there, right now, collecting and analyzing the critical information needed to grow and sustain our communities, protect our natural resources, design and build Florida's future.

**IN THE AIR:** using cutting-edge Unmanned Aerial Systems technology to model the physical environment and map terrain characteristics.

**ON THE GROUND:** with high-precision GPS receivers, robotic measurement tools, and the latest point cloud collection systems, locating the critical infrastructure that drives decision making locally and statewide.

**UNDERWATER:** mapping Florida's Intracoastal Waterway, lakes, rivers, and estuaries to protect our most valuable natural resource.

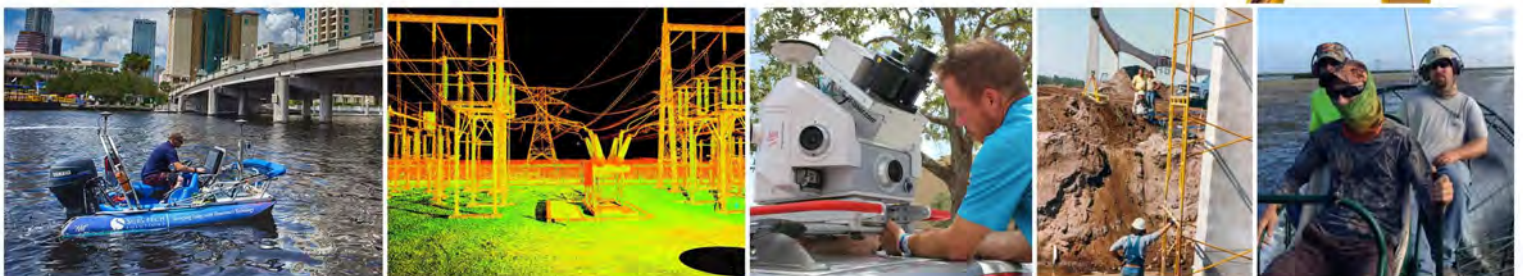
**UNDERGROUND:** identifying subsurface infrastructure using the latest Ground Penetrating Radar and geophysical prospecting techniques to provide a clear picture of what's "below grade."

**IN THE PAST:** retracing property boundaries that were initially established before Florida entered the Union, and building on a heritage that includes many of our nation's most prominent historical figures.

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THE WHITE HOUSE  
WASHINGTON

March 19, 2018

I send greetings to those celebrating National Surveyors Week.

Across America, professional surveyors fulfill an important role in the growth of our economy, the development of our infrastructure, and the daily functions of life. As someone who spent a career working with many highly trained and dedicated surveyors in the construction industry, I have great respect for the crucial work they do each and every day.

This week, our Nation honors the contributions and accomplishments of professional surveyors throughout American history, and we thank these hardworking men and women for their vision and dedication to the future of American greatness.

Melania joins me in sending our best wishes for a memorable week.

A large, stylized handwritten signature in black ink, which appears to be "Donald Trump", is centered at the bottom of the page.



# State Of Florida

## RESOLUTION

**WHEREAS**, surveyors and mappers are counted among the founding leaders of our country and were instrumental in the formation of the layout of property boundaries in the United States which have provided our citizens the enjoyment of property ownership; and

**WHEREAS**, George Washington, Thomas Jefferson and other former Presidents of the United States, served their fellow colonists as surveyors; and

**WHEREAS**, the citizens of Florida recognize the valuable contributions of the surveying and mapping profession to history, development, and quality of life in Florida and the United States of America and make important decisions based on the knowledge and expertise of licensed surveyors and mappers; and

**WHEREAS**, the surveying and mapping profession requires special education, training, the knowledge of mathematics, the related physical and applied sciences, and requirements of law for evidence; and

**WHEREAS**, surveyors and mappers are uniquely qualified and licensed to determine and describe land and water boundaries for the management of natural resources and protection of private and public property rights; and

**WHEREAS**, the continual advancements in instrumentation have required the surveyor and mapper not only to be able to understand and implement the methods of the past, but also to learn and employ modern technology in finding solutions to meet the challenges of the future.

**NOW, THEREFORE, BE IT RESOLVED** that in conjunction with National Surveyors Week, the Governor and Cabinet of the State of Florida do hereby proclaim the week of March 18-24, 2018, as

### **FLORIDA SURVEYORS & MAPPERS WEEK**

and recognize the many contributions and the ongoing dedication of surveyors and mappers to the citizens of Florida and the United States.

**IN TESTIMONY WHEREOF**, the Governor and Cabinet of the State of Florida have hereunto subscribed their names and have caused the Official Seal of the State of Florida to be hereunto affixed in the City of Tallahassee on the 1st day of March, 2018.



RICK SCOTT  
GOVERNOR

PAM BONDI  
ATTORNEY GENERAL

JIMMY PATRONIS  
CHIEF FINANCIAL OFFICER

ADAM H. PUTNAM  
COMMISSIONER OF AGRICULTURE



# Local Proclamations



Manatee County



Broward County



City of Orlando



Sarasota County



Palm Beach County



Pinellas County



Orange County



Lake Worth





*Jim Sullivan (on left in first picture) and Kevin Beck of the Palm Beach Chapter with the Lake Worth Proclamation and the Palm Beach County Proclamation.*



*Richard Allen (far left) and Ronnie Figueroa (far right) at the signing of the Lake County Proclamation.*



*Rick Pryce (left) and Earl Soeder with the Broward County Proclamation.*



*President Bob Strayer (fifth from left), Executive Director Tom Steckler (third from right), and BPSM Director Jenna Harper (second from left) with members of the FDEP and the Florida Cabinet at the signing of the Florida Proclamation.*





*The signing of the Sarasota County Proclamation.*

**L to R:** Scott Britt, Scott McElroy, Teri Owen, Commissioner Al Maio, Ralph Rhodes, Bob Strayer, Aaron Levine, Richard Abernathy.



