

SEPTEMBER 25, 2013 No.381

# THE BARN

## SEPTEMBER MEETING

The Beaumont Amateur Radio Club will hold this month's meeting, at 7:30 PM Monday, September 30, 2013 at North End Baptist Church, 5115 Eastex Freeway at Odom Road in Beaumont. This month's meeting will feature a presentation MARS (Military Auxiliary Radio System) by Randy Leftwich, KE5YLY.



Affiliated Club

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### BARC WEBSITE

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## HURRICANE SEASON IS HERE Keep An Eye on the Sky

*INVITE A YOUNGSTER INTO AMATEUR RADIO*

### "HAM HAPPENINGS" (Special Edition) UNEXPECTED BALLOON LAUNCH Launch Schedule Suddenly Changed Event Proclaimed Historic



Richard ..... KA5IQX

August 21, 2013

In a move that took local "hams" by surprise, the Balloon Launch Team suddenly changed the launch schedule ... moving it ahead by several weeks ... and announced yesterday that the launch had taken place two days earlier. Per L. B. ( WBSYDA ) ... the decision was made in order to take advantage of perfect atmospheric conditions and jet stream predictions. He also noted that the moon was in the seventh house, and Jupiter had aligned with Mars. Rich ( N5ALE ) said another factor in the decision was that his horoscope for that day suggested that he "Do something bold and unexpected."

This was by far, the most ambitious launch yet. In the beginning the intent was to expand the payload slightly by adding a couple of pieces of equipment that had not been part of the package in previous launches. However ... as the project moved forward, it became clear that they were going to attempt something that had never been done before... and that was to launch an entire "HamShack" , complete with a Kenwood 590 HF-6 meter radio ... an Icom 2200H 2 meter radio .. a 2000 watt generator ... a "BuddiPole portable antenna ... a 600 watt amplifier ... an LDG tuner ... two video cameras and ( this is the most revolutionary part ) ... an actual "ham" operator.

It took some convincing, but finally, WBSOCV ... Morris ( Also known as Maurice ... Mo .... and "Hey You" ) agreed to go up with the balloon, and radio his position, height and estimated speed at regular intervals .. thus eliminating the need for an APRS-GPS device . ( We're told that by removing the APRS-GPS, it lowered the overall weight of the package by at least 1.2 pounds, which was critical to the success of the launch.)

Morris made several radio contacts with a few "hams" on the ground, and his reported altitudes were much higher than anything else on record. During one of his last transmissions, before the Ground Control Team lost contact with him, he said .. "Wow, the space station sure is bigger than I thought it would be."

Knowing that Morris was likely to reach extremely high altitudes, the Launch Team ... ( in an effort to counteract the lack of oxygen and the cold temperatures ) provided him with two old milk bottles full of air ... and a windbreaker donated by "Joe-Bob's Party Shop and Dental Surgery Center". We hope to regain contact with Morris very soon, and the Balloon Launch Team requests that ... in your free time ... listen for Morris on the 146.52 direct 2-meter frequency. In the mean time ... "Ham Happenings" offers hearty congratulations to the Launch Team, and to you too Morris ... wherever you are.



"Ham it Up".  
Richard, KA5IQX

# CLUB NEWS:



## CLUB PATCHES FOR SALE \$5.00 each

**Our Club Net is on Thursday Evening at 8:00pm on 146.700, - offset, pl:107.2  
W5RIN EchoLink Available for Check In**

**The 146.760 Machine has been disconnected from the Lynx and SaltGrass until further notice, and is acting as a stand alone repeater. The 444.700 Machine is out for repair.**

**Next Beaumont Club Meeting is Monday, September 30, 2013 @ 7:30 pm**

**CLUB ELECTIONS LOOMING – Start thinking about who you would like to see leading YOUR CLUB – Nominations in November, Elections in December**

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### UPCOMING PUBLIC SERVICE EVENTS

October 05	Beaumont Fire Prevention and Family Safety Festival
October 18, 19, 20	BSA Jamboree on the Air
October 26	Texas ARES SET
November 02	Winnie Survive, WWII.5, 'Retribution'
November 09	Gusher Marathon-Pleasure Island

### OTHER UPCOMING EVENTS

September 07	Gainesville HamFest 2013
October 05	Belton HamFest
October 19	JCARC Tailgate Sale and VE TESTING
November 09	Azle, TX NC Tech Hamfest 2013

Fellow Hams,

Last year I started teaching a class on basic electronics. I underestimated the level of understanding of electronics by those in the class so interest was rapidly lost by many in attendance. I have been asked over the last several months by some fellow hams when I am going to start the class again. If there is any interest in my starting the class again I would like to know. If the class is restarted I will start all over and go more slowly covering everything until everyone understands the material. If there is an interest please let the JCARC president or vice president know and I will be glad to set a date for restart. Once again it will be on a Saturday or maybe a Sunday.

Thanks,

Carey WB5VFG

This Month's Definition: **CAPACITANCE**

Capacitance is the ability of a component to store electrical energy in an electrostatic field.

The device which does this is called a CAPACITOR.

Without this ability to store electrical energy radio communications would not be possible.

Basically a capacitor is two conductors separated by an insulator. The insulator is called the *dielectric*.

The larger the plate area and the smaller the spacing between these plates, the higher the capacitance. The capacitance also depends on the insulating material between the plates. Air is the lowest but substituting materials such as mica, glass, mineral oil or aluminum oxide will tend to increase the amount of capacitance.

Capacitance is measured in micro-farads and pico-farads.

In reality capacitors have more than two plates. This makes it possible to obtain a fairly large capacitance in a small space.

Capacitors have many applications in radio circuits. For more information on capacitors and how they are used in radio circuits please refer to the ARRL handbook.

Next month: Inductance

**PLEASE JOIN US FOR BREAKFAST ON SATURDAY MORNINGS FROM 7:30 TILL at DAIRY QUEEN ON PHELAN BLVD & 23rd, BEAUMONT**

## "HAM HAPPENINGS"

## TRAFFIC CLASS ..... ( No Speeding Tickets Involved )



### Richard ..... KA5IQX

As is typically the case, local "ham" operators have been busy assisting with communications for community activities such as the 5K run, which was held at the Causeway Bridge on Pleasure Island on August 24th ... and was followed by the Youth Fishing Tournament in La Porte, Texas on Sept. 14th. As always, "ham" participation in these events helps things to run smoother ... and most importantly, it enhances the "safety factor" for everyone involved. So thanks to all of you who continue to donate your time and equipment for community service. It's not only helpful for the event being worked, but it's also good training for any future emergency where "ham" communications might be needed.

