



News from



The GLORIOUS SOCIETY OF THE WORMHOLE

April 2018

Hello Worms

Copied below is a 2002 Wormhole meeting notice. Looking at it brings up one subject of discussion this meeting, the 220 repeater.

Talk-in is on the Wormhole repeater system. For those coming to the meeting who cannot hit the repeater we will also monitor the Honeywell club repeater on 443.050 +141.3. Bring a folding chair if you have one.

* WHICH WAY DOES CURRENT REALLY FLOW *

By Dan Romanchik, KB6NU

I was recently taken to task by one of my blog readers regarding my description of current flow in my *No Nonsense Technician Class License Study Guide*. He wrote:

You casually say that current flows from Positive to Negative (with cool accompanying directional arrows), without any accompanying qualifying statement. Over the years I have looked at ALL the views on the subject. Positive to Negative is NOT what I was taught 48 years ago, and I have never seen a good reason to change my view.

In a subsequent email, he pointed me to a Nuts ‘n Volts article, [“Which Way Does Current Really Flow?”](#) and asked my opinion. In the article, the author, who is a ham by the way, does a good job of explaining the various types of current flow.

I agree that in electronic circuits electrons flow from negative to positive, but it really doesn’t matter. I agree with one the article's commenters who says,

This is a silly argument. It’s like comparing apples and oranges and challenging people to take sides.

Electron flow is not current flow. Electron flow is easy to understand, an actual physical property, and a real help in understanding vacuum tube operation. But it falls apart when one needs to understand complex electronic systems.

[Conventional] current flow is a mathematical abstraction. It is defined as a net flow of positive charge, irrespective of the polarity of the physical charge carriers — whether electrons, holes, positive or negative ions, or whatever.

When looking at any circuit containing a resistance with a voltage across it, conventional current through that resistor says that the voltage drop occurs as the current through it meets resistance. On the other hand, in negative (electron) flow, a voltage INCREASE will correspond to the ‘current’ flow through it, clearly violating physical laws. Conventional current flow is consistent with the laws of physics and those of other engineering disciplines.

You are correct that engineers, professors and scientists use conventional current flow. That is not because they are too obtuse to understand electron flow; I assure you they fully understand it. It is because in their world they have to solve more general problems involving complex math and science, and, again, conventional current flow is consistent with physical laws.

It is unfortunate that electron flow and current flow are so often confused. They both have their place.

After reading that article, I thought I’d see what the ARRL Handbook has to say about current. In the 1963 edition, they don’t mention electron flow at all. They have one diagram showing the direction of current flow in both series and parallel circuits, but the voltage source has no polarity. It’s simply labelled “Source of

E.M.F.” Diagrams giving practical examples of series and parallel circuits do include a battery, and if the reader were to mash up the two diagrams, they would conclude that current flows from the positive terminal to the negative terminal.

The most recent edition of the Handbook that I have is the 2005 edition (it might be time to get another copy!). It says,

Electrons move from the negative to the positive side of the voltage, or EMF, source. Conventional current has the opposite direction, from positive to negative. This comes from an arbitrary decision made by Benjamin Franklin in the 18th century. The conventional current direction is important in establishing the proper polarity sign for many electronics calculations. Conventional current is used in much of the technical literature. The arrows in schematic symbols point in the direction of conventional current, for example.

Having said all that, I really don't see that there's much of a controversy here. I did learn to think of current as conventional current in college, although it was mentioned that electrons actually flow in the opposite direction. Using the concept of conventional current has never seemed to hold me back. I've been able to design circuits and repair electronic equipment thinking that current flows from positive to negative.

Although it's a departure from my “no nonsense” style, I am thinking of including a sidebar, similar to the paragraph above from the 2005 Handbook explaining the two ways of looking at current flow. What do you think?

When he's not trying to figure out which way current flows, Dan blogs about amateur radio at KB6NU.Com, teaches ham radio classes, and operates CW on the HF bands. Look for him on 30m, 40m, and 80m. You can email him at cwgeek@kb6nu.com.

