



# THE FLORIDA SURVEYOR

January 2022  
Volume XXX, Issue 1

## IN THIS ISSUE

State of the Surveying Profession

The Surveys of George Mackay

FS Exam as a Graduation Requirement





### Call us to get your complete workflow solution today!

Efficiency and versatility that will accelerate productivity comes part of a workflow solution that includes the FC-6000 field controller, Magnet software, a HiPer VR receiver and the GT-1200/GT-600 single-operator robotic system. The power of long-range reflectorless measurements comes in your choice of 1", 2" or 3" GT-1200 models or 2", 3" or 5" GT-600 models.



Lengemann Corporation

43316 State Road 19  
Altoona, FL 32702

800.342.9238

[www.lengemann.us](http://www.lengemann.us)

Products for  
Professionals



# Table of Contents

PRESIDENT'S  
Message

1

RECONNAISSANCE:  
The State of the  
Surveying Profession

4

OPUS: Online  
Positioning User  
System

10

SURVEYING  
History

14

EDUCATION  
COURSE  
Information

21

FROM THE  
Archives

27

FS EXAM as  
a Graduation  
Requirement

36

SUSTAINING  
Firms

40

FSMS Officers

46

COMMITTEES

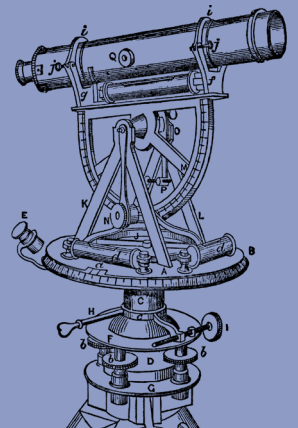
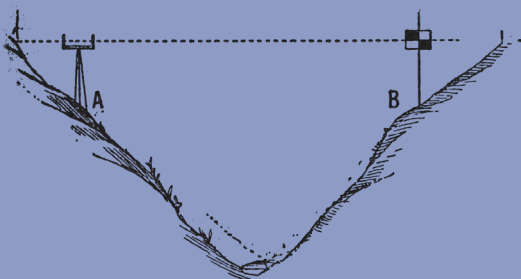
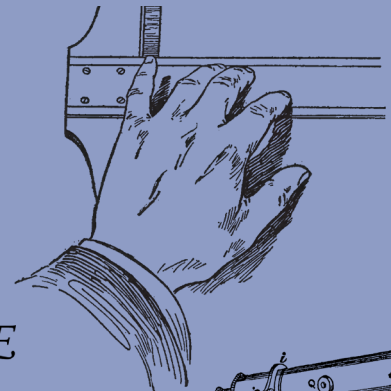
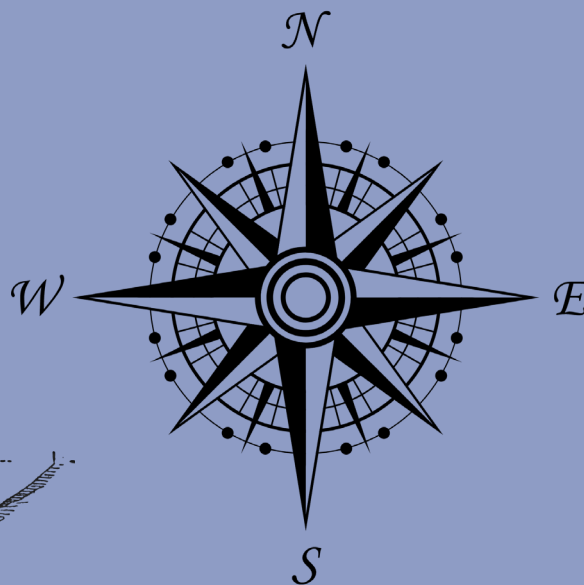
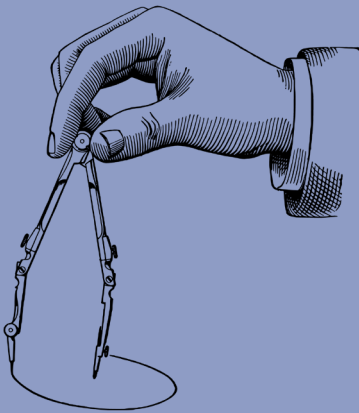
47

CHAPTER  
Presidents

48

DISTRICTS  
& Directors

49





# PRESIDENT'S Message

---

Yup, me again. Your eyes are not deceiving you.

At the start of my prior term as President, my biggest concern was having to prepare the President's Messages each month. Well, as it turned out, that was the least of my concerns, and I actually found these messages easy to prepare.

But things are different now, and I am back to fretting about having to prepare these monthly messages. However, that is a good thing, as now, we are free to deal with new and exciting issues as we continue to move things forward.

I want to thank Hal Peters for stewarding us through another COVID related year. This year we will be back to in-person meetings, and not just our Annual Meeting. Zoom meetings were convenient, but face-to-face meetings are **so** much more productive. If you have been on the FSMS Board or attended a Board meeting, you know exactly what I am talking about. It's not just the time spent in the actual Board meeting, but the in-person camaraderie shared between Board members and guests at, for example, our dinner the night before our Board meetings.

2022 begins my 24<sup>th</sup> year as a FSMS Board member, and I can remember many great ideas sprouting from the totality of our Board meetings, not to forget our other Society related meetings, such as our Annual Meetings and Strategic Planning Retreats.

Speaking of Strategic Planning, this year we will resume our **Strategic Planning Retreat** after a two-year COVID related hiatus. This year's Retreat is scheduled for March 18-19, 2022, at the University of Florida's Austin Cary Learning Center in the outskirts of Gainesville. If you have not yet been there it is an idyllic location in the woods. This Retreat is open to all. If you have an idea for the betterment of the Society, and more importantly, the profession, bring it! If you have a professional issue that you want to bring to the Board, by all means, this is the venue for that. Look for more information in here (*The Florida Surveyor*), or our website.

One challenge that we have had for the past few years, is that we will once again face legislation to change the way that PSM's are licensed through dilution of our current 4-year degree requirement. I realize that there are FSMS members that favor this change. I, along with most Board members do not, mostly because if our 4-year degree requirement were diluted, we (current licensees) will no longer be considered professionals (by prior ruling of the Florida Supreme Court that in order to be considered a profession, a 4-year degree requirement for licensure is mandated).

With the deregulation mindset of our Republican led Legislature, our "profession" may be deregulated, and I do not know any PSM who wants that. Be careful what you wish for is an apropos statement. The time is **NOW** to contribute to the [FSMPAC](#), and to be a squeaky wheel with your local legislator(s). None of us can afford to be deregulated.

Self-reflection: See now, that wasn't so tough. Only 11 more to go...



---

## President

Lou Campanile, Jr.

(954) 980-8888

[lou@campanile.net](mailto:lou@campanile.net)



# 2022 Membership Renewals

2022 FSMS Memberships are Open for New Members and those needing to Renew!

Please Log Into your FSMS Membership Account to Renew and Update your contact information.

If you need help logging in to your account, call us at (850) 942-1900 or email us at [communications@fsms.org](mailto:communications@fsms.org)







Stan Wilson | FL Sales & Support Rep | swilson@egps.net  
c: 770.715.3891 | o: 770.695.3361 | www.egps.net



# YOUR ONE-STOP SHOP FOR ALL SURVEYING NEEDS!

Equipment, Supplies, Accessories | Tech Support | Certified Repairs  
Rentals | M2M Data Plans | UAV, LiDAR Sales & Training



Authorized Reseller of  
**LiDAR USA**  
Fogman Technologies Inc.



Authorized Reseller of  
**GE MAX**

Gold Status GeoMax-Authorized  
Total Station, Robotics and GPS Service Center.



**"Delivery you can depend on"**

*Regularly scheduled delivery routes  
serving Central and West Florida.*

*State and Nationwide shipping available*



www.STAKEMILL.COM

(727) 538-0886



Join our team in our Orlando office  
**SURVEY PARTY CHIEFS  
& PROJECT SURVEYOR**

For more info on our open positions, go to  
[larsondesigngroup.com/careers](http://larsondesigngroup.com/careers) to apply

Or, talk to one of our LDG Recruiters at  
[recruiting@larsondesigngroup.com](mailto:recruiting@larsondesigngroup.com)





## Reconnaissance: The State of the Surveying Profession, Part 1

GARY KENT, PS

**R**ECENTLY, A COLLEAGUE WROTE TO TELL ME that some concepts covered during my programs are perceived as advanced and often go over the heads of some in the audience. I found that thought disturbing because one of the things I work very hard at is taking complex ideas and conveying them in a way that is understandable and meaningful. But after actually talking with my colleague—who is an educator—I understood that the issue was not that I wasn't doing a good job breaking down complexities. The problem was that I was simply wrong in taking for granted that everyone in the audience was familiar with some of the basic concepts that I mention only in passing. Thus the greater message in my programs are lost when attendees do not grasp certain ideas that I know to be fundamental to boundaries and boundary law.

I have been a student of surveying since I graduated out of the Purdue University Land Surveying program in 1976. (I will readily admit that I have been much more of a student since graduation than before.) Once I started my employment at the Marion County Surveyor's Office in Indianapolis, I instantly realized that I did not learn everything I ever needed to know about surveying at Purdue. I could not, for example, conduct proper section corner perpetuation without understanding the history of the USPLSS, the rules outlined in its various instructions/manuals, the practices of its surveyors (who did not always follow those rules), and without having a distinct grasp of the differences between existent, obliterated and lost corners.



From there, I very quickly recognized that in order to be able to write a proper land description—and in order to interpret a poorly written one—and to properly locate the described boundaries on the ground, I needed to have an in-depth understanding of boundary law and its history.

The doctrines that form the basis of boundary law in the United States are complex. By their very nature the concepts are advanced. It takes study and work to develop even a fundamental understanding. It takes the ability to work with imperfect evidence, and flexibility in thinking to conduct a proper boundary survey.

Boundaries are not a math problem.

If we are to meet our legal obligation as boundary surveyors to protect the health, safety welfare and property of the public we must understand the law. This means we have to be life-long students because the law and our understanding of it changes. It requires that we have the ability to be humble and realize that what we think we understand about law and evidence will evolve. My personal understanding of my responsibilities as a boundary surveyor most assuredly has evolved, even in the last several years. Your's should have too.

How do we support and encourage professional growth in this 30-second attention-span world (I know—30-seconds is optimistic)? Certainly the pandemic has forced us to find ways to engage virtually, but hopefully in-person conferences and seminars are not a thing of the past; we need the networking and in-person learning experience.

There are so many issues to discuss regarding the state of our profession: technology and its effect, de-licensure, comity, education requirements, the concept of minimal competency, unlicensed practice, the definition of surveying, and more. It is my intent to probe these and more in upcoming columns.



# Reconnaissance: The State of the Surveying Profession, Part 2 — Deregulation/De-licensure

GARY KENT, PS

**T**HOSE IN THE SURVEYING PROFESSION who pay attention to legislative and regulatory matters on a state level are, or should be, aware of a distinct trend towards the deregulation and de-licensure of most professions (generally excepting the medical professions) including surveying.

Those who push the agenda typically claim the movement is about helping people get into jobs and careers more easily. Perhaps that is true for some. But indications are that it has nothing to do with jobs. It has to do with the singular focus of eliminating regulation regardless of its value and without regard to why professions are licensed in the first place—to protect the public's health, safety, welfare and property in matters that require technical expertise.

Licensure is merely an effort by those already in professions to keep others out and to propagate monopolies, they say. It is unnecessary, they say. Let the market sort out who is competent and who is not, they say.

Unfortunately, the protagonists conflate the licensure of, for example, those who braid hair with the licensure of learned professions like surveyors and engineers. But the argument—as those of us in those professions know—is a false construct.

If your hair falls out, it will hopefully grow back, and you won't patronize that provider again. On the other hand, we all know the potential consequences a bridge or building designed by an unqualified engineer. More problematic is the boundary survey performed by an unqualified surveyor which lies in silent wait for years until it rears its ugly head and costs a subsequent owner tens of thousands of dollars to remedy through litigation.



Yet, those who support de-licensure will have none of that. Their view is simplistic, arrogant, and uncompromising: regulation is bad. Period. I would add ‘uninformed’ to that list, but that is an oversimplification, because those who back the effort do not want to be informed, it is a distraction—and irrelevant to their argument. It brings to mind what Representative Earl Landgrebe said in the 1970s when faced with the truth about what President Nixon had done to cover-up the Watergate burglary: “Don’t confuse me with facts: I’ve got a closed mind.”

If the issue is truly about jobs, that’s all good and fine. But let’s make sure there are demonstrably qualified people in those positions. Licensure is indispensable in providing that assurance.

## **The Aging of the Surveying Profession**

We have heard for years how the age of the average surveyor is increasing. I have actually only heard of one study that seemingly supported that contention (my state does not even keep the statistic), but even that is beside the point. Trade and professional publications for virtually every traditional/legacy profession, increasingly bemoan the increasing age of their average practitioner: nurses, farmers, insurance agents, you name it.

The good news is that we are not the only ones witnessing this trend, so it is not due to the popular impression within surveying that the ‘image’ of our profession suffers. I personally doubt that our image is any worse than it has ever been. Arguably, it is probably better.

The bad news is that we are not the only ones witnessing this trend. Many professions and occupations are conducting outreach to women and minorities and focusing on mentoring young entrants into their respective occupations/professions. So, there is a lot of competition for those bodies.

I have said for years that the problem with surveying is not one of an aging profession, it is one of demographics, which is why continued vigorous outreach to historically underrepresented members of the profession is so critical.

