



The Spirit of '76 and '88



APRIL Newsletter of the Lake Erie Amateur Radio Association 2011

Editor: Ken Kane, KG8DN Publisher: Jeannie St. Marie, KC8MNW



Matt Welch, W8DEC

Amateur Radio is a Hobby... Emergency Service is a Commitment “Matt is Back” with LEARA at Dimitri’s on April 26

With a broader vision of how amateur radio is helping us in new ways to provide for public service and emergency communications throughout our area, **Matt Welch W8DEC**, returns to our LEARA April meeting with more to offer this month!

“We all know that there is no age limit for becoming a licensed ham,” comments W8DEC, “and this means that anyone with a “ticket” can be of help in some important new ways as may be needed in emergencies!”

On Tuesday, April 26th at Dimitri’s, Matt will provide an overview of the Amateur Radio Emergency Service® and how the ARES® Tenth District is one of the most active districts in the Ohio Section. Don’t miss this important follow-up to our recent March meeting!

Dinner will be served at 6:30 PM and the formal meeting will begin around 7:30.

Meetings are open to all interested persons. You may attend without eating, but reservations are required if you do wish to eat. Restaurant service is available only for those who purchase dinner. If you are attending the meeting only, kindly purchase beverages at the bar and bring them to your table.

The dinner menu will consist of Steak, Broiled Boston Scrod, or **this month, Chicken Marsala** for \$16. Note that a **Half-Slab of Ribs** or a vegetable and pasta dish may also be requested as alternatives.

The dinner includes a salad, main course, dessert, coffee or iced tea, and gratuity. (Note that bar service and soft drinks are not included.)

PLEASE NOTE!
RESERVATIONS ARE REQUIRED BY 11:00 A.M. OF THE MEETING DATE.
Please call in your reservation and your menu choice to Marv Grossman, W8AZO, at 440-248-0031.
You can also visit www.leara.org and make your reservation through the club’s website. -AR-



OFFICERS

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Don Raith	N8DJG (SK)
Fred Collins	W8ADW(SK)
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Al Severson	AB8P (SK)

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The *Spirit of '76 & '88* is published monthly except in December. Contributions must be received by the 2nd Sunday of the month (except on months with 5 Sundays and Tuesdays, when the 3rd Sunday will be sufficient.)

Editor: Ken Kane, KG8DN

E-mail: editor@leara.org

Proofreading: TNX to

Marv, W8AZO and Jeff, N8YNR

A lot of you may not know it, but we're RABID baseball fans at my house. The past week or so, the Indians have been winning one after another, and it's been an exciting treat to watch them beat up on the likes of the Red Sox and Mariners. They haven't done it by being flashy, by hitting a ton of home runs, or making fantastic defensive plays. It's been good, solid, basic baseball. Good pitching, good hitting, and a strong sense that the manager, Manny Acta, has developed for how to play this team.

It's gotten me to thinking about ham radio that way. For me, it's always been about the basics. Just do what you enjoy, and do it well. There's no need to have the latest and greatest gear, the fanciest modes, the rig with all the bells and whistles. With the exception of the need for PL on your radio, 2 meter FM requirements haven't changed since I got my ticket in 1977. I guess that's what makes it 'cool' – the radios we used back then are still usable today. How many of you can say that about your car, your computer, your television, or just about any other type of equipment? The guys with the old Collins gear at the hamfests are sure to have a bunch of folks gathered 'round the table, admiring the classics. I guess my point is, even if all you've got is an old beat up mobile radio, you can still be part of the amateur community. Fire up the rig, throw your call out, and see what happens!

As we were preparing this newsletter, David Noeth, trustee and columnist, informed us of the sudden death of his father, DeWitt Noeth, early April 11th. The family requests our thoughts and prayers in his memory.

The Lake Erie Amateur Radio Assn., Inc., **LEARA**, is a not-for-profit [501(c)(3)] organization dedicated to Amateur Radio and Public Service. Club information packets and applications for membership are available from **Marv Grossman, W8AZO, 440-248-0031**, or may be downloaded from our web site at www.leara.org. Annual membership is \$25.00. **LEARA's address** is: LEARA, PO Box 22823, Beachwood, OH 44122-0823.

