

"MISCLOSURES" NEWSLETTER



October 2018

Land Surveyor's Association of Jamaica Newsletter

How to Evaluate Your UAV Needs



Aerotas' Daniel Katz and Logan Campbell were asked for their thoughts on the strengths and weaknesses of the different tools that make up an unmanned aerial system. They begin the series by looking at the unmanned aerial vehicles themselves. The approach is to evaluate classes or types of tools, not rate specific manufacturers or models. There will always be models that don't fit the general Continued on Pg. 4



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From The Editor's Desk



Colleagues, welcome to this quarter's issue of the Misclosures. How good and how pleasant it is for colleagues to fellowship in a beautiful city like Montego Bay, Jamaica. Montego Bay is my

I have

second home,

Andre St. Aubyn Gordon M.B.A., CLS friends who have become

like brothers who live here. It is always nice to visit.

This newsletter , and I'm sure the entire Land Surveying profession would like to express our condolences to the family of our departed colleagues, Messrs Barrington "Bobby" Smith and George McFarlane. A nicer more gentler soul than "Bobby" Smith is difficult to find and his death was a difficult one for many of us, myself included. I did not meet Mr. George McFarlane personally, but I was tutored by one of his partners, Mr. E.H.D. Wilson. Mr. McFarlane's death, brings to a close an esteem chapter in the history of Land Surveying in Jamaica. He was the last remaining survivor of the very prominent firm McFarlane, Fiddler, Lee & Wilson. He will also be missed.

October is Breast Cancer Awareness Month. This October also represents 90 years since the formation of the Land Surveyors' Association of Jamaica. In addition to encouraging you to encourage the ladies in your lives have their mammograms done this month as early detection saves lives, I'm also encouraging you to support the LSAJ and its 90th Anniversary activities. Col-

leagues, advertise in the 90th Anniversary Magazine and Observer Supplement. Attend the Church Service and Brunch. Be present at the Seminar.

This month is also an excellent month to support the Surveying & GIS programmes at the University of Technology, Jamaica. Donate equipment. Mentor a student. Pop in for a visit and speak to the LS Club.

Colleagues, I really hope you enjoy this weekend with your family and the family of your colleagues.

Blessed love. Andre Gordon, Newsletter Éditor

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The President's Notepad



COLLEAGUES,

members and friends; Wealth creation, wealth preservation, securing the source of food, raw materials and water and the provision of shelter. That's the nature of the profession that we prac-

tice. We are required to do precise and accurate work to facilitate our clients in the process of acquisition and or developing real estate or when using real estate to secure finance. In doing, so by default, we are required to invest in very costly equipment and to maintain the quality of our education.

Errors in survey documents, some of which when detected, can be construed as deliberate, are coming to light daily. Errors and or omissions on survey document will live forever, long after the developers have achieved their financial goals and, in many cases, profited from these acts, the name and signature of the offending surveyor is preserved in the documents which coincidentally have no expiry date. Even when the document for some reason are retired or surrendered, they remain on file and cannot be destroyed.

Let us start by instilling a sense of professionalism into our trainees and our general office staff. A colleague Surveyor of mine was very upset when he received a notice of survey delivered to him by an employee of a surveyor. The notice was dated and delivered on a Sunday for a survey to be conducted the following Saturday. My colleague suggested to the youngster that he and his principal should have known better. The young man countered by saying that the notice was only two days short of the statutory notice period. The phenomenon referred to in the United States as ambulance chasing is catching on in Jamaica. Lawyers will persuade aggrieved parties to pursue whatever remedies are available to the in law. Be careful.

We are entitled to proper remuneration for our work. There is lie being promulgated by some very influential people in government that surveyors are overpaid. Those doing so should cease and desist.

During the month of September surveyor Barrington Smith and Past President George McFarlane(domiciled in Canada) passed away. Mr. Smiths was held on Saturday, September 29 ant the Holy Trinity Cathedral. A large contingent of surveyors were in attendance. Surveyors were the pall bearers and we also formed a guard of honour at the end of the proceedings. Funeral Mass for George McFarlane was held on September 22, 2018 at 10:30 a.m. at Merciful Redeemer Roman Catholic Church, 2775 Erin Centre Blvd. Mississauga Ontario. Condolences to the families and friends of the two very remarkable surveyors.