It is ironic that virtually every person who has run for a state or national office in a surveying society over the last 40 years has campaigned on the idea of improving the ‘image’ of the profession. Yet, here we are today, still talking about it. The implication is that our image is not good.

Perhaps it’s semantics, but is it really our ‘image’ or is it the need for more public outreach to educate people as to what surveyors do, why it’s important, and why it’s a great profession? Or perhaps it’s a matter of respect. (There may be something to the thought that surveyors do not garner the same respect as other professions, but that is a topic for another column.)

Either way, if improving one’s image is, in fact, the goal, it’s not a matter of hiring someone to make you look better. That’s smoke and mirrors. It’s a matter of doing the hard work to actually be better and communicate a coherent message.

If better public outreach and education is the goal, many states and NSPS are doing a credible job in that regard, but surveyors in general need to shake off their propensity for being the strong, silent type, and get some training in public speaking. Visit and join your local Toastmasters International club. Volunteer to speak to your town’s Rotary or Kiwanis Club about surveying. Run for a county or state office. If people understood what surveyors really do, not only would they better respect licensure and the need for qualified surveyors, but our outreach efforts would be supported by societal knowledge of what a great profession this is.

## About the Author

### GARY KENT, PS

Gary Kent has been a professional surveyor with Schneider Geomatics since 1983 and is also owner of Meridian Land Consulting, LLC. He has chaired the joint ALTA/NSPS Committee on the Land Title Survey standards since 1995. He also sits on the Indiana State Board of Registration and lectures nationally.





## STRATEGIC PLANNING RETREAT

Please join us for our Strategic Planning Retreat in Gainesville, Florida. This retreat is Open for All to attend, and offers a venue for professional surveyors and mappers to bring forth major issues they are facing within the industry. Click the Link below to Register your room and Check our website, [FSMS.org](https://www.fsms.org) for updates.

When & Where: **Friday, March 18, 2022**

Austin Cary Forest Campus  
10625 NE Waldo Road  
Gainesville, FL 32609

**Saturday, March 19, 2022**

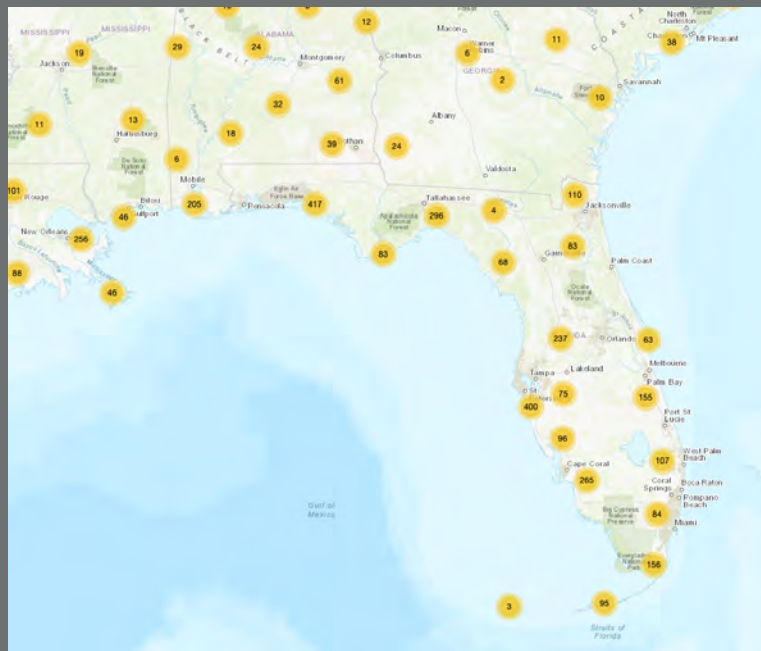
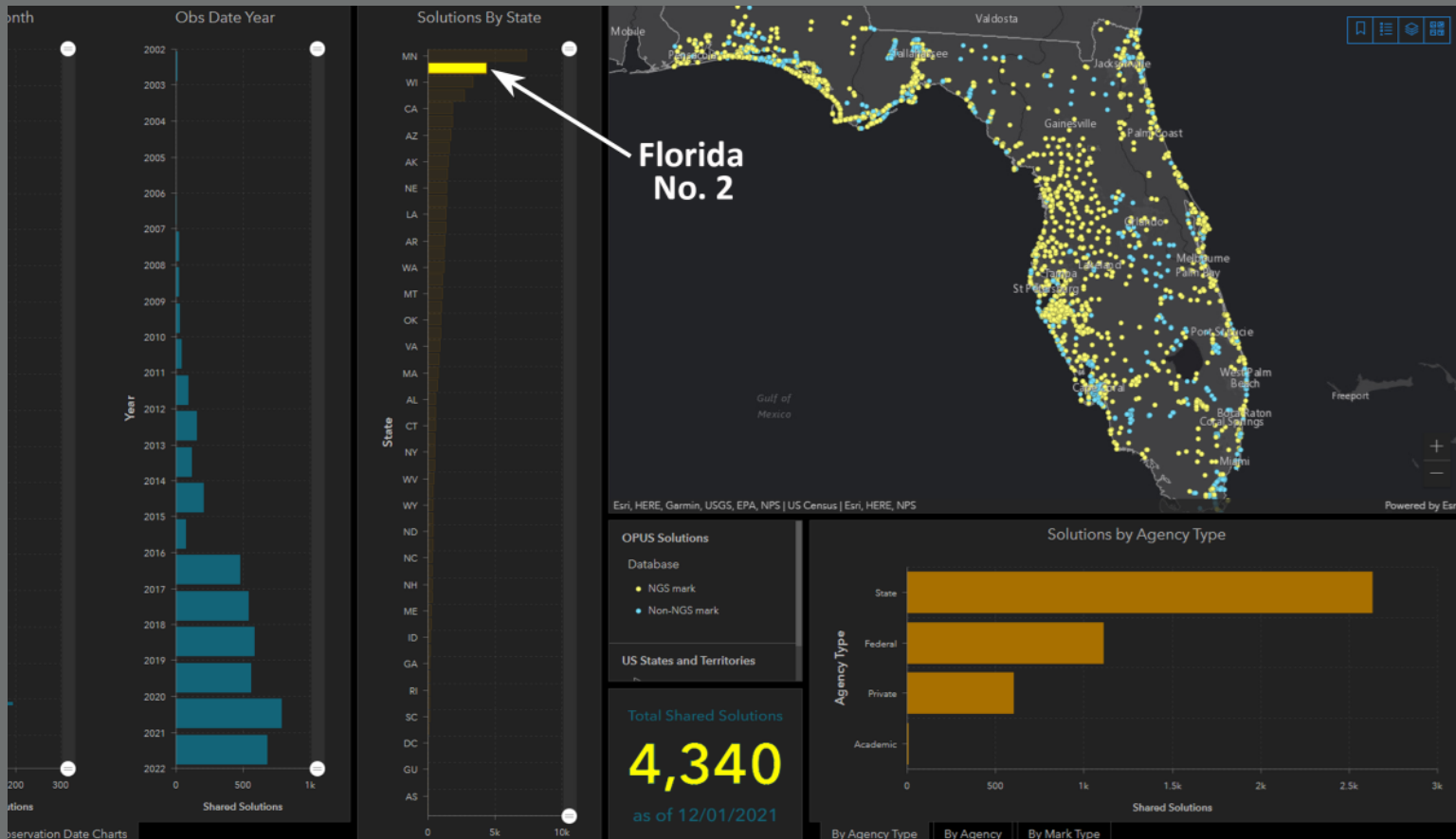
Aloft By Marriot University Area  
3743 Hull Road  
Gainesville, FL 32607

[Click Here For Link to FSMS Group Rate of \\$125 a Night!](#)



## OPUS Shared Solutions Dashboard

Below is the latest from OPUS Shared, and Florida is only second to Minnesota in the sharing of OPUS Points we've collected over the past several years. **4,340** as of 12/1/2021. Great Job Everyone!



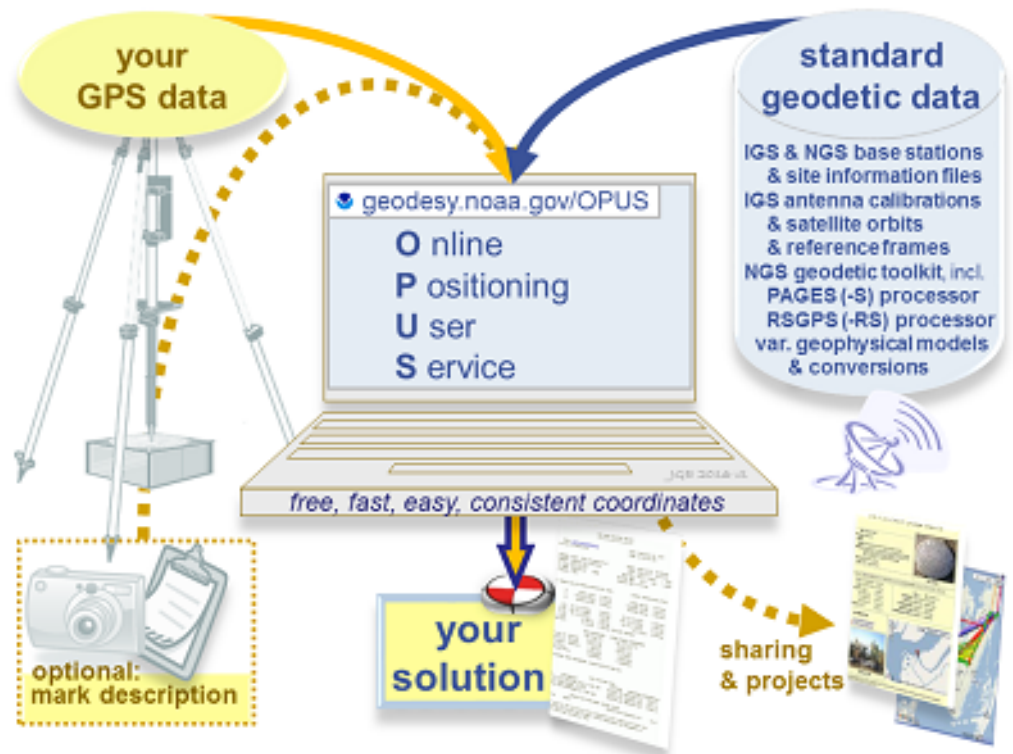


## What is OPUS?

NOAA's Online Positioning User Service (OPUS) provides free access to high-accuracy **National Spatial Reference System** (NSRS) coordinates. OPUS uses the same software which computes coordinates for the nation's **geodetic control marks** and the **NOAA CORS Network** (NCN).

To use OPUS, simply upload a GPS data file (collected with a survey-grade GPS receiver) to the **OPUS upload** page. Your computed NSRS position will be emailed to you. If you choose, your position can also be **shared** publicly on the NGS website, or **added**

to a larger survey project.



## To use OPUS, simply follow these 5 steps:

### 1. Upload your data file

Data files must meet the following requirements:

- Have **dual-frequency** GPS (L1/L2) full wavelength carrier phase observables
- Include static data only (the antenna must remain unmoved throughout the observing session)
- Include a minimum of 15 minutes and maximum of 48 hours of data, not crossing UTC midnight more than once
- Files under 2 hours must include **both** P2 observables **and** either P1 or C1 observables
- Record data at intervals of 1, 2, 3, 5, 10, 15, or 30 seconds

Accepted data formats include:

- RINEX 2
- RINEX 3
- Compressed UNIX, gzip, pkzip, and Hatanaka formats. **For compressed files: all files must share the same antenna type and height**
- Many other raw data formats

A few notes on data types:

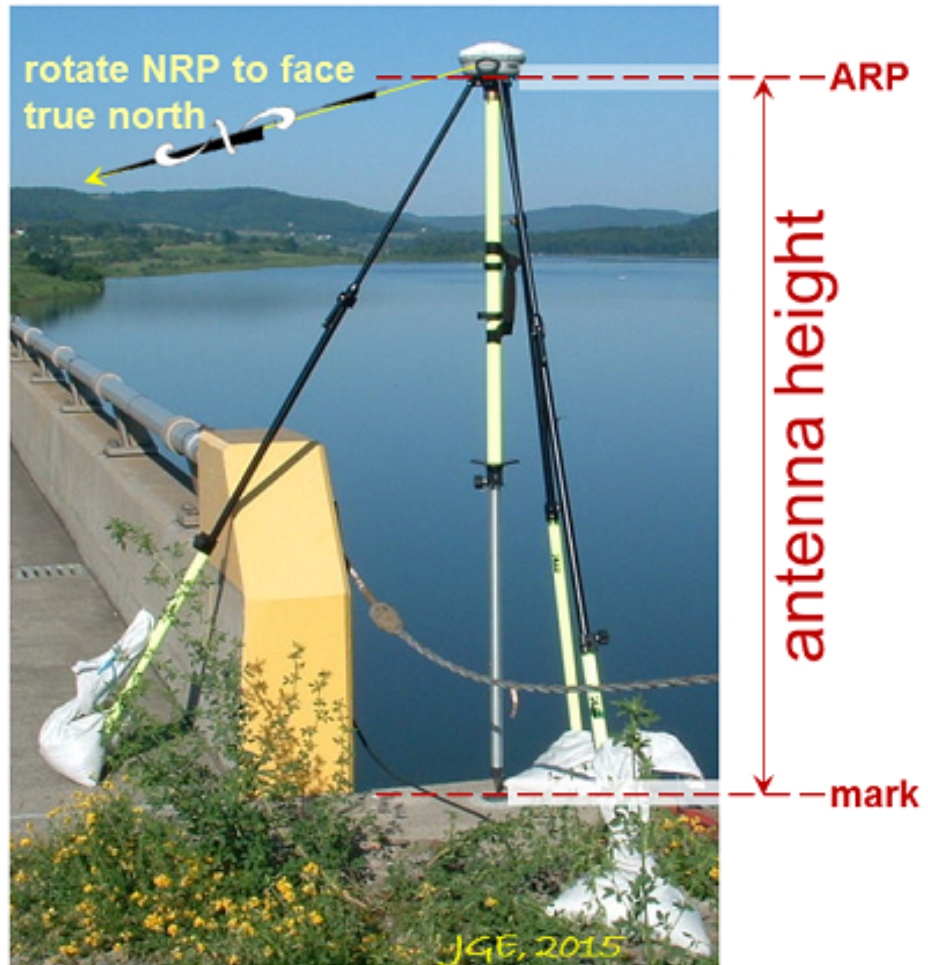
- OPUS only uses GPS observables (even if the file contains other GNSS observables).
- OPUS decimates all recording rates to 30 seconds.
- OPUS accepts all mask angles, but only satellites more than 10° above the horizon are used.