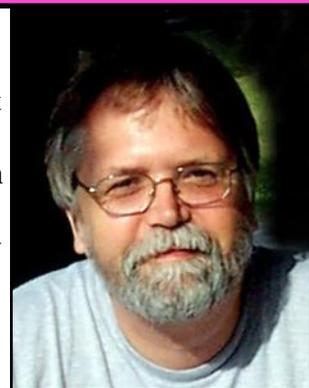
LEARA is an **ARRL**-affiliated club. When you **join or renew** the **ARRL**, **LEARA** benefits monetarily if you so through the club. Send **ARRL** Applications/renewals to Club Treasurer Dave Foran WB8APD, 5439 Nan Linn Dr. Willoughby, OH 44094-4365. Make the check payable to **LEARA**, not the **ARRL**.

Membership Meetings are held the last Tuesday of each month except December at Dimitri's Restaurant, 1830 Snow Rd., Parma, OH (in the Mid-Town Shopping Center, just west of Broadview Road). Dinner is served at 6:30 p.m. The meeting begins at 7:30 p.m. Meetings are open to all interested persons. You may attend without eating, but **reservations are required** if you do wish to eat. Call **Marv Grossman, W8AZO at 440-248-0031** to leave a message.

Trustees' Meetings are on the second Saturday of odd numbered months at 9 AM in a first floor room at the Highland Hills Village Hall, 3700 Northfield Road. Meetings are open to all current members of **LEARA**.

The Prez Says

by Alex Manuk, WD8JMM



(Continued on page 8)

Ron Jakubowski, K2RJ, writes to provide his first
View From the Cape
 in Cape Canaveral, Florida



K2RJ when he was LEARA Trustee

It has now been over three months since Kathy, N2AGQ, and I arrived in Cape Canaveral, Florida, after we successfully dodged snowstorms on our Christmas season trip through Erie, PA, Lowville and Rochester, NY, and Quarryville, PA. Our rental condo was fine, the weather mostly sunny and dry and warm for January! The beach is perfect for walking and the surf temperature ranged from 66 to today's 74.

Radio operation has been from my mobile. **There are several repeaters in the area and the most active one is at the Kennedy Space Center, just a few miles north of us.** Repeater use is low to moderate around drive-time, similar to Cleveland. There is signifi-

cant activity on 146.52 simplex to the south of us in the Melbourne and Palm Bay area. Most of my HF operation has been on the Army MARS 3 and 4 MHz frequencies and the noise level around the condo has been quite low (except when there are thunderstorms in the area!).

After "decompressing" for a few days we teamed up with a realtor and over a three-week period viewed 49 condos along the Atlantic coast beaches from Cape Canaveral south to Melbourne Beach, about 25 miles. We decided on one in the same complex where we are renting, as it is quiet and a few blocks away from the major traffic artery A1A, and is close to all the things that are important to us. Our offer was accepted at the end of January; we closed at the beginning of March. The rest of March was taken up with remodeling (I did the kitchen demolition work, Kathy and I shared the painting, and I concluded installing the baseboards today, April 4. **Tomorrow the moving van is delivering all of our stuff that was put in storage (in Ohio) before Christmas.** The new kitchen should be finished by the end of the week and our new furniture delivered by then as well. We should be living in our own place very soon now.

I've decided to set up the ham shack in the shed which is adjacent to the patio on the ocean side of the condo. Deciding what to do about antennas will be my next project. There is about 15 feet of grass between the condo and a chain link fence where the beach dunes start. There is also a 20-ft. palm tree immediately adjacent to the back of the shed. The condo association rules are silent on antennas, but I still have to be careful what I do within the "common areas". I will probably start with a "Vice Grip" mount for the mobile antenna on the fence. I am also eyeing the palm tree (and a couple of its shorter siblings) for a wire antenna support. Fortunately, being this close to salt water makes for an excellent ground system almost without trying. I'll report progress on the antenna system next month (hoping that the rig still works after it's unpacked!).

