

# “MISCLOSURES” NEWSLETTER



Website: [www.lsjaj.com](http://www.lsjaj.com)

Land Surveyor's Association of Jamaica Newsletter

January, 2021

## ***Social Distancing – It's What We Do***



*By: Scott Martin*

As I contemplated the topic for this article, my thoughts could never completely detach from the world we now find ourselves. Despite my desire to write something unrelated, hopefully with some humor, I couldn't seem to get there. I would venture to say that there is nobody who reads Field Notes who has not been impacted; some to a much greater degree than others. Hopefully none to the ultimate degree.

As the concept of social distancing started to emerge several weeks ago, we all likely wondered what that meant? Then we were in meetings where handshakes were replaced by elbow bumps, then head nods. We noticed taped "X" marks on the floor at stores indicating where we were to stand in line to maintain the proper social distance. The size of allowed group gatherings dwindled from 2,500 to 100, to less than 10.

Slowly, but steadily, the announcement of cancellations and postponements began. Concerts, local sporting events, and school functions. Even March Madness. We, or at least I, knew it was serious when the "Happiest Place on Earth" closed. Now, the summer Olympics have been postponed until next year.

Closer to home, it became almost impossible to find the staples of life, especially toilet paper and hand sanitizer. Things started to feel very real. This wasn't just in China and Europe anymore. Schools started closing. Business started changing how they operated or closed down entirely. The stock market crashed, crushing retirement plans. And the layoffs started. Massive layoffs.

Okay, enough of the dire tone.

Back to social distancing. Surveyors are masters of this skill by default, especially boundary and control surveyors. We always have worked in small groups, yet often with much distance between us. Today, we even work alone with our robot or GPS receiver.

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### **Contact the LSAJ:**

The Trade Centre  
The Harry G. Armstrong Suite  
Unit #9A  
30-32 Red Hills Road, Kingston  
10, Jamaica  
Tel.: 876-754-6912-3  
Fax: 876-920-3650  
Website: <http://www.lsjaj.com>  
E-mail: [lsaj.jam@gmail.com](mailto:lsaj.jam@gmail.com)

# Editor's Notes



Timothy A. Thwaites BA, MSc., CLS

**Dear readers,** has there ever been a new year that has been as collectively anticipated and welcomed as 2021? I'd be hard-pressed to think so; but the fact that you are here with us to share this latest edition of our newsletter speaks to our many fortunes and graces, and should encourage us to look forward with optimism and great expectations.

2020 presented us with various personal and organiza-

tional challenges; but at the same time, it reminded us of the resilience of our profession, and proved just how flexible we are capable of being when we had no choice but to question and adjust every old norm.

As we were pried away from many of our traditions, our very "traditional" field of practice appears to have fared relatively well, however, we must be careful not to waste a good crisis. We must now look to the ways in which we will use the 'covid momentum' that has us administrating remotely and meeting virtually to reassess and pivot the remaining aspects of our profession, and establish the new norms that will be more accurate, more efficient, more productive, and ultimately more profitable.

How did we utilize the one-in-a-lifetime opportunities of 2020 to: consume new information, expand our competencies, explore investments in human resources and equipment, and commit time to the valuable parts of life outside of surveying? I hope we all have many answers. And with the continued uncertainties going into 2021, I also hope we are prepared to keep going, or catch up, if necessary.

Even though so much of the world is at virtual, and at times literal standstills, this is an unprecedented time for growth and development; lethargy and stagnation would be the real pandemic!

In this issue we maintain that forward focussed bearing, acknowledging our newest professional members, and highlighting insights into the geospatial world of tomorrow. Thank you for joining us, and we look forward to sharing all the good this year has in store.

Stay safe, stay together, keep growing, and we'll all be on the other side of this smarter, stronger and ready to capitalize on the many opportunities to come.

