



The Florida Surveyor

Volume XXVII, Issue 10

November 2019

In This Issue

- From the Archives: Backsights and Foresights**
- The First American Transit**
- Around the State: Halloween Edition!**

A publication of the Florida Surveying and Mapping Society since 1992

Topcon GT Robotic Total Stations

Patented, best-in-class robotic prism tracking technology from Topcon rejects false positives and remains locked onto the prism so you can focus on the job at hand. And Topcon's unique Hybrid Technology delivers the ultimate in non-stop productivity by combining GNSS positioning to quickly regain lock, and maintain profit.

800.342.9238
www.Lengemann.us

**Topcon
HiPer VR
GPS**



Lengemann

'Flex Lease'

36 Month Terms - Return Anytime

Call 800.342.9238
for Details



Surveyors in Govt

Photo: Andre Hunter



FSMS Shout Out

Photo: Vidar Nordli Mathisen



Did You Ever Wonder Why?

Photo: Jeff Griffith



The First American Transit

President's Message | 4

Around the State | 12

From the Archives | 14

Education Course Information | 20

Chapter Presidents | 24

Districts and Directors | 25

Committees and Admn. Staff | 32

Sustaining Firms | 33

Additional Information | 35

Cover Photo: Valik Chernetskyi

The Florida Surveyor is an official publication of the Florida Surveying and Mapping Society, Inc. (FSMS) and is published for the purpose of communicating with the membership. The newsletter is financed primarily by the dues of the membership although advertisements are welcome from service and product industries relating to the needs and activities of the profession. Articles and advertising appearing in this publication are not necessarily the official policy of this Society unless specifically stated.

FSMS assumes no responsibility for statements expressed in this publication. The Florida Surveyor welcomes contributions from members. Mail correspondence to Administrative Office. Copy all quoted material as it appears in the original. Give credit to the source from which you are quoting. Emailed ads are acceptable. Please send Adobe files, eps, pdf or tif files.

The Florida Surveying and Mapping Society | 1689-A Mahan Center Boulevard, Tallahassee, FL 32308 | 850-942-1900 | fsms.org

**FSMS
2019 Officers**



President-Elect
Don Elder
(850) 444-6255
donelderpsm@gmail.com



Vice President
Matt LaLuzerne
(321) 441-5156
mlaluzerne@gpinet.com



Secretary
Joe Perez
(321) 230-4420
jlperez@pesengsurv.com



Treasurer
Bon Dewitt
(352) 392-6010
bon@ufl.edu



**Immediate Past
President**
Bob Strayer, Jr.,
(941) 497-1290
bob@strayersurveying.com

President's Message



It's already November and this year is flying by. Guess that tends to happen when one is busy but I, for one, am certainly waiting on some "fall" weather to appear and cool us off. Perfect weather days in Florida, to me, are clear skies, low humidity and 70° temps. Hoping they come soon!!

Last week I was privileged to attend the Quarterly meeting of the Board of Professional Surveyors and Mappers held in St. Augustine, Florida. Participating in her last meeting on the board was Ms. Deborah J. Hill, PSM, who has served for the past eight (8) years. Debbie has done a great job throughout her tenure having served as Chair, Vice Chair, Chair of various committees and was the Rules Committee Chair during the re-write of 5J-17 after Chapter 472 was revised to Standards of Practice. We all wish Debbie well in any new endeavors she may choose to undertake.

larelis Hall, PSM, was announced as the newest appointed board member coming on in 2020. We want to congratulate Ms. Hall on this appointment to the Board and know she will do a great job for the profession in this capacity.

Executive Director, Jenna Harper, also announced she is leaving the Department of Agriculture and Consumer Services in a couple weeks and moving to the Department of Revenue. Jenna has been an outstanding Executive Director for the Board and she will be greatly missed by the Board, the FSMS Board and licensees all over the state. Until she is replaced, inquiries can still be made to Regenia Lee. I know Regenia will do everything she can to see questions answered as quickly as possible during this time of transition.

The schedule for next year's board meetings was determined. The open to the public meetings will be February 4-5, May 5-6, July 30-31 and November 5-6. 2020. Locations include Melbourne area, St. Petersburg/Clearwater, Panama City/Destin and St. Augustine. All of these are subject to change so if interested in attending, please verify with the Department Office or look to the website for updates.

As 2020 approaches, Don Elder, our incoming FSMS President will be planning the FSMS Board Meeting schedule and looking to staff our committees. Much of the accomplishments of FSMS are due to the commitment and dedication of our volunteers who act as Chairs and serve on the various committees. Committee members do not have to be a board member or someone in a leadership role at the local level. ANYONE can serve on a committee; I would encourage you to look at volunteering to serve your profession in this capacity. We have many interesting committees which include Education/Scholarship, Professional Practice, Membership, Legislative and Legal just to name a few. Please contact Don Elder if you would like to participate on any of these. All committees are also listed in The Florida Surveyor.

I wish everyone a joyous Thanksgiving holiday. Please remember to be thankful to God for our daily blessings; be thankful to family, friends, and colleagues for we are all nothing without these things. Please also take the time to remember and thank our veterans, men and women in the military serving our country, and the men and women in our police and fire departments who serve our communities every day. Remember our teachers who work tirelessly to educate and mentor our children. Support them. They can be a great influence on the life of your child.

"Every calling is great when greatly pursued." --
Oliver Wendell Holmes. Jr.

Dianne Collins
(863) 937-9052
dcollins@collinssurvey.com



**To All Veterans
With Gratitude for
your service to
America on
Veteran's Day and
always.**

[Click Here to see a special tribute](#)

Surveyors *in Government*



Richard Allen, PSM, CFM

November 2019

An issue we are currently seeing with frequency in my organization is that many surveyors fail to review their surveyor's notes and signatures blocks before sending them out for projects or other items. I understand we all send preliminary drawings to clients and they often use them to get projects going, but that should still not be an excuse to have a note referencing 61G-17. Yes, we use old project files, but this should be the first place we look before sending out anything that has a survey date of 2019. One would understand an update from many years ago possibly having this issue, but what I am seeing are surveys completed within the last year.

Another area of issue is control from another region or county. We recently had a survey submitted for downtown Orlando with a vertical benchmark from Hillsborough County. Sixty feet of vertical difference, what a long bench run! We are called professionals, and must push ourselves to be as much. We all make mistakes, I sent a survey out without a dang north arrow, boy was I embarrassed! Thank god our Real Estate Office caught it! Projects coming in for development that I am seeing, are a mixed bag of goods. You have companies that routinely are submitting quality work and you have those who do not. It seems like for a number of items coming through, both surveying and engineering, are looking for the QA/QC process to be conducted by the reviewing body. Our entities are now establishing or continuing digital review services that support this effort. I cannot just fail anything because the applicant doesn't know what to fix. So I have to itemize every issue that is wrong with their survey, don't let me miss anything or it is an issue to bring it up at a later date!

I always hear that their company is a small outfit and these items are difficult to review. I run a small outfit myself, there are two people reviewing plats, one fully and then I help during the process. There are two people reviewing as-built surveys, one fully and then I help during the process. I have two drafters, one which goes out in the field and performs checks and verifications, the other is a full-time drafter. We do all of this while also performing our own surveys, providing guidance for City business as it involves surveying matters. We have to find time for our own QA/QC process. I know a majority of surveyors are trying really hard to produce a good product while trying to remain profitable, and that is not easy to do and continue to compete with companies that are doing tons of surveys across the state at what seems to be a reduced rate. I have been on the private side and remember running from one mortgage survey to the next and hearing the owner of the company say, what took so long? Well, I had to run out the block, found proration in the plat and needed to run it out to verify. I found newer boundary corners that apparently did not take into account the proration, and disagreed with the axle block corners. We lost money on that survey, but would you want to hang your hat on an excess or

Surveyors *in Government*



deficiency in a block, without being aware of it? Florida Administrative Code states for a boundary, we better be aware, and that takes running out a block.

There is so much that is required of a survey and qualifications of that data upon which we are preparing. Yes the actual survey work is important, but so is the supporting information.

You can reach me at Richard.Allen@orlando.gov or 407.246.2788.



Special Shout Out to:

Richard Allen

Mike Whitling

And

Bob Heggan Jr.

*Thank you for your regular editorial
contributions to The Florida Surveyor!*



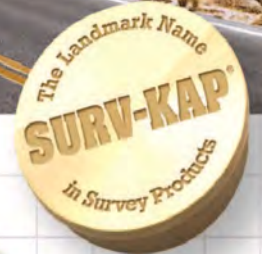
SURV-KAP[®]

THE LANDMARK NAME IN SURVEY PRODUCTS
Exceptional Customer Service

- REBAR & PIPE CAPS
- CONCRETE MARKERS
- SURVEY MONUMENTS
- SECTIONAL ROD MONUMENTS
- ACCESS COVERS
- WASHERS & NAILS
- SUBSURFACE MAGNETICS
- STAMPING TOOLS
- SURVEY TOOLS & ACCESSORIES



CALL OR ORDER ONLINE!