Besides those events, Southeast Texas "hams" also had an opportunity to participate in a "Traffic Handling Class" presented by "7290 Traffic Net" manager, Jo Ann Keith. ( KA5AZK ) This took place on Tuesday, Sept 10th, at the Bevil Oaks Community Center, and was also attended by Carman Apple, who is a District Coordinator for the Emergency Management Division of the Texas Department of Public Safety. Before the meeting began, I struck up a conversation with Carman, and was telling her all about my "ham" radio accomplishments ... and how I was known as the "Texas Satellite King", because of my numerous satellite communications awards, certificates, trophies, and cash prizes ... and how I had recently been inducted into the "Satellite Hall of Fame"( Which is located in a Morgan Portable Building in my back yard.)

As the conversation progressed, I was telling Carman about the time I was able to earn my "Worked All States" award by using my 2 meter hand-held radio, while standing at the end of a fishing pier on Lake Rayburn. It was at that point that I noticed she had dozed off. I tapped her on the shoulder, and she awakened with a jerk. ( I think it was me ) She looked at me, grabbed her radio from her hip, and called for "back-up". I decided right then and there ... it was time for me to head back over to the cookie trays, since she didn't seem interested in hearing about my "Worked All Pastry Shops" award.

For those who have never been involved in official "Traffic Handling" ... it was a very informative meeting ... and it provided an overall picture of how official messages can be delivered using the 40 meter band. (7.290 MHz ) The net is run in a carefully structured and professional manner, and can be quite effective in getting important information to the intended recipient. Message types are broken down into several different categories. ( "Emergency" ... "Priority" .... "Health and Welfare" .... and "Routine" )

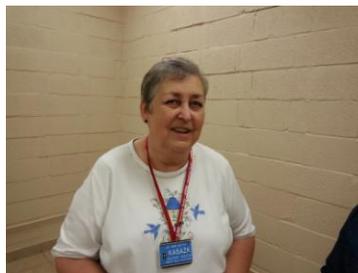
Jo Ann decided to send us a quick "test" message at the end of the session, to be sure that we had learned the proper message handling procedures. From what I can tell, I did quite well. Ok ... ok .... I got the recipient wrong ... ( Apparently the message was not addressed to the "Loni Anderson Fan Club" ) And yes, it's true that I used an incorrect message category. ( It seems that "Emergency Routine" is not one of the options ) But, I did manage to write down the entire main text of the message. I must admit there was some confusion as to what message was actually sent ... and while I hate to point out the mistakes of someone else ... it's pretty clear to me that Jo Ann really messed up on her message sending. She claims to have sent the following ..... "Emergency water trailer at corner of Market and Rita Lane .. need refill ASAP."

While I don't doubt her intent, I clearly received the message as follows ..... "Emergency ..... Water traded for margaritas ..... need refill ASAP". But hey ... I shouldn't be too hard on her. I'm sure she'll improve after she gets a little experience.

It was a very good class ... and we all want to thank Jo Ann for making the long trip down here from Gilmer, Texas. ( Northwest of Longview ) I'm sure everyone learned a lot, and hopefully at least a few "hams" who attended will become involved in the "7290 Traffic Net" ... and will be able to offer their services to the net ... especially during an emergency situation. Thanks Jo Ann .... it was really nice to meet you. And your class gave all of us yet another opportunity to do what we like to do the most ... which is to ...

"Ham It Up".

### Richard ..... KA5IQX



### From The Jefferson County Club

*The Jefferson County Club will have their next meeting on October 8<sup>th</sup> at the Community Center at the Clubhouse, 216 10<sup>th</sup> Street at Boston Ave, Nederland, Texas. The JC ARES Meets on Thursday October 17<sup>th</sup> at 7:00pm at the Club House. Still have several Public Service events to work, so please feel free to jump in and help. ALL ARE INVITED!!! Our Club Net is on Wednesday evening at 8:00 pm on 145.470 neg offset with pl tone of 103.5. The Mid and South County Ham Operators get together for breakfast on Saturday Mornings at the Magnolia Cafe on Hwy 366 in Port Neches. Please come join us. Check out our website at: [www.w5ssv.com](http://www.w5ssv.com) and [www.qsl.net/w5ssv](http://www.qsl.net/w5ssv).*

### From The Orange County Club

*The Orange Amateur Radio Club will have their next meeting on October 4<sup>th</sup> at the Red Cross Chapter House in Orange at 3901 IH10 East at MLK. ARES Meeting Starts at 6:30 pm and the Club Meeting Starts at 7:30 pm. PLEASE JOIN US!!! Our club net is DAILY at 6:30pm on 147.180 positive offset with a pl tone of 103.5. Remember "CQ at the DQ", our HAM Radio Breakfast Meeting at the Dairy Queen on Strickland Dr. in Orange on the THIRD Saturday of the month at 8:30am. Hope to see you there!!! Check out our webpage at: [www.qsl.net/w5nd](http://www.qsl.net/w5nd).*

### From The Big Thicket Club

*The Big Thicket Amateur Radio Club will have their next meeting on October 1<sup>st</sup> at the Kountze Fire Station on East Deer and South Beach Street in Kountze at 7:00pm. This month's program is "The Attack of the Sun" PLEASE JOIN US !!! Our Club Net is on Thursday evenings at 7:00pm on 145.230 neg offset, pl tone 103.5. EchoLink is available for use. Check out our webpage at: [www.qsl.net/btarc](http://www.qsl.net/btarc).*

### From The Lakes Area Club

*The Lakes Area Club will have their next meeting on Thursday, September 27<sup>th</sup> at the Bell Field, Jasper Airport in Jasper at 7:00pm. PLEASE JOIN US !!! Our Club Net is on Tuesday Evenings at 8:00pm on 147.000 neg offset and pl tone of 118.8. EchoLink is available for use. Please check our webpage at: [www.w5jas.org](http://www.w5jas.org)..... For the latest info.*