*** NEAR EARTH ASTEROIDS ***

asteroids ([PHAs](#)) are space rocks larger than approximately 100m that can come closer to Earth than 0.05 AU. course with our planet, although astronomers are finding [new ones](#) all the time. On February 27, 2018 there w

Recent & Upcoming Earth-asteroid encounters:

	Date(UT)	Miss Distance	Velocity (km/s)	
	2018-Feb-21	0.3 LD	21.1	
	2018-Feb-21	11.8 LD	10.7	
	2018-Feb-22	15.3 LD	5.4	
	2018-Feb-24	3.7 LD	7.4	
	2018-Feb-24	5.2 LD	10.2	
	2018-Feb-25	2.3 LD	7	
	2018-Feb-25	10.2 LD	5.7	
	2018-Feb-25	0.7 LD	4.6	
	2018-Feb-26	13.2 LD	4.5	
	2018-Feb-26	11 LD	12.9	
	2018-Feb-27	14.8 LD	8	
	2018-Feb-27	4.2 LD	2.6	
	2018-Feb-27	5.5 LD	4.4	
	2018-Feb-28	11.7 LD	5.7	
	2018-Mar-01	15.3 LD	6.5	
	2018-Mar-03	9.3 LD	8.2	
	2018-Mar-07	16.6 LD	8	
	2018-Mar-07	3.8 LD	6.3	
	2018-Mar-09	10.2 LD	8.7	
	2018-Mar-10	6.9 LD	8	
	2018-Mar-27	9.2 LD	14.3	
	2018-Mar-28	18.7 LD	7.3	
	2018-Mar-31	15.5 LD	11.6	
	2018-Apr-02	4 LD	14.9	

	2018-Apr-12	19.3 LD	24.5	
	2018-Apr-14	9.3 LD	4.4	
	2018-Apr-20	12 LD	12.7	
	2018-Apr-23	15.8 LD	6.1	

Notes: LD means "Lunar Distance." 1 LD = 384,401 km, the distance between Earth and the Moon. 1 LD also equals 0.00256 AU. MAG is the visual magnitude of the asteroid on the date of closest approach.

*** FACEBOOK LOGS ALL CALLS AND SMS HISTORY ***

by John Lister on March, 27 2018 *INFOPACKETS*

Facebook users have been shocked to discover it stores the phone numbers of people who've never signed up to the site, along with the SMS and voice call histories of some users. But Facebook insists that users have explicitly given permission for such data storage.

The site's data storage and sharing policies came back under the spotlight with the recent Cambridge Analytica scandal, when a journalist revealed that information gathered about users and their friends for a psychological study was shared without permission for use in political ad targeting. Since then, many users have been taking advantage of a Facebook feature that lets users download a copy of all the information the site has about them.

Much of what's stored is data you'd expect such as posts the user has made, lists of their Facebook friends, photos and videos they've uploaded, and copies of messages sent through Facebook Messenger. **(At the end of the article we'll explain how to do download your own user data).**

Journalist's Contacts Hoovered Up

However, several users have revealed more surprising data. The BBC's Rory Cellan-Jones discovered his stored data included email and phone numbers for more than 2,500 of his contacts - including the journalist who broke the Cambridge Analytics scandal. Meanwhile a New Zealand man discovered the data included a list of telephone calls he'd made including the time, length of call and who he was calling.

In the former case, Cellan-Jones says he understands that when he set up his account he may have given permission for Facebook to check the contacts list on his phone to see if anyone he knew was already on the site. However he was shocked to discover that numbers he is adding now are still being collected by Facebook. (Source: bbc.co.uk)

Facebook: You Gave Us Permission

Meanwhile Facebook has dismissed the New Zealand man's complaints with what it's called a 'Fact Check' article. It says the phone call and text logging history are part of the system for helping users find their friends on the site. It insists that "People have to expressly agree to use this feature" and that they can change their settings to stop collection of call and text history, contact details, or both. It added that "Your information is securely stored and we do not sell this information to third parties." (Source: fb.com)

Facebook didn't explain how having a history of calls and texts would help the feature. In theory it could be a way of finding people on Facebook when you've called or texted them, but not yet added them to your phone's contacts list.

What Does Facebook Know about You? How to Download Your User Data

If you are a Facebook member you can download your user data using these steps:

1. Go to Facebook.com and login to the site.

2. At the top right of the page, click the Down Arrow button and select "Settings".
3. The "General Account Settings" page will be displayed; near the bottom, click the link that reads: "Download a copy of your Facebook data".
4. You will be asked to sign onto the website with your password. After that, Facebook will email you all its data (supposedly) it has about you.
5. When the archive is complete, Facebook will email you a link; you will need to login to Facebook again and click the "Download archive" button.

IMPROVE YOU STATION AUDIO QUALITY –PART 1

By Ralph WD0EJA

We have two audio qualities to consider. What you receive and what you transmit.