520-622-6011 • 800-445-5320 • FAX 520-792-2030 • SURV-KAP.COM

SAM[®]

We're Hiring in Florida

Chipley | Niceville | Orlando | Pensacola | Tallahassee



Positions Available include:

Survey Crews, Technicians, and Managers



www.sam.biz/careers

SAM is an EOE/Affirmative Action Employer M/F/D/V

Did YOU Ever WONDER Why?

Michael Whiting, PSM

Why is that hairy thing above the lip called a “moustache?”

The English word “moustache” comes from the French word of the same spelling, “moustache”, and popped up in English around the 16th century. The French word in turn comes from the Italian word “mostaccio”, from the Medieval Latin “mustacium” and in turn the Medieval Greek “moustakion”. We now finally get to the earliest known origin which was from the Hellenistic Greek “mustax”, meaning “upper lip”, which may or may not have come from the Hellenistic Greek “mullon”, meaning “lip”. It is theorized that this in turn came from the Proto-Indo-European root “*mendh-”, meaning “to chew” (which is also where we get the word “mandible”).



Photo by Aleksandar Popovski

Why is a remark spoken to convey opposite meaning called “sarcasm?”

We’ve heard of “biting sarcasm” and when you’re hit with a rather vicious remark, it can certainly feel like it draws blood. That’s why it seems fitting that the origin of the word “sarcasm” is rather ferocious. According to Merriam-Webster, “sarcasm” can be traced back to the Greek verb sarkazein, which initially meant “to tear flesh like a dog.” That just might hurt! “Sarcasm” began its prominence with the Vikings. When they weren’t raping and pillaging, the Vikings were trading with the British and during these exchanges, they influenced the British with the words and expressions they used, particularly “sarcasm.” Old Norse sagas offer abundant examples of “sarcasm”, often in the face of adversity. A favorite comes in Grettir’s Saga: the

hero’s brother, Atli, is stabbed fatally through the stomach, whereupon his dying words are (more or less) ‘I see that broad spears are in fashion this year’.

Why are there only five senses?

It is common knowledge that humans have five senses — sight, hearing, taste, touch and smell. Unfortunately, this commonly known ‘fact’ is completely incorrect. A broadly acceptable definition of a sense would be “A system that consists of a group of sensory cell types that responds to a specific physical phenomenon, and that corresponds to a particular group of regions within the brain where the signals are received and interpreted.” So, in addition to the five ‘traditional’ senses there also exists a multitude of others that allow humans to detect stimuli. There is no agreed upon number but neurologists and the scientific community agree there are as little as 9 to as many as 21. Some of the additional senses you are already familiar with, you just probably never associated them with your senses. These include things like pressure, temperature, pain, hunger, and even time. A few less obvious examples include the ability to keep balance and sense movement (equilibrioception), and the awareness of knowing where your body parts are located in space (proprioception).



Photo by Zan

Quick Facts:

- ⇒ Crude or careless handwriting is referred to as griffonage.
- ⇒ Astronauts aboard the International Space Station witness way more sunrises and sunsets than those of us on Earth: 16 of each per day. That's because the station travels at about 17,500 miles per hour, completing a full orbit of Earth every 90 minutes.
- ⇒ Mutton chops, besides being a slab of rib meat cut somewhat perpendicular to the spine, also refers to a style of sideburn where the facial hair tends to grow larger as it extends down towards the chin, with the chin then being shaved. The first known instance of this style of sideburn being named such was around the mid-1860s and is presumed to have been called this due to the shape somewhat resembling the mutton chop cut of meat. The meat itself was first called such in the early 18th century.
- ⇒ The world's smallest spider is the Patu marplei. It is so small that 10 of them could fit on the end of a pencil. The world's biggest spider is the goliath spider (*Theraphosa blondi*). It can grow up to 11 inches wide, and its fangs are up to one inch long. It hunts frogs, lizards, mice, and even small snakes and young birds.
- ⇒ It's impossible to burp in space! When you burp on Earth, gravity keeps down the solids and liquid from the food you just ate, so only the gas escapes from your mouth. In the absence of gravity, the gas cannot separate from the liquids and solids, so burping essentially turns into puking.
- ⇒ The agrafe is the "metal clip used to secure the cork in a bottle of champagne or sparkling wine during secondary fermentation." Basically, the agrafe's purpose is to prevent the cork from emerging under the pressure created by carbonation.
- ⇒ Though zarfs, a holder to protect you from hot cups of liquid, have been around for centuries, the newer, more practical cardboard version was patented in 1991 by Jay Sorensen. After burning his fingers on a cup of coffee, causing him to spill it all over his lap, Sorensen decided to come up with a safeguard, according to Smithsonian Magazine. So, coffee lovers have Sorensen to thank for keeping our hands burn-free with zarfs.
- ⇒ If you sign letters (or texts) to those you love with a 'xo,' then you're keeping up a sweet tradition that goes back hundreds of years. According to research done by the word experts over at Oxford Dictionaries, an 'x' was first used to represent a kiss back in 1763 in a letter written by naturalist Gilbert White.

- ⇒ If you've ever wondered what the white, crescent-shaped mark on your fingernail was, wonder no longer! According to Merriam-Webster, this part of the nail is called the lunule.
- ⇒ Those pesky, long strings on bananas are called phloem bundles. (You might recognize "phloem" from high school biology: It describes the complex tissues that transport food and water to plants, ensuring that they remain well-fed.)
- ⇒ The odds of picking the correct numbers in the Mega Millions are one in 302.6 million. For comparison, your odds of winning an Olympic gold medal are just 1 in 662,000, according to Forbes.

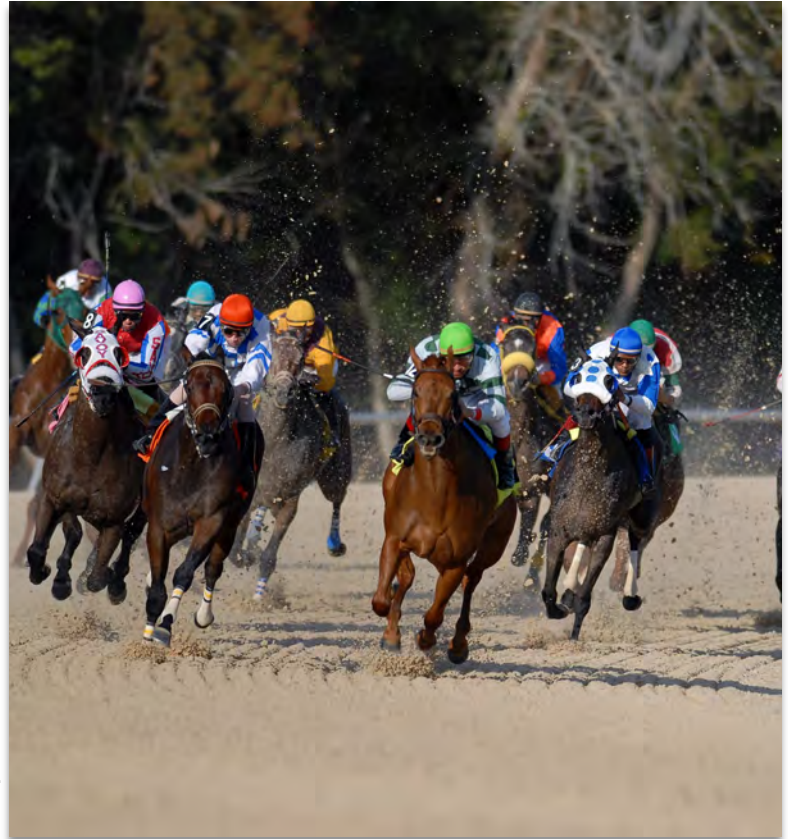


Photo by Jeff Griffith

- ⇒ Poor Frank Hayes wasn't even really a jockey—he was a stable hand who sometimes filled in during races. On June 3, 1923, he won his first—and last—horse race. At some point while riding the 20-to-1 longshot Sweet Kiss, Hayes suffered a heart attack and died. However, the horse finished first and Hayes' body was still mounted on the saddle, so Sweet Kiss was declared the winner. Hayes, who was only 22, had been required to drop 10 pounds of water weight in the previous 24 hours, so it's possible that dehydration and weakness proved to be a lethal combination.