*Bob Strayer and Tom Steckler with the State Proclamation signed by the Florida Cabinet.*



*Members of the Tampa Bay chapter at the signing of the Pinellas County Proclamation.*



*The Manatee County Proclamation.*

**L to R:** Ryan Clark, Scott Britt, Todd Boyle, Ralph Rhodes, Priscilla Seleska, Kavin Wilmott, Bob Strayer.



# Did YOU Ever WONDER Why?

Michael Whitling, PSM

## Why is putting meat or chicken between two slices of bread called a “sandwich?”

The word “sandwich” comes about one late night in the 1700’s when an English nobleman, John Montagu, the Fourth Earl of Sandwich, was too busy gambling to stop for a meal even though he was very hungry. The legend goes that he ordered a waiter to bring him roast beef between two slices of bread. He had the meat put between two slices of bread, figuring his hands wouldn’t get greasy, allowing him to continue playing cards. The name of the food item stuck. The town of Sandwich is a small town near the southeast coast of England. Its name literally means “market town on sandy soil.” There are three towns in the US named Sandwich. Note: John Montagu was not a good person. He was an executive officer of a group of Satan worshippers, he being described “as mischievous as a monkey and as lecherous as a goat.”



## Why when we flatten something out do we “squash” it?

“Squash” comes from the 14<sup>th</sup> century French word, *esuasser*, meaning to crush or shatter. It entered the English language in the 16<sup>th</sup> century as “squash” and meant to squeeze, press, or crush into a flat mass or pulp; to beat to, or dash in, pieces. Interestingly, the vegetable “squash” has nothing to do with all that. Vegetable “squash” derives from a Massachusetts Indian word, *askutasquash*, meaning “a green thing eaten raw.” That leaves us with the sport of “Squash.” That comes from the game formerly called squash rackets, a reference to the “squashable” soft ball used in the game (compared with the harder ball used in its sister game rackets).

## Why is a horse race over obstacles called a “steeplechase?”

In the 18<sup>th</sup> century, in Ireland, a group of horse-riding luckless fox hunters returning from a hunt decided to make things interesting. Spying a church steeple in the distance, they decided they would race straight toward it, regardless of the obstacles in between. Soon after races similar to this were held between visible steeples from town to town, and were called “steeplechases.” “Steeplechases” are now any type of race with obstacles.



## Why do we say “roger that” to confirm receiving a message?

Roger that is a phrase used in aviation and the military to confirm that a message has been received and understood. It was popularized by radio transmissions of NASA’s Apollo missions and is now sometimes used jokingly in everyday contexts. In the 1940s, the American military and British RAF used a phonetic spelling alphabet different from the current well-known Alfa, Bravo, Charlie. The phonetic alphabet used by the British and American military during the World War II was: *Able, Baker, Charlie, Dog, Easy, Fox, George, How, Item, Jig, King, Love, Mike, Nan, Oboe, Peter, Queen, Roger, Sugar, Tare, Uncle, Victor, William, X-ray, Yoke, Zebra*. The letter “R” was used as an abbreviation for “received” back in the times when messages were sent via telegraphy (in Morse code), and the practice of confirming that a transmission was received by sending an “R” back was extended to spoken radio communication at the advent of two-way radio during World War II. When a soldier or a radio operator said “Roger” after receiving a transmission, he was simply saying “R” for “received”. The alphabet has changed since then, but the practice of replying to a message by saying “Roger” stuck.



## Quick Facts:

⇒ Though the many health benefits of tomatoes are widely known today, a mere two hundred years ago, there was a widespread belief that they were poisonous. Though they were wildly popular in Mexico and much of Europe, a tomato scare hit England (and subsequently its colonies) when a surgeon named John Gerard wrote a book called 'The General Historie of Plantes' in 1597. In the book, he claimed that tomatoes were deadly because they contained a chemical called tomatine (which is true, but it's not nearly enough to make them poisonous). Thanks to Gerard's mostly bogus book, much of England and the USA remained tomato-shy for the next 200 years. Finally, in 1820, a man named Robert Johnson staged a 'tomato trial' on the steps of a New Jersey courthouse. He ate a full basket of tomatoes and did not die.



⇒ No white man saw the Grand Canyon until after the Civil War. It was first entered on May 29, 1869, by the geologist John Wesley Powell.

⇒ Ohio was the 17th state added to the U.S... or was it? Though Congress approved Ohio's request for statehood in 1803, they forgot to officially ratify the state constitution. It wasn't until 150 years later that Ohio representative George H. Bender made a move to make his state 'official.' Congress voted to retroactively ratify the state constitution so that its official date of statehood remained March 1, 1803. But if you want to consider 1953 its year of admission, that would make it the 48<sup>th</sup> state.

⇒ The foot consists of 26 bones ranging in size from half the size of your little finger to half the size of your fist. The bones are divided into 3 main groups: Toes (phalanges), 14 tiny bones used for gripping; Mid-foot (metatarsus), 5 slender bones to absorb shock; Rear-foot (tarsus) 7 large bones to keep the foot stabilized.



⇒ The first dry cleaning was done in 1849 by Monsieur Jolly-Bellin of France, who discovered the process by mistake when he upset a lamp over a newly laundered table cloth and found that the part that was covered with alcohol from the lamp was cleaner than the rest.

⇒ According to New York Magazine, the land that makes up Central Park in New York is worth \$529 billion! The land was originally purchased by New York City around 1853 for \$5 million.



⇒ A cat has 32 muscles in each ear.

⇒ If the population of China walked past you, 8 abreast, the line would never end because of the rate of reproduction.

⇒ Because of Christmas's roots as an ancient pagan holiday, the early American Puritans didn't originally take too kindly to it. They believed that religion should be very solemn, so the carol-singing, booze-drinking Christmas celebrations didn't sit well with them. The Parliament of England, largely composed of Puritans, made the holiday illegal in the 1600s, and the North American Puritans in New England followed suit. The law stuck as the New England colonies evolved into the United States. The first state to actively legalize Christmas was Alabama, and it wasn't until 1836! Christmas became a federal holiday in 1870, but it was still illegal in some states. It took until 1907 that Christmas was legal the every state in the United States (looking at you, Oklahoma).



⇒ Sheep are mentioned 45 times and goats 88 times in the Bible. Dogs are mentioned 14 times and lions 89 times, but domestic cats are not mentioned.

⇒ On December 29, 1945, the record for the slowest time for a winning horse was set by Never Mind II. During a 2-mile steeplechase, Never Mind II refused the 4th jump and his rider gave up and returned to the paddock. Then the rider was told that all the other horses had fallen or been disqualified. Immediately he



# From the Archives

## FINANCE COMMITTEE REPORT TABULATION OF SURVEYING FEES AND SALARIES IN FLORIDA

At the direction of the Board of Directors of the FSPLS, the following report, submitted by Chairman Lewis H. Kent, indicates the results of the tabulation of surveying fees and salaries made to the membership throughout the State of Florida.