## 2. Select your antenna type

To find the correct antenna type, browse **antenna calibrations**. Correctly selecting your antenna will help OPUS apply the appropriate antenna calibration model to counter the unique measurement biases inherent in each antenna's design. **Choosing an incorrect antenna may result in a height error as large as 80 cm and a horizontal error up to 1 cm.**

## 3. Enter your ARP height

Enter the vertical height (in meters) of your **Antenna Reference Point (ARP)** above the **mark**. See **antenna calibration** for a drawing of the ARP for your antenna (usually the center of the base or tripod mount).



## 4. Enter your email address

Your OPUS solution will be sent to this address when processing is complete.

## 5. Select additional options

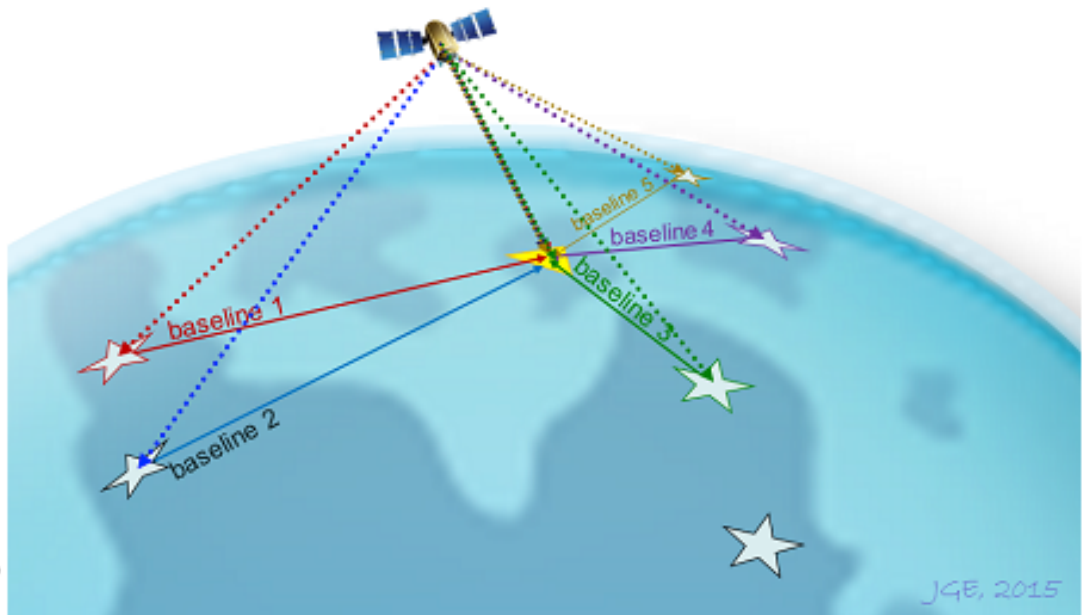
By clicking the 'Options' button, you can:

- Customize your solution format
- Choose your base stations
- Choose your State Plane Coordinate System (**SPCS**) zone
- Include a project identifier
- Choose to **share** your solution publicly
- Set a profile:
  - If you choose to set a profile, OPUS will save your email, antenna type and height, and options used.
  - Subsequent uploads will require only your email and a data file to apply your customized defaults.
  - **Caution! If you choose to set a profile, your selections will override the optimized defaults for all subsequent uploads.**



## How does OPUS processing work?

Depending on the duration of your data file, OPUS will use either static or rapid-static processing:

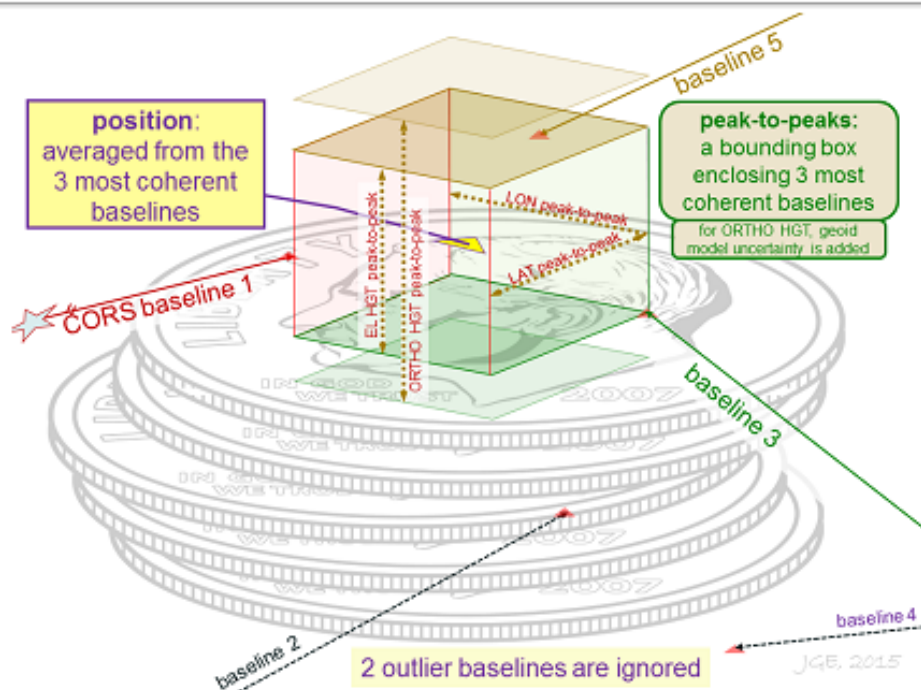


- Static:** Files that are 2 to 48 hours in duration are processed using **PAGES** static software. Your coordinates are the average of three independent, single-baseline solutions, each computed by double-differenced carrier-phase measurements from one of three nearby CORSs.
- Rapid-Static:** Files that are 15 minutes to 2 hours in duration are processed using RSGPS rapid-static software. Rapid-static processing has stricter requirements for data continuity and geometry; in some remote areas of the country OPUS-RS may not work.

## OPUS Accuracy

### How accurate is it?

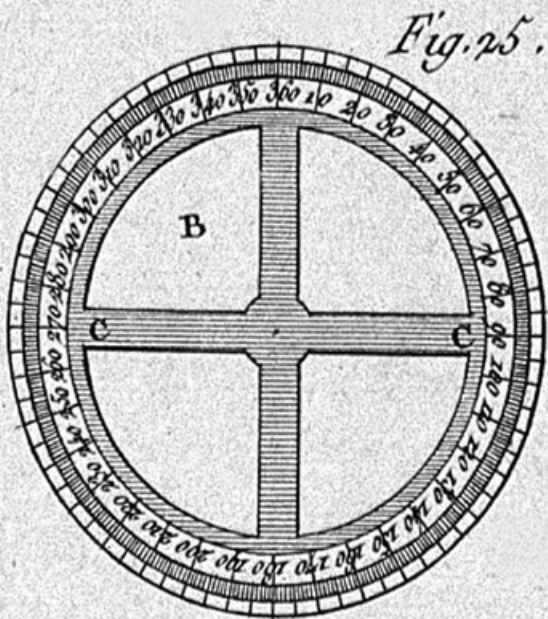
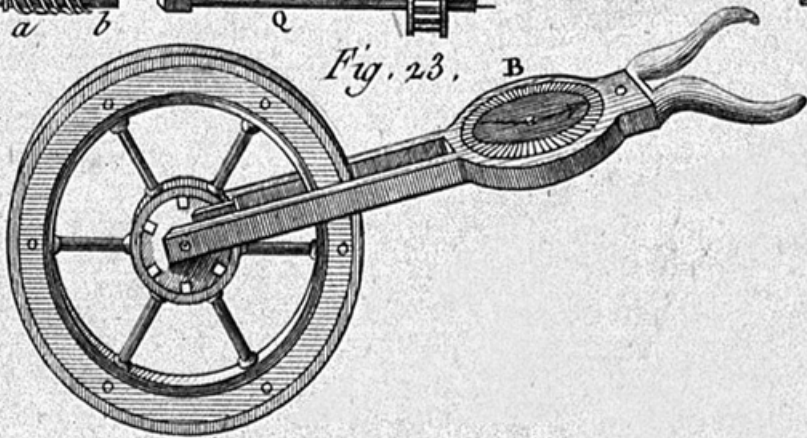
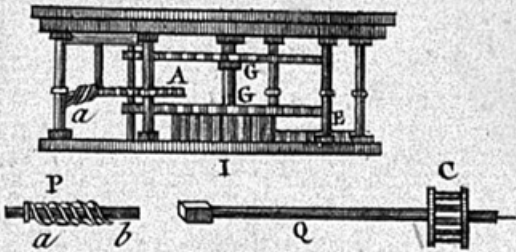
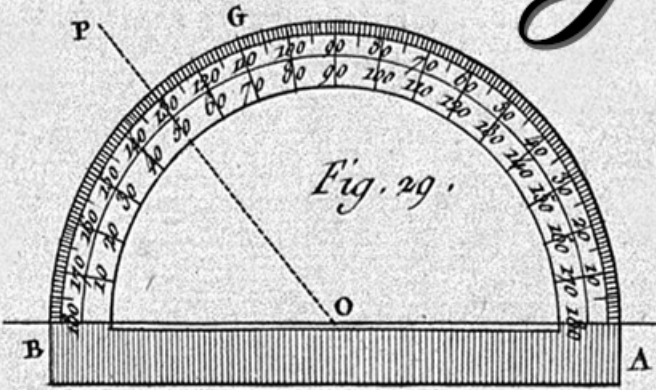
Under normal conditions, most positions can be computed to within a few centimeters. However, estimating the accuracy for a specific solution is difficult because formal error propagation is notoriously optimistic for GPS reductions. User errors (such as misidentification of antenna or ARP height) cannot be detected. Local multipath or adverse atmospheric conditions may also negatively impact your solution.



- Static:** For each coordinate (X, Y, Z,  $\Phi$ ,  $\lambda$ , h, and H), static processing provides the range of the three individual single baselines, called **peak-to-peak** errors. One advantage of peak-to-peak errors is that they include any error from the CORS (base station) coordinates.
- Rapid-Static:** The best estimates of coordinate errors are the standard deviations reported by single baseline analysis. Our experiments indicate that the actual error is less than these estimated accuracies more than 95 percent of the time.



# Surveying History





# A Brief History of Public Lands —

## FSMS Lecture Presentation from Past Pioneers

**Public Lands** - Lands subject to administration, survey, and transfer of title under the public land laws of the United States.

The public lands of the United States were acquired by State Cessions and by purchase and cession from foreign nations (Spain, France, Mexico, and Russia), as well as by purchase or treaty with the Native Americans.

At the end of the American Revolutionary War in 1781, the U.S.

became the owners of New York's claim to certain lands between the Allegheny Mountains and the Mississippi River. Between 1781 and 1802, when Georgia relinquished its claim, all the Atlantic coast states surrendered to the National Government the Western lands which they claimed under their colonial charters.

In 1803, the national domain was doubled by the Louisiana Purchase, which added 1,000,000 square miles, including Oregon. In 1819, 60,000

photo courtesy of: Legends of America



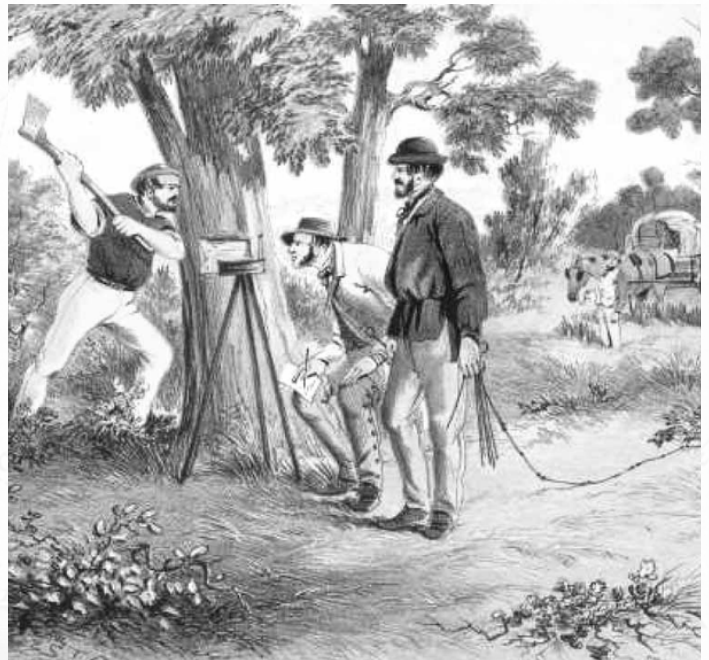


square miles were secured by the purchase of Florida from Spain. The annexation of Texas in 1845, the Mexican Cession in 1848, and the Gadsden Purchase of 1853 rounded out the territory of the U.S. proper to its present boundaries.