Send your thoughts to drmjw@aol.com

Around the State



Mike Whitling's granddaughter, Ellery as a rainbow and her friend as a butterfly



Mike Whitling with his granddaughter, Ellery



Executive Director Tom Steckler's grandson, Banyan as a dragon



Greg Rieth as Bill Clinton

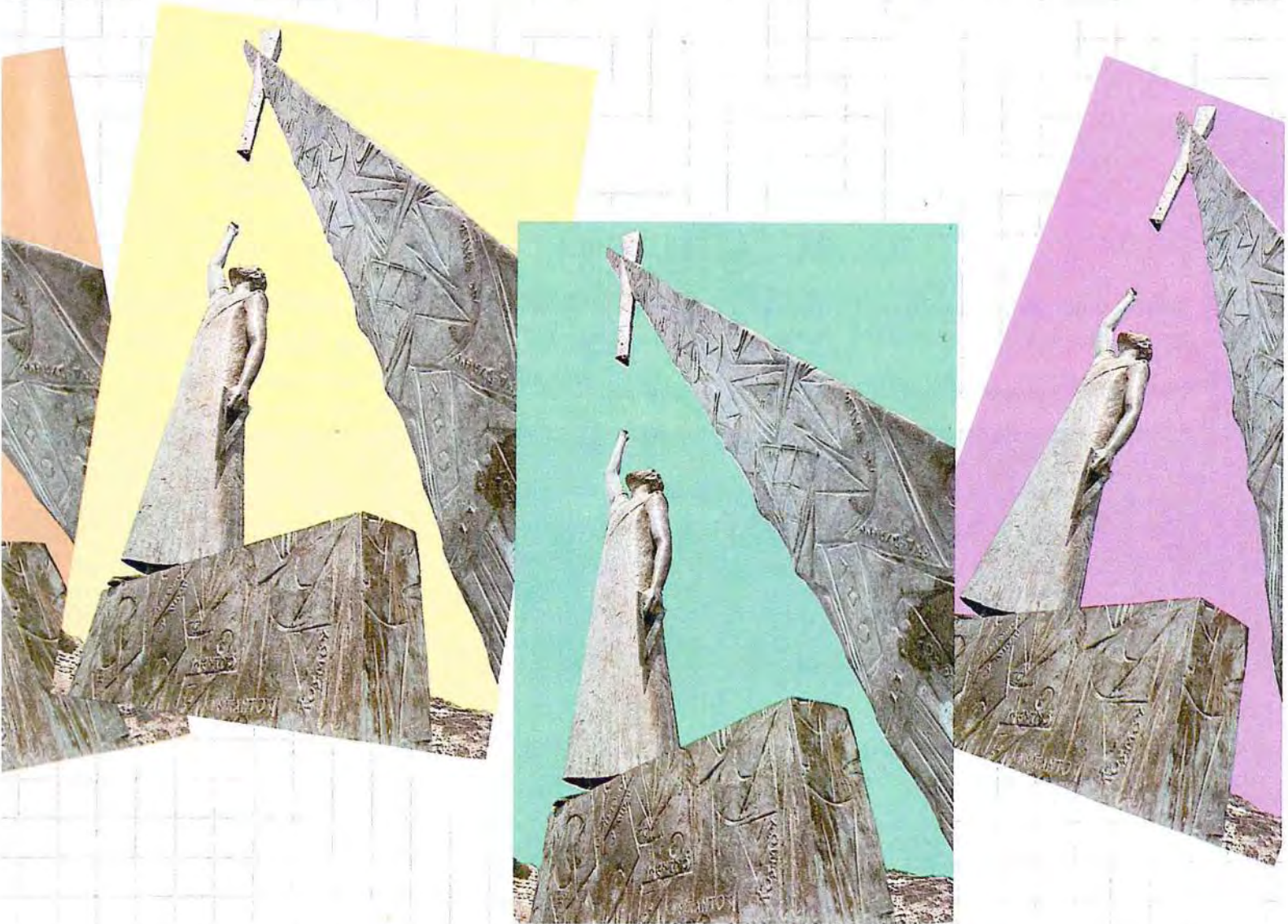


Jack O'Lantern Sun, 2014
Photo: NASA's Goddard Space Flight Center



BACKSIGHTS & FORESIGHTS

FOURTH QUARTER 1990



A Florida Surveyor Takes A New Look at an Old World

BACKSIGHTS & FORESIGHTS




**FLORIDA SOCIETY OF
PROFESSIONAL LAND SURVEYORS**
1689-A Mahan Center Boulevard
Tallahassee, Florida 32308
(904) 942-1900

A New Look at an Old World From Pythagoras to PCs, A Florida surveyor shares his sailing experience.

Cover Story Page 7

Florida Society
of Professional Land Surveyors Page 5

President's Message Page 7

A Florida Surveyor Takes
a New Look at an Old World Page 9
By Beth and Al Liggett

A Look Back—
The 35th Annual Convention Page 13

1990 Exhibitors Page 27

CADD—An Overview Page 28
By Tommy L. Nasworthy

Dollars & Sense—New Opportunities
for the Small Investor Page 31
By Fred Bruce

Alfie Cross
Publications Chairman
VOL. 5 NUMBER 4

"Backsights and Foresights" is an official publication of the Florida Society of Professional Land Surveyors (FSPLS) and is published quarterly by the membership for the betterment of the surveying profession. The Journal is financed by subscription of the membership, although advertisements, as indicated below, are welcomed from the service and product industries relating to the needs and activities of the profession.

Articles originated by the editor or members of the society are not copyrighted and may be reprinted with due credit. Individual permission must be sought to reprint articles which originated in other magazines, from the appropriate sources.

The FSPLS assumes no responsibility for statements made or opinions expressed in this publication. Con-

tributions are openly solicited from the membership to provide for free expression. Potential authors are invited to submit their manuscripts for future issues in double-spaced, typewritten format, with copy on one side of the page only. All entries should be accompanied by a self-addressed stamped envelope for return of the materials involved. Manuscripts should be mailed to: **Editor, FSPLS Backsights and Foresights, 1689-A Mahan Center Boulevard, Tallahassee, FL 32308.**

ADVERTISERS WELCOMED

This quarterly journal offers an excellent opportunity for manufacturers and retailers to reach the professionals in land surveying practice in the State of Florida for the following minimum fees:

(Black & White)

FULL PAGE	\$300
TWO-THIRDS PAGE	\$250
HALF PAGE	\$225
ONE-THIRD PAGE	\$200
ONE-SIXTH PAGE	\$175

A Florida Surveyor Takes a New Look at an Old World

By Beth and Al Liggett

On the Cover — The Pythagoras Monument Bronze: Height, 30 ft.

Pythagoras, the ancient Greek mathematician, geometrician, musician, philosopher, and mystic was born in 580 B.C. on the Greek island of Samos, in the harbor town known today as Pythagoreon.

This monument expresses the genius of Pythagoras by way of a triangle as the symbol of his world-known theorem.

The strong north winds called meltemi had been blowing hard for the past few days. With a reef in the

mainsail, Beth and I, aboard our 42' sailboat *Sunflower*, set out early one morning for the Greek Island of Samos which lay a few miles to the north.

Entering the small harbor at Pythagoreon we moored with our bow to the key between two other boats. After tidying up the sailing gear and ourselves, off we went for an evening stroll. We wanted a closer look at a sculpture that had caught our eye when entering the harbor. The bronze monument had been erected to honor Pythagoras, who had been born on the island in the 6th century BC.

A ferry boat docking caught our attention. We watched as a stream of holiday makers flooded ashore.

"Hey man, what's the name of this place?" a tall bearded backpacker asked.

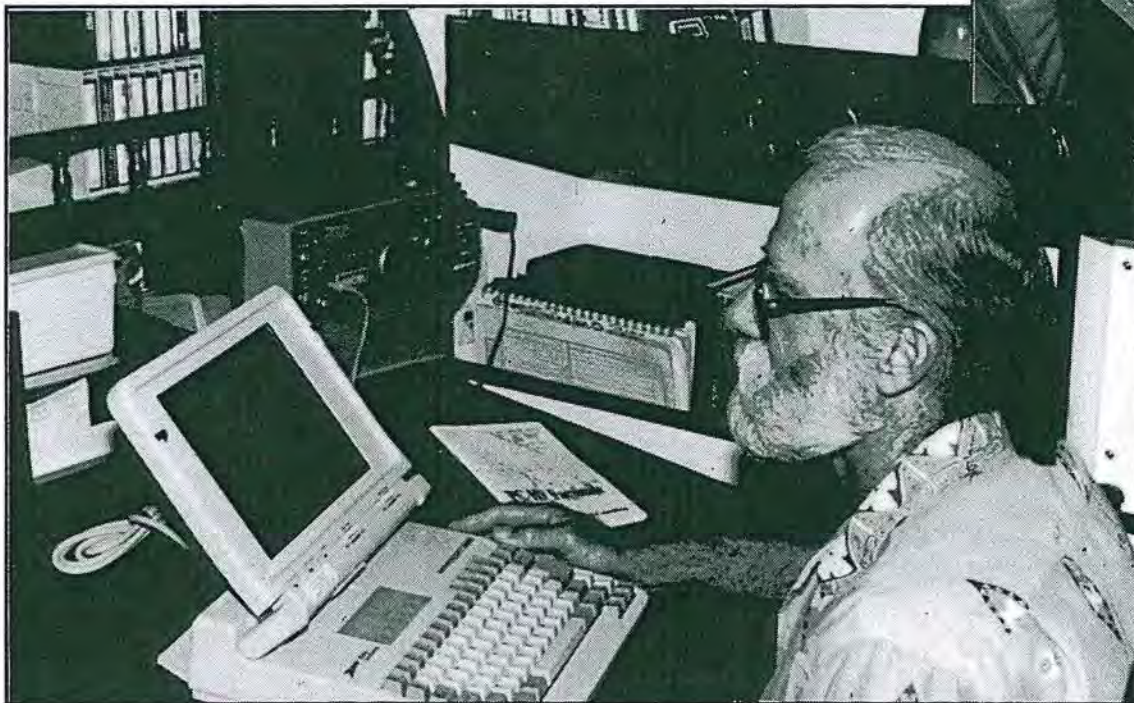
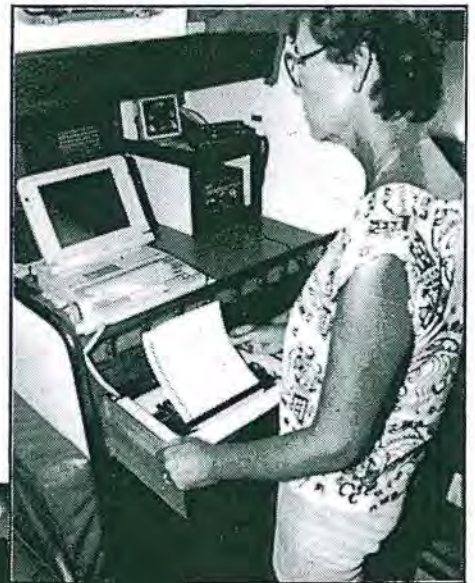
"Pythagoreon," I said, "home of Pythagoras."