The above report was made by directive of the Board of Directors of FSPLS and was accomplished with the wonderful cooperation of 99% of the participating members — and the patience and diligence of my secretary, Marie Vallee.

The report was made to inform the membership of the wide range of fees, hourly rates and salaries that exist within the surveying field in the State of Florida today.

A complete tabulation of the results of the polling is included on Pages Two and Three in order that you can analyze the facts and draw your own conclusions. The polling form was made as simple as possible and Page One represents my conclusions as to the cost of survey work throughout the state.

Simply stated, Zone A has the highest survey costs, Zone C, the lowest costs, based on an hourly rate for a 3-man survey crew. It is to be noted here that zoning the state by salaries paid, or cost of job, i. e., vacant lot etc., often results in placing various cities in different zones. Detailed study of the data indicated that further work needs to be done in this area — as an example — high salaries in Zone C seem to be made up by higher jobs rates, thereby adjusting gross fees per hour more closely to Zone B or A. This would indicate that possibly a panel discussion on billing procedures might be quite informative and thought provoking to the membership at some future date.

Any comments that you have regarding billings on this report would be most helpful and appreciated.

	HOURLY RATES		4-Man Crew		3-Man Crew		2-Man Crew	
			High	Low	High	Low	High	Low
<b>Zone A</b>								
Fort Lauderdale			\$35.00	\$30.00	\$30.00	\$25.00	\$25.00	\$17.50
Jacksonville			30.00	30.00	30.00	30.00	30.00	30.00
Hollywood			35.00	25.00	27.50	17.50	22.50	12.50
Naples			35.00	35.00	27.50	27.50	20.00	20.00
Orlando			31.50	28.00	27.50	24.00	23.50	20.00
<b>Zone B</b>								
Boca Raton			28.00	24.00	24.00	20.00	16.00	14.00
*Gainesville			28.00	28.00	24.00	22.00	19.00	19.00
Jacksonville Beach			22.50	22.50	22.50	22.50		
*Sarasota			25.00	25.00	21.00	21.00	17.50	17.50
St. Petersburg			27.50	22.50	22.50	20.00	22.50	17.50
*Tallahassee			30.00	25.00	25.00	20.00		
<b>Zone C</b>								
Daytona Beach			24.00	24.00	20.00	20.00	17.50	17.50
†Kissimmee			25.00	20.00	20.00	15.00	15.00	12.00
†Miami			22.50	20.00	18.00	17.00		
†Panama City			25.00	21.00	18.75	18.75		
†Vero Beach			25.00	20.00	18.00	15.00	15.00	12.50

Categories based on 3-man crew: \$20 and under \$20.01 — \$25.00 \$25.01 and up

\*Wages one step lower

†Wages one step higher

	Vacant Lot		House Map		Charges Based On			
	High	Low	High	Low	Job %	Hrly %	Negotiated %	
Fort Lauderdale	\$80.00	\$60.00	\$100.00	\$ 80.00			55	
Jacksonville	45.00		50.00	35.00				
Hollywood	60.00	35.00	80.00	45.00			65	
Naples		80.00		125.00			50	
Orlando	60.00	40.00	75.00	60.00		100		
Boca Raton	70.00	50.00	90.00	80.00	40	60	50	
Gainesville	70.00	60.00	60.00	35.00				
Jacksonville Beach	50.00	50.00	65.00	65.00	50	50	90	
Sarasota	60.00	45.00	75.00	60.00			90	
St. Petersburg		40.00		50.00			25	
Tallahassee	50.00	35.00	40.00	35.00			10	
Daytona Beach	65.00		30.00					
Kissimmee	40.00	30.00	50.00	45.00	30	50	60	
Miami	65.00	65.00	75.00	75.00	50	50	50	
Panama City	45.00	35.00	68.75	55.00			50	
Vero Beach	90.00	45.00	120.00	60.00			20	
	Chainman		Supervisory Draftsman		Good Draftsman		Indifferent Draftsman	
	High	Low	High	Low	High	Low	High	Low
Fort Lauderdale	\$123	\$ 96	\$325	\$135	\$200	\$100	\$140	\$ 90
Jacksonville	98	78	211	145	193	135	135	110
Hollywood	140	90	220		190		140	120
Naples	108	100	170	150	130	90	80	64
Orlando	120	100	180	160	160	140	140	120
Boca Raton	100	90		160		140		100
Gainesville	87	74	150	145	100	90		
Jacksonville Beach	85	70	150					
Sarasota	90	80	180	160	150	130	110	100
St. Petersburg	90	80	145	120	100	90	85	80
Tallahassee	80	76	200	160	140	126	100	90
Daytona Beach	100	70	110					
Kissimmee	105	80	155	125	130	110	110	90
Miami	100	80	230		132			110
Panama City	90	65	125	110	100	90		
Vero Beach	100	75	175	125	175	125	125	90

From 1969: A report on surveying fees and salaries in Florida, produced by FSMS. (zoom in to read)



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## IN MEMORIAM

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# Joel Cowan Walters

1950 - 2018



**Cantonment, FL** - Joel Cowan Walters, 67, of Cantonment passed away peacefully from complications of pulmonary fibrosis on March 4, 2018.

He was born in Butler Co., PA in 1950, and he lived in the Pensacola area since childhood. Joel graduated from W.J. Woodham High School in Pensacola in 1968. The land surveying business was his life's work, and he owned Walter's Land Surveying for over 33 years. Joel also served in the National Guard for ten years. He loved fishing, golf, cigars, and Alabama football (Roll Tide!). Joel had a sharp wit.

He is preceded in death by his parents, Shelby L. Walters, Sr. and Ruth Cowan Walters; and 2 brothers, Tommy Walters and Shelby "Satch" Walters, Jr.

Survivors include his wife, Hilary Adkerson Walters; sister, Abby Walters (Dorothy Hudson); daughter, Samantha Walters (Sam Morisset); granddaughter, Shayna Morisset; sister-in-law, Kelly Walters; nieces, Molly Mahtani (Sean) and Hannah Walters (Matthew Berry); nephew, Eric Walters; great-nephew, Reed Berry; and great-niece, Shelby Ann Mahtani.