### From The Tyler County Amateur Radio Association

*The Tyler County Amateur Radio Association meets the first Thursday at 7:00pm at the Woodville Emergency Center located at 201 Veterans Way. Turn at the light by Brookshire Bros Grocery Store and you will see the building. It runs parallel to Hwy 69. Next meeting will be October 3<sup>rd</sup>. For more info Contact Nick, AE5VV at [ae5vv@arrl.net](mailto:ae5vv@arrl.net). PLEASE JOIN US!!!! We will be doing an ARES net on the First Monday of the Month on the Jasper Repeater at 7:00pm. Please check in with us.*

### From The QCWA

*We meet the third Saturday each month at noon at Baytown Seafood on Hwy 347 just north of Hwy 73 in Groves. Meetings are very informal and usually involve a "show and tell" about some kind of old radio equipment the members have in their collections. You don't have to be licensed 25 years to attend the local meetings, as is required for National QCWA membership.*

### From The LCM SCHOOL RADIO CLUB

*School is out for summer. If you have any more questions, just let me know. John Nichols, KF5LPY.*

## From the ARRL:

### **Youth: Amateur Radio Goes to College**



Many electronics and communications industry engineers and managers got their start with Amateur Radio, which provided hands-on, system-level experience that proved valuable in their professional lives. Through hours spent in radio clubs crackling with activity, ham radio stayed right with them through their college and university studies. Things are a bit different today, but academia is making room for -- and use of -- Amateur Radio in the classroom and lab. This was plain at the 2013 [International Microwave Symposium](#), held in early June in Seattle. The event drew more than 12,000 engineers, educators and students, among them for the first time representatives of the ARRL. At this "World Series of RF," topics and systems covered frequencies from 500 kHz through several hundred gigahertz.

One college-level program using Amateur Radio is at the University of Colorado. Led by Professor Zorana Popovic, ACØXJ, students gain experience with real RF by obtaining their ham tickets and building a NorCal 40 QRP transceiver. This provides the students with the practical experience of building, troubleshooting, and using radio communication systems in a way textbooks and simulation cannot. At the IMS, a University of Colorado team won the "wireless harvesting" competition by 7 dB. The goal of the event was to extract power from RF fields at 915 MHz and 2.45 GHz with a field strength of about  $1 \mu\text{W}/\text{cm}^2$  and power a 2.2 k ohm load.

At McGill University, Zorana Popovic's daughter Nina Popovic, KDØPJI, is exploring dielectric mirrors in the terahertz region, using silicon instead of the usual metal surfaces. She is experimenting with curving the surface and attempting to determine radiation and scattering patterns while struggling with the lack of test equipment at these frequencies. Nina Popovic has been into electronics since she was in single digits, and was even doing her own soldering at the age of five.

Another example is a liquid metal antenna array by Andy Morishita, WH6DUG, of the University of Hawaii-Honolulu. A master's degree student, Morishita is the communications lead for the university's upcoming [Ho'oponopono CubeSat](#) launch later this year. His reconfigurable Yagi-Uda monopole arrays at 2 to 4 GHz used tubes of GaInSn -- a liquid metal alloy -- to form antennas and filters.



Competition at the IMS event  
[Ward Silver, NØAX, photo]



Part of the IMS poster  
competition Ward Silver, NØAX,  
photo]

and commercial sponsors supervised [student design competitions](#) at the event. Read [more](#). -- *Thanks to Ward Silver, NØAX*

From the many professional visitors to the ARRL booth, a consistent message was received loud and clear, said Ward Silver, NØAX, an engineer and ARRL contributing editor, who attended the event. "Senior-level professionals frequently noted that to contribute in industry, graduating engineers need more practical and system-level experience of the sort that can be provided by Amateur Radio," Silver recounted. The need for experience RF personnel on all levels is urgent, he pointed out, and industry professionals "were very encouraged to see the ARRL in attendance at the conference and urged us to attend future IMS conferences."

The IEEE is getting behind its own initiative. The Microwave Theory and Techniques (MTT) Society Technical Committee for HF/VHF/UHF Technology has agreed to form a sub-committee led by Rick Campbell, KK7B, at Portland State University, and IEEE Fellow Robert Caverly, WB4PWZ, at Villanova, to help promote Amateur Radio within the post-secondary academic environment. Other MTT Society technical committees

# Say "HI" to Juno!



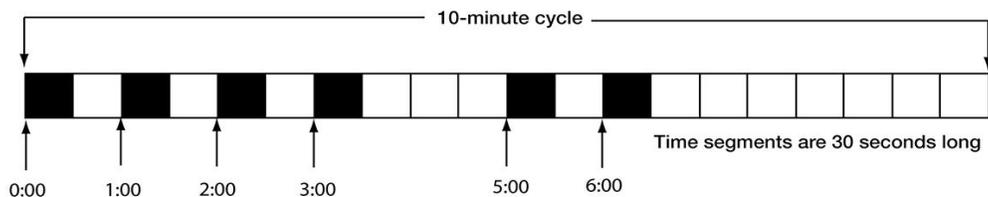
## What is this?

NASA's Juno spacecraft will fly past Earth on October 9, 2013 to receive a gravity assist from our planet, putting it on course for Jupiter. To celebrate this event, the Juno mission is inviting amateur radio operators around the world to say "HI" to Juno in a coordinated Morse Code message. Juno's radio & plasma wave experiment, called Waves, should be able to detect the message if enough people participate. So please join in, and help spread the word to fellow amateur radio enthusiasts!

This page will be updated with additional information as the event approaches.

## How do I participate?

1. Find your transmit frequency in the table at right. The frequency to use is assigned based on the last letter of your call sign.
2. If you have a directional antenna (Yagi), determine the headings to use during the event. The map below and a list of major cities (to be posted here soon) are provided to assist in determining your headings.
3. Visit this web page on October 9. The activity will begin at 18:00 UTC on October 9, 2013 and continue until 20:40 UTC. This page will clearly indicate when you should key up or key down to transmit "HI" to Juno in Morse Code. The graphic below can also act as a guide. The "HI" message will be repeated every 10 minutes, beginning at 18:00, 18:10, 18:20, etc.