"How's the food in his res-

taurant?"

"He was a philosopher, geometrician, mathematician, not a restaurant owner; he developed the formula $A^2+B^2=C^2$ to solve right triangles. It's called the Pythagorean theorem," I informed him.

"Hey, thanks a lot. I'm off to the nudie beach. I'm into love triangles, not right triangles. A bit more in-



The Liggetts use a Zenith Supersport 286 on the *Sunflower* for correspondence and receiving, storing, and printing weather maps. Weather information is broadcast worldwide by shore based stations and the ham radio signal is sent through a FAX demodulator to the computer.

spiring, don't you think?" He had a good point!

We made our way back to *Sunflower*, relaxing in the cockpit with a sundowner. As I sat thinking about the backpacker, love triangles, right triangles, and Pythagoras, I realized that this was a very historical place, mathematically speaking. For us surveyors right triangles play one hell of a big role. We use them every day whether working in the field or the office.

In years past, solving triangle problems was a time consuming, laborious computation, not far removed from the days of Pythagoras. Nowadays, with electronic calculators and computers, it's just a matter of entering known data and waiting milliseconds for the results. Every modern office now has computers to solve survey problems. I would think that field parties on big jobs could use personal computers to facilitate calculations and recall previous computed information.

PC's are the latest toys aboard sailing yachts as well. We even have one aboard *Sunflower*. With the requirement of continuing education credits for license renewal, I chose to gain my necessary credits by enrolling in a couple of computer courses. This hands-on experience was very enlightening. With that small exposure to computers I decided to buy a PC.

Alf Cross, who I was working with at Carnahan Engineering, got me started by installing a menu and a few programs. As I had never learned to type, Alf gave me a typing tutor program which has helped me learn where the keys are. But my spelling still confuses the spell-check program!

Aboard *Sunflower* our Zenith Supersport 286 is used mostly by Beth as a word processor. This has enabled her to handle our correspondence with ease and efficiency. It has made letter writing so easy

that our postage bill has increased noticeably.

Another use aboard *Sunflower* is to receive, store, and print weather maps. Weather information is

***In years past,
solving triangle
problems was a time
consuming,
laborious
computation, not far
removed from the
days of Pythagoras.
Nowadays, with
electronic
calculators and
computers, it's just a
matter of entering
known data and
waiting milliseconds
for the results. Every
modern office now
has computers to
solve survey
problems.***

broadcast worldwide by shore based stations. Times and frequencies are found in US Government Publication "Worldwide Marine Weather Broadcasts." These broadcasts are received using my ham radio receiver. From there the signal goes through a FAX demodulator (a small magic box, 1/2 the size of a cigarette package) then to the PC where the software is waiting to turn the decoded radio signals into a visual image on the PC screen. The weather map can be stored for later printing or printed after the map is received.

Twelve volts from the boat's batteries provide ample power supply for the ham radio receiver and the PC. Our printer requires 110 V AC. For this we use an inverter—an electronic device that turns 12 V DC into 110 V AC.

In addition to current weather maps, we can receive a 24 or 36 hour prognosis, as well as surface wave condition, cloud cover, wind force and direction. All this weather information turns us into a mini weather station; we can predict what weather is in store for us. Well, after having picnics rained out, ball games called off, and anchors drag due to unexpected weather, I don't hold a great deal of confidence in weather predictions. However, the weather maps do give us an excellent overall view of the general weather conditions.

Of course on those rainy days when one gets a bit bored we can always get out the PC and play one of the games friends have insisted we "must" have! This is not a problem in the summer in the Aegean Sea—it never rains! In fact the weather is so predictable, you sometimes think the same weather map is used day after day.

With settled weather and the usual north wind predicted, we set sail from Pythagoreon for a nice down wind run to the south coast of Turkey where we will spend the remainder of the summer.

Editor's Note: This article was written by a Florida surveyor and his wife who are sailing around the world. Currently they are visiting Turkey with interesting side trips such as this.

The First American Transit

By: Robert Heggan Jr., PSM, PLS

Some of us that had the pleasure of using a transit in the field years ago never really took into account the instrument's origin. One of the most prolific surveying instrument makers of the 19th century, William J. Young of Philadelphia, was known for his innovations in instrumentation that included the development of many

survey instruments for the railroad and mining industries. He also worked closely with William Austin Burt and manufactured Burt's Solar Compass.

In the early 1830's, Young was developing improvements to his compass. With the railroad industry blossoming, there was a growing need to have more accurate instruments. While the English theodolites offered the accuracy required; they were bulky and cumbersome to operate. By adding a graduated horizontal limb, that could be locked, angles could be read independent of the compass needle by a vernier on the compass plate. Additional improvements included placing the vernier scale beneath the glass on the compass box and darkening the face of the compass to reduce glare. Young applied for a patent for these developments in 1830. The patent was granted in 1832, surrendered for revisions and reissued in 1834. This patent, for what became later known as a railroad compass, became the precursor for the American transit.

The addition of the horizontal limb plate and vernier allowed angles to be read in 3 minute increments. Other improvements to the "Improved Compass" included a transiting telescope to replace the sight vanes and telescope mounted spirit levels to act as a leveling instrument. In a testimonial in the American Railroad Journal from 1833, an engineer from the Germantown & Norristown Railroad stated



ENGINEERING AND SURVEYING INSTRUMENTS.
 2-7 The subscriber manufactures all kinds of instruments for the profession, warranted equal, if not superior, in practical construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the aid of the needle, with perfect accuracy—also, a Railroad Compass, with two Telescopes—and a Levelling Instrument, or Goniometer attached, particularly adapted to Railroad purposes.
 Wm. J. YOUNG,
 Mathematical Instrument Maker, No. 9 Dock and Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 18
 In reply to the inquiries respecting the instruments manufactured by me, and in use on the Baltimore and Ohio Road, I cheerfully furnish them with the following information. The whole number of Levels now in possession of the Department of Construction of this state is seven. The whole number of the "Improved Compass" is eight. These are all in the hands of the Engineer and Surveyors in the service of the Engineers and Surveyors Department.

Each Level and Compass are in good repair. They in fact needed but little repair, except from accidents to all instruments of the kind are liable.

I have found that the patterns for the levels and compass have been prepared by my assistants generally, so any one in use, and the Improved Compass is superior to any other compass of the kind that we have received in buying the on this Road.

This instrument, more recently improved with a telescope, in place of the usual sight, leaves the eye nearly any thing as desired in the formation of construction the Compass. It is indeed the most complete adapted to all angles of any similar and cheap instrument that I have seen, and I cannot but believe it will be preferred to all of them in use for laying off rails—and in fact, when known, it will be as highly appreciated for common surveying.

Respectfully submitted,
 JAMES F. SYBILLA, Superintendent of Construction of Baltimore and Ohio Railroad, Philadelphia, February, 1833.

Having for the last two years made common use of the "Improved Compass," I can safely say that I have never found it to be much superior to any other instrument of the kind in use, and as such most cheerfully recommend it to the Engineer and Surveyors.
 C. H. GILL, Civil Engineer, Germantown, February, 1833.

For a year past I have used instruments made by Mr. Young of Philadelphia, in which he has combined the principle of the theodolite with the compass. Level.

I consider these instruments admirably calculated for the use of Railroads, and have recommended them to the notice of the Board of Directors of the Germantown and Norristown Railroad, and as such most cheerfully recommend them to the notice of any others for that purpose.
 HENRY H. CAMPBELL, Eng. Philad., Germantown and Norristown Railroad.



ENGINEERING AND SURVEYING INSTRUMENTS.
 2-7 The subscriber manufactures all kinds of instruments for the profession, warranted equal, if not superior, in practical construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the aid of the needle, with perfect accuracy—also, a Railroad Compass, with two Telescopes—and a Levelling Instrument, or Goniometer attached, particularly adapted to Railroad purposes.
 Wm. J. YOUNG,
 Mathematical Instrument Maker, No. 9 Dock and Philadelphia.

"For a year I have used the instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a theodolite with the common level. I find these instruments admirably calculated for laying out railroads, and can recommend them to the notice of engineers as preferable to any other for that purpose." Also, during the same year a testimonial from the Superintendent of Construction for the B & O Railroad stated, "This instrument, more recently improved with a reversing telescope, in place of the sight vanes, leaves the engineer scarcely any thing to desire in the formation and convenience of the compass. It is indeed the most completely adapted to lateral angles...and in fact, when known, I think that it will be highly appreciated for common surveying."

