



News from

# The GLORIOUS SOCIETY OF THE WORMHOLE

December 2022

## Hello Worms

I trust everyone had a good Thanksgiving. If I miss you at the meeting and you don't make the Tampa Bay Hamfest have a great holiday season.

Tickets for the Tampa Bay Hamfest will be available at the meeting. Also if you plan on going to Orlando Hamcation you should buy your tickets at the Tampa Bay Hamfest. Hamcation will have a booth there and will sell advance tickets for \$20. Tickets at the gate are \$25.

If you are a gamer here is a new game written in .... Notepad. Actually the freeware program Notepad++. If curious check out his blog at <https://sheepolution.com/blog/category/gamedev/>.

In November we will meet face to face for those who wish to do so. If Alan is in attendance or we meet inside, we will broadcast the meeting on the repeater and Zoom video. We will meet at the regular meeting time of 1100 on Saturday morning at the Lurie Civic Building on the St Petersburg College campus in Seminole. Turn west at the light at 113<sup>th</sup> St N and about 92<sup>nd</sup> Ave N. It's the first building on the north side. Here is a link to a Google map : [Google Maps](#). There are a few parking spots in front the Chamber building but if you go another 100 yards past you can park in the college parking lot which is a lot closer to the outside meeting area. Double parking is fine since we will be able to find the owner to move his vehicle if necessary. Below is the Zoom information, same as last month.

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Topic: Bill Williams' Zoom Meeting  
Time: This is a recurring meeting Meet anytime

Join Zoom Meeting  
<https://zoom.us/j/2737114584?pwd=d1BETHVOQ21vWWZlZ0lYQ0FIWWtldz09>

Meeting ID: 273 711 4584  
Passcode: worm

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BRING YOUR CHAIR your coffee and lunch! There are a few picnic benches if you do not have a folding chair but they are not comfortable for most of us. We will not be cooking but we have access to the Chamber of Commerce building which has a microwave and a toaster oven so you can heat up/cook what you bring. We will meet inside if the weather is or looks like it will be bad.

We could use a few more net controls. If you are interested in being a net control station for once or twice a month let me or Dee or George know. You can talk to them on the weekly net.

We also need a Vice President. And while I am asking if anyone would like to be the webmaster I am sure Mike would love to give it away since he does not like WordPress.

Elections will be held this meeting. I urge anyone interested run for an officer position. We are a small club so none of the positions are too onerous. The By Laws do not say anything about votes over the radio and/or Zoom. I will ask for a motion to take votes and have a discussion on that. We will take votes or not depending on if the motion passes or not.

### **\*SKYWARN RECOGNITION DAY\***

The annual [SKYWARN](#)<sup>™</sup> Recognition Day ([SRD](#)) on-the-air activity will take place Saturday, December 3, 2022, from 0000 to 2400 UTC. For US time zones, activity begins on the evening of Friday, December 2, 2022.

SKYWARN Recognition Day was developed in 1999 by the National Weather Service (NWS) and [ARRL](#) The National Association for Amateur Radio<sup>®</sup> to honor the contributions that SKYWARN volunteers make to the NWS mission -- the protection of life and property during threatening weather. During the SKYWARN special event, hams will operate from several NWS offices, as well as from their mobile, home, and club stations. "The relationship between amateur radio operators and the NWS is extremely important for relaying information during storms of any type," said ARRL Director of Emergency Management Josh Johnston, KE5MHV. "SKYWARN is a perfect example of the value of hams working together with government partners during times of disaster. " The SKYWARN Storm Spotter Program has been a mechanism used by the NWS for years to educate people on what to watch for during weather events and to provide a source for information to the NWS Offices. Program courses provide information on reportable criteria for cloud formations, and even what to look for during the formation of supercells that may cause tornadoes or other potentially dangerous weather events.

For information about SKYWARN spotter courses, which are available to anyone around the country or online, visit <https://www.weather.gov/skywarn/>.

If you would like more information on becoming an amateur radio operator, go to <http://arrl.org/getting-licensed>. ARRL also offers a book, [\*Storm Spotting and Amateur Radio\*](#), that is available from ARRL and its publication dealers.

Individuals and NWS office amateur radio stations who are planning on operating for 2022 SKYWARN Recognition Day should register to participate. All amateur radio stations and SKYWARN spotters that register will receive an SRD number to their email address once registered. Information about participating, registration, and a Spotter Recognition Map is available at <https://www.weather.gov/crh/skywarnrecognition>.