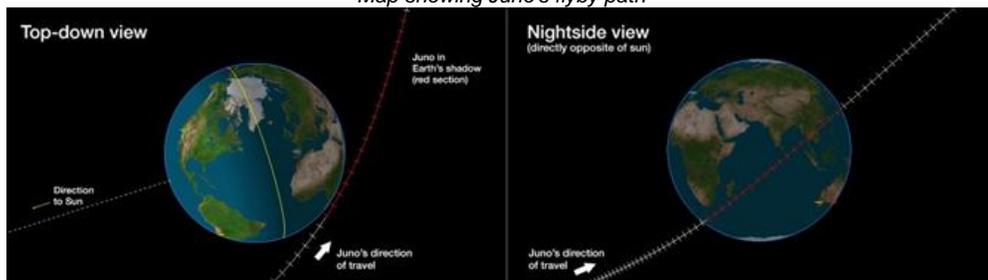


If you participate and would like to receive a **QSL card** for contacting Juno, please send an email with your call sign and mailing address. Cards will be sent to participants who email this information in the months following the event.

*Important:*

- Please make sure your computer clock is synchronized to network time prior to this event.
- All transmissions must follow local and national regulations (FCC or the appropriate governing authority), regular ID, etc.
- Please insure adequate cooling and operate your equipment within safe operating limits. While the event's success depends on the maximum possible radiated power, NASA, Caltech/Jet Propulsion Laboratory and institutions affiliated with the Juno mission cannot be responsible for the safe operation of your equipment. Settings for modes such as RTTY or FM which use a constant power output would be appropriate.

Map showing Juno's flyby path



Map showing Juno's ground track.



### Map Notes:

- Operators with directional antennas should use this map and a list of reference cities (coming soon) to help determine their transmit heading.
- Juno is directly above the indicated tick marks at the times they represent.
- Within  $\pm 30$  minutes around closest approach (c/a), tick marks are spaced 1 minute apart.
- For times  $>\pm 30$  minutes around c/a, tick marks are spaced 5 minutes apart.
- Red section of Juno's path is the 20-minute period when the spacecraft is in Earth's shadow.
- Cities named are NASA & ESA Deep Space Network ground stations.

Last Letter of Your Call Sign	Frequency to Use (MHz)
A	28.001
B	28.019
C	28.037
D	28.055
E	28.073
F	28.091
G	28.109
H	28.127
I	28.145
J	28.163
K	28.181
L	28.199
M	28.217
N	28.234
O	28.252
P	28.270
Q	28.288
R	28.306
S	28.324
T	28.342
U	28.360
V	28.378
W	28.396
X	28.414
Y	28.432
Z	28.45

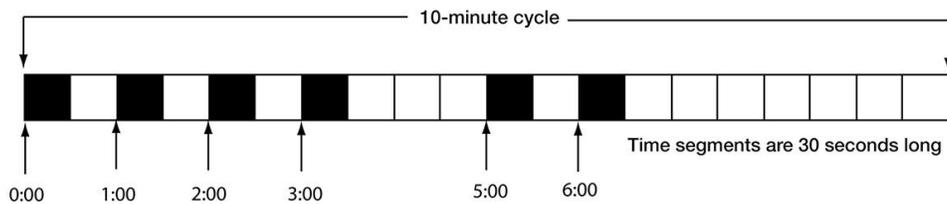
## Technical FAQ

### What if I have questions?

Email [juno\\_outreach@jpl.nasa.gov](mailto:juno_outreach@jpl.nasa.gov) with any questions. The Juno team will reply as quickly as possible. (Important topics may be added to this FAQ as a result of your questions.)

### Tell me more about the message we are transmitting to Juno.

The "HI" message will be transmitted in Morse code with a dit (or key-down) time of 30 seconds. Sending HI at 1/25th word per minute works out to six 30 second key down intervals in 10 minutes. Participants may transmit for the full 2 hour, 40 minute duration of the activity, or just part of it. See the sketch of the message.



### Why have you chosen this specific time period for the activity?

The Juno spacecraft will be within a distance of 50,000 kilometers from 18:00 to 20:40 UTC, and the Waves team has determined that Juno has the best chance of detecting the "HI" signal at this range.

### Why are you not using a single frequency? Why must I select from a list of frequencies?

Juno will have a better chance of detecting the signal from many operators if the signal is spread out across the spectrum. The Juno Waves instrument is a broadband receiver, and the detector being used for this event has a band width of 1 MHz. It is better for detection of the signal to have a broadband signal coming in.

For this experiment, we would like to ask those participating to spread out in frequency across the 10 meter band. We have supplied a table of suggested frequencies between 28 and 28.45MHz, based on the last letter of your call. When the HFR receiver is tuned to 28MHz, the center frequency is 28.5MHz. A 50kHz high pass filter limits low frequencies hitting the detector, so the frequency table excludes  $28.5\text{MHz} \pm 50\text{kHz}$ . The natural signals we expect to measure at Jupiter will consist of a large number of discrete tones, so spreading the signals out in this manner is a good approximation to the signals we expect to detect. But at Jupiter, we don't expect to be able to decode CW in our telemetry!

### **How will I know when to transmit? How will you indicate when participants should key up or key down?**

When the timer at the top of this page reaches 00:00:00, the event will begin. This should be at or very close to 18:00 UTC on October 9, 2013. Please make sure your computer clock is synchronized to network time prior to this event. The current plan is to have two large indicator signs on this page, one indicating to key up and the other to key down. Each will have a timer to indicate how long until you switch from one mode to the other mode.

### **Why is the CW so slow?**

Juno's Waves instrument samples this frequency band once per second. By spreading the signal out in time, we can average to reduce the noise level. In addition, the spacecraft spins at 2 rpm, so a 30 second "dit" time gives us a full spin to see if there is any spin modulation.

### **How do you suggest we ID?**

US regulations (CFR Sec 97.119) require amateur radio stations to identify themselves at the beginning and end of a transmission and at least once every 10 minutes. If you ID at the beginning of the first "dit" of the HI and at the end of the final one before you go QRT, you will meet the US requirements. Others should verify that this will meet your national requirements.