Barrington Smith also called Bobby Smith will be remembered as one of the politest person to have ever walked the face of the earth. He was very meticulous and whatever job he did was well done. He was always encouraging us to consider retirement planning often suggesting that we should engage in farming and that we plant long term trees which are of economic value.

NATIONAL LAND AGENCY

During the last quarter members of the Association were invited to sit on at least two focus groups hosted by the Agency. One meeting had to do with suggestions for improving the current maps being produced and the other was an introduction to the proposed digital submission and checking of survey plans a part of the proposed digital land titling system. We welcome the initiative on their and we sincerely hope that the spirit of consultation and co-operation will continue.

90th ANNIVERSARY CELEBRATIONS

A series of events starting with a church service on Sunday October 21 and culminating with our annual dinner on October 26 will be held. Your support will be appreciated. Mr. Trevor Shaw-Director of Surveys and Past President Robert Paisley will be honoured at the dinner.

God Bless

Noel K., Brown. President

How to Evaluate Your UAV Needs

Continued from Pg. 1

but the discussion starts with a range of choices and issues to consider in an effort to help surveyors make informed decisions about drones.

Our goal at Aerotas is to always provide the best drone solutions for land surveyors. In order to continually achieve this goal, we spend a lot of time staying up to date on the latest developments in all aspects of survey drone technology. We are not formally attached to any specific providers, instead staying independent so that when better tools are available, we can provide them to customers. In order to determine which drone, sensor, georeferencing technology, etc., we provide to our customers, we focus on cost-benefit analysis or what delivers the most benefit to the average surveyor for the least total cost (of time and money).

An effective drone program involves dozens of components and we regularly test the options available in each. The three specific technology components we get the most questions about are drone airframes, sensors, and georeferencing options.

This article is the first in a three-part series covering those three technologies. These articles will summarize our current analysis of the options based on our continual R&D and work implementing drone programs for hundreds of surveyors nationwide.

Types of Drone Airframes for Surveyors

There are three main types of survey drone airframes: small multi-rotors, large multi-rotors, and fixed-wings. Multi-rotors fly like helicopters: they take off and land vertically, can hover in place and make sharp right-angle turns. Fixed-wings fly more like airplanes, taking off and landing at a slope, needing to fly faster to stay aloft, and making large swooping turns. All three types are capable of being used as part of a drone survey program – with the right Standard Operating Procedures and data processing workflow - to produce final survey linework at 0.1' vertical accura-CY.

Small Multi-Rotor Airframes

Small multi-rotors weigh less than 5 pounds and are less than 1.5 feet in diameter. They usually have a built-in camera and are often sold as "pro-sumer," or, in other words, high-end consumer or entry-level professional grade.

descriptions exactly—such as vertical-takeoff, fixed-wing drones— The biggest benefit of small multi-rotor drones is their simplicity. They are designed to be easy to use, but, more importantly, they are easy for staff to use on every project with minimal extra work. Small multi-rotors are also usually the most reliable airframes. Because their manufacturers are producing these drones at a large scale, they have been able to identify and resolve flaws that more boutique manufacturers often struggle with. For similar reasons, small multi-rotors are inexpensive. Using a low-cost drone means it's less of a burden on the business, causing less pressure to maximize how much the drone is used, and making it easier to scale up the benefit to potentially even put one in every truck.

> The primary drawback is a lack of flexibility. They are usually built as closed systems, and are not designed to swap out sensors or other components. Small multi-rotors are best considered as a specific tool for a specific job, rather than a "Swiss Army Knife."



Figure 1: DJI Phantom and DJI Mavic—Small Multi-Rotor Airframes

For most surveyors doing topographic or planimetric survey work, a small multi-rotor is going to be the right airframe choice. This is particularly true for surveyors just starting their drone program, or for larger companies looking to scale the benefits of drones to several teams. The drones' low cost, ease of use, and reliability make them an excellent choice.