*Timothy A. Thwaites, Newsletter Editor*

## LSAJ Council & Committees 2020-2021

### LSAJ President

Chairman: Christopher Grant

### Legal Affairs

Chairman: Charles Johnson (LSAJ Vice-President)

### Finance and Events Planning (Treasurer)

Chairman: Daimian Masters

### Grievance and Complaints

Chairman: Khari Blackwood

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Chairman: André Gordon

### International Affairs, Newsletter and Public Relations

Chairman: Timothy Thwaites

### Planning and Development

Chairman: Al Taylor

### Secretariat

Chairman: Karsten Johnson

### Membership & Professional Practice

Chairman: Tristan Wiggins



The LSAJ continues to be more environmentally responsible! Our Misclosures newsletter will now only be circulated in electronic format. This will increase our reach through e-transmission to a wider readership, and also drastically reduce our collective carbon footprint!

# The President's Notepad



Christopher Grant, CLS - LSAJ President

**My colleagues, friends, aspiring professionals and well-wishers,** it is quite an honour and a pleasure to join you in this new year, 2021. Considering the eventful year that 2020 became, we embrace the new year with a sense of relief, hope and enthusiasm.

There is much to analyze, adjust and realign as we enter the new year, but as with any other tragedy, there are always opportunities which abound as a result of it. There are notable examples in history:

The American stock market had a significant crash in 1929 which led to the great depression. Floyd Odlum who, with his partners invested mostly in utility companies didn't like the direction the market was going and predicted that it would crash. He raised as much cash as he could and by the time the market crashed, he had a significant amount of cash. Since so many businesses were cash-starved, he was able to buy them out at drastically reduced prices. He then consolidated or sold off their assets for more cash, making him one of the wealthiest men in the country.

A significant recession resulted from the great depression due to significantly reduced need for industrialized goods, including cars and other manufactured goods. The advent of World War II led to the transformation of the economy into a war economy thereby stimulating the demand for metalworking trades, vehicle production, aircraft manufacturing, and the chemical and petroleum industries, and also supplied a general stimulus to the production of raw materials. Demand for goods, services and commerce was even greater after the war, resulting in a rejuvenated and strong economy.

By focusing on the disappointments and limitations, there's a tendency to overlook the potential windfalls. It

is my hope that our consciousness will be more closely aligned with positive pursuits, rather than the various disappointments.

We anticipate that after this current Covid-19 crisis, our resolve will be strengthened. Our commitment to our families, profession, community and country will be renewed and we'll be ready to embrace our roles as, not only the foremost professional experts in Land Surveying and land related disciplines, but also a commitment to the highest level of professional practice in the delivery of high quality and efficient service to our clients.

A happy and prosperous 2021 to all.

*Christopher Grant, President*

**"You may lose the battle of the morning, but don't lose the war of the day."** –David Goggins, US Navy Seal, Ultra athlete & author.



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**FIG CONGRESS**

CAPE TOWN | SOUTH AFRICA

**15-20 MAY 2022**

## Social Distancing—It's What We Do (cont'd from pg. 1)

We never have groups crawling through the brush with us or hiking to mountain tops just to watch us work. Occasionally, we will have a curious neighbor follow us around, or even a client, but they rarely get too close. We like it that way.

Years ago, I was involved in some civil litigation and one of my witnesses was a seasoned elderly surveyor who had spent much of his career doing boundary work for the federal government. While on the stand, the opposing attorney was trying to discredit his testimony by inferring that he remembered so many details of the situation that he must have been briefed by our side as to know what to say.

At one point, the opposing attorney asked him if he remembered these types of details for all of his surveys, including the conversations with the people he encountered. His answer was golden.

"Well," he said. "I remember many details of the surveys I have performed, but I rarely have conversations with people while doing them. Most of my surveys are deep in the forest. I occasionally 'talk' to the trees in the area where a corner should be to see if they can tell me where to look."

The attorney had no idea what to do with that and essentially called him crazy. The presiding judge took strong issue with that tactic and reprimanded the attorney for badgering the witness. The attorney had accomplished the opposite of his objective – he gave the witness supreme credibility in the eyes of the judge. We won!

As these trying times continue, my hope is that many lasting positive changes will result. Changes in what we appreciate, what we don't take for granted, in how we spend our free time. Changes in how businesses operate, including allowing more telecommuting for staff members who perform work that allows it. Less traffic on the roads. Less stress. And more consistently stocked toilet paper in the garage.

Stay strong everyone and be the leaders in social distancing like we always have been.us in cases of emergency.