Joel will be cremated and a Celebration of Life will be scheduled in coming months.

In lieu of flowers, memorial contributions may be made to Pensacola Humane Society, 5 N. "Q" St., Pensacola, FL 32505 or Waterfront Rescue Mission, 380 W. Herman St., Pensacola, FL 32505.

*Published in Pensacola News Journal on Mar. 11, 2018*

## IN MEMORIAM

# Gerald F. Livernoise

August 31, 1948 - March 25, 2018



Gerald Frederick Livernoise, age 69, passed away on Sunday, March 25th, 2018. He passed away from complications of a lifelong battle with Systemic Lupus Erythematosus. Jerry Livernoise was born in Buffalo, New York on August 31, 1948. He graduated from Oak Ridge High School in Orlando, Florida in 1966. He attended Orlando Junior College and Riverside City College in Riverside, California. He was married to Karen Farling Livernoise of Leesburg, Florida on December 17th, 1972. They were married for 45 wonderful years.

Jerry received his degree in land surveying from the International Correspondence School. After working for several engineering companies he went on to gain his professional land surveying license under the Board of Professional Land Surveyors and Engineers in 1979. He was

a lifelong member of the Florida Society of Professional Land Surveyors. In 1983 Jerry and several partners purchased Tinklepaugh Land Surveying Services Inc. Jerry served as President of the company until he stepped down for health reasons in 2008. Notable projects included Heathrow International Business Center, North Pointe, University of Central Florida, Seminole Community College, and the Tupperware Center, along with numerous other residential and commercial projects.

Jerry was an active sportsman. He enjoyed playing golf and tennis and was also a member of the Mercury Offshore Racing Team in his earlier years. He dabbled in sky diving and enjoyed scuba diving, baseball, mountain climbing, hiking, water skiing, boating, and fishing. He played football and baseball while in high school and junior college. His hobbies included collecting, restoring, and repairing antique clocks. He was a Member of the National Association of Watch and Clock Collectors. He also loved to do oil and water color paintings.

He is preceded in death by his parents, Frieda Johnstone

Livernoise and Leland Livernoise. Jerry is survived by his devoted wife Karen, his brother Rick Adams and his family, his aunt Francis Livernois of NY and her family, along with numerous cousins in New York. He is also survived by three brother-in-laws: Virgil Farling (Peggy), Daniel Farling (Jill), and Richard Farling (Rebecca), along with numerous nieces and nephews and great-nieces and great-nephews.

A memorial service will be held on Thursday, March 29th, at Pine Castle Memorial Chapel Funeral Home, 5800 Hansel Avenue Orlando, Florida 32809. A celebration gathering will begin at 3:00pm with the memorial service at 4:00 pm. The service will be officiated by Pastor Tom Farling from Anderson, Indiana. In lieu of flowers, donations may be made to the Shriners Hospital for Children or St. Jude Children's Research Hospital.



# IN MEMORIAM

## Louis R. Campanile, Sr.

August 22, 1926 - March 28, 2018



Lou Campanile, Sr., age 91, passed away at his home in Melbourne Beach, Florida on Wednesday, March 28, 2018. He was born on August 22, 1926 in Asbury Park, New Jersey to Frank and Lena (Brown) Campanile (their first of 5 children). Lou attended elementary, middle and high school in Asbury Park before enlisting in the US Navy and serving in World War II.

After the war, he went on to graduate from the University of Miami in 1952 with a Bachelor of Science in Civil Engineering degree. After graduating college, Lou went back to New Jersey and worked for a few years but was soon (1955) lured back to Florida by Harry Schwebke, then-owner of the engineering and land surveying firm that is now known as Schwebke-Shiskin & Associates, Inc., where after a couple of years, he met his future bride, Eveline Campanile, a stenographer with the firm.

They were married on January 16, 1958 and, to-

gether, they had three sons (Lou Jr., Nick and Tony). Lou Sr. was licensed in Florida as a Professional Land Surveyor (#1224 in 1957) and as a Professional Engineer (#10777 in 1964).

Together, Lou and Eveline started the civil engineering and land surveying firm Campanile & Associates, Inc. in 1972. Lou was also professionally active in what is now known as the Florida Surveying & Mapping Society. He was a charter member of the Miami-Dade Chapter, a past President of that chapter and a statewide Director.

Although predeceased by his wife of 58 years Eveline (2016), Lou is survived by his three sons, Lou Jr., Nick (Cathy) and Tony (Lisa), and six grandchildren (Nina, Brandon, Nicholas, Andrew, Kimberleigh and Joseph) and by his sister Elizabeth, plus numerous nieces and nephews.

A Celebration of Life honoring Lou will be held soon.



## Florida Surveying and Mapping Society

# 2017 eLearning Courses



Basics of Real Property  
Course #8360 (3 General  
CEC)

**\$ 70<sup>00</sup>**



Boundaries in Florida  
Course #8255 (6  
SOP/L&R CEC)

**\$ 120<sup>00</sup>**



Contracts for the  
Professional Course  
#8412 (3 General CEC)

**\$ 70<sup>00</sup>**



Elevation Certificates and  
the Community Rating  
System Course #8256 (3  
General CEC)

**\$ 70<sup>00</sup>**



Ethics for the Design  
Professional Course  
#8621 (6 General CEC)

**\$ 120<sup>00</sup>**



Florida Laws Course  
#7149 (6 SOP/L&R CEC)

**\$ 120<sup>00</sup>**



Professional Ethics and  
Professional Courtesy  
FULL Video Course  
#8363 (6 General CEC)

**\$ 120<sup>00</sup>**



Georgia Technical  
Standards for Property  
Surveys Course #8554 (6  
General CEC)

**\$ 120<sup>00</sup>**



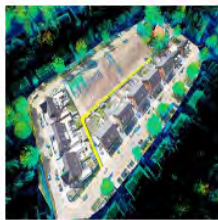
History of Surveying  
Course #7140 (6 General  
CEC)

**\$ 120<sup>00</sup>**



Identification of Native  
and Non-Native Trees in  
Florida Course #8132 (6  
General CEC)