In-person amateur radio operations will be determined by each local National Weather Service Forecast Office. Amateur radio operators must make all necessary inquiries with the appropriate NWS staff at your respective National Weather Forecast Office ahead of SRD.

Look for station WX1AW, operated by ARRL Emergency Management Assistant Ken Bailey, K1FUG, during SRD. WX1AW will be active on 40 thru 10 meters using SSB and FT8 Modes and will monitor local VHF and UHF repeaters. Contacts will be uploaded to LoTW after the event. QSL via the station license address with a SASE (self-addressed-stamped-envelope).

More information is available at [www.arrl.org/skywarn-recognition-day](http://www.arrl.org/skywarn-recognition-day)

The NWS will have an information booth in the Expo building and present a Skywarn class during the Tampa Bay Hamfest on December 10, 2022.

## **\*NEW CHIP CAN TRANSMIT ENTIRE INTERNET'S TRAFFIC PER SECOND\***

NEW ATLAS By Michael Irving

October 23, 2022

The speed record for data transmission using a single light source and optical chip has been shattered once again. Engineers have transmitted data at a blistering rate of 1.84 petabits per second (Pbit/s), almost twice the global internet traffic per second.

It's hard to overstate just how fast 1.84 Pbit/s really is. Your home internet is probably getting a few hundred megabits per second, or if you're really lucky, you might be on a 1-gigabit or even 10-gigabit connection – but 1 petabit is a million gigabits. It's more than 20 times faster than [ESnet6](#), the upcoming upgrade to the scientific network used by the likes of NASA.

Even more impressive is the fact this new speed record was set using a single light source and a single optical chip. An infrared laser is beamed into a chip called a frequency comb that splits the light into hundreds of different frequencies, or colors. Data can then be encoded into the light by modulating the amplitude, phase and polarization of each of these frequencies, before recombining them into one beam and transmitting it through optical fiber.

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### **\*NOISE ON HD BANDS\***

Ralph WD0EJA

Noise is always a challenge on HF. However, there are things to do that can help.

Antennas are a passive device. If the noise signal is there, it will send it down the line to your radio. Where can you start?

Try to identify the noise. Is it a static, buzz, pulsing or other? Your radio can give you a hint by the affect the Noise Blanker has on the noise. Noise Blanker's are mainly for atmospheric and power line static. It consists of many harmonics at random which the Noise Blanker is designed to reduce. Turning the Blanker off and on will confirm this.

There are other sources of noise that your Noise Blanker was not designed to address. Many times a switching power supply, wall wart, dimmer switch, LED bulb and more can generate noise. This can be induced into the feed line also. This type of noise will have different characteristics that the Noise Blanker will not affect. There are many devices that we use that can make lots of noise. Try isolating the devices to see if any are the culprit.

If you have ground wires to the radio and other attached equipment, temporarily disconnect them. Observe the noise level ungrounded. Leave it this way while looking for the noise.

Where the antenna connects to the radio, slide the barrel back so only the center conductor is connected. Observe if the noise increases, it should. If not, the source of the noise may be close by. Can you tilt the antenna so it is close to the ground? Signal strength will decrease, but if the noise stays the same or worse, then you can get an idea that the noise is generated close by. This might be more affective during the time when the band is closed. If it is possible, the location of the antenna may need to be changed.

Another source is the utility service. They may be using electronic devices for their monitoring that is causing noise or signals on the HF band. If you can identify the offending source, hopefully your company will be cooperative.

Various antennas may receive noise more than others. This can be due to the polarization of signal it favors. However, if the noise source is generated by man made equipment you will need to address this source.

For actual atmospheric static there are some very affective ferrite bead and filter kits that can be attached to the coax. You can find these by doing a search.

Keep in mind that the coax is seldom the problem. Noise can enter the coax by disrupting the balance of the cable. Coax keeps your RF signal from emitting by maintaining a balance or cancellation of 180 degrees between the center conductor and the shield. The nomenclature "shield" is really a misnomer. It does not shield the RF, it only cancels it. The surrounding braid allows the cable to come close to other surfaces without becoming unbalanced.

Keep in mind any antenna will receive a generated signal that is emitting hash, pulses, power line or atmospheric noise. It is still a passive device. Hopefully an organized search for your noise issue will have results.