**Source:** <https://www.xyht.com/surveying/social-distancing-its-what-we-do/> (accessed 03-01-2021)



*Attendees at the LSAJ Quarterly General Meeting at the Azul Beach Resort, Negril, Jamaica—October, 2020*



# The Evolution of the Smart Surveyor

## 5 Trends Affecting Surveying, Bringing about the Next-generation Surveyor



By: Craig Hill

Surveyors are a versatile and flexible bunch. As the current COVID-19 situation has proven, this group, like others, has had to find new ways of operating. Even this article is an adjustment. Originally planned as a presentation, Sensor Fusion for the Smart Surveyor, for the International Federation of Surveyors (FIG) Working Week 2020, adapting to a new platform for information sharing is becoming the new normal.

In FIG Commission 5 – Positioning and Measurement and FIG Commission 6 – Engineering Surveys, the focus is an ever-evolving adoption of new technologies and integrating methods with various instruments and sensors to help surveyors, engineers and other measurement professionals to do their job most effectively, whatever the application. As surveyors continue to navigate in these new confines, surveyors will do what they've always had to do – adapt, overcome and evolve.

As surveyors progress, they become smarter and more efficient. As necessity is the mother of invention, there are driving factors pushing surveyors along the path of evolution. At Leica Geosystems, we are consistently steering and tracking these changes to make our customers more productive while maintaining survey-grade quality and accuracy standards. These are the five most recent trends in the surveying industry, bringing about the next-generation Smart Surveyor.

### 1. Surveyors do 'more with less'

While there is plenty of work for surveyors, the average age of surveyors is rapidly increasing. The average age of the professional surveyor in the US, for example, is currently 59 years old. It has become increasingly important to do more surveying with fewer surveyors, and that's where technology comes in. With a focus on sensor fusion, bringing several sensors into one instrument, more work can be completed with less time and personnel. The Leica Pegasus:Two Ultimate is one such example of sensor fusion technology. With a combination of LiDAR, laser scanning and imagery, the mobile mapping platform increases a working day, enabling surveyors and other measurement professionals to capture reality in a variety of lighting conditions and vehicle speeds. Only with constantly evolving technology are we able to keep up, making it possible to do 'more with less'.



### 2. Surveyors are more than just surveyors



In the early days of surveying, surveyors could be thought of as pioneers, charting the uncharted. This has changed significantly over the years. No longer are days or weeks required to bring accurate coordinates to new areas; this can now be performed with GPS/GNSS positioning in a matter of minutes, if not seconds. But surveyors need to embrace modern technologies in order to succeed. From business professionals to digital connoisseurs, the modern surveyor now often becomes the data manager, playing an instrumental role in coordinating and managing the digital progression of a project.

# The Evolution of the Smart Surveyor

## 5 Trends Affecting Surveying, Bringing about the Next-generation Surveyor (cont'd from pg. 5)

### 3. Surveyors are embracing the latest technologies

Preliminary results from an ongoing research project by Leica Geosystems, looking at the needs of surveyors today, reveal 95% of surveyors agree new technologies have made them more efficient at work. Furthermore, research results convey total stations and GPS/GNSS technologies are commonplace with more than 90% utilisation, followed by laser scanning with more than 60% and UAVs with 40% utilisation. This clearly suggests surveyors are embracing the latest technologies. Another interesting finding is on the topic of an ageing profession – more than 50% of the respondents said that they would recommend surveying as a profession to friends/family.



### 4. The integration of new technologies is increasing productivity



At Leica Geosystems, we understand surveyors need to do 'more with less' and we are continuing to invest in product development to make our customers more productive. A recent example is the release of the Leica GS18 T, the world's fastest GNSS rover, that no longer requires the pole to be held vertical. With the integration of an Inertial Measurement Unit (IMU), the tilt of the pole is measured and significantly speeds up the measurement process. Our customers are telling us that productivity increases of more than 20% are being achieved because of this innovation. At the other end of the spectrum, we routinely support the FIG Young Surveyors group and support universities and colleges with the supply of the latest technology equipment and software to be used in their education programmes.

### 5. Technology is making surveying available for everyone

Surveying is no longer only for university educated professionals. With technology making field work easier, many surveying tasks can be completed by appropriately trained personnel. The professional surveyor will more likely become the data/project manager and a key stakeholder in selecting the correct equipment to get the job done using the personnel available.