Large Multi-Rotor Airframes

Large multi-rotors usually weigh over 10 pounds and are 3 feet in diameter. They require some setup or assembly in the field due to their large size and, therefore, generally require more expertise to use effectively.

The two main benefits of large multi-rotors are their flexibility and increased range. Most large multi-rotors are designed to be able

How to Evaluate Your UAV Needs

to carry a variety of sensors, meaning the sensor can be swapped out based on the specific needs of a job. Depending on the payload weight and power requirements, they also may have a larger range.

The main drawback of large multi-rotors is their reliability. These are more complex systems and are intrinsically more likely to have things go wrong. They require fairly complex custom building, and

Fixed-Wing Airframes

Fixed-wing drones are typically about 3 feet in wingspan and can often be very light due to being constructed out of dense foam.

The primary benefit of fixed-wing airframes is their range. They are inherently much more efficient fliers than multi-rotors, and can fly for a longer time before requiring a battery change. For projects

> larger than 50 acres requiring good accuracy, this benefit can be substantial, as using a multirotor would often require so many battery swaps that they

> Unfortunately, this benefit is usually negated by regulations. Today, it is required that a drone pilot actively watches the drone the entire time it's flying. This is essential to avoid situations like emergency air-

become inefficient.



Figure 2: Vulcan UAV Airlift—Ultra heavy lift for payloads up to 25 Kgs; tough, weather proof and foldable.

of and foldable. of and foldable. craft flying through. In most situations, operators will not be able to maintain line of sight for 50 acres, meaning they can't

setup in the field is more complex as well. Given that the primary benefit of drones for most surveyors is time-savings – by enabling them to create linework faster in the office using drone-

collected 3D models – any time the drone cannot be used on a job due to maintenance is negating that time-savings benefit. Particularly, if a third-party camera is used, the custom integration required is likely to cause challenges.

In addition, the range benefit of a larger multi-rotor can easily be negated if a larger sensor payload is used. Large multi-rotor airframes are also substantially more expensive than small multi-rotors – usually a minimum of five times the price when packaged with the sensor and support gear needed.

Large multi-rotors can be very beneficial for special-usecases. For survey teams that are very experienced with the nuances of drone technology and frequently require the use of specialized sensors for unique project types, they are often the best choice. take advantage of the entire range benefit of fixed-wing airframes.



Figure 3: Fixed-wing drone—lightweight, more suitable for large areas

In addition to this, fixed-wing aircraft have a handful of substantial drawbacks. The requirements to program take-off and landing

How to Evaluate Your UAV Needs

patterns means that using the drone on projects is fairly complex. In addition, they tend to have short lifespans because they belly-

land. They don't have landing gear like an airplane, and instead just slide on their belly, which means they

Choosing the Right Tool for the Job

There is no one right answer for every surveyor. For companies that are just starting out, a small multi-rotor is always our recommenda-

can quickly wear down.

Unlike multi-rotors, fixed-wing airframes must maintain a minimum speed to stay aloft. This means they have to fly high to minimize motion blur. And whereas most multi-rotors carry their sensor on a gimbal, which allows the camera to remain pointed straight down even as the drone turns or fights the wind, fixed-wings usually cannot carry a gimbal, which causes a higher frequency of unusable data due to blur or off-centered photos. Finally,

fixed-wing airframes are quite expen-

	Small multi-rotor	Large multi-rotor	Fixed-wing
Common size	• 1.5 feet in di- ameter	• 3 feet in diame- ter	• 3 feet wing- span
Common weight	• 5 lbs or less	• 10 lbs or more	• 5 lbs or less
Common cost: airframe, like- ly sensor, necessary accessories	• \$4,000	• \$20,000	• \$40,000

Table 1: Comparison between small multi-rotor, large multi-rotor and fixed wing drones

sive – usually twice the price of large multi-rotors with the sensor and support gear required.

tion. Even for experienced firms, the small multi-rotor is likely to be their workhorse due to its simplicity and reliability. For firms that are very proficient with drone operations and have needs for spe-