Reception has its challenges. Depending on your location and antenna installation, determines the amount of unwanted noise you will receive.

Atmospheric noise is received through much of the HF spectrum. However, it gets quite high at the lower frequencies, 40, 80 and 160 meters.

This noise will sound more like a hiss than a crackling. Lightening sounds more like a crackling or snap. It will be more steady with a smooth fluctuation.

If you have other noises over riding the atmospheric noise, then it will have to be addressed.

The first place to start is with the receiving antenna. A resonant dipole or vertical will maximize noise. It will also maximize the received signal.

Height above ground and position of the antenna will affect the noise reception. Dipoles normally slightly quieter than verticals, but not always.

The end or tips of these two antennas are affected mostly by noise. This is normally where the RF voltage is highest. This makes this part of the antenna more sensitive to its surroundings, including noise.

If you are in to experimenting with antennas, you can find which antenna has the least noise, what position and height will offer the same. However, that is a lot of work and many have little choice where to put their antenna.

One good option is a receiving loop. You can build these quite easily. There are wire loops, coaxial loops and ferrite loops. It can be made uni-directional or bi-directional.

For it to be most affective, the wire and coaxial loops particularly should be outdoors and rotatable. The ferrite loops are more forgiving and may be used indoors. The ferrite actually bend the flux lines of the signals in the air, enhancing reception.

An amplifier is a nice addition to the receiving loops. However, many receivers have preamps that may be sufficient.

Rotating the antenna will isolate the signal to a degree that you want to listen to. It will also give you an idea of your noise location. The more you invest into a receiving antenna, the better your reception will be. These are small and easy to construct. You can find various designs in the antenna and other handbooks available.

The antenna is not the only place to work on noise. Also atmospheric noise is not the only one we have to deal with. Future articles will address this problem.

Ralph WD0EJA

www.isotronantennas.com

* THE WORSENING COSMIC RAY SITUATION *

Spaceweather.com 3-5-2018

Cosmic rays are bad—and they're getting worse. That's the conclusion of [a new paper](#) just published in the research journal *Space Weather*. The authors, led by

Prof. Nathan Schwadron of the University of New Hampshire, show that radiation from deep space is dangerous and intensifying faster than previously predicted.

The story begins four years ago when Schwadron and colleagues first sounded the alarm about cosmic rays. Analyzing data from the Cosmic Ray Telescope for the Effects of Radiation (CRaTER) instrument onboard NASA's Lunar Reconnaissance Orbiter (LRO), they found that cosmic rays in the Earth-Moon system were peaking at levels never before seen in the Space Age. The worsening radiation environment, they pointed out, was a potential peril to astronauts, curtailing how long they could safely travel through space. In the 1990s, the astronaut could spend 1000 days in interplanetary space. In 2014 ... only 700 days. "That's a huge change," says Schwadron.

Galactic cosmic rays come from outside the solar system. They are a mixture of high-energy photons and sub-atomic particles accelerated toward Earth by supernova explosions and other violent events in the cosmos. Our first line of defense is the sun: The sun's magnetic field and solar wind combine to create a porous 'shield' that fends off cosmic rays attempting to enter the solar system. The shielding action of the sun is strongest during Solar Maximum and weakest during Solar Minimum.

The problem is, as the authors note in their new paper, the shield is weakening: "Over the last decade, the solar wind has exhibited low densities and magnetic field strengths, representing anomalous states that have never been observed during the Space Age. As a result of this remarkably weak solar activity, we have also observed the highest fluxes of cosmic rays."

Back in 2014, Schwadron *et al* used a leading model of solar activity to predict how bad cosmic rays would become during the next Solar Minimum, now expected in 2019-2020. "Our previous work suggested a ~ 20% increase of dose rates from one solar minimum to the next," says Schwadron. "In fact, we now see that actual dose rates observed by CRaTER in the last 4 years exceed the predictions by ~ 10%, showing that the radiation environment is worsening even more rapidly than we expected." In this plot bright green data points show the recent excess:

The data Schwadron *et al* have been analyzing come from CRaTER on the LRO spacecraft in orbit around the Moon, which is point-blank exposed to any cosmic radiation the sun allows to pass. Here on Earth, we have two additional lines of defense: the magnetic field and atmosphere of our planet. Both mitigate cosmic rays.