73,  
Ralph WD0EJA  
BILAL COMPANY  
[wd0eja@isotronantennas.com](mailto:wd0eja@isotronantennas.com)

### **\*ENGLAND WILL SCAN THE INTERNET\***

Dr. Ian Levy at <https://www.ncsc.gov.uk/blog-post/scanning-the-internet-for-fun-and-profit>

Ian Levy explains how the NCSC's new internet scanning capability will help us understand the UK's vulnerability to cyber attack.

Back when we launched the National Cyber Security Centre (NCSC) (England), I [described how our Active Cyber Defence \(ACD\) programme](#) reflects my intent to make cyber security more scientific, and less driven by marketing ('winged ninja cyber monkeys').

The key paragraph was:

*"One thing that's missing in cyber security is unbiased data and evidence. Many of the active defence measures are intended to generate useful data that will help us all*

*understand much better the reality of cyber attacks and the efficacy of the various defences we'll put in place over the coming years."*

We've been publishing [reports on the ACD programme](#) every year since it was set up, which includes data, analysis, and evidence on the effectiveness (or not) of individual ACD services. Some of these services have also been useful in novel ways. For example, when the widely-exploited [vulnerability in Microsoft Exchange](#) was made public in March 2021, we used the [ACD Takedown Service](#) to:

- *understand* how long it took UK instances of Exchange to be patched
- *encourage* system owners to take action

Being able to track the population of vulnerable servers across the whole of the UK was useful for all sorts of reasons, but we could only use the Takedown Service in this way because of a particular feature of this vulnerability. Understanding the risk to the UK from different vulnerability types, accessible over different vectors in a timely manner, requires a dedicated capability.

Since the Exchange issues, we've launched some new services, including the [Early Warning Service](#) which proactively informs system owners when we notice suspicious activity on their internet-connected systems. We've also improved some of our internal processes, like our vulnerability response function which formalises how we assess the severity of vulnerabilities. This means we have consistent, predictable and sensible responses which are not driven by cool names and logos for the vulnerabilities. The next stages of these and similar services will need high quality data.

Our ACD services are already having a measurable impact (and you can [download the latest ACD report](#) to find out exactly how). But the analyses we've published don't answer the really hard questions, like 'How vulnerable is the UK to cyber attack?' or 'Does HMG policy X have any impact on our security?'. Internally, we have a small number of 'Grand Challenges'; research projects trying to find solutions to these really hard cyber security problems. One of these Grand Challenges, led by Rob T, seeks to provide tools that will help to answer questions about the 'cyber state of the nation' in an objective, scientific, data-driven way. And no, we're not just running regex over Shodan!

During the 18 months or so that challenge has been running, we've made good progress using existing sources of data (including data from the ACD services), but we've reached the limit of the utility of the commercial internet-scanning data we procure. Sometimes they don't have the detail we need, or they're not timely enough, or they don't include specific IP ranges we need to look at.



So today we're launching the [NCSC internet scanning capability](#). This will feed into the challenge and help us to:

- better understand the vulnerability and security of the UK
- help system owners understand their security posture on a day-to-day basis
- respond to shocks (like a widely exploited zero-day vulnerability)

Basic technical details about our capability (including details on what we collect and store, as well as how to opt-out) are available on our [scanning information page](#). Remember, if you do opt-out, we'll be limited in how we can help you understand your cyber security exposure. Most cyber security companies silently run internet scans similar to the ones we're talking about. But [the NCSC is part of an intelligence agency](#), so I think we need to be a bit more open about our scanning.

We're not trying to find vulnerabilities in the UK for some other, nefarious purpose. We're beginning with simple scans, and will slowly increase the complexity of the scans, explaining what we're doing (and why we're doing it).

Building this capability has led us to develop a set of principles for conducting scanning effectively and transparently. These are:

- publicly explain the purpose and scope of the scanning system
- mark activity so that it can be traced back to the scanning system being used
- audit scanning activity so abuse reports can be easily and confidently assessed
- minimise scanning activity to reduce impact on target resources
- ensure opt-out requests are simple to send and processed quickly

We hope others will use these principles to guide their work as well. If you have any general questions about the service, you can always get in touch through [enquiries@ncsc.gov.uk](mailto:enquiries@ncsc.gov.uk). Rob will be publishing some blogs with further details in due course, and we'll be talking about this Grand Challenge (and what it's telling us) at [CYBERUK in Belfast next April](#). By then, we should have something really cool to show you.