Large tracts of land were first sold to land companies who agreed to secure land settlers. Then land was sold in small lots to individual settlers. Large areas were granted to individuals as a reward for distinguished military services. Millions of acres were granted to corporations engaged in building roads, canals, and railroads.

Many gifts of land were given to the states for the encouragement of education. All states admitted to the Union before 1850 received 1/36th of their area – one section in each township – as a foundation for a school fund. Those admitted since that date have received two sections in each township. This was important for it was the means of establishing the public school system in the states. Each state on its admission also received a tract of one to four townships to create a fund for a State University. In addition, the Morrell Act of 1862 allowed states to receive an area proportionate to its representation in Congress as a subsidy or endowment for an agricultural college.

Beginning with the territory Northwest of the Ohio River, public land surveys have extended over thirty



states, including Alaska. Title to vacant lands within their own boundaries was released to the Colonial States, the other New England and Atlantic Coast states (excluding Florida), and later by the states of West Virginia, Kentucky, Tennessee, and Texas, in which the United States Public Land laws have not been applicable.

The thirty states that have been created out of the public domain are as follows: Alabama, Arizona, Arkansas, California, Colorado, Florida, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Mexico, North Dakota, Ohio, Oregon, South Dakota, Utah, Washington, Wisconsin, Wyoming, Alaska, and Oklahoma.

After the admission of the states into the Union, the United States continued to hold title in the unappropriated lands, and to





administer its public land laws with reference thereto. When public land surveys have been completed, the original records are transferred to the states.

## TERRITORIAL AND STATEHOOD LANDS OF FLORIDA

By treaty on February 22, 1819, ratified by Spain in 1821, Spain, which claimed East Florida and West Florida, as far as Mobile, Alabama, ceded all rights to the United States. The United States gave up claims to an undetermined border in Texas as well as on the Rio Grande, and assumed \$5,000,000 worth of Spanish obligations to Americans, totaling a cost of \$6,674,057. All in all, there were 43,342,720 acres of land, and 2,801,920 acres of water, making it a total of 46,144,640 acres which were acquired in cession from Spain.

Before the United States could do anything with the land acquired, according to Article 8 of the treaty, all grants made before January 24, 1818, had to be ratified and confirmed. This referred to both the Spanish and the English Grants. These claims were complicated since the ownership of the land had changed from the Spanish to the English, and from the English to the Spanish. Consequently, many of the grants overlapped, and it was difficult to determine their validity. Records were incomplete, many had no deeds for the land, names were misspelled, and were difficult to decipher due to the

translation from English to Spanish by the American Commissioners. Absentee landowners also never claimed their land. Some lands were re-granted before they were settled by absentee owners. Some lands were never located by the grantees.

In order to cope with the many arguments arising from this situation, Congress in 1822 passed a law which provided for the appointment of the two Boards of Commissioners – one for East Florida and one for West Florida. The Boards of Commissioners were to settle all claims arising and were to establish a land policy for the newly acquired territory. The law also called for the appointment of a Surveyor General of Florida, whose duty it was to survey correctly, and map all the lands of the territory (The public land included all the land, except for the land conferred by land grants either by Spain or England, and the land not claimed by individuals).



Robert Butler was appointed Surveyor General in 1824 for the Territory. Since most of the public lands were then situated in the Tallahassee area, the office of the Surveyor General was located there as well. The survey of the lands began in East Florida in 1830, and the survey of the private lands was completed in 1842.

The land was surveyed according to United States surveys (known as the system of Rectangular Surveys established by our colonial government in 1796), into townships six miles square. Each township contained 36 sections of one square mile each, or 640 acres. The sections were divided into quarter sections of 160 acres. For purpose of description, all townships in a North and South tier were said to be in a Range. Certain of the Meridians of longitude were called principal meridians, and certain of the parallel latitudes were called base lines. Thus, a township is located by stating its number North or South of the base line (basis parallel), and its number East or West of the Principal Meridian.

Congress had donated a quarter section of land for the Capitol, and an additional three-quarter section of land to be sold to provide funds for erecting public buildings. A survey of twenty townships in this vicinity was requested so that this area could be opened for settlement first. This, therefore, was the first land surveyed, and as a result the principal meridian and base line for the state intersected

at Tallahassee. There is located in Tallahassee the Origin of Coordinates Monument.



photo provided by: tallahasseearts.org

In order to show its appreciation to General Lafayette for his services in the American Revolution, the U.S. offered him a township of public land of his choice located anywhere in the United States. When Lafayette visited America in 1824, he chose a grant in Tallahassee. However, he never occupied the land.

To carry out the survey of public lands, Surveyor General Butler contracted with surveyors for field work. These surveyors were called Deputy Surveyors, and in most cases worked in groups of three. They were chosen for their competency, were obligated to take an oath, and were bonded for twice the amount of their contract. They were commonly awarded a 500–700-mile contract, and they were expected to complete that contract within a certain period of time, usually six months. They were paid by the mile surveyed, which was typically four dollars per mile, or



five dollars per mile for very difficult terrain.

An act of Congress approved on May 29, 1930, set down the general laws relating to the survey of the public domain. These laws covered every aspect of just how the work was to be performed. As an example, here is a quote from Section 99 - #4:

The deputy surveyors shall cause to be marked on a tree near each corner established in the manner described, and within the section, the number of such section, and over it the number of the township within which such section may be. The deputy surveyor shall carefully note in their respective field books, the names of the corner trees marked, and the numbers so made.

The marking of the trees along the surveyed lines was required by law, as was the erection of monuments by the act of 1796, which is still in force today. The markings were accomplished using timber scribes.

Corner monuments were set to determine the boundaries of the lands, the township corner, the section corner, the quarter-section corner, and the meander corner. The old U.S. land survey corners were marked with cypress, cedar, pine, or some other type of wood stake (whichever was on-hand), mounds, and pits whenever wood stakes were not available.

These corners were in turn witnessed to standing trees, four for a section corner, and two for a quarter-section

corner. (Many of the old U.S. survey pits and mounds have been mistaken for Indian mounds.)

On October 6, 1843, on the orders of President John Tyler, the land office was moved from Tallahassee to St. Augustine. St. Augustine, now being more centrally located to the center of the land surveying activities.

## STATEHOOD

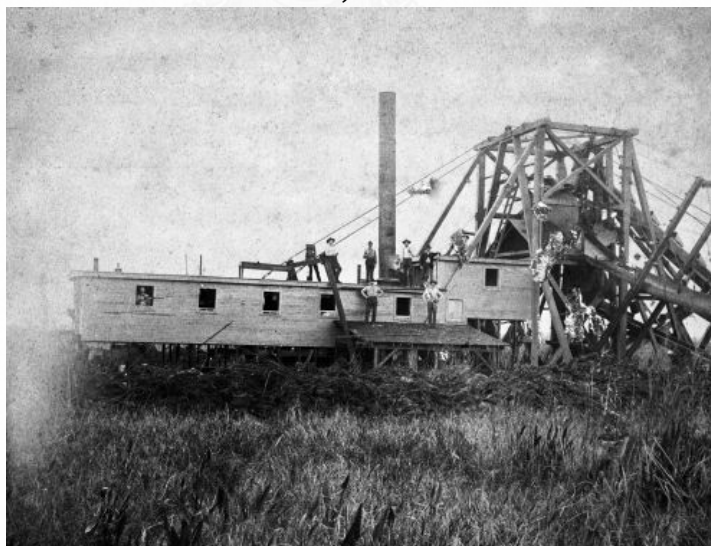
By 1850, of the estimated area of Florida (37,931,523 acres), 22,315,000 acres had been surveyed (More than ten million acres of land remained un-surveyed). Of the amount of land surveyed, only one million acres of land had been sold. 3,600,000 acres of land had been reserved to the Indians, and the United States Reservation reserved 163,889 acres of live oak for the Navy. Certain lots in Pensacola and in St. Augustine were set aside by the United States, as well as various keys and islands on the coast which were sites of forts and lighthouses. 305 acres for the town of St. Marks were also set aside.

Since the sale of the land was so slow, and it was very necessary for funds to be raised for the operation of the land office, Congress passed the Swamp Land Act on September 28, 1850. The act granted to Florida all the swamp and overflowed lands within the limits of the state for the purpose of aiding in the reclamation of the said lands. The provisions of the grant applied to the elevations situated below the



uplands, wherein the lands were of such a character that without the construction of levees or drainage canals the areas would be wet and unfit for agriculture (the grants applied to all swamp and overflowed lands within the states which were unappropriated at the dates of the granting acts).

In 1851, a Board of Internal Improvements was created. Henry Wells and Arthur M. Randolph were appointed by the Surveyor General and Governor Brown to survey the swamp lands which were donated in Florida. They were to supervise the 500,000 acres made available by the Federal government for internal improvements whenever Florida became a state. The Internal Improvement Fund was created in 1855, which allowed all proceeds from the lands to be placed in a fund known as the Internal Improvement Fund of Florida. These funds were to be used for the internal improvements such as railroad and canal construction, as well as road



Dredging of Saint Cloud Canal circa 1890  
photo provided by: janeshistorynook.blogspot.com

and bridge construction.

Soon after the passage of the Swamp Lands Act, the General Land Office estimated there was a total of 514,483 acres



Hamilton Disston

of swamp and overflowed land in Florida. There were, however, granted as of 1942: 20,444,257.93 acres. This is about two-thirds of the total area of Florida.

Due to the delays in completing the roads, the economic depression of 1857 and the Civil War, the financial position of the Fund became weaker and weaker. When the Internal Improvement Fund was re-organized after the Civil War, it had no money with which to meet interest payments. Relief for the fund came in 1881 when the nearly bankrupt state sold 4 million acres of land to Hamilton Disston for one million dollars. The entire amount received was paid to the Trustees, and the fund was cleared from its debts.

Through this transaction, Florida received the financial impetus she needed to press on to greater opportunities and entered a period of great development. ■



# 2022 eLearning Courses

**6 General CEC - \$99/course**  
(members)

**\$120/course**  
(non-members)

- Professional Ethics & Professional Courtesy - *Course #8363*
- Georgia Technical Standards for Property Surveys - *Course #8554*
- History of Surveying  
- *Course #7140*
- Identification of Native & Non-Native Trees in Florida  
- *Course #8132*
- Ethics for the Design Professional  
- *Course #8621*
- Land Tenure & Cadastral Systems  
- *Course #8260*
- Map Projections & Plane Coordinate Systems - *Course #8261*
- Mean High Water Observations & Computations - *Course #8262*
- Public Land Survey System  
- *Course #7147*
- Remote Sensing Applications to Surveying & Mapping  
- *Course #7148*
- Practical Geometry for Surveyors  
- *Course #7141*

**3 General CEC - \$49/course**  
(members)

**\$70/course**  
(non-members)

- Basics of Real Property  
- *Course #8360*
- Contracts for the Professional  
- *Course #8412*
- Elevation Certificates & the Community Rating System  
- *Course #8256*
- Introduction to Photogrammetry  
- *Course #7968*
- Writing Boundary Descriptions  
- *Course #8362*

FLORIDA SURVEYING & MAPPING SOCIETY  
1689 MAHAN CENTER BLVD. SUITE A  
TALLAHASSEE, FL 32308  
[www.fsms.org](http://www.fsms.org)  
(850) 942-1900





## NGS Publications Library

In 2021, NGS added many publications to its long history of scientific and technical reports and information. Check out the many technical publications finalized since the beginning of 2021 by visiting the [NGS Publications Library](#) and see even more documents from NGS and its predecessor agencies.

NGS and its predecessor agencies have published scientific and technical information in various formats and publication series. This library includes historical documents that have been digitized, a selection of NOAA reports written by NGS (or its predecessor agencies), and other miscellaneous publications that are related to NGS' geodetic research. Please note, many publications are accessible through the NOAA Library, and NGS is still digitizing some materials.

NOAA Technical Memorandums, NOAA Technical Reports, NOAA Manuals, and NOAA Special Publications are particularly relevant to people completing geodetic surveys today because NGS continues to update existing documents and add new publications in these series.

### Technical Reports (TR)

NOAA Technical Reports are journal-quality publications with extensive details, mathematical developments, or data listings.

### Technical Memorandum (TM)

NOAA Technical Memorandums are reports of research or technology results, interim instructions, etc.

### Special Publication (SP)

NOAA Special Publications are documents of value to the agency and the public, but that do not fit into technical publication series.