The earliest versions of the "Improved Compass with Telescope" are marked "W. J. Young MAKER Philadelphia". This is commonly found instruments made prior to the January 17, 1832 patent. Instruments made after that date bear the word "Patent" in addition. Later improvements included graduated vertical scales and tangent screws to replace the rack and pinion movement for the horizontal limb plate.

It has also been noted that Edmund Draper of Philadelphia had developed the transit around the same time as Young. While Young possessed the patent for the instrument, some publications argued that Draper was the true inventor. Unfortunately, the records of some instrument makers were often vague as to time, type and number of instruments manufactured. So, it seems that history will remember the record keepers and promoters.





2019 eLearning Courses



Basics of Real Property Course #8380 (3 General CEC)

\$ 70⁰⁰



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

\$ 120⁰⁰



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

\$ 70⁰⁰



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

\$ 70⁰⁰



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

\$ 120⁰⁰



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

\$ 120⁰⁰



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

\$ 120⁰⁰



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

\$ 120⁰⁰



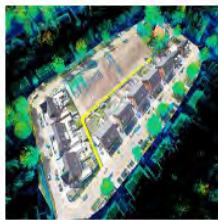
History of Surveying Course #7140 (6 General CEC)

\$ 120⁰⁰



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

\$ 120⁰⁰



Introduction to Photogrammetry Course #7968 (3 General CEC)

\$ 70⁰⁰



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

\$ 120⁰⁰



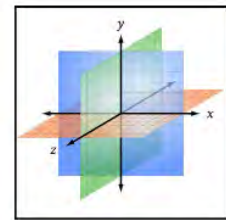
Map Projections and Plane Coordinate Systems Course #8261 (6 General CEC)

\$ 120⁰⁰



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

\$ 120⁰⁰



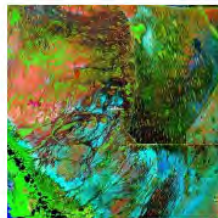
Practical Geometry for Surveyors Course #7141 (6 General CEC)

\$ 120⁰⁰



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

\$ 120⁰⁰



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

\$ 120⁰⁰



Writing Boundary Descriptions Course #8362 (3 General CEC)

\$ 70⁰⁰



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**



FSMS Correspondence Courses

Lowest Rates of Any Florida Surveying and Mapping Continuing Education Provider

Step 1: Choose Course(s)

3 Hour Courses Available

- A History of the Prime Meridian Marker, #8403, 3 CEC**
- Basics of Real Property, #8359, 3 CEC**
- Contracts for the Professional, #8411, 3 CEC**
- Digital Signatures for Surveyors, #8491, 3 CEC**
- Elevation Certificates and the Community Rating System, #8257, 3 CEC**
- Introduction to Photogrammetry, #7887, 3 CEC**
- Quality Assurance/Quality Control for the Design Professional and Technical Staff, #9293, 3 CEC**
- Writing Boundary Descriptions, #8361, 3 CEC**

6 Hour Courses Available

- Boundaries in Florida, #7667, 6 CEC**
- Chapter 177, Platting (Plat Law), #6970, 6 CEC**
- Client Satisfaction Excellence for Surveying and Mapping Professionals, #7229, 6 CEC**
- Critical Communication for Surveying & Mapping Professionals, #7228, 6 CEC**
- Ethics for the Design Professional, #8620, 6 CEC**
- Florida Laws, #6966, 6 CEC**
- Florida Surveying Law and Rule Changes, #9573, 6 CEC**
- Georgia Technical Standards for Property Surveys, #8553, 6 CEC**
- Geographic Information Systems (GIS), #7107, 6 CEC**
- History of Surveying, #7108, 6 CEC**
- Identification of Native and Non-Native Trees in Florida, #7874, 6 CEC**
- Land Tenure and Cadastral Systems, #7829, 6 CEC**
- Map Projections and Plane Coordinate Systems, #7669, 6 CEC**
- Mean High Water Observations and Computations, #8220, 6 CEC**
- Practical Geometry for Surveyors, #7109, 6 CEC**
- Public Land Survey System, #6979, 6 CEC**
- Remote Sensing Applications to Surveying & Mapping, #6972, 6 CEC**
- Stress Management for Surveyors & Mappers: How to be Productive Under Pressure, #6902, 6 CEC, ONLY AVAILABLE BY MAIL**
- Time Management for Surveyors & Mappers: How to be Productive & Exercise Time Mastery in a Hectic World, #6901, 6 CEC, ONLY AVAILABLE BY MAIL**

Step 2: Choose Member Type

FSMS Member

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

Non-Member

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

Non-Licensed in ANY State

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

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: _____ CVV Code: _____

Billing Address of Credit Card: _____

Signature: _____

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

IF PAYING BY CREDIT CARD, FAX OR EMAIL FORM TO: 850.877.4852 education@fsms.org

QUESTIONS? CALL 800.237.4384

District 1

Panhandle

William T. Butler
(850) 476-4768
wtb@butlersurveying.com

Gulf Coast

Frederic Rankin
(850) 571-1194
erankin@dewberry.com

Chipola Area

Jesse Snelgrove
(850) 526-3991
jsnelgrove@snelgrovesurveying.com

Northwest Florida

Chad Thurner
(850) 200-2441
chad@ncginc.com

District 2

Florida Crown

Bill Faust
(904) 641-0123
cfaust@drmp.com

North Central Florida

Hal Peters
(352) 304-9534
hpeters@gpinet.com

UF Geomatics

Daniel Hutton
(904) 392-8679
dhutton8@ufl.edu

District 3

Central Florida

Leon Hampton
(321) 231-4874
lham5910@yahoo.com

Indian River

Brion Yancy
(772) 475-7475
byancy@martin.fl.us

Volusia

Anthony Sanzone
(386) 672-3633
eastcoastland@bellsouth.net

District 4

Ridge

Larry Sharp
(863) 640-9017
lrsharp@collinssurvey.com

Tampa Bay

Robert Breedlove
(813) 234-0103
robert@rjbsurveyor.com

District 5

Charlotte Harbor

Greg Rieth
(941) 481-1290
greg@strayersurveying.com

Collier-Lee

Steve Shawles II
(239) 481-1331
sshawles@bwlk.net

Manasota

Donald A. Bouchard, Jr.
(941) 748-8080 ext. 146
donb@znseng.com

District 6

Broward

Earl Soeder
(954) 818-2610
earl@gpserv.com

Palm Beach

Derek Zeman
(561) 757-2303
dzeman@drmp.com

FAU Geomatics

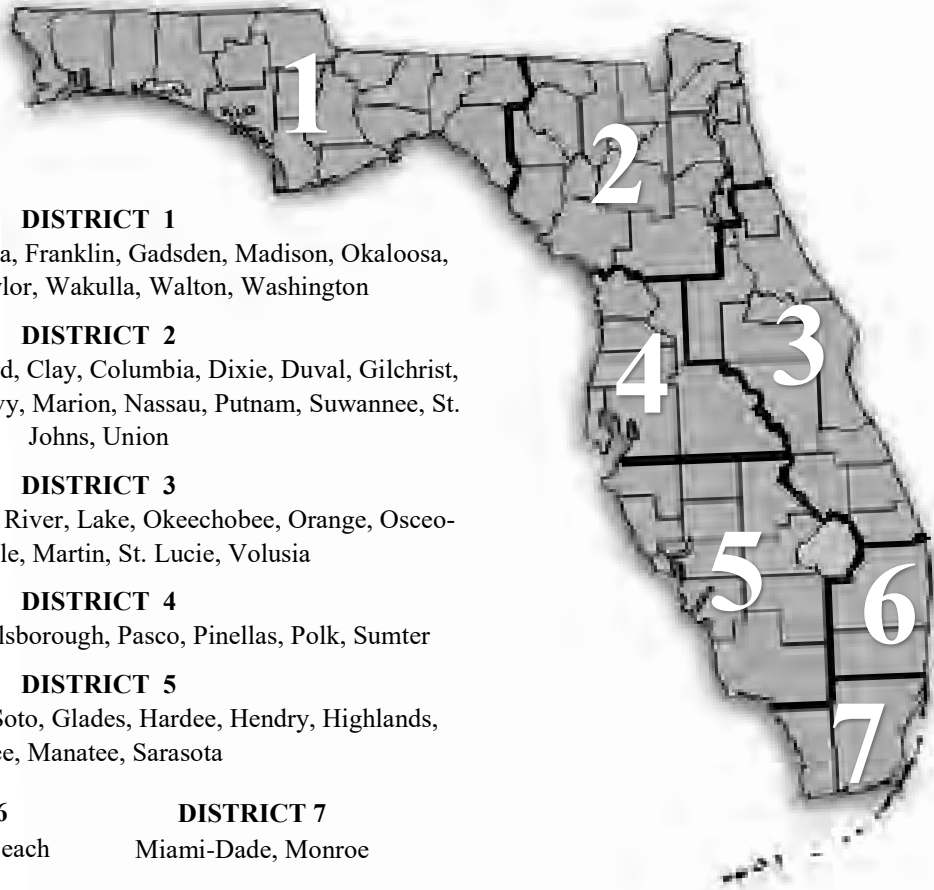
Gerardo Rojas
(561) 297-2658
grojas2017@fau.edu