73 de Ron, K2RJ -AR-

Volunteer Exam Dates and Locations

from www.arrl.org

04/17/2011

[Elyria OH 44035-1343](#)

Sponsor: Lorain County ARA Red Cross

Location: American Red Cross

Time: 1:00 PM (Walk-ins allowed)

[Learn More](#)

04/30/2011

[Bentleyville OH 44022-3337](#)

Sponsor: WRECS

Location: Bentleyville Town Hall

Time: 9:00 AM (Walk-ins allowed)

[Learn More](#)

05/08/2011

[Independence OH 44131-4841](#)

Sponsor: Cuyahoga ARS

Location: Independence Old Town Hall

Time: 9:00 AM (Walk-ins allowed)

[Learn More](#)

05/12/2011

[Stow OH 44224-4097](#)

Sponsor: Cuyahoga Falls ARC

Location: Stow-Munroe Falls Public Library

Time: 7:00 PM (Walk-ins allowed)

[Learn More](#)

05/15/2011

[Elyria OH 44035-1343](#)

Sponsor: Lorain County ARA Red Cross

Location: American Red Cross

Time: 1:00 PM (Walk-ins allowed)

[Learn More](#)

05/17/2011

[Akron OH 44314-3614](#)

Sponsor: Pioneer AR Fellowship

Location: Akron Baptist Temple

Time: 6:15 PM (Walk-ins allowed)

[Learn More](#)

05/22/2011

[Newton Falls OH 44444-1639](#)

Sponsor: Warren ARA

Location: Newton Falls Community Center

Time: 6:30 PM (Walk-ins allowed)

[Learn More](#)

Upcoming Hamfests

from www.arrl.org

04/16/2011

[Milford Swap and Shop](#)

Location: Highland, MI

Type: ARRL Hamfest

Sponsor: Milford Amateur Radio Club

Website: <http://www.qsl.net/w8ydk>

[Learn More](#)

04/16/2011

[North Central Indiana Hamfest](#)

Location: Peru, IN

Type: ARRL Hamfest

Sponsor: Cass County, Miami County, Grant County, & Kokomo ARCs

Website: <http://www.nci-hamfest.net>

[Learn More](#)

04/16/2011

[Drumlins ARC Hamfest](#)

Location: Newark, NY

Type: ARRL Hamfest

Sponsor: Drumlins ARC

Website: <http://www.drumlinsarc.org>

[Learn More](#)

04/23/2011

[Jackson County ARC Swap](#)

Location: Jackson, OH

Type: ARRL Hamfest

Sponsor: Jackson County Amateur Radio Club

Website:

<http://jacksoncountyarcs.org/index.html>

[Learn More](#)

05/01/2011

[Athens Hamfest 2011](#)

Location: Athens, OH

Type: ARRL Hamfest

Sponsor: Athens County Amateur Radio Assn.

Website: <http://ac-ara.org/>

[Learn More](#)

05/20/2011

[Dayton Hamvention](#)

Location: Dayton, OH

Sponsor: Dayton Amateur Radio Association

Website: <http://www.hamvention.org/>

[Learn More](#)

LEARA "On The Air"

Club Net Information by David Noeth, KD8ACO

As you have probably heard by now, AI8M's Swap-N-Shop Net has moved to the LEARA 146.76 repeater on Tuesdays at 7:30 PM local time. Since the NORMA 147.015 repeater is down for repairs, Tony was invited to move the Swap-N-Shop Net to the LEARA repeater, in order to keep the net active and on the air. Please give Tony and all of the Swap-N-Shop Net participants a warm welcome. Remember: Member participation in each and every net is greatly appreciated.

Wednesday Skywarn Practice Net

Skywarn practice nets have now returned on the 146.76 (- offset, 110.9 PL) repeater and will continue on Wednesday nights at 8:00 PM local time until the last week in October. Everyone is welcome! The 146.880 (- offset, 110.9 PL) repeater is used as a backup. Skywarn nets may be activated on one of these repeaters anytime threatening weather is approaching.

Thursday Club Net

The Lake Erie Amateur Radio Association's weekly club net is held every Thursday evening at 8:00 PM local time on the 146.76 (- offset, 110.9 PL) repeater. This is an open and informal net intended to provide the opportunity to test radio equipment, promote fellowship among local amateur radio operators, and develop radio traffic handling skills. You do not have to be a member of LEARA to participate.