**\$ 120<sup>00</sup>**



Introduction to  
Photogrammetry Course  
#7968 (3 General CEC)

**\$ 70<sup>00</sup>**



Land Tenure and  
Cadastral Systems  
Course #8260 (6 General  
CEC)

**\$ 120<sup>00</sup>**



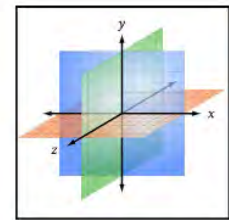
Map Projections and  
Plane Coordinate  
Systems Course #8261 (6  
General CEC)

**\$ 120<sup>00</sup>**



Mean High Water  
Observations &  
Computations Course  
#8262 (6 General CEC)

**\$ 120<sup>00</sup>**



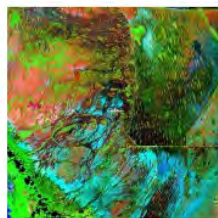
Practical Geometry for  
Surveyors Course #7141  
(6 General CEC)

**\$ 120<sup>00</sup>**



Public Land Survey  
System Course #7147 (6  
General CEC)

**\$ 120<sup>00</sup>**



Remote Sensing  
Applications to Surveying  
& Mapping Course #7148  
(6 General CEC)

**\$ 120<sup>00</sup>**



Writing Boundary  
Descriptions Course  
#8362 (3 General CEC)

**\$ 70<sup>00</sup>**





# Correspondence Courses



## Step 1: Choose Course(s)

- ☐ **5J-17 Standards of Practice (SOP), #6962, 6 SOP/L&R CEC**
- ☐ **A History of the Prime Meridian Marker, #8403, 3 General CEC**
- ☐ **Basics of Real Property, #8359, 3 General CEC**
- ☐ **Boundaries in Florida, #7667, 6 SOP/L&R CEC**
- ☐ **Chapter 177, Platting (Plat Law), #6970, 6 SOP/L&R CEC**
- ☐ **Client Satisfaction Excellence for Surveying and Mapping Professionals, #7229, 6 General CEC (Only available by mail)**
- ☐ **Contracts for the Professional, #8411, 3 General CEC**
- ☐ **Critical Communication for Surveying & Mapping Professionals, #7228, 6 General CEC (Only available by mail)**
- ☐ **Digital Signatures for Surveyors, #8491, 3 General CEC**
- ☐ **Elevation Certificates and the Community Rating System, #8257, 3 General CEC**
- ☐ **Ethics for the Design Professional, #8620, 6 General CEC**
- ☐ **Florida Laws, #6966, 6 SOP/L&R CEC**
- ☐ **Georgia Technical Standards for Property Surveys, #8553, 6 General CEC**
- ☐ **Geographic Information Systems (GIS), #7107, 6 General CEC**
- ☐ **History of Surveying, #7108, 6 General CEC**
- ☐ **Identification of Native and Non-Native Trees in Florida, #7874, 6 General CEC**
- ☐ **Introduction to Photogrammetry, #7887, 3 General CEC**
- ☐ **Land Tenure and Cadastral Systems, #7829, 6 General CEC**
- ☐ **Map Projections and Plane Coordinate Systems, #7669, 6 General CEC**
- ☐ **Mean High Water Observations and Computations, #8220, 6 General CEC**
- ☐ **Practical Geometry for Surveyors, #7109, 6 General CEC**
- ☐ **Public Land Survey System, #6979, 6 General CEC**
- ☐ **Remote Sensing Applications to Surveying & Mapping, #6972, 6 General CEC**
- ☐ **Stress Management for Surveyors & Mappers: How to be Productive Under Pressure, #6902, 6 General CEC (Only available by mail)**
- ☐ **Time Management for Surveyors & Mappers: How to be Productive & Exercise Time Mastery in A Hectic World, #6901, 6 General CEC (Only available by mail)**
- ☐ **Writing Boundary Descriptions, #8361, 3 General CEC**



# Correspondence Courses Order Form

## Step 2: Choose Member Type

☐ **FSMS Member**

<b>EMAILED</b>		<b>Quantity</b>			
<b>6 CEC</b>	\$115 Per Course	x	_____	=	\$ _____
<b>3 CEC</b>	\$58 Per Course	x	_____	=	\$ _____
<b>MAILED</b>					
<b>6 CEC</b>	\$125 Per Course	x	_____	=	\$ _____
<b>3 CEC</b>	\$68 Per Course	x	_____	=	\$ _____
<b>TOTAL</b>			_____		\$ _____

☐ **Non-Member**

<b>EMAILED</b>	<b>Fee</b>		<b>Quantity</b>		<b>Amount</b>
<b>6 CEC</b>	\$135 Per Course	x	_____	=	\$ _____
<b>3 CEC</b>	\$78 Per Course	x	_____	=	\$ _____
<b>MAILED</b>					
<b>6 CEC</b>	\$145 Per Course	x	_____	=	\$ _____
<b>3 CEC</b>	\$88 Per Course	x	_____	=	\$ _____
<b>TOTAL</b>			_____		\$ _____

☐ **Non-Licensed in ANY State**

<b>EMAILED</b>	<b>Fee</b>		<b>Quantity</b>		<b>Amount</b>
<b>6 CEC</b>	\$100 Per Course	x	_____	=	\$ _____
<b>3 CEC</b>	\$60 Per Course	x	_____	=	\$ _____
<b>MAILED</b>					
<b>6 CEC</b>	\$110 Per Course	x	_____	=	\$ _____
<b>3 CEC</b>	\$70 Per Course	x	_____	=	\$ _____
<b>TOTAL</b>			_____		\$ _____

## Step 3: Payment Information

Name: \_\_\_\_\_ PSM#: \_\_\_\_\_ State: \_\_\_\_\_ FSMS Member: \_\_\_\_ YES \_\_\_\_ NO

Firm: \_\_\_\_\_ Sustaining Firm: \_\_\_\_ YES \_\_\_\_ NO

Address: \_\_\_\_\_

City/State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Email Address: \_\_\_\_\_ Work Phone: \_\_\_\_\_

Payment Information: \_\_\_\_\_ Check Enclosed (Payable to FSMS) \_\_\_\_\_ VISA/MasterCard/American Express

Card #: \_\_\_\_\_ Exp. Date: \_\_\_\_\_ Card CVV Number (3 or 4 Digits) \_\_\_\_\_