District 7

Miami-Dade

Frank Paruas-Suiero
(786) 831-2251
fparuas@gpinet.com

2019 Districts and Directors



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

Brevard, Flagler, Indian River, Lake, Okeechobee, Orange, Osceola, 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

District 1 - Northwest

Eric Stuart
(850) 857-7725
eric.stuart@sam.biz

Chad Thurner
(850) 200-2441
chad.thurner@sam.biz

Ralph Rhodes
(941) 924-1600
rjr@rjrhodes.com

Jeffrey Cooner
(239) 829-7016
jeff.cooner@cardno.com

District 2 - Northeast

Nick Digruzzolo
(863) 344-2330
ndigruzzolo@pickettusa.com

Randy Tompkins
(904) 755-4235
randytompkins1@outlook.com

Ken Buchanan
(561) 687-2220
ken.buchanan@wginc.com

Dodie Keith-Lazowick
(954) 788-3400
dkeith@keithteam.com

District 3 - East Central

Al Quickel
(407) 395-3518
aquickel@drmp.com

Howard Ehmke
(561) 682-2987
hehmke@sfwmd.gov

Manny Vera, Jr.
(305) 221-6210
mverajr@mgvera.com

Lou Campanile, Jr.
(954) 980-8888
lou@campanile.net

District 4 - West Central

Greg Prather
(863) 533-9095
gprather@pickettusa.com

Justin Ferrans
(727) 461-6113
Justin@polaris-survey.com

District 5 - Southwest

District 6 - Southeast

District 7 - South

NSPS Director

Ronnie Figueroa
(407) 292-8580
rfigueroa@southeasternsurveying.com

GEOMATICS VS LAND SURVEYING

A DEBATE OVER THE DESCRIPTION OF PROFESSIONAL KNOWLEDGE AND SERVICES

What's in a name? Land Surveyor, Geomatics, Geodetic Surveyor, Hydrographic Surveyor, Cadastral Surveyor, Construction Surveying, Photogrammetry, etc. express a hint of what the act of surveying is engaged in, and what that act intended to accomplish.

Least we forget, there was a time when the term "Engineer" also included Land Surveying (or Surveying in general) and all sorts of design efforts. As Engineering became more diverse and the need for more specific knowledge for each effort, the term was bifurcated and "specialties" of engineering evolved. Thus: Agricultural Engineer, Structural Engineer, Electrical Engineer, Chemical Engineer, Aeronautical Engineer, Nuclear Engineer, Biomedical Engineer, Bio-mechanical Engineer, Mechanical Engineer, Software Engineer, Mining Engineer, Environmental Engineer, Geotechnical Engineer, Transportation Engineer, Utility Engineer, Surveying, etc. Many of those new engineering specialties were a subdivision of what we also used to know as "Civil Engineering". Who knew?

Even now as we view the term "Surveying", we have begun to see the need for speciality survey knowledge in our profession. I believe that this trend will continue. These specialties require special knowledge and training, or experience, that few of us have mastered all. Many Surveyors have some idea about the skills needed to perform Photogrammetry, Hydrographic, Cadastral, Geodetic Surveys, etc., but I venture to say that none of us are "true masters" of all the finer skills needed for each. If you doubt that statement, envision having to defend each stated skill in a court room where you are questioned, in detail, about the actual extent of your knowledge of each.

In my opinion, the term Geomatics is the umbrella term for all of these survey skills. The higher education, now mandated in Florida, is an effort to familiarize the graduate with them, not to master them. I believe that today's Geomatics graduate finds themselves hired by an entity (private or governmental) and continues their education in the finer aspects of one, or just a few, of those specialties. Those graduates that grow into management know enough about each skill to direct its operations, but leave the details to the staff that specializes in each. Senior management levels find that they have lost much of the detail level of skill, as it advances in the sciences and softwares, and more about how to speak to their clients, end users, project management and marketing their

entity's wares. I, for one, find that I spend more time on the phone, or in meetings, then practicing the survey skills I once knew.

My knowledge is unique to my experiences obtained after schooling. I consider my personal speciality developed into the Cadastral element of our profession. My schooling provided the foundation for me to learn the basics of our profession and gave a broad understanding of most of it, however much advancement in the science and tools of surveying has left me in a technical void. I understand that, and feel that my expertise in Cadastral is worthy of my dedication to it. The gizmos and drones seem to be the rage of these young cadets, and thats fine with me. I just wish that I could plug a thumb drive I one ear and copy my knowledge and experience to share with those new graduates! Not that they would pay any attention to it.

For what's it worth,
Chappy Young,
Land Surveyor

SAVE The DATE

WHAT:

65th Annual Conference

WHEN:

July 22-25, 2020

WHERE:

PGA National Resort & Spa
Palm Beach Gardens, Florida

www.FSMS.org





**One System.
Multiple Uses.
Yes, You Can Do Both!**

SNOOPY DUAL VUX - RIEGL

Designed to easily move from a UAV to a ground vehicle. Optimize your ROI.
Spend more time scanning, only 30 seconds to initialize.
We Make 3D Mapping Easy. Learn more on our website. www.LiDARUSA.com



FSMS

MEMBERSHIP BENEFITS



Brand Awareness

For unique and creative branded products! Send your logo and receive a free sample!

(850) 510-0273
www.BurkeBuchanan.com

Rental Car Discounts

Enjoy great savings every time you rent from Alamo Rent A Car, Enterprise & National.

Contact FSMS office for the link to discount.
(850) 942-1900

Copier Services

Call Scott Tharpe at Advanced Business Systems for member discounts on all office automation & IT needs, including all Canon, Toshiba, Savin, HP, & Kyocera. We can ship anywhere in the U.S.

(850) 222-2308
www.a-b-s.com

Cyber Security

Trulight is an advisor for tech strategy. We show organizations how to highlight areas of opportunity, while minimizing areas of risk. Key to minimizing risk, is a well defined and implemented cyber security strategy and plan.

Jonathan Kilpatrick
Jonathan.Kilpatrick@trulightconsulting.com

Payroll Services

For all your payroll needs, call Philip Browning.

(850) 224-2439
www.NorthFloridaPayroll.com

Insurance

Rogers, Gunter, Vaughn Insurance (RGVI)/HUB Florida has been the endorsed agent by FSMS for over 35 years, providing specialized insurance for Surveying, Mapping, Architectural, and Engineering Firms. RGVI/HUB can assist you and your firm in obtaining all lines of insurance.

Agent: Russ Browning
1117 Thomasville Road, Tallahassee, FL 32303
Office: (850) 205-0559
Mobile: (850) 545-5219
Russ.Browning@hubinternational.com

Background Checks

Researcher's Associates has been in business for 40 years, providing background checks for employers, insurance companies & attorneys. We will be happy to tailor our services to meet your needs.

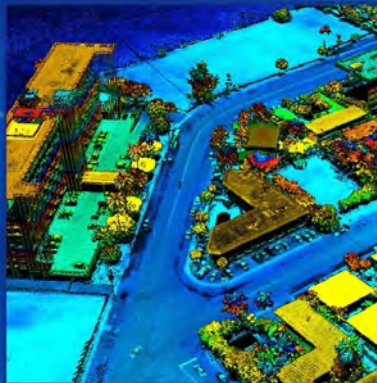
Mary Gay
Rainc01@aol.com
(850) 893-2548

Florida Surveying & Mapping Society
1689 Mahan Center Blvd., Suite A
Tallahassee, FL 32308

Phone: (850) 942-1900
Fax: (850) 877-4852
www.fsms.org

Success can be Measured

Land & Hydrographic Surveys
Aerial LiDAR Mapping & Imagery
UAS & USV Mapping
Transmission Engineering



PICKETT
SURVEYING • ENGINEERING

Ann Arbor • Bartow • Dallas • Gainesville • Raleigh • Tampa

Visit us at PickettUSA.com or call us at 863.533.9095

**WE'D LOVE TO FEATURE YOUR
SURVEYING PHOTOS! PLEASE EMAIL TO:
COMMUNICATIONS@FSMS.ORG**



Committees

Standing Committees

Nominating Committee	Don Elder
Membership Committee	Jim Sullivan
Finance Committee	Bon Dewitt
Executive Committee	Dianne Collins
Education Committee	Justin Ferrans
Annual Meeting Committee	Matt LaLuzerne
Legal Committee	Jack Breed
Strategic Planning Committee	Don Elder
Ethics Committee	Joe Perez
Legislative Committee	John Clyatt
Surveying & Mapping Council	Randy Tompkins
Constitution and Resolution Advisory Committee	Eric Stuart

Special Committees

Equipment Theft	Pam Nobles
Awards Committee	Bob Strayer, Jr.
UF Alumni Recruiting Committee	Russell Hyatt
Professional Practice Committee	Lou Campanile