# FSMS Correspondence Courses

*Florida Surveying and Mapping Continuing Education Provider  
Offering 25 Years of Dedication, Quality & Trusted Services*

## 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**
- **Digital Signatures for Surveyors, #8491, 3 CEC**
- **Easements and Rights of Ways, #9945, 3 CEC \*2020 UPDATED COURSE**
- **Elevation Certificates and the Community Rating System, #8257, 3 CEC \*2020 UPDATED COURSE**
- **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 \*2020 UPDATED COURSE**

### 6 Hour Courses Available

- **Boundaries in Florida, #7667, 6 CEC**
- **Chapter 177, Platting (Plat Law), #6970, 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, #9574, 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 \*2020 UPDATED COURSE**
- **Land Tenure and Cadastral Systems, #7829, 6 CEC**
- **Map Projections and Plane Coordinate Systems, #7669, 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**



# FSMS Correspondence Courses

**FSMS Member**

## Step 2: Choose Member Type

| <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 _____ = \$ _____ |          |
| <b>TOTAL</b>   |                  |                    | \$ _____ |

**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 _____ = \$ _____ |          |
| <b>TOTAL</b>   |                  |                    | \$ _____ |

**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 _____ = \$ _____ |          |
| <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: \_\_\_\_\_ 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](mailto:education@fsms.org)

QUESTIONS? CALL 800.237.4384



## Why Join FSMS?

### **LEGISLATIVE SUPPORT -**

The Legislative Committee and our Lobbyist are committed to keeping the Public and the Surveying and Mapping Profession protected

### **EDUCATIONAL BENEFITS -**

With recently updated courses, getting your CECs has never been better

### **NETWORKING -**

Attend our Annual Conference to meet other professionals and meet vendors with all the latest equipment

### **SOCIAL BENEFITS -**

Attend local chapter meetings to meet individuals with common professional goals

**[CLICK HERE TO JOIN!](#)**

FLORIDA SURVEYING & MAPPING SOCIETY  
1689 MAHAN CENTER BLVD. SUITE A  
TALLAHASSEE, FL 32308

[www.fsms.org](http://www.fsms.org)  
(850) 942-1900



# MEMBERSHIP BENEFITS



## BRAND AWARENESS

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



Contact: Burke Buchanan  
(850) 510-0273  
www.BurkeBuchanan.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  
(850) 893-2548

P. O. Box 4084, Tallahassee, Florida 32315

## 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.

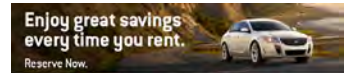


We can ship anywhere in the U.S.

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

## RENTAL CAR DISCOUNTS

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



Wendy Silva  
(407) 447-7999

Contact FSMS office for the link to discount.

## PAYROLL SERVICES

For all your payroll needs, call Philip Browning.



(850) 224-2439  
www.NorthFloridaPayroll.com

## TECH STRATEGY

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



## 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, & 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

## TITLE INSURANCE

50% off Closing fees for members. Closing fees waived for Active Military or Law Enforcement family members. We also offer Title Insurance and can act as your Escrow agent on all properties in the State of Florida.

Becky McNeal  
Licensed FL Title Insurance Agent  
1415 E. Piedmont Drive, Ste. 1  
Tallahassee, FL 32308  
bmcneal@advantagetitlegroup.com  
(850) 329-6920

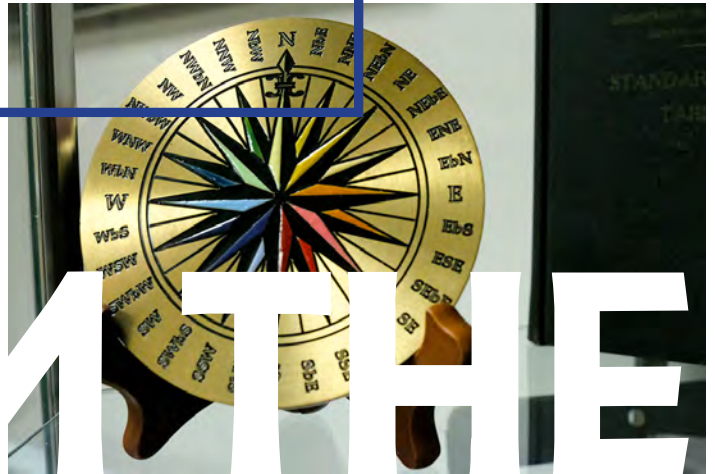


FLORIDA SURVEYING & MAPPING SOCIETY  
1689 MAHAN CENTER BLVD., SUITE A  
TALLAHASSEE, FL 32308

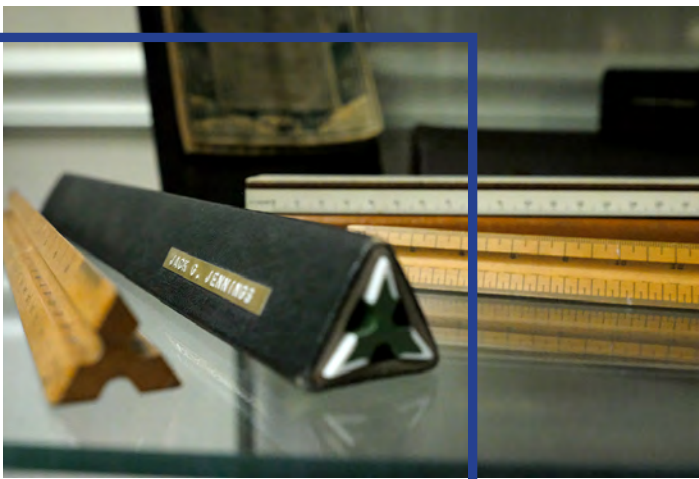
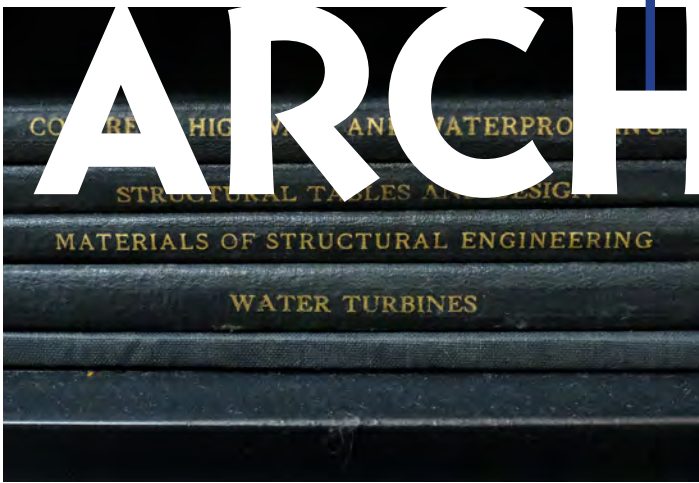
WWW.FSMS.ORG

850.942.1900 OFFICE

850.877.4852 FAX



# FROM THE ARCHIVES





# **THE SURVEYS OF GEORGE MACKAY: A DRAWER OF LINES ON THE MAP OF SOUTH FLORIDA**

---

By

Dr. Joe Knetsch, SMA II

Bureau of Surveying and  
Mapping

Division of State Lands

For

The Dade Chapter of FSPLS

ON THE 15<sup>TH</sup> OF JANUARY 1845,  
U.S. Deputy Surveyor George Mackay  
received the following unique  
instructions from Surveyor General  
Valentine Conway:

*You will begin on the south line  
of Township 40 on the Meridian  
between Ranges 41 and 42 and  
run that Meridian South to the  
south line of Township 44 and  
then run that parallel East to  
the Atlantic and West to the  
Everglades. After having run these  
lines you will then run exterior  
Township lines in the District  
South of that line and between the*

*Atlantic coast and the Everglades  
until the aggregate length of the  
Township lines so run including  
the Meridian and Parallel first  
mentioned shall amount to 250  
miles or thereabouts. All the  
Parallels must be extended to the  
Atlantic coast, and as far West  
as practicable. These exterior  
lines being run you will then  
subdivide into sections Townships  
or fractional Townships enough  
to complete the Amount of your  
Contract.*

Thus began one of the more bizarre  
episodes in the history of surveying  
in Florida. As most can see from the  
instructions quoted above, this is  
not the normal fashion for running  
Sections, Townships and Ranges in  
the Rectangular System of surveying.  
It somehow defies modern logic to  
see how one can survey in this type of  
system without a definite western end  
or eastern point of closure. Yet, this  
is exactly what George Mackay was  
asked to do by the Surveyor General  
of Florida, Valentine Conway.

Mike Whitling, in the course of  
examining the surveys of Dade  
County, put this researcher on to  
this anomaly by a simple telephone  
call to the office. The result of his  
inquisitiveness was the rediscovery  
of these irregular instructions. As a  
professional surveyor, he had noticed  
that the system of surveys pictured  
in the field notes of George Mackay  
did not fit the normal mode of  
conducting surveys in Florida. Upon

reading these instructions, it became obvious that Mackay was specifically directed to run an irrational survey in the then wilderness of Dade County. The imprecise quantity known as the Everglades and the lack of knowledge of their extent led the surveyor general to ask for something totally out of the norm. The pure concern for fulfilling a definite mileage amount added greatly to the already predetermined confusion of Mackay's survey. The trained mind of the modern professional surveyor picked up on this unique attempt at a survey and saw that it could mean problems for today's property owners, including the county itself.

That Mackay followed his odd instructions is also a clue to the type of individual George Mackay appears to be. He was conscientious, dedicated to trying to do his best, and determined to conquer some difficult terrain. Receiving his first contract for surveying in Florida in early 1844, George Mackay had the unenviable job of attempting to survey the lands along Indian River and including the well-known Fleming Grant. Mackay was good enough to spot right away that the area designated as the grant had never been surveyed by a professional surveyor. As he noted to Conway on May 29, 1844:

*The Fleming grant has never been surveyed in accordance with the map presented to me as my guide in resurveying it. Went from the general course of the Indian River Lagoon and the corresponding*

*course of the St. Sebastian river, wholly disagreeing with the courses & description in the map. I have used great diligence in discovering the corners therein described, and have to say that a cabbage tree at the starting point and some old blazes in the line N 45 W were the only marks discovered within five miles of the St. Sebastian river. As for a pine tree described, there are none upon the Indian River banks.*

Not only did he not find the correct markings for the courses of the Fleming Grant, but he failed to discover any signs for the Segui [Segue] Grant, also on the banks of the Indian River. His note of this grant is worth quoting too: "I cannot discover the slightest indication of a survey ever having been made of the Segue grant at the place represented to me as the starting point, and the Township in which it is supposed to be, being very poor land, I shall leave it unsectioned, at least, until the last."

It is not surprising that this surveyor did not find any markings for the grants, allegedly surveyed under Spanish rule. Under testimony given before the East Florida Land Commission in 1823- 24, Surveyor General for Florida, George J. F. Clarke admitted that surveys more than fifteen miles distant from St. Augustine were not physically made because of the problems experienced by the Spanish colony, namely Indian raids and revolutionary activity. When asked if he ever



examined these alleged surveys in the field, the gentleman replied that he did not, accepting the word of the surveyor signing the document without question. Thus, it is evident that Mackay's observations on the ground were correct and validate the conclusion that the lands were not actually surveyed, but simply drawn upon existing maps and placed into evidence.

To further emphasize the point, the Fleming Grant made to front on the Indian River, is a nearly perfect square plot of land. If the grant had been surveyed according to the instructions given to the surveyor general of Florida, the frontage along the Indian River should have been one third and the depth of the grant the remaining two thirds. The only exception to this rule of Spanish surveying in Florida would be if the grant was so situated next to another grant as to create a gap between the properties, then the gap would be filled by reducing the depth of the grants to make a solid frontage along the waterway (or roadway). The Fleming Grant did not meet this exception criteria and therefore should not appear as a nearly perfect square.

The same would hold true with some of the grants along the Miami and New Rivers in modern Dade and Broward County. These grants, the best known being those of the Lewis', were probably never run by the Spanish surveyors, only by the U. S. Deputy Surveyors, Mackay and Jackson, assigned to do so by

the surveyor general of Florida in accordance to the confirmations by the East Florida Land Commission or the Supreme Court of the United States.

Mackay learned quickly that surveying in South Florida was not a picnic. In this first survey he noted:

*"We have suffered extremely for the want of water, well off from Indian River, yet my party have enjoyed good health. I have nothing to retard my progress excepting about three days to assist Houston, who was somewhat unfortunate at loosing a Muleteer, and providing provisions. I have lost one mule killed by the flies."*

Luckily for him, this is one of the few times where he noted any inconvenience from the weather, insects, rough terrain, etc.

George Mackay's observations on South Florida in the mid-1840s give historians a different view of life in the area. In one very telling paragraph, written on May 26, 1846, he states: *"In relation to the Mary A. Davis claim or properly the Fornell claim, I did not feel myself authorized to survey, but was specially instructed to do so by the Surveyor Genl. It is a worthless island [Key Biscayne] of sand & Mangroves, and what remains of the Light House is a ruin, having been burned by the Indians, and never since deemed necessary to repair. The land not covered by tide will not exceed south of my Township line 150 acres. I found the only way to traverse it was at low tide, outside the Mangrove."* Davis, he noted, *"claims the whole*

*island and has sold to the Gov. the land on which the Light House stands."*

It will be duly noted by modern surveyors that the technique used to traverse the line run by Mackay does not meet today's minimum technical standards.

George Mackay was, as the surveyor of record, involved in some of the land disputes resulting from the rule enforcement of the Armed Occupation Act of 1842. Because of some unclear language, the interpretation of 160 acres by the bureaucrats in the General Land Office was a quarter-section of surveyed land, not two eighths or four fortieths taken from adjoining quarter-sections. Natural boundaries were totally ignored, causing some settlers in the Miami area to lose many of their improvements to their neighbors, a situation Mackay sympathized with, but could do nothing about legally.