As the world continues to change, surveyors will continue to evolve. With new technologies consistently coming onto the scene, the opportunities to continually increase efficiency and productivity abound. The resiliency of surveyors in the face of challenges only proves to make the next-generation surveyor smarter.



**Source:** <https://www.gim-international.com/content/article/the-evolution-of-the-smart-surveyor> (accessed 03-01-2021)

## GnssLogger & Google's Play in GNSS



By: Matteo Luccio

GnssLogger? Many surveyors are familiar with the U.S. National Geodetic Survey's Online Positioning User Service (OPUS), a cloud-based processing service that allows them to upload a Receiver-Independent Exchange (RINEX) file and receive results in minutes. Soon, they may be able to achieve centimeter accuracy by accessing raw GNSS measurements on their Android phone.

Google announced in May 2016 that, following a complex multi-year effort in collaboration with its GNSS partners, it would begin to give application developers access to these measurements and make them available to apps in the Android N operating system, which was released later that year. This gave users access to pseudoranges, Dopplers, and carrier phase on a phone or tablet.

"Android's foundation is open-source software and the open-source community," Steve Malkos, technical program manager at Google, wrote a few months later. "So, it was a natural development step for us to provide these raw measurements to the community."

Google has since worked with its partners to perfect this system through several generations and hundreds of models of phones. Android's next version, Android O, included new GNSS measurement features, such as support with GNSS measurements for the SBAS, GLONASS, QZSS, BeiDou, and Galileo constellations in addition to GPS; measurement support on the L1 and L5 and other frequencies; and reported accumulated gain control (AGC) jamming detection.

### The Apps

Additionally, Google developed a phone app to collect the raw GNSS data and a companion desktop program to analyze them and produce a series of colorful plots. The phone app, called GnssLogger, has been available through an Android site for developers and will be on the Google Play Store later this year.

Google has also released its source code. The app logs the measurement data in comma-separated values (CSV) text format and sends the file via the Internet to an e-mail address, a Google Drive account, or some other file-sharing facility selected by the user. Developers can use the app as-is to log the GNSS measurements to a text file or they can use the source code to incorporate these measurements into their own apps.

Google's Android GNSS Analysis desktop program, now in release v3.0.3.0, provides advanced processing and analysis tools for raw GNSS measurements retrieved from Android devices. It provides interactive plots, organized into three columns, showing the behavior of the RF, clock, and measurements. The user can see the behavior of the GNSS receiver in detail, including receiver clock offset and drift to the order of one nanosecond and one ppb and measurement errors on a satellite-by-satellite basis. This kind of sophisticated analysis was previously available virtually only to chip manufacturers.

The program provides an interactive control screen for manipulating the plots, as well as automatic test reports of receivers, evaluation of the API implementation, received signal, clock behavior, and measurement accuracy. In each case it will report "pass" or "fail" based on the performance against known good benchmarks. The program can be used to convert the Android raw measurements to RINEX formats. The next release of the phone app will allow users to log the GNSS data directly to RINEX.

### Achieving High Accuracy

Collecting pseudorange measurements is not enough to turn a smartphone into a high-accuracy positioning tool. That



## GnssLogger & Google's Play in GNSS (cont'd from pg. 7)

requires making use of carrier-phase measurements, which are at least 100 times more precise and have been available in commercial GPS receivers since the 1980s.

Using carrier-phase measurements, in turn, requires resolving the carrier-phase ambiguity, which is a constant value provided that the receiver continuously tracks each satellite. This is problematic when the receiver's view of the sky is obstructed by buildings, trees, or the local topography.

As surveyors know, ambiguity resolution enables centimeter-level accurate positioning by transforming carrier-phase measurements into very precise range measurements. However, it requires an initial position to be known to within a decimeter or better, which is not possible with the quality of pseudorange measurements obtainable with smartphone antennas. One option, though perhaps inconvenient and expensive, would be to use a much better external antenna, but no one has yet developed one for use with smartphones.

Alternatively, one could average measurement noise for several minutes while collecting continuous carrier phase measurements. However, that requires getting around the problem of "duty cycling" the GNSS receiver, which is a technique that smartphone manufacturers use to keep it from draining the phone's batteries: they turn it on for a period—say, 200 milliseconds—then off for a longer period—say, 800 milliseconds—then on again, and so on. Android P with a developer option allows users to disable duty cycling.