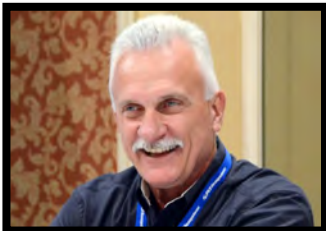
Liaisons	
CST Program	Alex Jenkins
FDACS BPSM	Lou Campanile, Jr.
Surveyors in Government	Richard Allen
Academic Advisory UF	Bon Dewitt
FES	Lou Campanile

Practice Sections

Geospatial Users Group	Matt LaLuzerne
-------------------------------	----------------

Administrative Staff

Tom Steckler



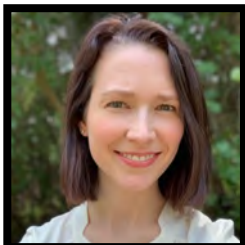
Executive Director
director@fsms.org

Rebecca Culverson



Education Director
education@fsms.org

Laura Levine



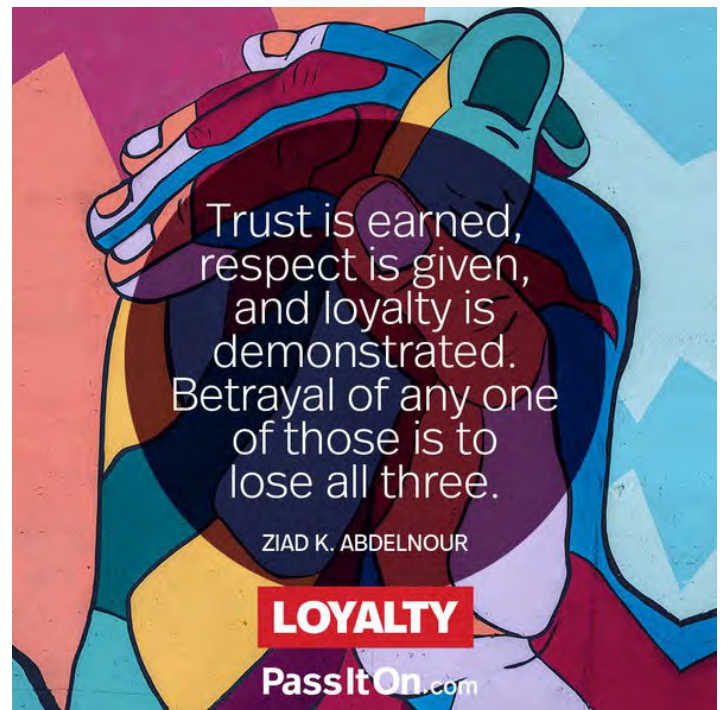
Communications Director
communications@fsms.org

Cathy Campanile



Regional Coordinator
seminolecc84@gmail.org

Tom's Tip of the Month



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.

2019 Sustaining Firms

Accuright Surveys of Orlando, Inc.	407-894-6314	CPH, Inc.	407-322-6841
Agnoli, Barber & Brundage, Inc.	239-597-3111	Craven-Thompson & Associates, Inc.	954-739-6400
AIM Engineering & Surveying, Inc.	239-332-4569	Cross Surveying, LLC	941-748-8340
Allen & Company, Inc.	407-654-5355	Culpepper & Terpening Inc.	772-464-3537
Allen Engineering, Inc.	321-783-7443	Cumbey & Fair, Inc.	727-324-1070
AM Engineering, Inc.	941-377-9178	Dagostino & Wood, Inc.	239-352-6085
American Consulting Professionals, LLC	813-435-2600	DeGrove Surveyors	904-722-0400
American Surveying, Inc.	813-234-0103	Dennis J. Leavy & Associates	561-753-0650
Amerritt, Inc.	813-221-5200	Dewberry	321-354-9729
Arc Surveying & Mapping, Inc.	904-384-8377	DMK Associates, Inc.	941-475-6596
Associated Land Surveying & Mapping, Inc.	407-869-5002	Donald W. McIntosh Associates, Inc.	407-644-4068
Avirom & Associates, Inc.	561-392-2594	Donoghue Construction Layout, LLC	321-248-7979
Axis Geospatial SE, LLC	386-439-4848	Douglass, Leavy & Associates, Inc.	954-344-7994
Banks Engineering	239-939-5490	DRMP, Inc.	407-896-0594
Barnes, Ferland and Associates, Inc	407 896-8608	DSW Surveying & Mapping, PLC	352-735-3796
Barraco & Associates, Inc.	239-461-3170	Durden Surveying and Mapping, Inc.	904-853-6822
Bartram Trail Surveying, Inc.	904-284-2224	E.F. Gaines Surveying Services, Inc.	239-418-0126
BBLS Surveyors, Inc.	239-597-1315	Echezabal & Associates, Inc.	813-933-2505
Bello & Bello Land Surveying Corporation	305 251-9606	ECHO UES, Inc.	888-778-3246
Benchmark Surveying & Land Planning, Inc.	850-994-4882	Eda Engineers-Surveyors-Planners, Inc.	352-373-3541
Berntsen International	608-443-2773	Eiland & Associates, Inc.	904-272-1000
Beta Company Surveying, Inc.	941-751-6016	Element Engineering Group, LLC	813-386-2101
Betsy Lindsay, Inc.	772-286-5753	Engenuity Group, Inc.	561-655-1151
Biscayne Engineering Company, Inc.	305-324-7671	Engineering Design & Construction, Inc.	772-462-2455
Boatwright and Durden Land Surveyors, Inc.	904-241-8550	England, Thims & Miller, Inc.	904-642-8990
Bock & Clark Corporation	330-665-4821	ER Brownell & Associates, Inc.	305-860-3866
Boundary & Mapping Associates, Inc.	407-696-1155	ESP Associates FL, Inc	813-295-9024
Bowman Consulting Group, Ltd.	703-464-1000	Exacta Land Surveyors, Inc.	305-668-6169
Brown & Phillips, Inc.	561-615-3988	F.R. Aleman & Associates, Inc.	305-591-8777
BSE Consultants, Inc.	321-725-3674	F.R.S. & Associates, Inc.	561-478-7178
Buchanan & Harper, Inc.	850-763-7427	First Choice Surveying, Inc.	407-951-3425
Bussen-Mayer Engineering Group, Inc.	321-453-0010	Florida Design Consultant, Inc.	727-849-7588
C&M Road Builders, Inc.	941-758-1933	Florida Engineering & Surveying, LLC	941-485-3100
Calvin, Giordano & Associates, Inc.	954-921-7781	FLT Geosystems	954-763-5300
Cardno, Inc.	407-629-7144	Fortin, Leavy, Skiles, Inc.	305-653-4493
Carter Associates, Inc.	772-562-4191	Geo Networking, Inc.	407-549-5075
Caulfield & Wheeler, Inc.	561- 392-1991	Geodata Consultants, Inc.	407-732-6965
Causseaux, Hewett & Walpole, Inc.	352-331-1976	Geoline Surveying, Inc.	386-418-0500
Chastain-Skillman, Inc.	863-646-1402	Geomatics Corporation	904-824-3086
CivilSurv Design Group, Inc.	863-646-4771	Geomni, Inc.	904-758-2601
Clary & Associates, Inc.	904-260-2703	GeoPoint Surveying, Inc.	813-248-8888
Clements Surveying, Inc.	941-729-6690	George F. Young, Inc.	727-822-4317
Coastal Supply, Inc.	321-345-4051	Geosurv, LLC	877-407-3734
Collins Survey Consulting, LLC	863-937-9052	Germaine Surveying, Inc.	863-385-6856
Compass Engineering & Surveying, Inc.	727-822-4151	Global One Survey, LLC	786-486-8088
Control Point Associates FL, LLC	908-668-0099	GPI Geospatial, Inc.	407-851-7880
County Wide Surveying, Inc.	850-769-0345	GPServ, Inc.	407-601-5816
Cousins Surveyors & Associates, Inc.	954-689-7766	Gustin, Cothorn & Tucker, Inc.	850-678-5141
		H. L. Bennett & Associates, Inc.	863-675-8882