Since the club net is a practice and informal net, LEARA would like to recognize those who take the time to check in and keep the net active and alive. During the past month, the weekly Thursday Night Club Net had a total of one-hundred and nine (109) check-ins from fifty-seven (57) different stations. The following were reported by our net control stations to have participated:

Bill AC8CO, Bill AC8IH, Arp K8ARP, Mike K8EHP, Jeff K8JTK, Bob K8QXO, Bill K8SGX, Terry K8TJM, Fritz K8WLF, John KA8GZA, Bill KA8VIT, Mark KB8FKM, Ross KB8JTZ, Alan KB8KHW, Jeff KB8PIH, Leone KB8VBR, Carl KB8VXE, John KC8FOC, Mark KC8FQV, Jeannie KC8MNV, Jeanne KC8TJH, David KD8ACO, Eddie KD8FIS, Roy KD8JMO, Sean KD8KDB, John KD8MUF, Jim KD8OFJ, Mark KD8OLG, Steve KD8OLH, Joe KD8PFB, John KD8PJE, Bruce KD8PTU, Ken KG8DN, Don KJ5KB, Eric N8AUC, Dave N8ILQ, Bryan N8OOF, Bob N8ORC, Tom N8UAZ, Bill N8UPZ, Dave N8UUC, Jim N8XDO, Bob W2THU, Ray W8ADV, Ernie W8AJZ, Matt W8DEC, Carl W8KRF, Larry W8LOO, Stu W8STU, Tom W8TAB, Tony WA8FYW, John WA8LGM, Al WA8OZC, Gary WA8TJL, Dick WA8TPP, George WD8GEO, and WD8JMM Alex.

Net Control Stations: Bill AC8CO, Ken KG8DN, Eric N8AUC, Bob W2THU, and Matt W8DEC.

Upcoming NCS assignments are:

4/21/11	Eric	N8AUC
4/28/11	Matt	W8DEC
5/5/11	Eric	N8AUC
5/12/11	David	KD8ACO
5/19/11	Ken	KG8DN
5/26/11	Matt	W8DEC

The feedback received from members regarding the Thursday Club Net promotion has been very encouraging. This promotion encourages participation in both the weekly club net, as well as, the monthly LEARA membership meetings. Specifically, any individual who checks into the Thursday Club Net during a given month will be given one extra door prize ticket at the following month's LEARA club meeting. This extra door prize ticket will be given in addition to any other door prize tickets the individual has already been given. Participation in only one net during the preceding month is required. Participation in the monthly meeting is obviously required.

Friday SSTV Net

The Lake Erie Amateur Radio Association's weekly slow scan TV net is held on Friday evenings at 7:30 PM local time on the 146.880 (- offset, 110.9 PL) repeater. Net Control Stations for the SSTV Net are needed, in order to keep this net active and on the air. Please let me know if you are interested. Since this net has seen a recent increase in participation, the net is going to continue into the summer on a trial basis. It might be sporadic (like 6 meters, hi hi), but please do try to participate, if you can, when you hear it on the air.

Wanted! Net Control Stations

We now have six Net Control Stations for the Thursday evening LEARA Club Net. There's always room for more stations who would like to give it a try.

Any member of the Lake Erie Amateur Radio Association can be a net control operator for one or all of the nets held on one of the club's repeaters. Never tried it you say? No problem. Now would be a really good time to start. It's as easy as getting in touch with me and we'll schedule you into the weekly rotation.

If you should have any questions or requests for assistance to get started, just contact me at one of our club meetings or by using any of my contact information in the membership directory or send me an email at kd8aco@leara.org. Hope to talk with you "on the air" soon!
de KD8ACO -AR-

Calendar Preview—Feed Your Phone or PDA!