	Small multi-rotor	Large multi-rotor	Fixed-wing
Benefits	Easy to useReliableInexpensive	Flexibility (modular)Larger range potential	Much larger range
Drawbacks	 Inflexible - can't swap pay- loads 	More to breakComplex to useExpensive	 Range negated by line-of-sight law Complex operation Short lifespan Data issues due to lack of gimbal Expensive
Best for	Operators new to dronesMost standard survey projects	 Operators experienced with drones Unique projects that require special sensors 	 Operators experienced with drones Frequent, very large projects

Table 2: Comparisons of benefits, drawbacks and optimality of each type of drone

For firms that regularly do very large survey projects of hundreds of acres or more and are rather proficient with drone operations, a fixed-wing aircraft may be the right choice. Working to get special waivers from the Federal Aviation Administration or using visual observers to effectively extend range of sight can help mitigate the line of sight limitations.

cialized sensors, a large multi-rotor is a good investment to be used as a specialized tool. For experienced firms that do a lot of very large projects, a fixed-wing aircraft is a good choice.

Ultimately, when it comes to unmanned aerial systems, it's up to each surveyor to choose the right tool or mix of tools for their business and types of projects.

Adjudication in Land Surveying

Adjudication is the legal process of resolving a dispute. It is usually the formal giving or pronouncing of a judgment or decree in a court proceeding; also the judgment or decision given. It is also the resolving disputes of any kind.

In Jamaica, a land surveyor is required to adjudicate boundaries. It is one of the most important functions of the Jamaican land surveyor. This is not so in many other countries. In some countries, the land surveyor is asked to show his findings only. That is, by doing research obtaining field data and reporting on what he/she has discovered without drawing any conclusions. It is left to the Attorneys to draw conclusions based on this evidence

The Government of Jamaica guarantees registered Titles to the owner/s named on the particular Title, based on his data so produced. The system of land tenure in Jamaica is called the Torrens System and depends heavily on the skill and integrity of the Land Surveyor.

Wikipedia says that a "Torrens title is a land registration and land transfer system, in which a state creates and maintains a register of land holdings, which serves as the conclusive evidence (termed "indefeasibility") of title of the person recorded on the register as the proprietor (owner), and of all other interests recorded on the register. The interests that are not guaranteed are called "paramount interests". Ownership of land is transferred by registration of a transfer of title, instead of by the use of deeds. The Registrar would provide a Certificate of Title to the new proprietor, which is merely a copy of the related folio of the register".

I remember an expression told to me many years ago by one of my teachers, Mr. Bob Byles of blessed memory. He said "It is better to mark a boundary and not survey it than to survey it and not mark it". The meaning became much clearer to me soon after when I started doing boundary surveys as a Land Surveyor in private practice.

On the practical level when working as a Land Surveyor in the State of Florida USA, it was not uncommon to see 6 or more markers at a boundary corner, and one was not allowed to disturb any of them. In our system no one should ever see more than one mark at a surveyed boundary corner, and that usually is the oldest survey mark, as it takes precedence, in most cases, over nearly everything else. Our clients depend on this, and it avoids arguments after the survey has been completed, as the parties have accepted what the "severe-man" has done. To top it all off the Government through the Registrar of Titles also accepts the decisions of the particular land surveyor and issues registered Titles based on what he/she has done.

One of the stories I have told is that of a small boundary survey I did many years ago in the hills of St Ann. The site was a short walk from where one could park the vehicle. There was almost no evidence of occupation lines or any of the usual confirmation markers for which land surveyors look. We then came to a corner where there was a lone, small Ackee tree. So I asked the owner and the adjoining neighbour, who were both present along with a small crowd of onlookers, which side of the tree is the corner mark to be placed. Neither of them could tell me so I said I will use the centre of the tree and they both could share it. They said no, as there would be quarrelling. So, I said I will then cut down the tree so you guys cannot quarrel about it.