But even on Earth the increase is being felt. Spaceweather.com and the students of [Earth to Sky Calculus](#) have been launching space weather balloons to the stratosphere almost weekly since 2015. Sensors onboard those balloons show a 13% increase in radiation (X-rays and gamma-rays) penetrating our planet's atmosphere:

X-rays and gamma-rays detected by these balloons are "secondary cosmic rays," produced by the crash of primary cosmic rays into Earth's upper atmosphere. They trace radiation percolating down toward our planet's surface. The energy range of the sensors, 10 keV to 20 MeV, is similar to that of medical X-ray machines and airport security scanners.

How does this affect us? Cosmic rays penetrate commercial airlines, dosing passengers and flight crews so much that pilots are classified by the International Commission on Radiological Protection as occupational radiation workers. Some research shows that cosmic rays can seed clouds and trigger lightning, potentially altering weather and climate. Furthermore, there are studies ([#1](#), [#2](#), [#3](#), [#4](#)) linking cosmic rays with cardiac arrhythmias in the general population. Cosmic rays will intensify even more in the years ahead as the sun plunges toward what may be the deepest Solar Minimum in more than a century. Stay tuned for updates.



CLUB MEETING

The next club meeting is April 7. We meet on the first Saturday every month at 11:00 Saturday morning at the Minnreg Building located at 6340 126th Ave N,

Largo. Members are welcome to come in the rear area through the fence gate on the southeast corner of the property. Talk-in is on the Wormhole repeater system. For those coming to the meeting who cannot hit the repeater we will be monitoring the Honeywell club repeater on 443.050 +141.3. We will keep an eye peeled for you. We will take advantage of the cooking facilities with an after-the-meeting Social and Wormdog picnic.

CLUB NETS

Check in on the club net Thursdays at 1930. 442.625 + with a 146.2 tone or the 2M side at 146.850 – also with a tone of 146.2. We are always looking for volunteers to be the net control operator. Anyone interested, talk to one your club officers.

LOCAL NETS

MONDAY

1730 147.030 + Receiver sites and tone info <http://www.qsl.net/wd4scd/> St Pete Yacht Club ARC

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

TUESDAY

1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
1900 50.200 USB Brandon ARS	6M net	
1900 28.450 Clearwater	WCF section net	
1900 NI4CE system system	WCF Section VHF ARES	NI4CE
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 system	WCF Skywarn net	NI4CE

2000 147.105+ 146.2 Tampa	Tampa ARC net	from
2000 28.365 USB ARS	simplex	Brandon
2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE
2100 28.465 USB	10/10 net	from Orlando

WEDNESDAY

1930 146.30 simplex net from Tampa	Hillsborough ARES/RACES	
1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
1930 52.020 simplex Petersburg	Suncoast 6'ers	from St
1930 NI4CE system system	WCF Section Digital Info Ne	NI4CE
2000 147.105 146.2 Tampa	Greater Tampa CERT net	from
2000 146.97- 146.2 Clearwater	Clearwater ARS	from
2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE
2100 NI4CE system affiliated	Tampa Bay Traders Net	non-

THURSDAY

1800 146.52 simplex Tampa	Hillsborough ARES/RACES	North
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1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
1900 444.750 +146.2 Tampa	Fusion net	from
1930 146.850- & 442.625+ both pl 146.2 Petersburg	Wormhole	from St
1930 146.6385 -127.3 Lakeland	Lakeland ARC	from
1915 224.660- no tone Petersburg	St Pete ARC	from St
2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE

FRIDAY

1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE

SATURDAY

0730 3.940 (7.281 Alt.)+/- QRM WCF	WCF Section HF Net	from
1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE

SUNDAY

0800 3.933	Florida Traders Net	non-affiliated
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1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
1930 NI4CE system system	WCF Section Net	NI4CE
2000 147.550 simplex Pinellas County	550 Simplex Net	
2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE
2100 144.210 USB orientation	Clearwater ARS	vertical

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 have all the information you need on a club roster and 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.

FOR SALE, For sale: New MFJ TNC 1270X, never used in original box with manual and cables. \$30. Dean Sever W8IM

FOR SALE, Mosley TA-33M 10-15-20M beam with the 40M add on kit. Antenna is on the ground and in good shape. There are several parts that need replacement. The 40M kit is new in box. Antenna is broken down into six or seven feet sections so easy to handle. Asking \$400, talk to me, Bill AG4QX at arrl dot net or see me at the meeting.

FOR SALE, Cushcraft A4S 10-15-20M beam, on the ground. There are several parts that need replacement. Asking \$300, talk to me, Bill AG4QX at arrl dot net of see me at the meeting.