Billing Address for Credit Card: \_\_\_\_\_

Signature: \_\_\_\_\_

**IF PAYING BY CHECK, MAIL FORM TO: FSMS, P.O. Box 850001-243, Orlando, FL 32885-0243**

**IF PAYING BY CREDIT CARD - EMAIL FORM TO [education@fsms.org](mailto:education@fsms.org) or FAX TO 850.877.4852**

**QUESTIONS? CALL 800.237.4384**



## District 1

### Panhandle

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(850) 434-6666  
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### Emerald Coast

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### Volusia

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## District 4

### Ridge

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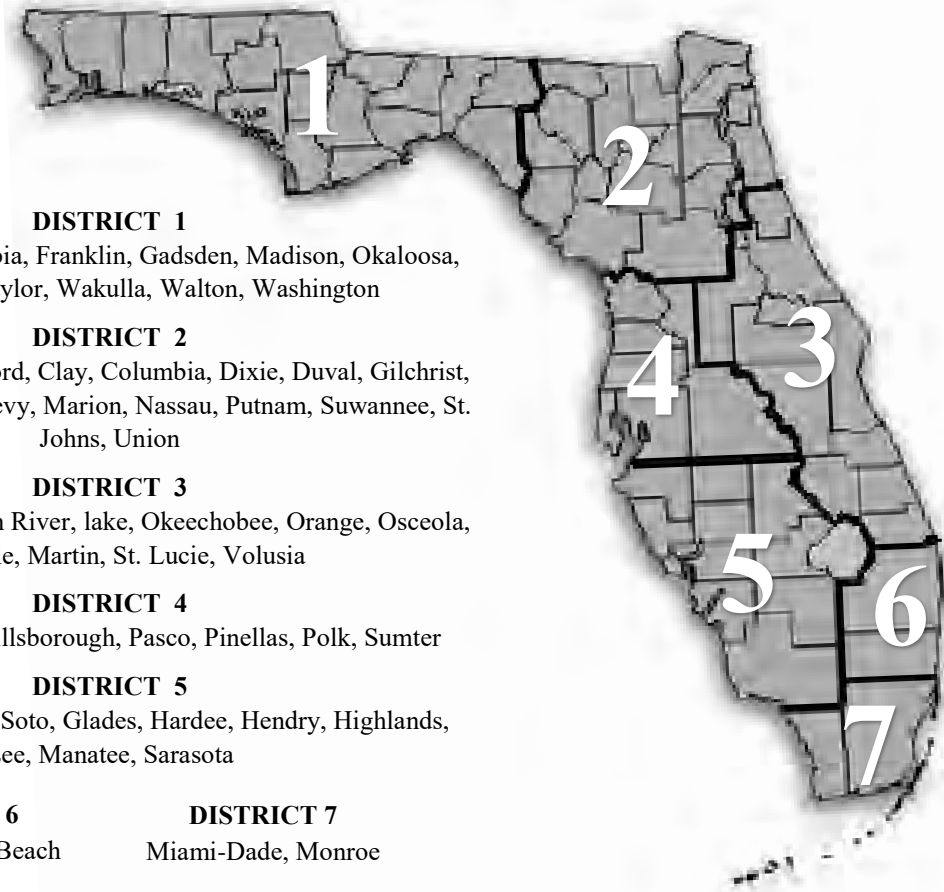
### FAU Geomatics

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## District 7

### Miami-Dade

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## **DISTRICT 1**

Bay, Calhoun, Escambia, Franklin, Gadsden, Madison, Okaloosa,  
Santa Rosa, Taylor, Wakulla, Walton, Washington

## **DISTRICT 2**

Alachua, Baker, Bradford, Clay, Columbia, Dixie, Duval, Gilchrist,  
Hamilton, Lafayette, Levy, Marion, Nassau, Putnam, Suwannee, St.  
Johns, Union

## **DISTRICT 3**

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Seminole, Martin, St. Lucie, Volusia

## **DISTRICT 4**

Citrus, Hernando, Hillsborough, Pasco, Pinellas, Polk, Sumter

## **DISTRICT 5**

Collier, Charlotte, DeSoto, Glades, Hardee, Hendry, Highlands,  
Lee, Manatee, Sarasota

## **DISTRICT 6**

Broward, Palm Beach

## **DISTRICT 7**

Miami-Dade, Monroe

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## **NSPS Director**

Ronnie Figueroa  
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rfigueroa@southeasternsurveying.com



## Committees

### Standing Committees

<b>Nominating Committee</b>	Dianne Collins
<b>Membership Committee</b>	Joe Perez
<b>Finance Committee</b>	Bon Dewitt
<b>Executive Committee</b>	Bob Strayer
<b>Education Committee</b>	Don Elder
<b>Annual Meeting Committee</b>	Tom Brownell
<b>Legal Committee</b>	Jack Breed
<b>Strategic Planning Committee</b>	Dianne Collins
<b>Ethics and Professional Practice Committee</b>	John Liptak
<b>Constitution and Resolution Advisory Committee</b>	Don Elder

### Special Committees

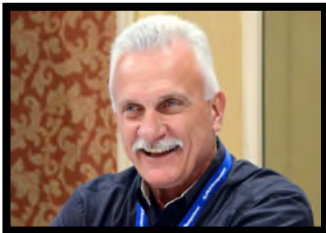
<b>Legislative Committee</b>	John Clyatt
<b>Young Professionals Committee</b>	Chris Wild
<b>Awards Committee</b>	Lou Campanile, Jr.
<b>UF Alumni Recruiting Committee</b>	Jeff Cooner

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<b>CST Program</b>	Ronnie Figueroa
<b>FDACS BPSM</b>	Don Elder
<b>Surveyors in Government</b>	Richard Allen
<b>Academic Advisory UF</b>	Bon Dewitt

## Administrative Staff

### Tom Steckler



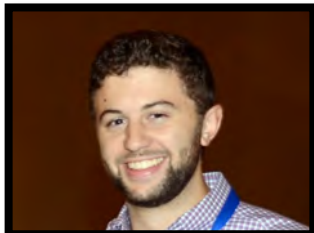
Executive Director  
director@fsms.org

### Rebecca Culverson



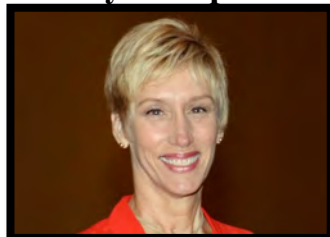
Education Director  
education@fsms.org

### Dominic Levings



Communications Director  
communications@fsms.org

### Cathy Campanile



Regional Coordinator  
seminolecc84@gmail.com

## Tom's Tip of the Month

### *Kill a Stupid Rule*

*Click on the picture below to view the video!*



The Florida Surveyor is the official publication of the Florida Surveying and Mapping Society, Inc. (FSMS). It is published monthly for the purpose of communicating with the professional surveying community and related professions who are members of FSMS. Our award winning publication informs members eleven months of the year of national, state, and district events and accomplishments as well as articles relevant to the surveying profession. The latest educational offerings are also included.