2019 Sustaining Firms

Hamilton Engineering & Surveying, Inc.	813-250-3535	PEC - Surveying & Mapping, LLC	407-542-4967
Hanson Professional Services, Inc.	217-788-2450	Pennoni Associates, Inc.	215-222-3000
Hanson, Walter & Associates, Inc.	407-847-9433	Pickett & Associates, Inc	863-533-9095
Hole Montes, Inc.	239-254-2000	Pittman Glaze & Associates Inc	850-434-6666
Honeycutt & Associates, Inc.	321-267-6233	Platinum Surveying & Mapping, LLC	863-904-4699
Hutchinson, Moore & Rauch, LLC	251-626-2626	Point Break Surveying, LLC	941-378-4797
Hyatt Survey Services, Inc.	941-748-4693	Point to Point Land Surveyors, Inc.	678-565-4440
I.F. Rooks & Associates, LLC	813-752-2113	Polaris Associates, Inc.	727-461-6113
Inframap Corporation	804-550-2937	Porter Geographical Positioning & Surveying, Inc.	863-853-1496
John Ibarra & Associates, Inc.	305-262-0400	Pulice Land Surveyors, Inc.	954-572-1777
John Mella & Associates, Inc.	813-232-9441	Q Grady Minor & Associates, PA	239-947-1144
Johnston's Surveying, Inc.	407-847-2179	R. M. Barrineau & Associates, Inc.	352-622-3133
KCI Technologies, Inc.	954-776-1616	R.J. Rhodes Engineering, Inc.	941-924-1600
Keith and Associates, Inc.	954-788-3400	Reece & White Land Surveying, Inc.	305-872-1348
Kendrick Land Surveying	863-533-4874	Rhoden Land Surveying, Inc.	352-394-6255
King Engineering Associates, Inc.	813-880-8881	Rhodes & Rhodes Land Surveying, Inc.	239-405-8166
L&S Diversified, LLC	407-681-3836	Richard P. Clarson & Associates, Inc.	904-396-2623
Landmark Engineering & Surveying Corporation	813-621-7841	Robayna and Associates, Inc.	305-823-9316
Leading Edge Land Services, Inc.	407-351-6730	Robert M. Angas Associates, Inc.	904-642-8550
Leiter Perez & Associates, Inc.	305-652-5133	Rogers, Gunter, Vaughn Insurance, Inc. (HUB Florida)	850-386-1111
Lengemann	352-669-2111	S&ME, INC.	407-975-1273
Leo Mills & Associates, Inc.	941-722-2460	SAM Surveying and Mapping, LLC	850.528.1005
LidarUSA	256-274-1616	Sergio Redondo & Associates, Inc.	305-378-4443
Long Surveying, Inc.	407-330-9717	Settimio Consulting Services	850-341-0507
Ludovici & Orange Consulting Engineers, Inc.	305-448-1600	Shah Drotos & Associates, PA	954-943-9433
MacSurvey, Inc.	727-725-3269	Shannon Surveying, Inc.	407-774-8372
Manuel G. Vera & Associates, Inc.	305-221-6210	Sherco, Inc.	863-453-4113
Marco Surveying & Mapping, LLC	239-389-0026	Sliger & Associates, Inc.	386-761-5385
Maser Consulting, P.A.	813-207-1061	Southeastern Surveying & Mapping Corporation	407-292-8580
Massey-Richards Surveying & Mapping, LLC	305-853-0066	SGC Engineering, LLC.	207-347-8100
Masteller, Moler & Taylor, Inc.	772-564-8050	Stephen H. Gibbs Land Surveyors, Inc.	954-923-7666
McKim & Creed, Inc.	919-233-8091	Stoner & Associates, Inc.	954-585-0997
McLaughlin Engineering, Co.	954-763-7611	Strayer Surveying & Mapping, Inc.	941-497-1290
Metron Surveying and Mapping, LLC	239-275-8575	Suarez Surveying & Mapping, Inc.	305-596-1799
Metzger + Willard, Inc.	813-977-6005	Surv-Kap	520-622-6011
Mock Roos & Associates, Inc.	561-683-3113	SurvTech Solutions, Inc.	813-621-4929
Moore Bass Consulting, Inc.	850-222-5678	Thurman Roddenberry & Associates, Inc.	850-962-2538
Morris-Depew Associates, Inc.	239-337-3993	Tradewinds Surveying Services, LLC	863-763-2887
Murphy's Land Surveying, Inc.	727-347-8740	Tuck Mapping Solutions, Inc	276-523-4669
Navigation Electronics, Inc.	337-237-1413	Upham, Inc.	386-672-9515
Northstar Geomatics, Inc.	772-485-1415	Wade Surveying, Inc.	352-753-6511
Northwest Surveying, Inc.	813-889-9236	Wallace Surveying Corporation	561-640-4551
NV5, Inc	407-896-3317	Wantman Group, Inc.	561-713-1714
Omni Communications, LLC	813-852-1888	WBQ Design & Engineering, Inc.	407-839-4300
On The Mark Surveying, LLC	321-626-6376	Winningham & Fradley, Inc.	954-771-7440
		Woolpert, Inc.	937-461-5660
		ZNS Engineering, LC	941-748-8080

Additional Information

Upcoming Events

Board Meeting
January 29-30, 2019
Gainesville, FL

Past Presidents

1956	Paul T. O'Hargan	W. Lanier Mathews, II
H.O. Peters	William G. Wallace, Jr.	Jack Breed
Harry C. Schwebke	Robert W. Wigglesworth	2000
John P. Goggin	1980	Arthur A. Mastronicola
R.H. Jones	Ben P. Blackburn	Michael H. Maxwell
1960	William B. Thompson, II	John M. Clyatt
Hugh A. Binyon	John R. Gargis	David W. Schryver
Russell H. DeGrove	Robert A. Bannerman	Stephen M. Gordon
Perry C. McGriff	H. Bruce Durden	Richard G. Powell
Carl E. Johnson	Buell H. Harper	Michael J. Whitling
James A. Thigpenn, III	Jan L. Skipper	Robert W. Jackson, Jr.
Harold A. Schuler, Jr.	Steven M. Woods	Pablo Ferrari
Shields E. Clark	Stephen G. Vrabel	Steve Stinson
Maurice E. Berry II	W. Lamar Evers	2010
William C. Hart	1990	Dan Ferrans
Frank R. Schilling, Jr.	Joseph S. Boggs	Jeremiah Slaymaker
1970	Robert L. Graham	Ken Glass
William V. Keith	Nicholas D. Miller	Russell Hyatt
James M. King	Loren E. Mercer	Bill Rowe
Broward P. Davis	Kent Green	Dale Bradshaw
E.R. (Ed) Brownell	Robert D. Cross	Lou Campanile, Jr.
E.W. (Gene) Stoner	Thomas L. Conner	Bob Strayer, Jr.
Lewis H. Kent	Gordon R Niles, Jr.	
Robert S. Harris	Dennis E. Blankenship	

Advertise With Us!

All advertisements contained within the publication are published as a service to readers. Publication of the advertisements does not imply or express any endorsement or recommendation by FSMS. The rates are as follows:

Size	1 Issue	2-11 Issues
Inside Front Cover	n/a	\$525/issue
Inside Back Cover	n/a	\$525/issue
Full Page	\$720	\$395/issue
1/2 Page	\$575	\$320/issue
1/4 Page	\$290	\$175/issue
Business Card	\$120	\$100/issue

Requirements: Contracts for one year (11 issues) receive 10% discount if paid in advance; Sustaining Firms receive 15% off (cannot combine with other offers.) Camera-ready copy (JPEG, PDF, GIF, PNG documents); new ads and/or changes are due by the 15th of each month for the following month's publication. It is the responsibility of the client to submit new ads or changes. If not received by the 15th of the month no ad change will occur for one month.

Benefits: Full color; hotlinks to your website added to your ad.

Save the Date: July 22-25, 2020
65th Annual FSMS Conference
*At the PGA National Resort &
Spa in Palm Beach Gardens, FL*

THE **ONE** THAT STARTED IT ALL

“ THE SX10 IS OPENING UP
A WHOLE NEW
RANGE OF
POSSIBILITIES.

- Even Sellevoll, Geomatikk Survey

“ WE COULD KEEP OUR FEET
ON THE GROUND AND
SAFELY MEASURE
REMOTE OBJECTS.

- Joel Cusick, U.S. NPS

“ FASTER IN THE FIELD
AND MUCH
MORE ROBUST.

- Steve Sharron, WSP

“ WE HAVE WITNESSED
BETTER RETURNS
THAN ANY OTHER
SYSTEM.

- Terry Nygaard, Tx RPLS

The Trimble® SX10 scanning total station is the single must-have piece of equipment that masters surveying, imaging, and high-speed 3D scanning in one powerful solution. Two years and thousands of customers later, the reviews are in: the SX10 remains the first and the best of its kind.

 **Trimble** **SX10**

See how others are using the SX10
at Trimble.com/SX10_Stories



**Duncan
Parnell**

621 Brookhaven Dr,
Orlando, FL 32803
(407) 601-5816
www.duncan-parnell.com

 **Trimble**
Authorized Distribution Partner

Leica Aibot

UAV Surveying You Can Trust



This complete UAV solution for surveying and mapping enables fast and flexible data collection from above. An easy workflow integrated into the Leica Geosystems' ecosystem guides you through your project lifecycle, providing quick access to critical information needed to complete your day-to-day surveying, inspection and GIS tasks.

Visit uav.leica-geosystems.com for more information. Contact Robert Asher rasher@floridalevel.com or 941-457-0558 to request a demo.

Leica
Geosystems



www.FLTgeosystems.com



FT. LAUDERDALE
800 PROGRESSO DR., FT. LAUDERDALE, FL 33304 (954)763-5300 • FAX: (954)462-4121

1-800-327-0775

TAMPA
5468 56TH COMMERCE PARK BLVD., TAMPA, FL 33610 (813)623-3307 • FAX: (813)623-2100

1-800-282-7003

WE'RE AN EQUAL OPPORTUNITY EMPLOYER

AUTUMN SPECIAL
GET AN ADDITIONAL
10% OFF*
ALL STOREWIDE PURCHASES!

FOR FSMS READERS **PROMO CODE: THANKSGIVING10**

*Enter code at checkout. Applies to storewide online purchases: supplies, accessories, and instruments. Expires 11/30/2019