For Details Email the Contact Person—Offer to Help if you Can

Date	Name	Contact	Email
April 26, 2011	LEARA Meeting-Dimitri's—ARES®	Marv W8AZO	MarvG@roadrunner.com
May 15, 2011	Cleveland Marathon—Downtown Cle.	Jim KC8PD	AylwardJim@aol.com
May 31, 2011	LEARA Meeting-Dimitri's—AMSAT	Marv W8AZO	MarvG@roadrunner.com
June 25-26, 2011	LEARA Field Day Mtg.-Lakefront SP	Eric N8AUC	N8AUC@yahoo.com
July 16, 2010	Great Lakes Emcomm Conference	Matt W8DEC	W8DEC@arrl.net
July 26, 2011	LEARA Picnic—Morgan's Hollow	Marv W8AZO	MarvG@roadrunner.com
August 7, 2011	Cleveland Triathlon—Downtown Cle.	Tom KA8BZB	KAeightBZB@att.net
August 13-14, 2011	MS Pedal to the Point—Berea	Jeff N8YNR	Jeff@cia.net
August 30, 2011	LEARA Meeting-Dimitri's-WA8TJL	Marv W8AZO	MarvG@roadrunner.com
September 10, 2011	Race for the Cure—Wolstein Center	Leone KB8VBR	KB8VBR@yahoo.com

Following dinner on Tuesday, March 29, 2011 the LEARA assembly takes a...



Alabama High Schools Successfully Launch High Altitude Balloon

By Ed Tyler, N4EDT

<http://www.arri.org/news/alabama-high-schools-successfully-launch-high-altitude-balloon>

The Pell City and St Clair County High School's joint balloon launch was a great success. The balloon was launched from the St Clair County Airport in Pell City, Alabama into a brisk wind at 2PM on April 2. The balloon carried a variety of experiments ranging from materials, plastic sticks, silly putty, several varieties of seed, batteries, film and cameras, radio location equipment and a radio beacon announcing the balloons flight, as well as a collection of worms. The worms were given physicals by a St Clair County High School science class prior to the flight. They returned home in apparent good health and have made reservations for the next flight.

The balloon made a rapid and steady ascent to 94,449 feet and, after bursting, landed near Woodbury, Georgia. The balloon landed in the middle of an open field and was quickly retrieved by Amateur Radio operators from the Auburn/Alexander city area. The packaging for the flight was new; it was inspected after landing. It was determined that the Styrofoam capsule and the nylon jacket had survived in excellent condition. This flexible packaging allowed for up to six experiments to be safely packaged together for flight.



The view from the high altitude balloon that was jointly launched on April 2, 2011 by Pell City High School and St. Clair County High School. Both schools are in Alabama. The balloon reached a maximum altitude of 94,449 feet before bursting over Georgia.

The mission goals -- launching and retrieving the experiments, improving the packaging and launch operations -- were achieved. Future launches will seek to involve more students, improve the launch procedures and to expand the variety and quality of the experiments lofted into near space.
-AR-

...short break as screen and projector get set for the APRS talk by W8DEC.



(Continued from page 2)

might prove to be another mode to add to the ever-growing list of things you can do with ham radio.

The Prez cont.

Matt joins us again this month to talk about ARES. ARES has developed rapidly in Cuyahoga county, and promises to be amateur radio's first line of assistance in the event of a disaster or emergency. Even if you're not involved in ARES, it will be interesting to hear how it has evolved in the past couple of years, and get an idea of what the plans are for the future. ARES is one of LEARA's 'served agencies' – our repeaters are a part of their emergency plan, so we work closely with them whenever we can.

Well, that's all I have this evening. I look forward to seeing many of you at this month's meeting, and until then...