*Dr Ian Levy*

*Technical Director, NCSC*



## \*CLUB MEETING\*

We will again have a face to face club meeting in December. We will try to keep up on the 2M and also video concurrent on a video service. The meeting will be held at the Lurie Civic Building which is the new Greater Seminole Area Chamber of Commerce. It is located on the St Petersburg College campus in Seminole. Turn west at the light at 113<sup>th</sup> St N and about 92<sup>nd</sup> Ave N.

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## \*CLUB NETS\*

Check in on the club net Thursdays at 1930 and 2000 (or at the end of the 2M net). 2M at 146.850 – with a tone of 146.2. Our 6M net runs after our regular 2M net on 53.150 – 1MHz offset 146.2 tone.

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## \*LOCAL NETS\*

### MONDAY

1830 147.060+ no tone	St Pete ARC daily net	St Petersburg
1900 144.210 USB	CARS, vertical polarization	Clearwater
1900 147.135 +146.2	Zephyrhills ARC	Zephyrhills
2000 147.165+ 136.5	Brandon ARS	from Brandon
2000 50.135	Pinellas ARK	Pinellas County
2030 NI4CE system	EAGLE Net, NTS traffic net,	NI4CE system
2030 145.450	Pinellas ARK	Pinellas County

### TUESDAY

1830 147.060 no tone	St Pete ARC daily net	from St Petersburg
1900 50.200 USB	6M net	Brandon ARS



1900 28.365 USB	10M Net	Clearwater
1900 NI4CE system	WCF Section VHF ARES	NI4CE system
1930 145.170 & 442.4 both pl 156.7	Pinellas ACS net	Clearwater
1930 444.900 +141.3	Sheriff's Tactical ARC	Tampa
2000 NI4CE system	WCF Skywarn net	NI4CE system
2000 147.105+ 146.2	Tampa ARC net	from Tampa
2000 28.365 USB	simplex	Brandon ARS
2030 NI4CE system	EAGLE Net, NTS traffic net	NI4CE system
2100 28.465 USB	10/10 net	from Orlando
1900 146.490 simplex	3 <sup>RD</sup> Tuesday monthly, Hillsborough Co ARES simplex Net	

### **WEDNESDAY**

1830 147.060 no tone	St Pete ARC daily net	from St Petersburg
1900 147.165 + 136.5	Humpday Net	from Bandon
1930 52.020 simplex	Suncoast 6'ers	from St Petersburg
1930 NI4CE system	WCF Section Digital Info Ne	NI4CE system
2000 147.105 146.2	Greater Tampa CERT net	from Tampa
2000 146.97- 146.2	Clearwater ARS	from Clearwater
2030 NI4CE system	EAGLE Net, NTS traffic net	NI4CE system
2100 NI4CE system	Tampa Bay Traders Net	non-affiliated
0000-2359 HF Winlink	Winlink Wednesday Net <a href="https://winlinkwednesday.net/reminder.html">https://winlinkwednesday.net/reminder.html</a>	

### **THURSDAY**

1800 146.52 simplex	Hillsborough ARES/RACES	North Tampa
1830 147.060 no tone	St Pete ARC daily net	from St Petersburg
1900 444.750 +146.2	Fusion net	from Tampa
1915 224.660- no tone	St Pete ARC	from St Petersburg

1930 146.6385 -127.3	Lakeland ARC	from Lakeland
1930 444.225 + 146.2	Hillsborough ARES/RACES	from Tampa
1930 146.850- 146.2	Wormhole	from Pinellas Co
2000 53.150 -1MHz 146.2	Wormhole	from Pinellas Co
2030 NI4CE system	EAGLE Net, NTS traffic net	NI4CE system
<b>FRIDAY</b>		
1830 147.060 no tone	St Pete ARC daily net	from St Petersburg
1900 3.830 LSB	Brandon 80M Net	from Brandon
2030 NI4CE system	EAGLE Net, NTS traffic net	NI4CE system
<b>SATURDAY</b>		
0730 3.940 (7.281 Alt.)+/- QRM	WCF Section HF Net	from WCF
1830 147.060 no tone	St Pete ARC daily net	from St Petersburg
2030 NI4CE system	EAGLE Net, NTS traffic net	NI4CE system
<b>SUNDAY</b>		
0800 3.933	Florida Traders Net	non-affiliated
1830 147.060 no tone	St Pete ARC daily net	from St Petersburg
1930 NI4CE system	WCF Section Net	NI4CE system
2000 147.550 simplex	550 Simplex Net	Pinellas County
2030 NI4CE system	EAGLE Net, NTS traffic net	NI4CE system
2100 144.210 USB	Clearwater ARS	vertical orientation