Now that phones, too, can collect these measurements, they can also take advantage of multiple frequencies. In addition to the L1 frequency they all currently use, they increasingly have access to the new L5 frequency, which is supported by the GPS, Galileo, BeiDou, QZSS, and IRNSS GNSS constellations. This greatly increases the speed of convergence to carrier-phase accuracy.

The biggest remaining obstacle to achieving positional accuracy with a smartphone is the quality of the low-cost GNSS antennas and chips they contain, as opposed to the high-quality antenna and receiver components used in survey-grade GNSS receivers that track signals on multiple frequencies and enable them to achieve centimeter- and even millimeter-level accuracies.

### What the Apps Do

The GnssLogger and Android GNSS Analysis tools enable manufacturers to improve their devices' design and GNSS performance by seeing in detail how well the GNSS receivers are working in each device design. They are also of great value to researchers and app developers. For surveyors, they are of interest because of the possible future developments they portend.

The tools are not intended to generate the best possible position, although an expert user may be able to achieve that by manipulating all the available features. Rather, they make it possible to examine in detail the workings of the phone's GNSS receiver.

One thing they reveal is that most GNSS receivers very often get bad measurements, which they filter out before generating the position, or (in the case of survey receivers) before generating measurements to output in RINEX files. So, users only used to seeing the result may be surprised at what they see when they use these tools to dig into the raw data.

However, using these tools to remove the bad measurements proves that phones can get decimeter accuracy. Professionals can spend days using the Android GNSS Analysis tool to do such things as deselect satellites one at a time, or by constellation, change mask angles, and so on.

### Conclusions

Results of tests conducted by Google demonstrate that the use of carrier-phase measurements and careful modeling of the error sources affecting GPS observations make it possible to measure the displacement of a smartphone at the centimeter level. Surveyors should cheer and start planning to make the most of this new capability, as soon as it becomes fully available.

**Source:** <https://www.xyht.com/gnsslocation-tech/googles-play-in-gnss/> (accessed 03-01-2021)



## Profiles of Successful Examination Candidates

### Ms. Althea Donaldson

I attended the Marymount High School in Highgate, St. Mary. After finishing high school I then attended the University of Technology Jamaica (UTech Ja.) and did the Land Surveying Technician course. Afterwards I worked with Commissioned Land Surveyor Edmund Ingram for about a year, then started working at National Land Agency in 2001 to present as a draughts-person. In 2007 I did the degree course at UTech Ja. in Land Surveying & Geographic Information Science (LSGIS).

My hobbies include listening to music and travelling. I also love gardening.



### Ms. Latoya Sinclair



I grew up in the community of Rae Town in Kingston and attended the Convent of Mercy Academy "Alpha" High School for Girls and later went on to the University of Technology, Jamaica (UTech, Ja.), where I received a B.Sc. in Land Surveying & GIS and also received an award for outstanding academic achievement. Whilst attending the UTech, Ja., I was active in the Land Surveyors Club, where I performed the roles of Treasurer and President.

After graduating, I began an internship at A. I. Gracey & Associates for a few months where I properly executed the tasks that were assigned and was later offered a full time position. Under the guidance of Mr. Andrew Gracey, I was encouraged to sit the Land Surveyors examination in 2019/2020, and was successful on the first attempt.

### Mr. Brian Plummer

My name is Brian Alexis Plummer.

Yes, Alexis, I was the only child of six my father allowed my mother to give a name. I was born October 4th 1985 to a father who was an accountant and a mother who was a teacher. In my early years (as if I'm that old), I went to the Spanish Town Infant School and then on to St. Aloysius Primary School. Thereafter, I attended St. George's College which rocked my father to the core as he and all the males before me and desirably after me, went to, in my humble opinion, the wrong side of North street. I am sure, you can imagine the hell in my household whenever there was a 'battle of North street'; not even my mother was on my side.

I played a few sports, tried out for the track team a couple times, I'm still awaiting the coach's call. I tried my hand at anything, especially if it presented itself as challenging. I went as far as trying out at the JCDC festival.

