



# THE OHM TOWN NEWS

*Voice of the Bridgerland Amateur Radio Club*

>>>>>>> <http://www.barconline.org> <<<<<<<<

## February 2013

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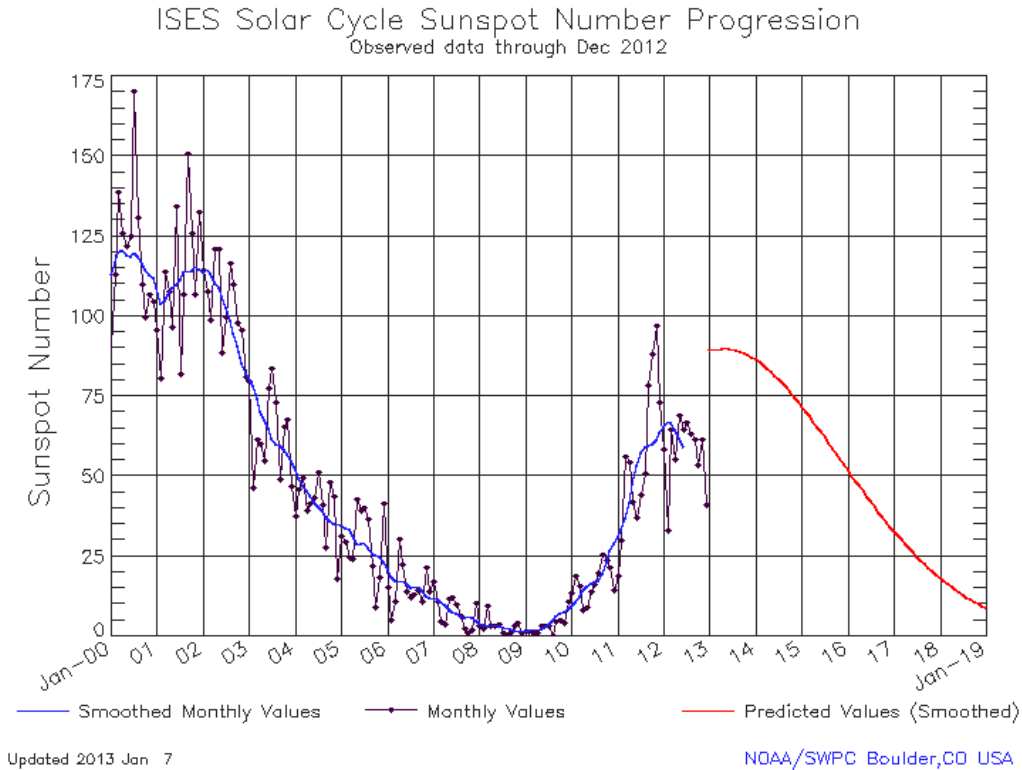


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# PRESIDENT'S MESSAGE

[Solar Cycle 24](#) is approaching its predicated peak of sun spot activity during the mid or latter part of 2013, or is it? From observations, the activity is low and below the predicated level. As you can see from the chart below, the sun was actually well above average levels for sunspot activity in late 2011, but in 2012 it has been below the predicted levels as indicated by the red line.



Solar Cycle 24 could be on a pace that would make it the smallest sunspot cycle since Cycle 14 which peaked in 1906. Cycle 24 began after an unusually deep solar minimum that lasted from 2007 to 2009 which included more spotless days on the sun compared to any minimum in almost a century. While a weaker solar cycle does not rule out the threat for strong solar storms, it does suggest that they will occur less often than during the stronger and more active cycles.

The increasingly likely outcome for a weak solar cycle continues the recent downward trend in sunspot cycle strength that began with solar cycle 22 over twenty years ago. In addition, there are some solar scientists who are already predicting that the next cycle, 25, will be even weaker than the current one. This lack of activity on the sun has an effect on how much ionization there is in the ionosphere. When there is more ionization, the higher the maximum usable frequency (MUF) becomes and this allows the higher frequencies bands, 20 meters thru 6 meters, to have much longer worldwide paths.

Not only does the varying solar activity have an effect on the propagation of electric fields in radio waves, some [research studies](#) indicate that weak solar cycles with extended lengths may actually have a negative effect on global temperatures in the longer range. There have been historical periods with minimal sunspot activity that lasted for several decades such as from the mid 1600's to the early 1700's when the so-called "Maunder Minimum" occurred and this period was quite cold globally.