## 2018 Sustaining Firms

	<p>Accuright Surveys of Orlando, Inc.</p> <p>407-894-6314</p>		<p>Agnoli, Barber &amp; Brundage, Inc.</p> <p>239-597-3111</p>
	<p>Aim Engineering &amp; Surveying, Inc.</p> <p>239-332-4569</p>		<p>Allen Engineering, Inc.</p> <p>321-783-7443</p>
	<p>Allterra</p> <p>954-850-0795</p>		<p>AM Engineering, Inc</p> <p>941-377-9178</p>
	<p>American Consulting Professionals, LLC</p> <p>813-435-2600</p>		<p>American National</p> <p>239-963-2245</p>
	<p>American Surveying, Inc.</p> <p>813-234-0103</p>		<p>Arc Surveying &amp; Mapping, Inc.</p> <p>904-384-8377</p>
	<p>Associated Land Surveying &amp; Mapping</p> <p>407-869-5002</p>		<p>ATS Land Surveying, LLC</p> <p>386-264-8490</p>



## 2018 Sustaining Firms

 <p>Avirom &amp; Associates, Inc. 561-392-2594</p>	 <p>Banks Engineering 239-939-5490</p>
 <p>Barraco &amp; Associates, Inc. 239-461-3170</p>	 <p>Bartram Trail Surveying, Inc. 904-284-2224</p>
<p>Bean, Whitaker, Lutz &amp; Kareh, Inc.</p> <p>Bean, Whitaker, Lutz &amp; Kareh, Inc. 239-481-1331</p>	 <p>Bello &amp; Bello Land Surveying, Inc. 305-251-9606</p>
 <p>Benchmark Land Services, Inc. 239-591-0778</p>	<p>Benchmark Surveying &amp; Land Planning, Inc.</p> <p>Benchmark Surveying &amp; Land Planning, Inc. 850-994-4882</p>
<p>Beta Company Surveying, Inc.</p> <p>Beta Company Surveying, Inc. 941-751-6016</p>	<p>Betsy Lindsay, Inc.</p> <p>Betsy Lindsay, Inc. 772-286-5753</p>
 <p>Biscayne Engineering Company, Inc. 305-324-7671</p>	 <p>Boatwright &amp; Durden Land Surveyors, Inc. 904-241-8550</p>

## 2018 Sustaining Firms

 <p><b>Bock &amp; Clark</b> AN <b>N V S</b> COMPANY</p>	<p>Bock &amp; Clark Corporation  330-665-4821</p>		<p>Bowman Consulting Group, Ltd.  703-464-1000</p>
	<p>Brown &amp; Phillips, Inc.  561-615-3988</p>		<p>BSE Consultants, Inc.  321-725-3674</p>
	<p>Burkholder Land Surveying, Inc.  941-209-9712</p>		<p>Bussen-Mayer Engineering Group, Inc.  321-453-0010</p>
	<p>C &amp; M Road Builders, Inc.  941-758-1933</p>		<p>Cardno, Inc.  727-531-3505</p>
	<p>Carter Associates, Inc.  772-562-4191</p>		<p>Caulfield &amp; Wheeler, Inc.  561-392-1991</p>
	<p>Causseaux, Hewitt &amp; Walpole, Inc.  352-331-1976</p>	<p>Central Florida Surveys, Inc.</p>	<p>Central Florida Surveys, Inc.  407-262-0957</p>



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 <p><b>CHASTAIN SKILLMAN</b></p> <p>Chastin-Skillman, Inc. 863-646-1402</p>	 <p><b>CIVILSURV</b> A Tradition of Innovative Engineering</p> <p>CivilSurv Design Group, Inc. 863-646-4771</p>
 <p><b>Clary &amp; Associates</b> PROFESSIONAL SURVEYORS &amp; MAPPERS</p> <p>Clary &amp; Associates, Inc. 904-260-2703</p>	<p><b>Clements Surveying, Inc</b></p> <p>Clements Surveying, Inc. 941-729-6690</p>
<p><b>Collins Survey Consulting, LLC</b></p> <p>Collins Survey Consulting, LLC 863-937-9052</p>	<p><b>Compass Engineering &amp; Surveying, Inc.</b></p> <p>Compass Engineering &amp; Surveying, Inc. 727-822-4151</p>
 <p><b>Compass Point surveyors</b></p> <p>Compass Point Surveyors 954-332-8181</p>	 <p><b>CONTROL POINT ASSOCIATES, INC.</b> traditional methods   modern approaches</p> <p>Control Point Associates 908-688-0099</p>
<p><b>County Wide Surveying, Inc</b></p> <p>County Wide Surveying, Inc. 850-769-0345</p>	<p><b>Cousins Surveyors &amp; Associates, Inc.</b></p> <p>Cousins Surveyors &amp; Associates, Inc. 954-689-7766</p>
 <p><b>CPH, Inc.</b></p> <p>407-739-6400</p>	 <p><b>CRAVEN THOMPSON &amp; ASSOCIATES, INC.</b></p> <p>Craven-Thompson &amp; Associates, Inc. 954-739-6400</p>