### **What could go wrong?**

Plenty! The frequencies we chose are above the highest plasma frequency that occurs in the ionosphere, so the waves will not reflect back down to the ground. If sunspots are active enough and the ionization goes up, the band opens and waves are refracted back down the ground, potentially on the other side of Earth. If this happens, the waves will not escape into space and Juno would not be able to hear them. We cannot predict solar conditions this far in advance, but given the poor conditions lately we can assume this will continue and cross our fingers. But if we do not try, we know it will not work!

### **I don't have an internet connection at home, how can I participate?**

We will publish a table of on-off times on this page. If you accurately set your clock using a broadcast time standard station, you will be able to follow the table and participate.

### **I can't tune to the frequency in the table for my call sign. What should I do?**

If your station for some reason operates better on a different frequency in our passband, feel free to choose another. But please stay in the range we can detect (28.001MHz-28.45MHz, 28.55MHz-28.999MHz).

The frequency table is a guide to help spread out the energy to duplicate what we expect to see at Jupiter. The analog detector will be sensitive to any signal appearing between either 28.001MHz to 28.45MHz or 28.55MHz and 28.999MHz. The detector sees the baseband down-converted signal, so it cannot tell if your signal is in the upper or lower sideband. We have set the table to spread out the signals in the lower sideband.

### **Why did you choose this frequency band?**

We chose 10 meters for this experiment for several reasons. The Waves instrument is sensitive to radio signals in all amateur bands below 40MHz, but experience with the University of Iowa instruments on the Galileo and Cassini earth flybys shows significant shielding by the ionosphere at lower frequencies. As sad as it sounds, we hope for lousy band conditions on October 9, so an appreciable fraction of the radiated energy escapes the ionosphere into space, and is not refracted back down to the ground somewhere else on the planet.

### **Can you provide more details about the Juno Waves instrument?**

The Waves instrument was built at The University of Iowa Dept. of Physics and Astronomy in Van Allen Hall, for the study of radio and plasma waves at Jupiter. It is specifically targeted at the Jovian auroral region, and we hope to fly directly through the auroral acceleration region where Jovian decametric signals are generated. We estimate the field strength in the source to be as high as 5V/m! Consequently, we have relatively short antennas, in-line switchable attenuators, and the system gain is low. This sacrifices the low amplitude sensitivity somewhat for the science to be gained at the high end of the dynamic range.

The antenna consists of a pair of tapered 2.8 meter long titanium tubes, deployed from the bottom deck of the spacecraft under the +X solar array and magnetometer boom. A high impedance radiation resistant preamp sits at the base of the antenna and buffers the signals from 50Hz to 45MHz. The elements are deployed with an opening angle of about 120 degrees. Ten meters is above the resonant frequency of the antenna and NEC analysis indicates a lobe generally along the spin axis of the spacecraft. This will be good for detection on the inbound part of closest approach to Earth.

The Waves instrument uses four receivers to cover the frequency range of 50Hz to 41MHz. Signals up to 3MHz are bandpass filtered, sampled by A/D converters and FFT processed into spectra using a custom FFT processor developed by The University of Iowa under a grant from the Iowa Space Grant Consortium. Another eight copies of this processor are currently onboard the two Van Allen Probe spacecraft in Earth orbit, studying the radiation belts.

The High Frequency Receiver (HFR) used for this experiment covers 3MHz to 41MHz in 38 1MHz steps. It is a single conversion receiver which selects one of seven octave wide filters on the front end, then uses a quadrature mixer to convert down to identical I and Q baseband channels which use 500kHz low pass filters to give a 1MHz total detection bandwidth. Two copies of this receiver are carried in the Waves instrument; the HFR is used for spectral analysis and makes up to one sweep from 3-41MHz every second. The second copy (High Frequency Wideband Receiver or HFWR) is used to sample segments of the waveform in the I and Q channels which are then sent to the ground for high resolution spectral analysis. The HFWR will be tuned to a center frequency of 6.25MHz during closest approach to Earth to detect broadcast shortwave stations, but the small snippets of waveform will not be long enough to detect intelligible modulation. The two receivers can swap functionality and thus serve as backups for each other. While using the HFR in spectral analysis mode, the Q channel is sampled by a wideband analog detector. The dwell time on each 1MHz step is 25ms.

### **How do I know whether my transmission is capable of reaching Juno? Is there a line of sight to Juno from my location?**

At the frequencies we are using for this activity, the ionosphere will refract the signals and give them the ability to bend over the horizon, so the spacecraft will be "visible" even with a negative elevation angle.

Propagation of radio signals at 28MHz is quite variable and we have no way of predicting what conditions in the ionosphere will be like on October 9. Our plan is to pump as much power into the ionosphere as possible and hope the spacecraft can detect it. At closest approach, Juno will just be skimming the top of the F layer, so even if there is not enough ionization to bend the waves back to the ground, we think Juno has a chance of detecting waves from transmitted from almost anywhere on the globe.

We hope that stations will be able to participate for the entire event (2 hours, 40 minutes), but we can offer a few suggestions for those who cannot participate for the entire duration. Stations in North America probably have the best opportunity on the inbound pass. They will be in daylight, and Juno does not enter eclipse until shortly before C/A. It will be night for European stations, but there should be sufficient ionization to reach the spacecraft on both inbound and outbound segments, with more difficulty at closest approach. The best location would be the southern part of Africa, as the spacecraft will never be far below the horizon and the range at closest approach will be under 1240 miles (2000 kilometers)! Asian and South Asian stations probably have the best opportunity on the outbound leg.

#### How will Juno decode the "HI" message?

Juno will not decode the message itself. Instead, if the activity is successful, the Waves instrument data containing the message will be shared by the Juno team after the flyby.

#### Should I send my call sign to Juno?

Juno does not need your call sign, but your national authority does (for example, every 10 minutes). That is why we are suggesting an ID at the beginning of each ten minute cycle to comply with regulatory requirements.

#### Where can I find additional information about the Juno mission and its Earth flyby?

Additional information is available at <http://www.nasa.gov/juno> and <http://missionjuno.swri.edu>.