In one particular case, that of A. F. Woods and John L. Knapp, settlers on Little River, the losses would be very notable. In a letter to Mackay, Knapp wrote:

*I wish through your politeness to state to the government that I cannot abide their survey of the tract on which I reside as I should be utterly devoid of human justice if I were to do so. My Permit for the tract on which I reside is No. 197 and claims Little River as one of its Boundaries but your Survey of the same would oblige me*

*to extend Eight or nine chains across said River and embrace my neighbors house and all his improvements which has cost him Eighteen or twenty months labour. I would therefore wish government to let us remain on the lands for which we filed notice, and not compel me to an act of injustice toward my fellow being and compel him to leave the country, after the inducement held out to him by the government;*

This relatively mean-spirited interpretation of the law did mean that actual settlers would be hurt if the enforcement was strict. However, even with the humanitarian plea quoted above, it should be observed that in 1849, Mr. Knapp did not hesitate to file for a patent to the very land once occupied and improved by his neighbor. This, most likely came about because Knapp moved from the area in 1846, no longer having the means to sustain himself and family due to soil exhaustion.

Neighbor Woods suffered more dramatically losing his home and improvements to fire in early 1847. When the inspector came around to check on the settlements and validity of claims for patents to the land, he made note of both men's difficulties, and decided against Knapp's application for a patent.

George Mackay's survey of the area around the Perrine Grant also shows some new facets to Dade County history. Although his survey was



superseded by the grant survey of John Jackson in 1847, the information found on the Mackay survey plat and notes was retained in the land office. Historian Janet Snyder Matthews, writing and researching as a consultant on the Deering Estate study, has found that in 1845, four years after Dr. Perrine was killed at Indian Key, the land he and his partners had desired for their experiments in hemp and sisal planting had upon it:

*" ... two good framed houses - and several acres cultivated in corn and Oranges - with about 6 or 7 thousand plants of the sisal hemp - and some hundreds of the pulka [pulque] plant - in perfection."*

There were also four claims under the Armed Occupation Act located within the confines of the later grant to Perrine's heirs. It appears that there was some form of cooperation between the partners and the "occupationists," as they were sometimes called. The acreage under cultivation with these specialized crops totaled 320, or the exact equivalent of two grants of land under the Armed Occupation Act. This is not likely to be a coincidence on the Florida frontier. The plat and survey notes provided by Mackay's 1845 survey of the area, thus, have added a new dimension to South Florida history which needs further exploration.

Former Surveyor General, Robert Butler, returned to office in 1846,

and immediately decided to use his political leverage to oust some of the less than politically correct surveyors. George Mackay was one of his first victims. In one of his first letters to Butler, Mackay can almost sense the tension within Butler:

*Yours of June 5<sup>th</sup>, in answer to mine of a previous date is received enclosing mine to Mr. George Watson. If you have construed my letter as officially reporting to you existing errors in Mr Washington's or Mr Whitner's lines, you altogether misapprehend me. I merely asked for special instructions in closing certain lines where there is a discrepancy reported by two surveyors. . . . You will observe that Mr Waitman extended his Township lines from North to South closing Fractional Townships on the Basis parallel, and Mr Whitner extended to the North closing on the West on Waitman's line, this discrepancy is apparent in their reports, both correct. I regret that you are put to so much trouble by such a misunderstanding.*

This accusation of erroneous surveys by Washington and Whitner, two of Florida's finest and most accurate surveyors, came, it will be noticed, from Butler, not Mackay. The next letter in extent, makes the picture all too clear that Butler was out to remove or intimidate Mackay.

Sir:

*Will you have the goodness to furnish my brother with the date*

*of my contract as a copy was not provided for me at the time it was signed. The "circular" as regards my contract is "Ex post facto". I however have no hesitation in complying with any request, that I conscientiously can view as reasonable and just. The affidavit you have provided, appended to your circular, is in form with the one in my general instructions. If you deem it necessary to alter or make another affidavit, a new one instead of testifying to the additions to be made in the old one, have the goodness to inform me.*

The tone is one of frustration and near hostility at the abrupt turn of events in his surveying career. Butler definitely wanted Mackay out of the business of surveying in Florida.

The last letter of George Mackay's in our possession was written to the new Surveyor General of Florida, Benjamin Putnam. It tells the story from Mackay's point of view, quite clearly, without minced words.

Sir:

*Enclosed herewith you find my account against the United States for losses incurred upon my contract of July 28, 1845, and for injuries sustained in consequence of the official Tyranny of Robert Butler, late Sur. Genl. by delaying the examination of my work, and finally disapproving of the same, and surreptitiously obtaining an order for a resurvey of the same without a shred of evidence, and*

*upon grounds which were set aside as untenable by the General Land Office. The matter is too well known to yourself, and too generally known in Florida to require comment from me .... It is no doubt known to you that I have indebtedness still existing in Florida growing out of losses upon said contract and that it is owing to the sympathy my creditors have for me, on account of the official injustice of the Surv. Genl. that the most friendly lenity has been shown me.*

Mackay became one of the more notable victims of Butler's extreme partisanship during his second term in office: Henry Washington being the other famous case.

George Mackay did not survey in Florida after this incident, which obviously scared his life and reputation as a surveyor. In conducting my seminars on the history of surveying in Florida, I have asked for the professional opinion of many surveyors regarding the work of George Mackay. Most agree that he was a good, if not perfect, surveyor. That he should appear the victim of Butler's vendetta only adds to the curiosity surrounding the surveys and life of George Mackay. The tale of this portion of his life makes it doubtful that he would ever offer the following toast to Butler: "Friendship: May differences of opinion cement it." ■





# YOUR FIELD-TO-FINISH SURVEY PARTNER

As surveying technologies continue to advance, a trusted and knowledgeable partner can help you stay ahead of the game. For over 75 years, Duncan-Parnell has provided leading-edge products and services to help surveyors succeed.



- Robotic Total Stations • Trimble GNSS Instruments
  - UAS/Drone Solutions • Monitoring Solutions
  - Software for Survey and Mapping
- Survey Supplies • Instrument Repair & Maintenance
  - Technical Training



Orlando, FL 407-601-5816  
duncan-parnell.com



**USE YOUR VOICE FOR KINDNESS,  
YOUR EARS FOR COMPASSION,  
YOUR HANDS FOR CHARITY,  
YOUR MIND FOR TRUTH, AND  
YOUR HEART FOR LOVE. ANONYMOUS**



*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.



# Thoughts on Professional Practice and Education

## Article 2: FS Exam as a Student Graduation Requirement

by Knud E. Hermansen P.L.S., P.E., Ph.D., Esq.

**W**hile I suspect there is support for the thoughts I am going to reveal among the profession, many academic administrators and faculty will disagree with what I am about to say. Agreement of all is never possible. Even the best of advice is often dismissed. (Not that my advice is always the best.) There is an old Jewish saying “If God lived on earth, people would break His windows.”

By way of introduction and upon which my thoughts will be measured, I introduce myself briefly. I taught surveying for more than 30 years and still do contract teaching for surveying and engineering programs. I was a surveyor and engineer for over twenty years in the military before retiring. I have been licensed in several states as a surveyor, engineer, and attorney - almost fifty years as a surveyor. I still have an active license for each profession in at least one state.

The focus for this article will be to advocate requiring the fundamentals of surveying exam in order for a student to graduate from a surveying or geomatics program. Note and I emphasize that I am not advocating the student pass the exam in order to graduate, merely be required to take the exam.

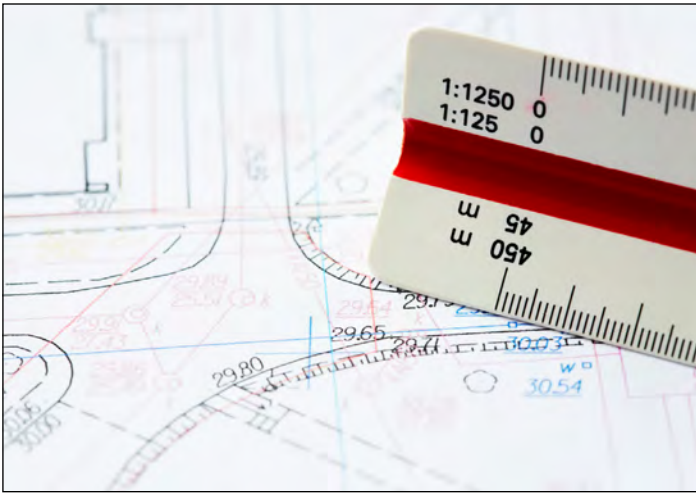
I suspect those reading this article are familiar with the three exams required for licensure. Briefly, the first exam is the fundamentals of surveying (FS) exam. The second exam is the professional surveyor’s (PS) exam. The third exam is



the state specific exam. The FS exam tests the examinee on topics that a quality surveying program should cover in its curriculum. Most states, if not all states, allow senior college students to take the FS exam. Therefore, there is no barrier to prevent a surveying program from requiring students take the exam as a pre-requisite for graduation.

I provide three arguments for a surveying program to require students take the FS exam.

First, I believe a primary purpose for any surveying program is to provide graduates to feed the needs of employers and the profession. Whether the graduate seeks employment in the private or public sector, licensing is generally required to achieve more pay and higher positions. Licensing is required to own or manage surveying firms offering services to the public. What better way to begin the transition from academics to a professional



stature than require the first professional exam while still involved in academic learning.

Second, the breadth and depth of surveying knowledge will never be more retentive than at or near graduation. After graduation, the graduate tends to increase their depth of knowledge in limited topic areas of surveying while forgetting knowledge in other topic areas. By way of example, the new employee that spends the next four years after graduation doing drone mapping is likely to have forgotten a great deal of knowledge they once possessed on boundary law, measurement adjustment, and so on. Therefore, the best chance for passing the FS exam that tests on a broad range of surveying topics is immediately

... a graduate that has passed the FS exam and placed this achievement on their resume at graduation, has many more opportunities for employment and advancement upon graduation than a graduate who has not taken the FS exam.

”

prior to or shortly after graduation.

I have heard students claim they will be better able to study for the FS exam later after they are employed and without the academic burdens of course attendance, homework, and course exams. I caution otherwise. My experience shows that the new graduate is often immersed in long hours at work and is soon distracted with marriage, home ownership, child raising, and family commitments. All too often the graduate who has not taken and passed the FS exam while in college, fails to pass the exam later or cannot commit the time to prepare and take the FS exam later.

For a third reason, I believe a graduate that has passed the FS exam and placed this achievement on their resume at graduation, has many more opportunities for employment and advancement upon graduation than a graduate who has not taken the FS exam. An employer will seek out graduates and pay a higher wage to those that have already passed the FS exam. These students have proven a mastery of topics deemed necessary for professional practice and advancement.

While other compelling arguments can be made, I believe these three arguments are sufficient for those reading this article to understand the basis for my opinion. So why don't all survey programs incorporate the requirement that students take the FS exam as a pre-requisite for graduation?

I will give two reasons that seem to be prevalent reasons told to me. The first reason is that some programs rely on large number of foreign nationals to increase



**Knud E. Hermansen**

P.L.S., P.E., Ph.D., Esq.

enrollment numbers and finance university coffers that rely on tuition money. Foreign nationals have no interest or need to pass any professional exam that is not recognized or necessary in their counties of residence. Such is their disdain for this requirement that when forced to take the exam, they select answers without contemplation. These programs fear the foreign student will switch their studies to another program that does not require the FS exam for graduation.

The second reason, perhaps partnering with the first, is that program administrators do not want the FS scores to be used to judge the extent of their graduate's knowledge and ultimately the quality of the surveying program. It is no secret among the profession that many surveying programs are on tenuous grounds due to low enrollment or faculty deficiencies. Often students that should not be in college, let alone a surveying program, are admitted and moved along much as many public schools move students along to graduation. Perhaps this happenstance is the eventual outcome of a society that gives a trophy to all participants, not just the winners. I will say no more as rational arguments sometimes get lost or ambushed when placed in this arena.

Having given my opinion, I now offer advice. My advice is for professional societies to press their local surveying programs to initiate this requirement if the requirement is not already a mandate. If the program seeks the support of the profession, then the profession should seek the commitment of the program toward the profession by demanding students take the FS exam.

Knud E. Hermansen began his surveying career in the United States Marine Corp. over 30 years ago. After completion of basic training, Knud was sent to surveying school and spent the next three years with the 2nd Topographic Platoon, 8th Engineer Battalion performing control surveys throughout the world. After his release from active duty as a sergeant, Knud worked for various consulting firms providing a wide range of services involving boundary surveys, site development, and engineering. During the last several years, Knud has provided consulting services in land surveying, civil engineering, and law. Much of Knud's present consulting activities involve boundary disputes, easements, land development, liability, title, and contract issues.

Knud taught at Penn State University for four years before teaching at the University of Maine. He teaches in the Surveying Engineering Technology program, as well as the Construction Engineering Technology program. He currently teaches three to four courses a semester – from basic surveying to construction law.