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 <p>Element Engineering Group, LLC</p> <p>813-386-2101</p>	 <p>Engenuity Group, Inc.</p> <p>561-655-1151</p>
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 <p>GeoPoint Surveying, Inc. 813-248-8888</p>	 <p>George F. Young, Inc. 727-822-4317</p>
<p>Geosurv, LLC</p> <p>Geosurv, LLC 877-407-3734</p>	 <p>Germaine Surveying, Inc. 863-385-6856</p>
<p>Global One Survey, LLC</p> <p>Global One Survey, LLC 786-486-8088</p>	 <p>GPI Geospatial, Inc. 407-851-7880</p>
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<p style="text-align: center;">  </p> <p style="text-align: center;">Keith &amp; Schnars, P.A. 954-776-1616</p>	<p style="text-align: center;">Kendrick Land Surveying</p> <p style="text-align: center;">Kendrick Land Surveying 863-533-4874</p>
<p style="text-align: center;">  </p> <p style="text-align: center;">King Engineering Associates, Inc. 813-880-8881</p>	<p style="text-align: center;">  </p> <p style="text-align: center;">Kuhar Surveying &amp; Mapping, LLC 386-672-0002</p>
<p style="text-align: center;">L &amp; S Diversified, LLC</p> <p style="text-align: center;">L &amp; S Diversified, LLC 407-681-3836</p>	<p style="text-align: center;">  </p> <p style="text-align: center;">Landmark Engineering &amp; Surveying Corporation. 813-621-7841</p>
<p style="text-align: center;">  </p> <p style="text-align: center;">Leading Edge Land Services, Inc. 407-351-6730</p>	<p style="text-align: center;">  </p> <p style="text-align: center;">Leiter Perez &amp; Associates, Inc. 305-652-5133</p>
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 <b>MRG GEO</b>	Mapping Resources Group, Inc.  386-439-4848		Marco Surveying & Mapping, LLC  239-389-0026
 <b>MASER</b> CONSULTING P.A.	Maser Consulting, P.A.  732-383-1950	<b>Massey-Richards Surveying &amp; Mapping, LLC</b>	Massey-Richards Surveying & Mapping, LLC  305-853-0066
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<p style="text-align: center;">Navigations Electronics, Inc</p> <p style="text-align: center;">Navigation Electronics, Inc.</p> <p style="text-align: center;">337-237-1413</p>	 <p style="text-align: center;">Northstar Geomatics, Inc.</p> <p style="text-align: center;">772-485-1415</p>
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<p style="text-align: center;">Omni Communications, LLC</p> <p style="text-align: center;">Omni Communications, LLC</p> <p style="text-align: center;">813-852-1888</p>	 <p style="text-align: center;">On the Mark Surveying, LLC</p> <p style="text-align: center;">321-626-6376</p>
<p style="text-align: center;">PEC Surveying &amp; Mapping, LLC</p> <p style="text-align: center;">PEC Surveying &amp; Mapping, LLC</p> <p style="text-align: center;">407-542-4967</p>	 <p style="text-align: center;">Pennoni Associates, Inc</p> <p style="text-align: center;">215-222-3000</p>
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 <p><b>S&amp;ME</b></p>	<p>S&amp;ME, Inc.</p> <p>407-975-1273</p>	<p>Sergio Redondo &amp; Associates, Inc.</p>	<p>Sergio Redondo &amp; Associates, Inc.</p> <p>305-378-4443</p>
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 <p><b>Southeastern Surveying</b> SOUTHEASTERN SURVEYING &amp; MAPPING CORP.</p>	<p>Southeastern Surveying &amp; Mapping Corp.</p> <p>407-292-8580</p>	 <p><b>SPALDING DeDECKER</b></p>	<p>Spalding DeDecker Associates, Inc.</p> <p>248-844-5400</p>



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<p><b>Stephen H. Gibbs Land Surveyors, Inc.</b></p> <p>Stephen H. Gibbs Land Surveyors, Inc. 954-923-7666</p>	 <p>Strayer Surveying &amp; Mapping, Inc. 941-497-1290</p>
 <p>Suarez Surveying &amp; Mapping, Inc. 305-596-1799</p> <p><b>Suarez Surveying &amp; Mapping</b></p>	 <p>SurvTech Solutions, Inc. 813-621-4929</p>
 <p>Thurman Roddenberry &amp; Associates, Inc. 850-962-2538</p>	<p><b>Tradewinds Surveying Services, LLC</b></p> <p>Tradewinds Surveying Services, LLS 863-763-2887</p>
 <p>Tuck Mapping Solutions, Inc. 276-523-4669</p>	 <p>Upham, Inc. 386-672-9515</p>
<p><b>Wade Surveying, Inc.</b></p> <p>Wade Surveying, Inc. 352-753-6511</p>	 <p>Wallace Surveying Corporation 561-640-4551</p>
 <p>Wantman Group, Inc. 561-687-2220</p>	 <p>WBQ Design &amp; Engineering, Inc. 407-839-4300</p>

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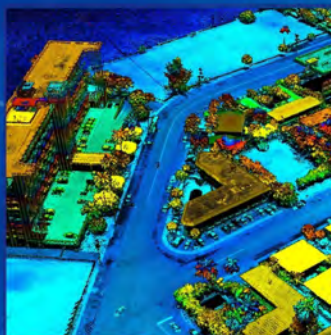
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**May 17-18, 2018**

Board of Directors Meeting  
Tallahassee

**August 15-18, 2018**

63rd Annual FSMS Conference  
St. Petersburg

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Harry C. Schwebke	William G. Wallace, Jr.	W. Lanier Mathews, II
John P. Goggin	Robert W. Wigglesworth	Jack Breed
R.H. Jones	<b>1980</b>	<b>2000</b>
<b>1960</b>	Ben P. Blackburn	Arthur A. Mastronicola
Hugh A. Binyon	William B. Thompson, II	Michael H. Maxwell
Russell H. DeGrove	John R. Gargis	John M. Clyatt
Perry C. McGriff	Robert A. Bannerman	David W. Schryver
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Harold A. Schuler, Jr.	Jan L. Skipper	Michael J. Whitting
Shields E. Clark	Steven M. Woods	Robert W. Jackson, Jr.
Maurice E. Berry II	Stephen G. Vrabel	Pablo Ferrari
William C. Hart	W. Lamar Evers	Steve Stinson
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<b>1970</b>	Joseph S. Boggs	Dan Ferrans
William V. Keith	Robert L. Graham	Jeremiah Slaymaker
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Broward P. Davis	Loren E. Mercer	Russell Hyatt
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