*Some key members of the Waves team supporting this activity:*

*Don Kirchner KDØL, Waves Principal Engineer*

*William Robison KCØJFQ, Waves Software Engineer*

*William Kurth, Waves Lead Co-Investigator*

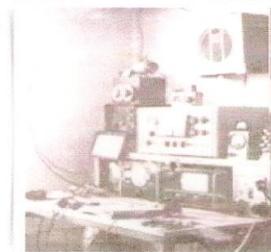
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Contributed by Jim Bertrand, N5BZN

## A moment in time

### How long has The American Legion advocated the use of ham radio in disaster preparedness?

Since the 1930s. In 1939, three American Legion posts just northwest of San Francisco – in San Anselmo, Ross and Mill Valley, all just a few miles from one another – held a three-way meeting via short-wave radio. The American Legion Magazine described it as "not a stunt, but a practical demonstration of emergency communication held in conjunction with the Major Disaster Communications Committee." At about the same time, a Legion pamphlet called "In Time of Disaster" was circulating.



Today's version is called "Disaster Preparedness and Response for American Legion Posts." Download it from the Legion's Publications page [here](#) for September, National Disaster Preparedness Month. And find out more about the Legion's resurgent ham radio program and Amateur Radio Club [here](#).

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### Events: AMSAT Space Symposium 2013 Set for November



The 2013 AMSAT Space Symposium will take place in Houston, Texas, November 1-3 at the Marriott Hobby Airport Hotel. Hosted by the [Johnson Space Center Amateur Radio Club](#), this year's Symposium will feature presentations on satellite construction and operation as well as on other space-related subjects.

The AMSAT Annual Meeting, held in conjunction with the Space Symposium, provides AMSAT members an opportunity to learn about AMSAT's future plans and voice opinions to the AMSAT Board of Directors and AMSAT officials.

A downloadable [registration form](#) now is available via the AMSAT website. Online registration is expected to be available in late August. For hotel reservations visit the Marriott Hobby Airport Hotel [website](#) or call 713-943-7979. Use the code AMSAMSA or ask for the AMSAT block.

## OCTOBER 2013

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1	2	3	4	5
		7:00pm BTARC Mtg 8pm LAARC Net	8pm JCARC & ARES Net	7pm TCARA Mtg 7pm BTARC Net 8pm BARC Net	7:30PM OARC Mtg	8am BARC Breakfast
6	7	8	9	10	11	12
	6:30pm ORG ARES Net 7pm TYLER ARES Net	7pm JCARC Mtg 8pm LAARC Net	8pm JCARC & ARES Net	7pm BTARC Net 8pm BARC Net		8am BARC Breakfast
13	14	15	16	17	18	19
		8pm LAARC Net	8pm JCARC & ARES Net	7pm JCARC ARES Mtg 7pm BTARC Net 8pm BARC Net	Scouting JOTA	8am BARC Breakfast Scouting JOTA JCARC TailGate Sale
20	21	22	23	24	25	26
Scouting JOTA		8pm LAARC Net	8pm JCARC & ARES Net	7pm BTARC Net 8pm BARC Net		8am BARC Breakfast Texas ARES SET
27	28	29	30	31		
	7:30PM BARC Mtg	8pm LAARC Net	8pm JCARC & ARES Net	7pm LAARC Mtg 7pm BTARC Net 8pm BARC Net		

### Local Frequencies and Access Codes...

52.525 6 Meter FM National Calling Frequency  
 53.150/52.150 Groves Repeater (pl 100.0) **NEW**  
 144.390 APRS  
 145.010 BPT (W5SSV) Packet  
 145.010 W5SSV-10 RMS Packet  
 145.050 KC5YSM-10 RMS Packet  
 145.210- S.W.L.A.R.C. (W5BII, pl 103.5)\*  
 145.230- B.T.A.R.C. (N5BTC, pl 103.5)\*#  
 145.330- Anahuac (KK5XQ, pl 123.0)  
 145.470- J.C.A.R.C. (W5SSV, pl 103.5\*)  
 145.350- Sulphur A.R.C. (KC5PNH, pl 103.5)\*  
 145.560 Simplex-Jeff Co ARES Secondary  
 146.450 Mid County Simplex  
 146.520 National Simplex  
 146.560 Simplex Tyler Co ARES Prim  
 146.580 Simplex Jeff Co ARES Prim & Special Event  
 146.640- Beaumont Repeater (KW5C, 103.5 pl) **NEW**  
 146.680-Tyler Co Amateur Radio Assoc. (100.0 pl) **NEW**  
 146.700- B.A.R.C. (W5RIN, pl 107.2)\*#  
 146.730- S.W.L.A.R.C. (W5BII, pl 173.8)#  
 146.760- B.A.R.C. (SW Lynx Link) pl 107.2

\* Denotes transmitted PL tone.

#### NETS

**BARC Net Thurs Night 8:00pm 146.700**  
**JCARC Net Wed Night 8:00pm 145.470**  
**BTARC Net Thurs Night 7:00pm 145.230**  
**Org ARC Net Nightly 6:30pm 147.180**  
**LAARC (Jasper) Tues Night 8:00pm 147.000**  
**TCARA (Tyler CO) 1<sup>st</sup> Mon Night 7:00pm 147.000**  
**2M SSB Net Tues Night 8:30pm 144.270**  
**2M CW Net Wed Night 7:30pm 144.160**  
**10M CW Net Fri Night 7:45pm 28.970**  
**10M LAARC Ph Net Wed 8:45pm 28.325 USB**

146.860- Port Arthur (WD5GJP) pl 103.5  
 146.980- H.A.M.S. (Devers, N5FJX, pl 103.5)\*#  
 147.000- Jasper (W5JAS, pl 118.8)\*#  
 147.060+ DuPont (AA5P, pl 103.5)  
 147.180+ Orange A.R.C. (W5ND, pl 103.5)\*  
 147.200+ Port Arthur (KC5YSM) (pl 118.8)\*#  
 147.300+ Mobil Oil (W5XOM) (pl 103.5)\*  
 147.420 Simplex-Orange ARES Primary  
 147.460 Simplex-Orange ARES Secondary  
 147.570 Simplex-Hardin Co ARES Secondary  
 223.800 Beaumont (KA5QDG) (pl 123.0)  
 224.920 Devers (KA5QDG) (pl 123.0)

442.575 Devers (KA5QDG, pl 103.5)  
 444.700 B.A.R.C. (W5RIN, Salt-Grass, pl 107.2)  
 444.900 Mobil Oil (W5XOM, pl 103.5)  
 446.000 National Simplex UHF