Courtesy of: [\*The University of Maine: Surveying and Engineering Technology\*](#)

† Other books and articles by Knud can be found at <https://umaine.edu/svt/faculty/hermansen-articles/>



## 4th Annual

### 2022 INDIAN RIVER CHAPTER OF FSMS CHARITY CLAY SHOOT

QUAIL CREEK SPORTING RANCH

March 12, 2022



OFTEN IMITATED, NEVER DUPLICATED

## For Sponsorship Opportunities and Team Applications:

→ [Click on this Link](#) ←

FSMS Indian River Chapter  
Brion Yancy [byancy@bowman.com](mailto:byancy@bowman.com)  
Office: (772) 678-4340  
Cell: (772) 475-7475

***Proceeds to Support the Wounded Veterans  
Relief Fund!***





# 2022 Sustaining Firms Directory

| <b>A</b>                                   |              |
|--|--------------|
| Accuright Surveys of Orlando, Inc.         | 407-894-6314 |
| Agnoli, Barber & Brundage, Inc.            | 239-597-3111 |
| AIM Engineering & Surveying                | 239-332-4569 |
| Airworks                                   | 209-803-8274 |
| Allen Business Advisors                    | 781-443-4874 |
| Allen & Company, Inc.                      | 407-654-5355 |
| Allen Engineering                          | 321-783-7443 |
| AM Engineering, Inc.                       | 941-377-9178 |
| American Consulting Professionals, LLC.    | 813-435-2600 |
| American Surveying, Inc.                   | 813-234-0103 |
| Amerritt, Inc.                             | 813-221-5200 |
| Arc Surveying & Mapping, Inc.              | 904-384-8377 |
| Ardurra, Inc.                              | 239-292-7773 |
| Associated Land Surveying & Mapping, Inc.  | 407-869-5002 |
| Atlantic Drafting & Surveying              | 386-264-8490 |
| Avirom & Associates, Inc.                  | 561-392-2594 |
| Axis Geospatial SE, LLC.                   | 386-439-4848 |
| Ayres Associates                           | 715-834-3161 |
| <b>B</b>                                   |              |
| Banks Engineering                          | 239-939-5490 |
| Barnes, Ferland and Associates, Inc.       | 407-896-8608 |
| Barraco & Associates, Inc.                 | 239-461-3170 |
| Bartram Trail Surveying, Inc.              | 904-284-2224 |
| BBLS Surveyors, Inc.                       | 239-597-1315 |
| Bello & Bello Land Surveying Corporation   | 305-251-9606 |
| Benchmark Surveying & Land Planning, Inc.  | 850-994-4882 |
| Berntsen International                     | 608-443-2773 |
| Betsy Lindsay, Inc.                        | 772-286-5753 |
| Biscayne Engineering Company, Inc.         | 305-324-7671 |
| Boatwright and Durden Land Surveyors, Inc. | 904-241-8550 |
| Bock & Clark Corporation                   | 330-665-4821 |
| Bohler                                     | 561-571-0280 |
| Bowman Consulting Group                    | 703-464-1000 |

| Bradshaw-Niles & Associates, Inc.                                | 904-829-2591 |
|--|--------------|
| Brown & Phillips, Inc.   | 561-615-3988 |
| BSE Consultants, Inc.  | 321-725-3674 |
| Buchanan & Harper, Inc.  | 850-763-7427 |
| Bussen-Mayer Engineering Group, Inc.                             | 321-453-0010 |
| <b>C</b>   |              |
| Calvin, Giordano, & Associates                                   | 954-921-7781 |
| Carlson Environmental Consultants, PC                            | 561-371-2402 |
| Canvas Land Surveying  | 321-689-5330 |
| Carter Associates, Inc.  | 772-562-4191 |
| Caulfield & Wheeler  | 561-392-1991 |
| Chastain-Skillman, Inc.  | 863-646-1402 |
| CHW Professional Consultants (Causseaux, Hewett & Walpole, Inc.) | 352-331-1976 |
| CivilSurv Design Group, Inc.                                     | 863-646-4771 |
| Clary & Associates, Inc.   | 904-260-2703 |
| Clements Surveying, Inc.   | 941-729-6690 |
| Clymer Farner Barley, Inc.                                       | 352-748-3126 |
| Coastal Engineering Associates, Inc.                             | 352-796-9423 |
| Colliers Engineering & Design                                    | 732-383-1950 |
| Collins Survey Consulting, LLC.                                  | 863-937-9052 |
| Compass Engineering & Surveying, Inc.                            | 727-822-4151 |
| Compass Point Surveyors, PL                                      | 954-332-8181 |
| County Wide Surveying, Inc.                                      | 850-769-0345 |
| Cousins Surveyors & Associates, Inc.                             | 954-689-7766 |
| CPH, Inc.  | 407-322-6841 |
| Craven-Thompson & Associates, Inc.                               | 954-739-6400 |
| Cross Surveying, LLC.  | 941-748-8340 |
| Culpepper & Terpening, Inc.                                      | 772-464-3537 |
| Cumbey & Fair  | 727-324-1070 |
| <b>D</b>   |              |
| Dagostino Geospatial, Inc.                                       | 239-352-6085 |
| DeGrove Surveyors, Inc.  | 904-722-0400 |



|   |              |
|---|--------------|
| Dennis J. Leavy & Associates            | 561-753-0650 |
| Dewberry                                | 321-354-9729 |
| DMK Associates, Inc.                    | 941-475-6596 |
| Donald W. McIntosh Associates, Inc.     | 407-644-4068 |
| Donoghue Construction Layout, LLC.      | 321-248-7979 |
| Douglass, Leavy & Associates, Inc.      | 954-344-7994 |
| DRMP, Inc.                              | 407-896-0594 |
| DroneView Technologies                  | 248-321-9417 |
| DSW Surveying & Mapping, PLC.           | 352-735-3796 |
| Duncan-Parnell, Inc.                    | 407-601-5816 |
| Durden Surveying & Mapping, Inc.        | 904-853-6822 |
| <b>E</b>                                |              |
| Echezabal & Associates, Inc.            | 813-933-2505 |
| ECHO UES, Inc.                          | 888-778-3246 |
| Eda Consultants, Inc.                   | 352-373-3541 |
| E.F. Gaines Surveying Services, Inc.    | 239-418-0126 |
| Eiland & Associates, Inc.               | 904-272-1000 |
| Element Engineering Group, LLC.         | 813-386-2101 |
| Engenuity Group, Inc.                   | 561-655-1151 |
| Engineering Design & Construction, Inc. | 772-462-2455 |
| ER Brownell & Associates, Inc.          | 305-860-3866 |
| ESP Associates                          | 813-295-9024 |
| ETM Surveying & Mapping                 | 904-642-8550 |
| Exacta Land Surveyors, Inc.             | 305-668-6169 |
| <b>F</b>                                |              |
| Ferguson Land Surveyors                 | 727-230-9606 |
| First Choice Surveying, Inc.            | 407-951-3425 |
| Florida Design Consultant, Inc.         | 727-849-7588 |
| Florida Engineering & Surveying, LLC.   | 941-485-3100 |
| FLT Geosystems                          | 954-763-5300 |
| Fortin, Leavey, Skiles, Inc.            | 305-653-4493 |
| FTE Engineers & Planners                | 800-639-4851 |
| F.R. Aleman & Associates, Inc.          | 305-591-8777 |

|                                    |              |
|------------------------------------|--------------|
| F.R.S. & Associates, Inc.          | 561-478-7178 |
| <b>G</b>                           |              |
| Gary Allen Land Surveying          | 850-877-0541 |
| Geoline Surveying                  | 386-418-0500 |
| Geomatics Corporation              | 904-824-3086 |
| GeoData Consultants, Inc.          | 407-732-6965 |
| Geo Networking, Inc.               | 407-549-5075 |
| GeoPoint Surveying, Inc.           | 813-248-8888 |
| GeoSurv, LLC.                      | 877-407-3734 |
| George F. Young, Inc.              | 727-822-4317 |
| Germaine Surveying, Inc.           | 863-385-6856 |
| GPI Geospatial, Inc.               | 407-851-7880 |
| Gustin, Cothorn & Tucker, Inc.     | 850-678-5141 |
| <b>H</b>                           |              |
| H.L. Bennett & Associates, Inc.    | 863-675-8882 |
| Hanson Professional Services, Inc. | 217-788-2450 |
| Hanson, Walter & Associates, Inc.  | 407-847-9433 |
| Hole Montes, Inc.                  | 239-254-2000 |
| HUB International                  | 850-386-1111 |
| Hyatt Survey Services              | 941-748-4693 |
| <b>I</b>                           |              |
| I.F. Rooks & Associates, LLC.      | 813-752-2113 |
| <b>J</b>                           |              |
| John Ibarra & Associates, Inc.     | 305-262-0400 |
| John Mella & Associates, Inc.      | 813-232-9441 |
| Johnston's Surveying, Inc.         | 407-847-2179 |

| <b>K</b>                                     |              |
|--|--------------|
| KCI Technologies                             | 954-776-1616 |
| Keith and Associates, Inc.                   | 954-788-3400 |
| Kendrick Land Surveying                      | 863-533-4874 |
| <b>L</b>                                     |              |
| L&S Diversified, LLC.                        | 407-681-3836 |
| Land Precision Corporation                   | 727-796-2737 |
| Landmark Engineering & Surveying Corporation | 813-621-7841 |
| Langan Engineering                           | 973-560-4900 |
| Leading Edge Land Services, Inc.             | 407-351-6730 |
| Leiter Perez & Associates, Inc.              | 305-652-5133 |
| Lengemann Corp.                              | 800-342-9238 |
| Leo Mills & Associates                       | 941-722-2460 |
| Long Surveying, Inc.                         | 407-330-9717 |
| Ludovici & Orange Consulting Engineers       | 305-448-1600 |
| <b>M</b>                                     |              |
| Manuel G. Vera & Associates, Inc.            | 305-221-6210 |
| Marco Surveying & Mapping, LLC.              | 239-389-0026 |
| Massey-Richards Surveying & Mapping, LLC.    | 305-853-0066 |
| Masteller, Moler & Taylor, Inc.              | 772-564-8050 |
| McCain Mills, Inc.                           | 813-752-6478 |
| McKim & Creed, Inc.                          | 919-233-8091 |
| McLaughlin Engineering, Co.                  | 954-763-7611 |
| Metron Surveying and Mapping, LLC.           | 239-275-8575 |
| Metzger + Willard, Inc.                      | 813-977-6005 |
| Mock Roos & Associates, Inc.                 | 561-683-3113 |
| Moore Bass Consulting, Inc.                  | 850-222-5678 |
| Morris-Depew Associates, Inc.                | 239-337-3993 |
| Murphy's Land Surveying                      | 727-347-8740 |

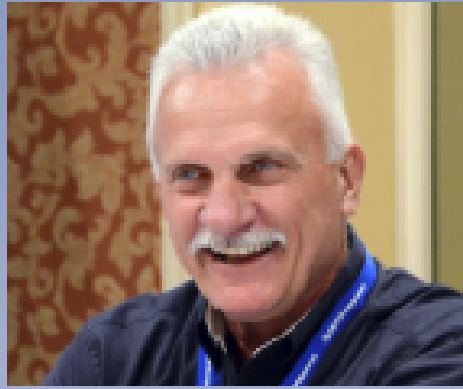
| <b>N</b>  |              |
|---|--------------|
| Navigation Electronics, Inc.                      | 337-237-1413 |
| Northstar Geomatics, Inc.                         | 772-485-1415 |
| Northwest Surveying, Inc.                         | 813-889-9236 |
| Noble Surveying & Mapping                         | 352-973-3811 |
| NV5, Inc.   | 407-896-3317 |
| <b>O</b>  |              |
| On The Mark Surveying, LLC.                       | 321-626-6376 |
| <b>P</b>  |              |
| PEC Surveying & Mapping                           | 407-542-4967 |
| Pennoni Associates, Inc.                          | 215-222-3000 |
| Pickett & Associates, Inc.                        | 863-533-9095 |
| Platinum Surveying & Mapping, LLC.                | 863-904-4699 |
| Point Break Surveying                             | 941-378-4797 |
| Polaris Associates, Inc.                          | 727-461-6113 |
| Porter Geographical Positioning & Surveying, Inc. | 863-853-1496 |
| Pro-Line Survey Supply, Inc.                      | 904-620-0500 |
| Pulice Land Surveyors, Inc.                       | 954-572-1777 |
| <b>Q</b>  |              |
| Q Grady Minor & Associates, PA                    | 239-947-1144 |
| <b>R</b>  |              |
| Reece & White Land Surveying, Inc.                | 305-872-1348 |
| Richard P. Clarson & Associates, Inc.             | 904-396-2623 |
| Rhodes & Rhodes Land Surveying, Inc.              | 239-405-8166 |
| R.J. Rhodes Engineering, Inc.                     | 941-924-1600 |
| R.M. Barrineau & Associates, Inc.                 | 352-622-3133 |
| Robayna and Associates, Inc.                      | 305-823-9316 |
| Rogers, Gunter, Vaughn Insurance, Inc. (HUB FL)   | 850-386-1111 |



| S                                      |              |
|--|--------------|
| SAM Surveying & Mapping, LLC.          | 850-385-1179 |
| SCR & Associates NWFL, Inc.            | 850-265-6979 |
| Sergio Redondo & Associates, Inc.      | 305-378-4443 |
| Settimio Consulting Services           | 850-341-0507 |
| SGC Engineering, LLC.                  | 407-637-2588 |
| Shah Drotos & Associates, PA           | 954-943-9433 |
| Shannon Surveying, Inc.                | 407-774-8372 |
| Sherco, Inc.                           | 863-453-4113 |
| Sliger & Associates                    | 386-761-5385 |
| S&ME, Inc.                             | 407-975-1273 |
| Southeastern Surveying & Mapping Corp. | 407-292-8580 |
| Spalding DeDecker Associates, Inc.     | 248-844-5400 |
| Stephen H. Gibbs Land Surveyors, Inc.  | 954-923-7666 |
| Stoner Inc.                            | 954-585-0997 |
| Strayer Surveying & Mapping, Inc.      | 941-497-1290 |
| Surv-Kap                               | 520-622-6011 |
| SurvTech Solutions, Inc.               | 813-621-4929 |
| T                                      |              |
| T2 UES Inc.                            | 407-629-7144 |
| Thurman Roddenberry & Associates       | 850-962-2538 |

| U                              |              |
|--------------------------------|--------------|
| Upham, Inc.                    | 386-672-9515 |
| W                              |              |
| Wade Surveying, Inc.           | 352-753-6511 |
| Wallace Surveying Corp.        | 561-640-4551 |
| Wantman Group, Inc.            | 561-687-2220 |
| WBQ Design & Engineering, Inc. | 407-839-4300 |
| Winningham & Fradley, Inc.     | 954-771-7440 |
| Woolpert, Inc.                 | 937-531-1322 |
| Z                              |              |
| ZNS Engineering, LLC.          | 941-748-8080 |