I asked my chainman to borrow an axe and being a very handy with an axe he did so and started cutting down the tree. My client, now realizing I was serious about this move, stopped us. So, I asked again where the marker should be placed. The adjoining owner said to go ahead and cut down the tree, but to my amazement my client said if you are really going to cut the tree down, then give it to him.

Of course, I turned to all those within my hearing and said that this makes the decision easy, as I can use the Bible story of Solomon and the two women claiming the same baby. I placed the mark so that my client got the Ackee tree. There was not even a murmur from the neighbour. This is an example of Adjudication.

John R. Mais, PLS, CLS About the Author



John R. Mais has been a professional Land Surveyor in private practice for over 40 years. He is the Principal of GeoGraphics Limited, formerly J.R. Mais & Associates Limited. He is licensed to practice in Jamaica and Florida.

GEOMATICS @ UTECH

The Division of Land Surveying and G.I.S., UTech shares the highlights of some of our activities during the last quarter.

Student's Annual Club Dinner

The Land Surveying Club held its 12th Annual Dinner and Awards ceremony under the theme "Breaking barriers, being the change that needs be", at the Courtleigh Hotel & Suites, New Kingston on April 28, 2018.



Ms. Revene Evans—Incoming President of the LS Club

club used the occasion to hand over the reins of power to a new administration.

The event benefitted from the sponsorship of a number of Land Surveying & GIS entities and individuals (LSAJ, Spatial Innovision, Noel K. Brown & Associates, Alvin G. Clarke, Victoria Mutual Building Society, Blastec Ltd. JN Bank and Dr. Glendon G. Newsome), and was attended by the LSAJ President – Noel K. Brown and the Immediate Past President – Antony B. Prendergast.

The Guest Speaker was Mr. John R. Mais.

Entertainment was provided by Nathaniel Reid and Ricardo Rock

Final Year Professional Practice & Ethics Dinner

The University recently appointed one (1) new external examiner As a partial fulfillment of the requirements of the Professional Practice module the final year students staged a formal Dinner event under the theme "Becoming Agents of Change", at the Knutsford Court Hotel, New Kingston, on April 6, 2018. The occa-

sion was used by the lecturer to give students practical exposure to etiquette in fine dining as well as public speaking as each student was required to make a brief presentation on a topic from areas such as: the my university experience, global warming, has technology eroded personal contact, manners matters, abuse, has crime become a profession?, free health care, examination scores not a reflection and make our communities more livable.

Student Numbers

Our current cohort of students is constituted by: LSGIS1 – 16 LSGIS2 – 18 LSGIS3 – 9 LSGIS4 – 9 SGIT1 – 14 SGIT2 – 8

Three (3) of our students are from other parts of the Caribbean.

XXVI FIG CONGRESS

The University as well as the Land Surveyors Association of Jamaica was represented by Dr. Glendon Newsome C.L.S. at the XXVI FIG



Dr. Newsome presenting his paper

CONGRESS held in Istanbul, Turkey, 6-11 May, 2018

Dr. Newsome made a presentation of his paper titled "Digital Integration of Land Records through the LADM and STDM". The full paper and power point presentation are in the Conference Proceedings (http:// www.fig.net/resources/ proceedings/ fig_proceedings/fig2018/ techprog.htm) on the Congress Website (http:// www.fig.net/fig2018/).

Dr. Newsome was also privileged to Chair a session titled "Best Practice Models in Land Administration.

Please see the FIG Facebook page (<u>https://</u> www.facebook.com/

The

GEOMATICS @ UTECH

internationalfederationofsurveyors/) for more on this event.

Equipment

As we work hard to manage our stock of aging instruments, steps are being taken to acquire new Electronic Theodolites and GIS Data Mappers.

International Coastal Clean Up

Fifteen (15) of our students through a Land Surveying Club effort and as one of their projects, participated in the International Coastal Clean Up activities at the Boston Bay Beach in Portland.