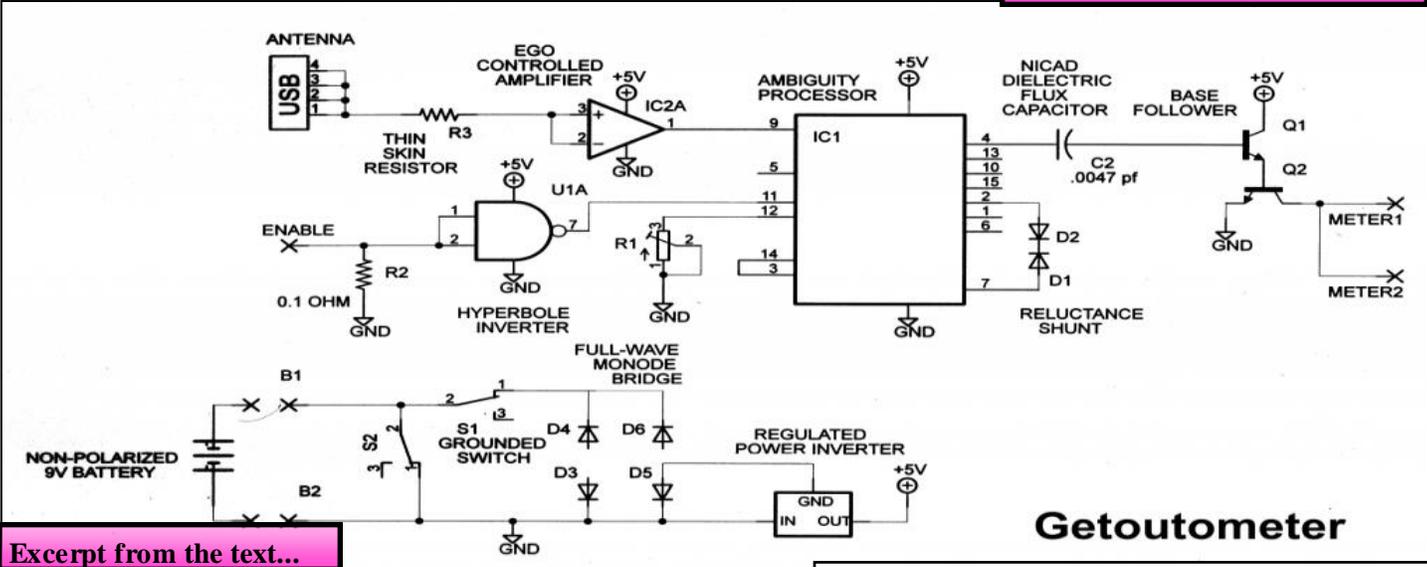
GO TRIBE!!!

73 de WD8JMM -AR-

Got (Way Too Much) Time on your Hands? Construct the Getoutometer* from KA6BFB's Design <http://www.arrl.org/the-getoutometer>

A group of our “left coast colleagues,” W6NBC, KA6BFB, W6ND, irked by SHEs (Silly Ham Expressions such as “How am I getting out?”) have pondered responses. Study the following schematic and illustration VERY carefully and begin when all materials have been acquired:

* pronounced “Get Out AHM eter”



Excerpt from the text...

Getoutometer

Build a Getoutometer for yourself and see if doesn't make you feel better. If not, take two surface mount chips and call me on 40 meters in the morning. Technically, the Getoutometer must be built from junk box parts. I especially dislike ham articles that do this, but in this one case I'll make an exception. I think you will be able to figure out why.

What is a Getoutometer? Electronically it is a sophisticated circuit that employs nonlinear differential retroencabulation to ambiguously evaluate your antenna — on the air. The unique IC employs adaptive cross-coupled error correction. And where do you get one? I already told you — from your junk box.





LEARA TRUSTEE, Jeff K8JTK (far right) “invades” the TMRA Hamfest March 20th
 Jeff is joined by Bob N1RB, Linda N1LB, Bob WB8NQW, Craig KD8NJZ and Don K8OVO

“It was really more of a reunion than an invasion,” comments Jeff, K8JTK. “I attended Bowling Green State University (BGSU) for my first few years of college.” When researching schools, one of the things Jeff did was look for ham radio clubs on the college campus or in the area, and on doing so he came across the Wood County Amateur Radio Club.

“One of the club trustees, N1RB (at left above), gave me some background on the club, with the frequencies of the club repeaters, 147.180 and 444.475, housed on the campus at BGSU. The rest is history.”

Jeff became acquainted through ham radio with a number of the club members who also served as profs or staff members at the university. “A few years later, I became the webmaster for the club,” located at a site which is still maintained: <http://wcarc.bgsu.edu>. –AR-

K8JTK is now the webmaster for www.leara.org.