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**\*FOR SALE / WANTED\***

Anyone having something for sale or who might be looking for an item let me know. I will not print phone numbers or email addresses unless specifically told to since this newsletter might end up on the web. The exception is when I get the information off the web. If you are a

member of the Wormhole then you can ask club members for the persons contact information. If you are not a member ... why not? OK, if you are not a member you can contact me at the email address at the end of this newsletter, I will give you the information to contact the person involved. If you want to see anything here and you are coming to the meeting let the seller know, maybe he can bring it.

FOR SALE,

See Bill AG4QX for the following: most from SK estate, make me an offer.

- \*Yaesu-Musen FRG-7 Receiver \$100 looks rough
- \*Heathkit HW-101 Transceiver \$150 was his primary radio, looks rough
- \*Heathkit HD-1215 Phone patch \$15 looks ok
- \*Drake WV-5 wattmeter \$100 looks ok
- \*EICO 482 scope \$25 works (looks good)
- \*Heath Cantenna dummy load, 1 gal oil can, \$50

This stuff is from Ray KD4HUW

- \*Yaesu ft-1000MP ( 100 watt ) \$775.00
- \* Icom AH-4 antenna tuner \$175.00
- \*MFJ-616 Speech Intelligibility Enhancer \$90.00

Dean W8IM wants to make room in his closet.

352-255-1431 or w8im @arrl.net or the Wormhole and SPA\*RC nets

- \*Meade 2080AT -LNT refracting telescope, little used original owner, original box, tripod, manual, some extra lenses, complete. \$100.00.

Captain Jack W4GRJ has a 10kw Generator.

This is a brute of a generator weighs 200 lbs on wheels, electric start, runs about 9.5 hours on 6 gals gas, includes large power cable and outdoor cover included  
Cost \$1200 w/tax

[https://www.ojcommerce.com/green-power-gasoline-powered-electric-start-portable-generator-420cc-15hp-lct-engine-gpg10000ew?utm\\_source=google&utm\\_medium=cpc&utm\\_campaign=PMax\\_Smart\\_m6\\_m7&utm\\_content=1305789&gclid=Cj0KCQjw166aBhDEARIsAMEyZh6tGAauSJT0Dth0klIm0zflifFfwxtSBKFYmKF1VQ4tzZhs9W8067MaAojREALw\\_wcB](https://www.ojcommerce.com/green-power-gasoline-powered-electric-start-portable-generator-420cc-15hp-lct-engine-gpg10000ew?utm_source=google&utm_medium=cpc&utm_campaign=PMax_Smart_m6_m7&utm_content=1305789&gclid=Cj0KCQjw166aBhDEARIsAMEyZh6tGAauSJT0Dth0klIm0zflifFfwxtSBKFYmKF1VQ4tzZhs9W8067MaAojREALw_wcB)

2 yrs old in excellent condition very well maintained and stored properly  
\$700 worm special

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**\*HAMFESTS\***

## 2022

**December 9 & 10** **Plant City, the 2022 Tampa Bay Hamfest and West Central Florida Section Convention**, Friday and Saturday, at the Strawberry Festival grounds, admission \$10, 16x40ft tailgate space \$10, electric \$5, for information contact Bill Williams AG4QX, [chairman@fgcarc.org](mailto:chairman@fgcarc.org) or go to <http://www.tampabayhamfest.org> or you can just ask me, Jim or Dee at a meeting ;-)

## 2023

**January 14** **TARCFest** TARC Clubhouse, 22<sup>nd</sup> St at the river, \$5 entry including tailgate, a few inside tables reserved in advance \$15, talkin on 147.105 +146.2, license testing after, more info at <http://hamclub.org/>

**January 20-21** **Fort Myers, South Florida Section Convention**, Florida SouthWestern State College, 8099 College Parkway, \$10, n tailgate price given, talk-in 145.170-136.5, see <https://swflhamfest.info/> ,no contact info given

**January 28** **Arcadia**, Desoto County Turner Center Exhibit Hall, 2250 NE Roan St. Arcadia, Talk-in on 147.075 +100, no price given, for more info contact Doug Christ at [kn4yt@yahoo.com](mailto:kn4yt@yahoo.com) or 863-990-2507

**February 10-12** **Orlando Hamcation**, Central Florida Fairgrounds, 4603 West Colonial Drive, Tickets \$20 in advance, \$25 at door. Talk-in 146.760 - PL 103.5 analog or Fusion. Also D-Star is on 146.820 -, all the information at [www.hamcation.com](http://www.hamcation.com) or call 407-841-0874 There is also an AM low power Information Station on AM 610.