# Denotes echo link.

**Daytime Texas Traffic Net Daily 8:30am 7.285**  
**7290 Traffic Net M-Sat 10am-12N, 1-2pm 7.290**  
**Texas Traffic Net Daily 6:30pm 3.873**  
**Gulf Coast SSB Net Daily 6:30pm 3.925**  
**Delta SSB Net M-Sat 7:00pm 3.905**  
**Ctn Gulf Cst Hurricane Net Daily 8:00pm 3.935**  
**Southwest Traffic Net Daily 9:30pm 3.935**  
**Central Tx Emerg Net Sunday 8:00am 3.910**  
**Louisiana ARES HF Net Sunday 7:30pm 3.873**  
**Texas ARES HF Net Monday 7:30pm 3.873**  
**Texas RACES HF Net 2<sup>nd</sup> & 4<sup>th</sup> Sun 2pm 7.255**

## BARN YARD

### For Sale:

From: Doug Thomas, N5BST (n5bst@arrl.net), Secretary-Treasurer, W5SSV

I am adding a new page to our website. I have had a couple of members asking me to list some items that they have for sale. So, just "click" on the sign at www.w5ssv.com and it will take you to the listing. If any of you have items that you might want to list, just drop me an e-mail and let me know.

\*\*\*\*\*  
From: Larry Perkins, W5LDP (papaperk@gt.rr.com ) 409-860-1925  
Beam: Mosley TA34 XL WARC 5 Element Tri-band plus 17M WARC

Rotor: Hygain Ham IV

I will sell both with the mast for \$1000. I am not interested in selling them separately. The antenna is assembled and on my tower at about 10 ft. elevation.

### Estate sale of HAM Radio Equipment

CDE Transmit/Receive Direction Control, Cobra 140 GTL CB Radio, Kenwood HF Transmitter TS-870, Micronta Power Supply, Mobile Amplifier, Palomar 300A amp, Pyramid Gold Series Power Supply, Radio Shack SWR/Power Meter, Uniden Bearcat BC-760XLT Scanner, Yaesu FL-2100B, Yaesu FT-101ZD, Yaesu G-500A, Yaesu SWR/Power Meter YS-60, Radio books and manuals, Misc. antennae rotors, wires, connectors, etc.

I was asking 3500 for the complete package. I would consider dividing up the package knowing that the parts would all move so I wouldn't have anything around. Dad was a smoker. I did open up all the equipment and blow the dust out and cleaned the exterior of the pieces. I believe the equipment has set up for about 3 yrs. There is no tower or antenna since they were destroyed by wind from the hurricanes. Condition (IMO) is from good to excellent on the pieces. I can coordinate with anyone who would like to come and look at the equipment. I live in High Island and do shift work.

David N. Kane Cell: 409-651-4138 Email: kanedn@hotmail.com  
\*\*\*\*\*

FOR SALE By JOHN COOPER, WT5Y, jcooper005@gt.rr.com, Beaumont, Texas

MFJ clear tone speakers 10, KRM Variac 50, wouxun kguvd1p with accessories (dual charger, 2 batteries, prog cable, hand mic) 80, MFJ dummy load 300w 25  
Oak Hills Research qrp wattmeter 50, Heathkit antenna 15, Power Sonic 35ah battery 40, MFJ 208 VHF analyzer 35, AADE l/c meter 20, cushcraft 70cm 11el beam 50  
tram 2m/440 base antenna 75, cushcraft ma5v 10-30 hf vertical 165, ramsey dtmf decoder 30, leader signal generator 20, elenco audio generator 20  
misc bnc coax jumpers coax adapters amphenol connectors  
\*\*\*\*\*

FOR SALE By BILL GARVEY, WB5LYB, wb5lyb@gmail.com, Leesville, LA

The mics I have for sale are the Icom SM-8, \$75.00 on the Icom SM-20, \$100.00..also have 2 Radio Shack Pro-2006 scanners for sale at \$50.00 each, they are 400 channel scanners.  
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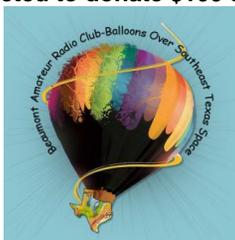
**Ham Gear For Sale from silent key estate (W5ASA Leesville, La.)** New in the box, Cushcraft A3WS 12/17 meter, 3 elem. beam, Cushcraft A3S, 10/15/20 meter beam, Astron 35-M power supply, Icom 2200-h 2meter mobile, Icom 910 H Sat. Radio, Icom 208-H dual band mobile, Icom V-8000, Yaesu FT-450 HF/6meter, Astron 20-M power supply, TE-2meter amp, TE 440 amp, Yaesu VX-7R, Yaesu FT-270-R, Yaesu FT-60 R, Wouxun 2meter/440 handheld with extra optional stuff with it, Alinco DR-130, Alinco DR-150, both Alinco radios are 2 meter only, Yaesu FT-90-R, New Yaesu Rotor new still in the box, 60 foot of Rohn 25-G tower with Cushcraft 5 elem 6 meter beam, 13 elem 2 meter beam, 10 elem 440 beam, rotor, all of these antennas are still on the tower and the tower needs to be taken down, 2 500 ft rolls of either 9913 or RG-213, I'll have to check to be sure on the coax. Plus there is a lot of odds and ends, guy, turnbuckles etc. Icom-746-PRO, PS-125 power supply, SP\_21 speaker, all three pieces sold together....

**Please send anything you want to buy, sell or trade to me so I can post it. Randy, KE5VLY, rwleftwich@aol.com or 409-466-5828**

## W5RIN BALLOON NEWS

### BALLOON GROUP NEWS

The Balloon Group Meeting had a meeting on Tuesday, April 9, 2013 at the Jefferson County Amateur Radio Club clubhouse, following the JCARC meeting. A demo of the payloads was given and a lot of discussion on soliciting funds and getting a mailout list together. Anyone that has not been involved and wishes to do so, please contact LB, WB5YDA, and give him your contact info. With the increased payload, we need to buy a bigger balloon. This balloon and parachute will cost over \$400.00 and there is a need to raise more money before we discuss a launch date. We may also need to look at changing from Helium to Hydrogen as a fuel. The BARC & JCARC have elected to donate \$100 each towards the Balloon Program.