# ADMINISTRATIVE Staff



**Executive Director**

Tom Steckler

[director@fsms.org](mailto:director@fsms.org)



**Education Director**

Rebecca Culverson

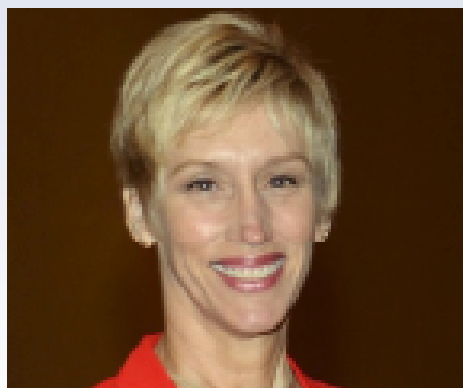
[education@fsms.org](mailto:education@fsms.org)



**Communications  
Coordinator**

Justin Ortiz

[communications@fsms.org](mailto:communications@fsms.org)



**Regional Coordinator**

Cathy Campanile

[seminolecc84@gmail.com](mailto:seminolecc84@gmail.com)



# 2022 FSMS Officers



## President-Elect

Howard Ehmke  
(772) 286-8083  
[hjehmke51@yahoo.com](mailto:hjehmke51@yahoo.com)



## Vice President

Jim Sullivan  
(561) 687-2220  
[Jim.Sullivan@wginc.com](mailto:Jim.Sullivan@wginc.com)



## Secretary

Sam Hall  
(352) 408-6033  
[surveysam17@outlook.com](mailto:surveysam17@outlook.com)



## Treasurer

Bon Dewitt  
(352) 392-6010  
[bon@ufl.edu](mailto:bon@ufl.edu)



## Immediate Past President

Hal Peters  
(352) 304-9534  
[hpeters@gpinet.com](mailto:hpeters@gpinet.com)

# 2022 Committees

## Standing Committees

|   |                    |
|---|--------------------|
| <b>Nominating Committee</b>                             | Howard Ehmke       |
| <b>Membership Committee</b>                             | Nick DiGruttolo    |
| <b>Finance Committee</b>                                | Bon Dewitt         |
| <b>Executive Committee</b>                              | Lou Campanile, Jr. |
| <b>Education Committee</b>                              | Greg Prather       |
| <b>Annual Meeting Committee</b>                         | Jim Sullivan       |
| <b>Legal Committee</b>                                  | Jack Breed         |
| <b>Strategic Planning Committee</b>                     | Lou Campanile, Jr. |
| <b>Ethics Committee</b>                                 | Shane Christy      |
| <b>Legislative Committee</b>                            | Jack Breed         |
| <b>Surveying &amp; Mapping Council</b>                  | Randy Tompkins     |
| <b>Constitution &amp; Resolution Advisory Committee</b> | Eric Stuart        |

## Special Committees

|  |                    |
|--|--------------------|
| <b>Equipment Theft</b>                 | Manny Vera, Jr.    |
| <b>Awards Committee</b>                | Hal Peters         |
| <b>UF Alumni Recruiting Committee</b>  | Russell Hyatt      |
| <b>Professional Practice Committee</b> | Lou Campanile, Jr. |

## Liaisons

|                                |                    |
|--------------------------------|--------------------|
| <b>CST Program</b>             | Alex Jenkins       |
| <b>FDACS BPSM</b>              | Don Elder          |
| <b>Surveyors in Government</b> | Richard Allen      |
| <b>Academic Advisory UF</b>    | Bon Dewitt         |
| <b>FES</b>                     | Lou Campanile, Jr. |

## Practice Sections

|                               |             |
|-------------------------------|-------------|
| <b>Geospatial Users Group</b> | Earl Soeder |
|-------------------------------|-------------|



# 2022

# Chapter Presidents

## District 1

### Panhandle

David Glaze  
[davidpga@bellsouth.net](mailto:davidpga@bellsouth.net)

### Gulf Coast

Frederic Rankin  
[erankin@dewberry.com](mailto:erankin@dewberry.com)

### Chipola

Jesse Snelgrove  
[jsnelgrove@snelgrovesurveying.com](mailto:jsnelgrove@snelgrovesurveying.com)

### Northwest FL

Jeremy Fletcher  
[fletcher.jwf@gmail.com](mailto:fletcher.jwf@gmail.com)

## District 2

### FL Crown

Kathy Wade  
[kathy@boatwrightland.com](mailto:kathy@boatwrightland.com)

### North Central FL

Brian Murphy  
[bmurphy@3002inc.com](mailto:bmurphy@3002inc.com)

### UF Geomatics

Evan Coleman  
[e.coleman@ufl.edu](mailto:e.coleman@ufl.edu)

## District 3

### Central FL

Sam Hall  
[r.nieto6025@bellsouth.net](mailto:r.nieto6025@bellsouth.net)

### Indian River

Brion Yancy  
[byancy@bowman.com](mailto:byancy@bowman.com)

### Volusia

Anthony Sanzone  
[eastcoastland@bellsouth.net](mailto:eastcoastland@bellsouth.net)

## District 4

### Ridge

Larry Sharp  
[lsharp@collinssurvey.com](mailto:lsharp@collinssurvey.com)

### Tampa Bay

Charlie Arnett  
[CArnett@Geopointsurveying.com](mailto:CArnett@Geopointsurveying.com)

## District 5

### Charlotte Harbor

Derek Miller  
[millersurveying@comcast.net](mailto:millersurveying@comcast.net)

### Collier-Lee

Steve Shawles II  
[sshawles@haleyward.com](mailto:sshawles@haleyward.com)

### Manasota

Aaron Levine  
[aaron@msbsurveying.com](mailto:aaron@msbsurveying.com)

## District 6

### Broward

Benjamin Hoyle  
[benjamin.hoyle@kci.com](mailto:benjamin.hoyle@kci.com)

### Palm Beach

Lee Powers  
[lpowers@zemangroup.com](mailto:lpowers@zemangroup.com)

### FAU Geomatics

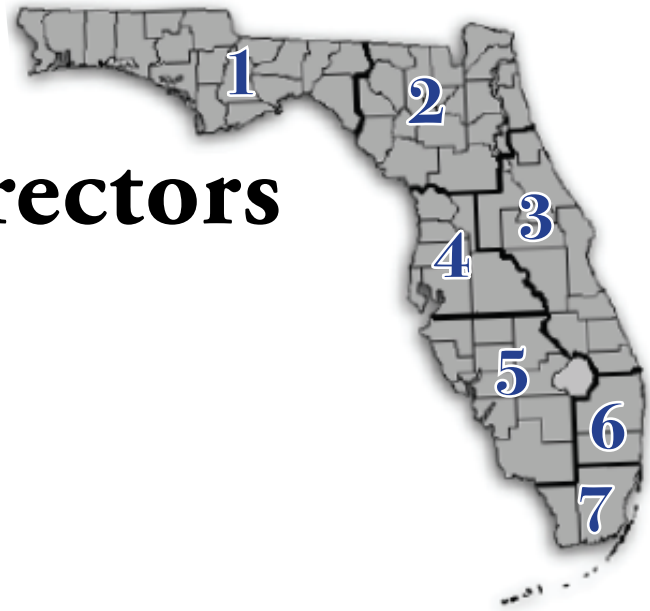
Brett Costanza  
[brettcostanza@hotmail.com](mailto:brettcostanza@hotmail.com)

## District 7

### Miami-Dade

Frank Pauas-Suiero  
[fpauas@gpinet.com](mailto:fpauas@gpinet.com)

# 2022 Districts & Directors



## District 1 - Northwest

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

Eric Stuart  
(850) 685-1149

[eric.stuart@sam.biz](mailto:eric.stuart@sam.biz)

Chad Thurner  
(850) 200-2441

[chad.thurner@sam.biz](mailto:chad.thurner@sam.biz)

## District 2 - Northeast

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

Nick Digrittolo  
(863) 344-2330

[ndigrittolo@pickettusa.com](mailto:ndigrittolo@pickettusa.com)

Randy Tompkins  
(904) 755-4235

[randytompkins1@outlook.com](mailto:randytompkins1@outlook.com)

## District 3 - East Central

Brevard, Flagler, Indian River, Lake, Okeechobee, Orange, Osceola, Seminole, Martin, St. Lucie, Volusia

Al Quickel  
(407) 567-1566

[alq.fsms@gmail.com](mailto:alq.fsms@gmail.com)

## District 4 - West Central

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

Greg Prather  
(863) 533-9095

[gprather@pickettusa.com](mailto:gprather@pickettusa.com)

Alex Parnes  
(813) 493-3952

[alexwolfeparnes@gmail.com](mailto:alexwolfeparnes@gmail.com)

## District 5 - Southwest

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

Shane Christy  
(941) 840-2809

[schristy@georgefyoung.com](mailto:schristy@georgefyoung.com)

Jeffrey Cooner  
(239) 707-6679

[jeff@coonerconsulting.com](mailto:jeff@coonerconsulting.com)

## District 6 - Southeast

Broward, Palm Beach

Mark Sowers  
(954) 868-7172

[msowers@mgvera.com](mailto:msowers@mgvera.com)

Earl Soeder  
(407) 601-5816

[earl.soeder@duncan-parnell.com](mailto:earl.soeder@duncan-parnell.com)

## District 7 - South

Miami-Dade, Monroe

Jose Sanfiel  
(305) 351-2942

[psm5636@gmail.com](mailto:psm5636@gmail.com)

Manny Vera, Jr.  
(305) 221-6210

[mverajr@mgvera.com](mailto:mverajr@mgvera.com)

## NSPS Director

Russell Hyatt  
(941) 748-4693

[russell@hyattsurvey.com](mailto:russell@hyattsurvey.com)

# Past

# Presidents

## 1956

H.O. Peters  
Harry C. Schwebke  
John P. Goggin  
R.H. Jones

## 1960

Hugh A. Binyon  
Russell H. DeGrove  
Perry C. McGriff  
Carl E. Johnson  
James A. Thigpenn, III  
Harold A. Schuler, Jr.  
Shields E. Clark  
Maurice E. Berry II  
William C. Hart  
Frank R. Schilling, Jr.

## 1970

William V. Keith  
James M. King  
Broward P. Davis  
E.R. (Ed) Brownell  
E.W. (Gene) Stoner  
Lewis H. Kent  
Robert S. Harris  
Paul T. O'Hargan  
William G. Wallace, Jr.  
Robert W. Wigglesworth

## 1980

Ben P. Blackburn  
William B. Thompson, II  
John R. Gargis  
Robert A. Bannerman  
H. Bruce Durden  
Buell H. Harper  
Jan L. Skipper  
Steven M. Woods  
Stephen G. Vrabel  
W. Lamar Evers

## 1990

Joseph S. Boggs  
Robert L. Graham  
Nicholas D. Miller  
Loren E. Mercer  
Kent Green  
Robert D. Cross  
Thomas L. Conner  
Gordon R. Niles, Jr.  
Dennis E. Blankenship  
W. Lanier Mathews, II  
Jack Breed

## 2000

Arthur A. Mastronicola  
Michael H. Maxwell  
John M. Clyatt

David W. Schryver  
Stephen M. Gordon  
Richard G. Powell  
Michael J. Whitling  
Robert W. Jackson, Jr.  
Pablo Ferrari  
Steve Stinson

## 2010

Dan Ferrans  
Jeremiah Slaymaker  
Ken Glass  
Russell Hyatt  
Bill Rowe  
Dale Bradshaw  
Lou Campanile, Jr.  
Bob Strayer, Jr.  
Dianne Collins

## 2020

Don Elder  
Hal Peters



Please email [Communications@FSMS.org](mailto:Communications@FSMS.org) to notify us of upcoming events - including virtual meetings!



Upcoming  
Events

## 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:

**Benefits:** Full color; hyperlinks added to your webpages and/or email addresses.

**Requirements:** Contracts for one year (11 issues) receive 10% discount if paid in advance; camera-ready copy (JPEG, PDF, GIF, PNG docs); New ads and/or changes are due by the 15<sup>th</sup> of each month. It is the responsibility of the client to submit new ads or changes.

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

# THE WORLD'S FASTEST GNSS RTK ROVER

## Leica GS18 T

Pushing boundaries with the world's first Calibration-free tilt compensating GNSS immune to magnetic disturbances.

Survey-grade positional accuracy can now be achieved in places previously not possible without requiring an offset measurement.

Learn more here:



**Leica**  
**Geosystems**

<https://goo.gl/gQE3qQ>



[www.FLTgeosystems.com](http://www.FLTgeosystems.com)



### FT. LAUDERDALE

809 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

WE'RE AN EQUAL OPPORTUNITY EMPLOYER

**1-800-282-7003**

**WINTER SPECIAL**

GET AN ADDITIONAL

**10% OFF\***

**ALL STOREWIDE  
PURCHASES!**

**FOR FSMS  
READERS**

**PROMO CODE:  
NEWYEAR10**

\*Enter code at checkout. Applies to storewide online purchases: supplies, accessories, and instruments. Expires 1/31/22.