Student LEARA Members Get Gilmour Academy ND8GA Sixth Place During October School Club Roundup

School Club Roundup October 2010 Scores

K5LBJ	SCHOOL	SENIOR HIGH	133,518
WB4HS	SCHOOL	SENIOR HIGH	54,116
W4FOS	SCHOOL	SENIOR HIGH	28,905
WM4MS	SCHOOL	SENIOR HIGH	25,270
K9SOU	SCHOOL	SENIOR HIGH	25,270
ND8GA	SCHOOL	SENIOR HIGH	21,679
NQ9P	SCHOOL	SENIOR HIGH	11,021
W4CHS	SCHOOL	SENIOR HIGH	8,844
KF5FMZ	SCHOOL	SENIOR HIGH	8,080
W0AO	SCHOOL	SENIOR HIGH	5,445



John KD8PJE and Alex KD8OQB run ND8GA

During the week of October 18-22, 2010, Gilmour Academy’s amateur station, ND8GA, participated in the semi-annual School Club Roundup, contacting stations in 36 States & Provinces, and 16 countries. KG8DN credits several LEARA members for supporting the school club.

As the Jet Propulsion Laboratory (JPL) builds the next Mars rover -- this one is named *Curiosity* -- to deploy to the red planet in the fall of 2011, they're

having a little fun with it. Back in 2007 when the *Curiosity* team was putting together the rover, its wheel cleats had a raised pattern with the letters "JPL," leaving a little stamp of the rover's birthplace everywhere it rolled. "At the time, I asked whether the real rover would have those wheels, and they said, no, they weren't going to get to advertise JPL with each turn of each of the rover's six wheels; the real rover would have some other pattern," said Emily Lakdawalla of [The Planetary Society](#) in her [blog](#). Lakdawalla is the organization's Science and Technology Coordinator.

Lakdawalla said that there is nothing special about the shapes of the markers in *Opportunity*'s wheels; they are just square holes through the wheels through which the wheels were bolted to the lander during cruise and landing." *Opportunity* is the name of the rover that went to Mars back in 2003. "But *Curiosity* didn't need holes in its wheels for attaching to any lander -- there isn't one. **So the engineers got to make the markers in any shape they wanted to.**"

But in March 2011, she saw a [video](#) of the rover as it is today: "I had to chuckle at those 'visual odometry markers' [on its tires]. Before I explain why, I'll point out that they really are useful things to have in rover wheels. The repeating pattern of the 'visual odometry markers' makes it fairly easy for both the rover and human operators to determine visually how far the rover has roved using rear-view imagery."

So what pattern did JPL choose to put on *Curiosity*'s wheels? One that Lakdawalla called "very amusing. The holes are in a **pattern of short squares and longer rectangles** -- almost like dots and dashes. Morse code."

And what does it spell out in Morse code?

J [. _ _ _] **P** [. _ _ .] **L** [. _ . .] (Letter by letter from bottom to top on wheel.)



According to JPL, *Curiosity* is about the size of a small SUV -- 10 feet long (not including the arm), 9 feet wide and 7 feet tall -- or about the height of a basketball player -- and weighs 200 pounds. It features a geology lab, rocker-bogie suspension, a rock-vaporizing laser and lots of cameras. *Curiosity* will search areas of Mars for past or present conditions favorable for life and for conditions capable of preserving a record of life. It is set to launch between November 25-December 18, 2011 from Cape Canaveral, Florida and will arrive on Mars between August 6-20, 2012. The prime mission will last one Mars year, or about 23 Earth months.

-AR-

LEARA — The Lake Erie Amateur Radio Association

- 41 Years of Serving Greater Cleveland Since 1969 -

VOICE REPEATERS:

- | | |
|----------------|--|
| 146.76/R- | • Highland Hills (Requires 110.9 Hz tone) |
| 146.88/R- IRLP | • Lakewood (Requires 110.9 Hz tone) IRLP Node 4282 |
| 224.90/R- | • Lakewood (141.3 Hz tone) |
| 444.40/R+ | • Macedonia (Requires 131.8 Hz tone) |
| 444.70/R+ | • Lakewood (131.8 Hz tone) |

PACKET NODES: CLE1 145.01 MHz: CLE5 145.05 MHz: CLEV220 223.70 MHz

These nodes are part of the Cleveland Net Cluster in K8EIW's backbone system.

INTERNET:

- www.leara.org
- To subscribe via e-mail, send a message to: spirit76-request@leara.org
Put *subscribe* in the subject area and your *name* and *callsign* in the body.
Those who subscribe via e-mail will not receive a paper copy.