For the remainder of Solar Cycle 24, let's hope that it returns to its predicated level so we can enjoy the higher HF bands for longer worldwide paths.

73,  
Cordell  
KE7IK

# UPCOMING 2013 ACTIVITIES

BARC Club Meeting—9 February, 10:00 AM

ARRL Rocky Mountain Division Net — 13 February, 7:30 PM IRLP Node:9871

RACES VHF Net — 21 Feb, 8:00 PM 447.00 IRLP 145.49 Promontory 147.18 Snowbird

ARRL VEC-listed Local Radio test — 2 March, 8:00 AM ([Info on web site](#))  
USU's ASTE building (Room 108 @ 1498 North 800 East, Logan, UT 84321)

BARC Club Meeting - 9 March 10:00 AM

ARRL Rocky Mountain Division Net — 13 March, 7:30 PM IRLP Node:9871

RACES HF Net — 16 March 8:00 AM 3920 KHz

ARRL Rocky Mountain Division Net — 10 April, 7:30 PM IRLP Node:9871

BARC Club Meeting - 13 April 10:00 AM

RACES VHF Net — 18 Apr, 8:00 PM 447.00 IRLP 145.49 Promontory 147.18 Snowbird

BARC Club Meeting — 11 May, 10:00 AM

RACES HF Net — 18 May 8:00 AM 3920 KHz

Mountain Man Rendezvous — 20-21 May

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**BARC Club Meetings** are normally on the 2nd Saturday of the month at 10:00 A.M. on the 3rd floor of the Cache County Sheriffs Complex on 200 North and 1225 West, Logan, Utah

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**ARES Meetings** are usually held on the Third Wednesday of each month at 7 P.M. at the Cache County Sheriffs Complex. Contact Tyler Griffiths for more information.

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## Local Radio Nets:

The **Weekly BARC net** is for BARC members and anyone else that would like to check in, held **every Tuesday night at 9:00 p.m.** local time on the Mt Logan BARC Repeater and Linked Systems (146.720) Roger Ellis has been net control on this net for some time and we would like to thank him for his services. He will be leaving for a period of time and we wish him well. A new net control operator will be taking over.

**Proposed 2013 BARC Budget  
For vote by club members**

<b>General</b>	<b>\$250</b>
<b>Refreshments</b>	<b>\$350</b>
<b>Field Day</b>	<b>\$400</b>
<b>Swap Meet</b>	<b>\$50</b>
<b>Christmas Party</b>	<b>\$150</b>
<b>Promontory site</b>	<b>\$600</b>
<b>Pay Pal Fees</b>	<b>\$50</b>
<b>Total Budget</b>	<b>\$1850</b>
<b>Projected Income</b>	
<b>Dues</b>	<b>\$1850</b>
<b>Equipment fund donations</b>	<b>\$2400</b>

**The vote at the February Club meeting is to approve the proposed budget for the club. By approving we ask the club members to give discretion to the Board to adjust and make repeater and other equipment purchases during the year as funds allow, and as necessary to keep repeaters and other club equipment operational.**

\_\_\_\_\_ YES - Approve the 2013 budget

\_\_\_\_\_ NO - I do not approve the 2013 budget

# Some shots of the 160 Meter CQ Contest



## The ARRL Letter for January 10, 2013 FCC News: Comment Deadline Set in WRC-07 Implementation Proceeding

As previously [reported](#), the FCC has proposed to amend its rules to implement the allocation decisions of the 2007 World Radiocommunication Conference (WRC-07) and to make certain other changes. Notice appeared in the [December 27, 2012 issue of the Federal Register](#), which started the clock on a 60-day window for the submission of comments. Thus, comments are due no later than February 25, 2013, with reply comments due no later than March 27, 2013.



While most of the 130-page [Notice of Proposed Rulemaking and Order](#) does not directly affect the Amateur and Amateur-Satellite Services, two sections of the document are of particular interest to amateurs.

Specifically, the FCC proposes to upgrade the Amateur Service allocation in the upper half of the 160 meter band (1900-2000 kHz) from secondary to primary, while deleting the existing allocation to the Radiolocation Service. This is possible, because the re-accommodation of radiolocation stations displaced by the expansion of the AM broadcasting band to 1705 kHz has been completed and there are no non-federal radiolocation stations licensed to operate in the 1900-2000 kHz band.