I later attended UTech Ja. and did the surveying course because I saw the word "Geographic" in the title; you can imagine my shock. However, I believe I did pretty well. I went on to work for a couple surveyors who taught me the rudiments of surveying, and who helped to build and establish me as Brian Alexis Plummer, Commissioned Land Surveyor.



## Profiles of Successful Examination Candidates

### Mr. Kevon Jarrett

I am one of five siblings who grew up in truly humble beginnings in Canterbury, an inner-city community in Montego Bay, St. James. The circumstances of my early life could, without much effort, have led me down a less than honourable path but, thankfully, there were persons (such as my parents) who desired, rather required, much more of me.

I completed my high school education at the Cornwall High School where I developed an interest in the sciences. I later attended the Montego Bay Community College to pursue a future in Architecture and Construction; however fate led me to cross paths with Mr. Grantley Kindness, CLS, who was then a lecturer at the institution. It was then that my knowledge of, and passion for land surveying was instigated, and which later transformed into a life pursuit that would (and did) transform my life.

As a result of this exposure I pursued and completed a Bachelor of Science in Land Surveying at the University of Technology in 2011. This achievement was followed by several years as a Student Surveyor during which I learned to apply the knowledge gained during my studies to the various tasks which were assigned to me by his superiors; always guided by principles of ethics, transparency and integrity.

In 2014, under the guidance and supervision of my principal, Mr. Michael Spence, CLS, I commenced the qualification process to become a Commissioned Land Surveyor. Now a Commissioned Land Surveyor, father and husband, I am best described as a truly kind-hearted, jovial, yet hardworking and astute model for others, particularly those of similar humble beginnings as my own.



### Mr. Milton Pinnock



Father to daughter- Milani-Grace, son Micah, husband to wife Nicola and son to mother Mrs. Joan Grace-Pinnock, father deceased and last of the three children to my parents. My life has been a journey, some very pleasant moments but as life all affords us there are some unpleasant ones too.

At the age of 10, I was heavily involved in football, playing for my primary school – Spanish Town Primary, later for Jonathan Grant High and in between that time I was playing for St Catherine under 14, 16, and under 20 teams as well as Jamaica under 17 team. As unbelievably as it might sound it's all FACTUAL! No wonder the Surveyors always recruit me to be a part of their football team each year. At that time while playing for the parish of St. Catherine I was introduced to the levelling instrument while my manager who was a Land Surveying Technician levelled it on the football field, I became extremely curious. That curiosity led to me enroll at the

University of Technology, Jamaica (Utech Ja.) to become a Surveying Technician. I wasn't comfortable being at that level for too long, and enrolled at Utech Ja. again to the B.Sc. program in Surveying and Geographic Information Sciences – graduating with honours, and for the opportunity to sit the Commission Examination.

Being very determined to increase my knowledge and experience in surveying, I was later attached at the National Land Agency as a Student Surveyor with the dream set at the forefront of my mind that one day, I would become a Commissioned Land Surveyor. I thank God, my Family, lecturers and friends for all their assistance and guidance throughout the years that that dream is now a reality. I could not do it without your help, thank you, thank you, thank you.

# Profiles of Successful Examination Candidates

## Mr. Johan Wilson

Born and partially-raised in Linden, Guyana, I emigrated to Jamaica with his parents and 3 brothers in 1992. I attended the Trinityville Primary School and later the Morant Bay High School in St. Thomas, then completed my 6th form studies at the Camperdown High School in Kingston.

I entered upon the land surveying scene quite by chance. After difficulties registering for the Geology programme at the University of the West Indies, I decided to apply for the SGIS program at the University of Technology Jamaica, when I realized it included my favorite subjects – Mathematics and Geography.

I began my professional career at Leslie B. Mae & Associates Limited as an intern during the summer of June 2007. After earning my Bachelors of Science Degree (Hons.) in Surveying and Geographic Information I was then fully employed at Leslie B. Mae & Associates Limited, where I currently remain employed.

During my four years of university Mr. Ian Henry was always insisting that I visits the Church of the Ascension in Mona. I later did and became an Acolyte and assistant Sunday School Teacher. I even met my wife of 5 years while as a member of the Youth Club.

I enjoy long trips with his wife, sports, audio books.