FOR SALE, 13 element, 14.5 ft 220 beam. Wormhole property, \$20, contact Bill AG4QX or any other officer. **Free to any Wormhole member or other club.** Pickup at Bill's house.

HAMFESTS

- April 14** **TARCFest**, TARC Clubhouse, 22nd St at the river, \$4 entry plus \$3 to tailgate, inside tables \$15 in advance, talkin on 147.105 +146.2, go to at <http://hamclub.org/>, for more info
- May 12** **EPARS Tailgate**, Dade City, Church Ave Park, 37746 Church Avenue, **Talk-In on** 146.880 146.2, Admission \$5, tailgate free, **contact** Chris Bloxsom , AA4CB 727-484-8099, go to <http://eparsonline.org/>
- May 26** **WormFest 2017, Pinellas Park, admission FREE, tailgate free, Freedom Lake Park, 9990 46th St N, southeast corner of US 19 and 49th Street, 33782. Park opens at sunrise for vendor setup, hamfest starts at 0800. Talk-in on 442.625 + or 146.850 – both with a tone of 146.2. For a map and directions see** <http://www.TheWormholeSociety.org> .
- August 18** **TARCFest**, TARC Clubhouse, 22nd St at the river, \$4 entry plus \$3 to tailgate, inside tables \$15 in advance, talkin on 147.105 +146.2, more info at <http://hamclub.org/>
- November 3** **LARC Hamfest**, Lakeland, Revolution Church of Lakeland, 7315 Kathleen Road, Talk-In on 146.685 tone 127.3, For info contact Kevin Rought , N4KWR 863-393-4336 <http://lakelandarc.org>

November 10 SPARCFest, Pinellas Park, SPARCFest, admission FREE, tailgate free, Freedom Lake Park, 9990 46th St N, Southeast corner of US 19 and 49th Street, Talk-in on 147.060+ no tone. VE testing at 0900. For more information go to <http://www.sparc-club.org/sparcfest.html>

December 7 & 8 Plant City, the 2018 Tampa Bay Hamfest is the West Central Florida Section Convention, Friday and Saturday, at the Expo Building in the Strawberry Festival grounds, advanced admission \$9, at the door \$10, for information contact Bill Williams AG4QX, chairman@fgcarc.org or go to <http://www.tampabayhamfest.org> or you can just ask me, Jim or Dee at a meeting ;-)

Mid January	Frogman swim in Tampa Bay. http://www.tampabayfrogman.com/
Last full weekend January	Winter Field Day, http://www.spar-hams.org/index.php
Late January	Gasparilla celebration
Late February	West Central Florida Tech Conference http://arrlwcf.org/wcf-special-events/wcftechconference/
March/April	MS Walks
March/April	Mass Casualty Exercises
Late April	Southeastern VHF Society Conference, http://www.svhfs.org
Late April	March For Babies (was March of Dimes) https://www.marchforbabies.org/Registration/Events
Late April	Florida QSO Party
Early to Mid May	BikeMS Citrus Tour bike ride http://www.citrustour.org/register.php
Mid-May	Annual Armed Forces Crossband Test
Mid-May	Florida Hurricane Exercise

Late May	Wormfest
Early June	Museum Ships on the Air
Fourth weekend in June	Field Day
http://www.arrl.org/contests/announcements/fd/	
July 3/4	Midnight Run in Largo
http://www.kiwanismidnightrun.com/	
August	International Lighthouse/Lightship Week
https://illw.net/	
October, 3 rd weekend	JOTA, Scout Jamboree-on-the-AIR (around 14.280MHz)
Early December	ALS bike ride in Walsingham Park
December, first full weekend	Ride & Run With The Stars in Fort DeSoto Park
December, Second weekend	Tampa Bay Hamfest http://www.fgcarc.org/

YOUR WORMHOLE OFFICERS

Bill AG4QX is President and editor of this newsletter, Treasurer is Jim KD4MZL, Paul KA4IOX is the Secretary, Dee N4GD is the Repeater Trustee and Mike K4ZPE is both our club Vice President and webmaster.

YOUR WORMHOLE REPEATERS

442.625 + PL 146.2

146.850 - PL 146.2

The Wormhole repeaters are both now dual mode Yaesu DR-1X. FM analog as always and now Yaesu Fusion, a C4FM/FM digital mode. The repeater crew updated the software on May 3, 2016.

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

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