Practicum

We wish to thank Commissioned Land Surveyors (President Noel Brown, Llewelyn Allen, Cynthia Edwards, Janet Taylor, Salina Solomon, Kharie Blackwood, Sherene Williams-Chin, Gary Wright, Andrew Gracey, Antony Prendergast) for offering themselves to conduct viva voce assessments of students' Practicum work in the disciplines of: Site surveying, levelling, route surveying, topographic surveying, control surveying, hydrographic surveying, and photogrammetry. We value these very significant contributions as we partner to produce future professionals.

Staff News

Ms. Julie-May Larmond and Dr. Glendon Newsome were awarded by the University for ten (10) and thirty-five (35) years of service respectively, at its awards function held at the Papine Campus on May 31st.

We continue to enjoy the support of Messers. Hopeton Chambers, Dean Bradshaw, lan Johnson and Roosevelt Thompson with their expertise in giving lectures to our final year students.

The Division welcomed its newest member of staff at the start of the current semester. Ms. Trecia-Kay Williams, a past student who has since earned a M.Sc. degree in Land Surveying/Geomatics from the University of Hong Kong has decided to pursue academia as her career path. We are very proud of Trecia's achievements at the post graduate level so far, and do look forward to her growth and development even as she works to assist young aspiring professional realize their own potential.

PCJ Summer Internship Programme

The Petroleum Corporation of Jamaica PCJ Internship is a summer programme which is being facilitated by UTech, Ja., and sponsored by the PCJ. The programme focuses on providing participants with an experience of activities/life on UTech,Ja's campus, with remedial Maths, English and other general Life Skills support. The programme is expected to host 750 participants in three cohorts of 250.

Participants will have a minimum educational background of Grade 10 to Grade 13, and will range in age from 18-35. Participants will reside on UTech's LOME halls, for three 3-week cycles. Participants will be exposed to different Project Based Skill Areas (Electromechanical Technology; Chemical Technology; Computer Technology; Robotics; Baking Technology; Food Preparation; Introduction to Land Surveying; Waste Water Operations and Testing; Basic Construction Technology). Participants will have two weeks of in-



Dr. Glendon G. Newsome and Ms. Julie-May Larmond

troductory Math, English, IT and Entrepreneurship. The third week will focus on the Project Based Skill area. Participants will be placed in groups of twenty-five based on their top selections.

So far more than forty (40) participants have selected Introduction to Land Surveying as their choice of a skills area. We hope that our degree programmes will attract a few qualified entrants from this programme.

NATIONAL LAND AGENCY NEWS

INTEGRATION OF NATIONAL LAND AGENCY (NLA) AND LAND ADMINISTRATION MANAGEMENT PROGRAMME (LAMP)

The Government of Jamaica through the Cabinet granted approval for the integration of the Land Administration and Management Programme (LAMP) into the National Land Agency (NLA).

The integration commenced April 1, 2018, with the full process expected to be completed within one (1) year. A Steering Committee with various stakeholders will oversee the transition process, and provide periodic progress reports to Cabinet through the responsible Minister.

A roadmap has been designed to guide the integration process and will focus on:

- All operations of LAMP to fall under the responsibility of the Chief Executive Officer.
- Financial support to fund a three (3) year programme to produce 20,000 Certificates of Titles.
- The implementation of an adjudication focused process in the provision of land ownership.
- Separation of the processes of planning and subdivision approval from the issuing of titles under the Registration of Titles Cadastral Mapping and Tenure Clarification (Special Provisions) Act, 2005.

In the interim, LAMP staff will remain at the 16A Half Way Tree Road, Kingston 5 location.



For further information contact: National Land Agency Business Services Division 23 ¹/₂ Charles Street Kingston, Jamaica Telephone: (876)750-5263 Email: asknla@nla.gov.jm Website: www.nla.gov.jm





Elfego Kemar Harris BSc. (Hons), C.L.S.

Spouse: Jamie Brown

Children: (Son)



Ian Andrew Jerome Henry BSc. (Hons), C.L.S.

Spouse:

Children:



Michael Anthony Barnes BSc. (Hons), C.L.S.

Spouse: Ann-Marie

Children: Brianna and Nathan

Leniel Fiddler BSc. (Hons), C.L.S.

Spouse: Tia

Children: Lenielia and Isiah