**February 24** **Friday only**, Hillsborough County PSOC, **9th Annual TECHCON Convention**, Hillsborough County Public Safety Operations Complex, 9450 E. Columbus Drive, Tampa 33619, for more information: <http://arrlwcf.org/wcf-special-events/wcftechconference/>

**April 15** **TARCFest** TARC Clubhouse, 22<sup>nd</sup> St at the river, \$5 entry including tailgate, a few inside tables reserved in advance, talkin on 147.105 +146.2, license testing after, more info at <http://hamclub.org/>

**August 19** **TARCFest** TARC Clubhouse, 22<sup>nd</sup> St at the river, \$5 entry including tailgate, a few inside tables reserved in advance, talkin on 147.105 +146.2, license testing after, more info at <http://hamclub.org/>

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Mid January	Adventure Run, Honeymoon Island
Last full weekend January	Winter Field Day <a href="https://www.winterfieldday.com/">https://www.winterfieldday.com/</a>
Late January	Gasparilla celebration
Late February	West Central Florida Tech Conference <a href="http://arrlwcf.org/wcf-special-events/wcftechconference/">http://arrlwcf.org/wcf-special-events/wcftechconference/</a>
March	MS 150 Citrus Tour bike ride <a href="http://www.citrustour.org/register.php">http://www.citrustour.org/register.php</a>
March/April	MS Walks
March/April	Mass Casualty Exercises
Late April	Southeastern VHF Society Conference, <a href="http://www.svhfs.org">http://www.svhfs.org</a>
Late April	Florida QSO Party
Mid May	March For Babies (was March of Dimes) <a href="https://www.marchforbabies.org/Registration/Events">https://www.marchforbabies.org/Registration/Events</a>
Mid May	Annual Armed Forces Crossband Test
Mid-May	Florida Hurricane Exercise
Late May	Dayton Hamfest
May, Memorial Day Weekend	Wormfest
First weekend in June	Museum Ships on the Air
Fourth weekend in June	Field Day <a href="http://www.arrl.org/contests/announcements/fd/">http://www.arrl.org/contests/announcements/fd/</a>
July 3/4	Midnight Run in Largo <a href="http://www.kiwanismidnightrun.com/">http://www.kiwanismidnightrun.com/</a>
Third weekend in August	International Lighthouse/Lightship Week <a href="https://illw.net/">https://illw.net/</a>
September	Run for All Children's
October, 3 <sup>rd</sup> weekend	JOTA, Scout Jamboree-on-the-AIR (around 14.280MHz)
Early December	ALS bike ride in Walsingham Park
December, Second weekend	Tampa Bay Hamfest <a href="http://www.fgcarc.org/">http://www.fgcarc.org/</a>

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**\*YOUR WORMHOLE OFFICERS\***

Bill AG4QX is President and editor of this newsletter, the Vice President position is open, Treasurer is Jim KD4MZL, Paul KA4IOX is the Secretary, Dee N4GD is the Repeater Trustee and Mike KV0OOM is our webmaster.

### **\*YOUR WORMHOLE REPEATERS\***

53.150 -1Mz PL 146.2

442.625 +5Mz PL 146.2

146.850 - 600Kz PL 146.2

The Wormhole 2M and 440 repeaters are both now dual mode Yaesu DR-1X. FM analog as always and Yaesu Fusion, a C4FM digital mode.

The Wormhole website is at: <http://www.TheWormholeSociety.org>.

West Central Florida Section website: <http://www.arrlwcf.org/>.

The ARRL website is at: <http://www.arrl.org/>

This newsletter is written for The Glorious Society of the Wormhole, an ARRL affiliated amateur radio club located around the Seminole section of Pinellas County Florida. Anyone wishing to be added or removed from The Glorious Society of the Wormhole mailings please write to me at the address below and thy will be done.

73,

Bill Williams

AG4QX

[ag4qx AT arrrl DOT net](mailto:ag4qx@arrrl.net)