**A SPECIAL THANKS TO NOT ONLY THE BARC AND THE JCARC, BUT A VERY VERY SPECIAL THANKS TO CHUCK VINCENT, KB5NBJ and DARLENA, KF5JAF, AND GEORGE ROSE, KF5SRH, FOR MAKING IT POSSIBLE TO HAVE A BALLOON LAUNCH VERY SOON.**

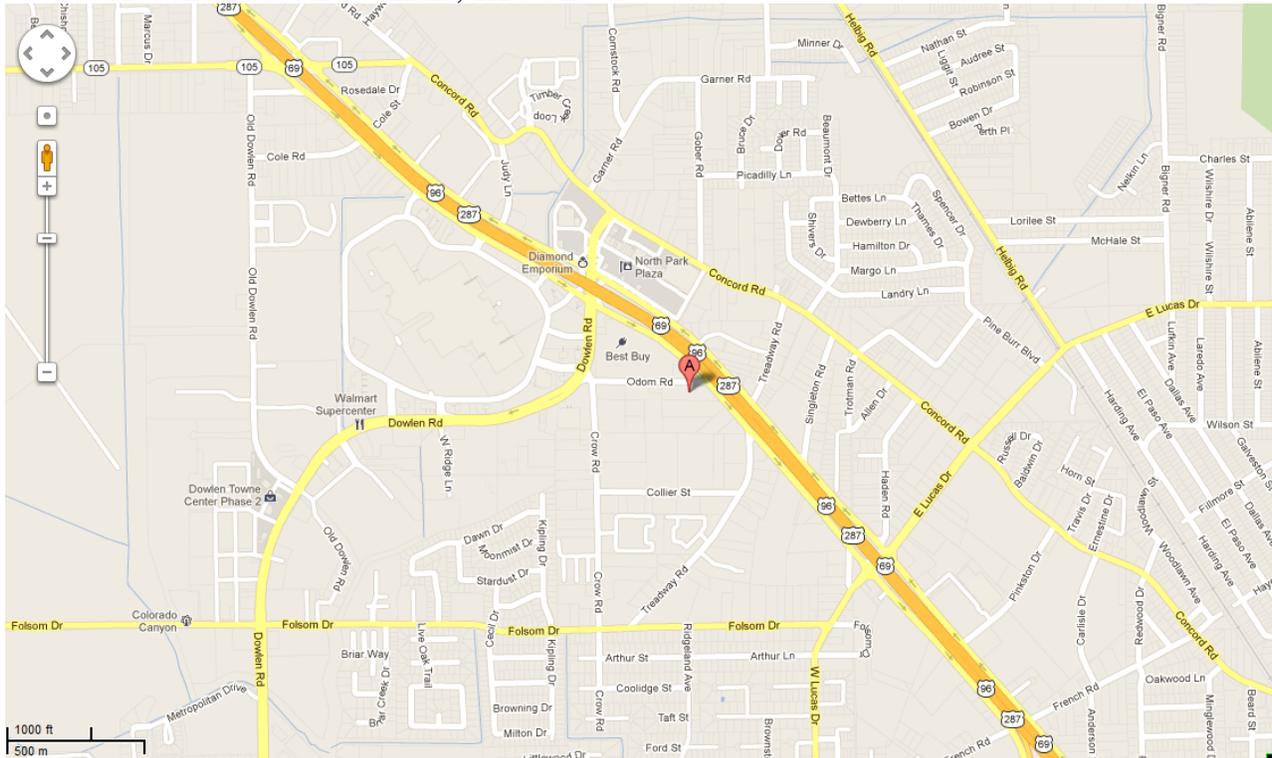
The group is asking each member for a \$20.00 donation and looking for club and corporate sponsors.

### *LB's Tips and Techniques.*

Leather car seats are durable and don't require a lot of maintenance. After a few years, however, the seats can become soiled. Use a leather cleaner to remove dirt and stains. Then apply a leather protectant formulated for pigmented or top-coated grain leather (the leather used for most leather car upholstery). Protectants will resist stains and make the upholstery easier to clean in the future. Choose a protectant that includes conditioners to keep your leather supple.

# The BARN

A Publication of the  
**BEAUMONT AMATEUR RADIO CLUB**  
**P.O. Box 7073 Beaumont, TX 77726**



## Club Directory...

### BEAUMONT AMATEUR RADIO CLUB OFFICERS

PRESIDENT	L.B. LITTLE	WB5YDA	782-3115
VICE-PRES.	LYNN SANDELL	KF5LNZ	
SECRETARY	RANDY LEFTWICH	KE5YLY	466-5828
TREASURER	VIVID PEEVEY	KF5CEF	
BARN EDITOR	RANDY LEFTWICH	KE5YLY	466-5828
CLUB WEBSITE	RICH HUDGINS	N5ALE	201-4238

### DIRECTORS

CRAIG HARDER	KE5PIQ	347-2265
MIKE FAUCHEAUX	N5KBW	727-1071
DAVID FOURNERAT	KF5CAE	860-4494
JOHN HARRINGTON	W5EME	665-6311

Website: <http://www.qsl.net/w5rin/>

Email: [beaumontarc@gmail.com](mailto:beaumontarc@gmail.com)

### MEMBERSHIP INFORMATION

- FULL MEMBERSHIP.....\$20.00
- ADDITIONAL FAMILY MEMBER.....5.00 (ANNUAL RATES)
- BARN SUBSCRIPTION ONLY.....7.50

NAME: \_\_\_\_\_ CALL: \_\_\_\_\_ LICENSE CLASS: \_\_\_\_\_ ARRL (Y/N) PHONE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ CITY/STATE ZIP CODE: \_\_\_\_\_ E-MAIL: \_\_\_\_\_

**NEW MEMBERS: DUES ARE PRORATED MONTHLY THROUGH DECEMBER. SUBSCRIPTIONS TO THE BARN ARE GOOD FOR ONE YEAR (12 ISSUES) STARTING WITH THE FIRST ISSUE AFTER RECEIPT OF THE APPROPRIATE AMOUNT. MARK THE CORRESPONDING BOX ABOVE AND MAIL WITH YOUR REMITTANCE TO "TREASURER" AT THE ADDRESS ABOVE.**