The FCC also seeks comments on whether, and how, an amateur low frequency (LF) allocation might be able to co-exist with Power Line Carrier (PLC) systems that are used by electric utilities to monitor and control the power grid. The Commission notes that while PLC systems do not have the status of an allocation, they carry "communications important to the reliability and security of electric service to the public." WRC-07 created a new secondary allocation to the amateur service at 135.7-137.8 kHz that already has been implemented in a number of other countries.

The ARRL will be preparing comments supporting both of these allocations. Individuals wishing to comment directly to the FCC should carefully read paragraphs 13-24 of the [NPRM](#) and follow the instructions contained in paragraph 175.

## The ARES E-Letter for January 16, 2013 Letters: On the Origins of CERT

I read your column in the January 2013 issue of *QST* regarding ARES and CERT. I'd like to provide a little historical perspective indicating that an ARES/CERT affiliation existed long before FEMA adopted the concept which, in fact, was created by local government. In the early 1980's the Coronado (California) Police Department, where I served as Police Chief, had a very large and active ARES program and as we were responsible for emergency preparedness in the city our department also had an active citizen emergency preparedness program. The nearby city of San Diego, through its fire department, developed the CERT concept. Indeed I believe they were the originator of it. My department's Emergency Preparedness coordinator, Sergeant Dick Stolpe, suggested that we "marry" our ARES program into a CERT approach and we did exactly that. Sergeant Stolpe's suggestion was soon copied by multiple other cities in Southern California, which saw the advantages of a citizens emergency response team having the reliable communications services that only Amateur Radio could provide. - Jerry Boyd, N7WR, former Chief of Police, Coronado, California

## The ARRL Letter for January 17, 2013

### 2012 Marks All-Time High for Amateur Radio Licenses

As 2012 came to a close, ARRL VEC Manager Maria Somma, AB1FM, had a good reason to cheer: The number of radio amateurs in the US reached an all-time high of almost 710,000. "2012 was definitely a banner year for the number of Amateur Radio operators here in the US," she said. "It is amazing to see these new numbers and to know that Amateur Radio is experiencing such a healthy trend."

In looking at new and upgraded licenses, as well as licensees per ARRL Division, Somma also crunched the numbers looking for growth within each license class -- and all of Amateur Radio -- over the last 40 years. "This is an all-time high for Technician, General and Amateur Extra class licensees," she said. "When looking at the three current license classes, the number of Technicians, Generals and Amateur Extras peaked in December at 345,369, 163,370 and 130,736, respectively."

Somma explained that the total number of US amateurs in the FCC database also continues to grow each year: "As of December 31, 2012, the number of licensees reached an all-time high of 709,575; year-end totals were 702,056 for 2011 and 696,041 for 2010. The number of licensees increased at an average rate of 21 per day, while the number of US licensees has increased by 7 percent since 2008!" More than 3000 new licenses were issued in 2012 than in 2011, while upgraded license activity remained steady in 2012. Read more [here](#).

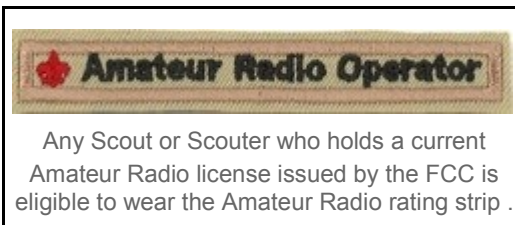
COMPARE AMATEURS PER FCC CALL SIGN REGION		
CALL SIGN REGION	2008	2012
1	33,000	35,000
2	39,000	42,000
3	34,000	36,500
4	130,000	140,000
5	80,000	86,000
6	93,000	100,000
7	88,000	93,500
8	53,000	57,000
9	44,500	47,500
0	56,000	60,000
KL7 - Alaska	3,100	3,500
KP4 - Caribbean	4,200	4,000
KH6 - Pacific	4,200	4,500
<b>Total US Amateurs</b>	<b>662,000</b>	<b>709,500</b>

This chart shows the distribution of license holders by call sign region, comparing 2008 to 2012. The number of US licensees has increased by 7 percent since 2008.

## The ARRL Letter for January 24, 2013

### Amateur Radio and Scouting: BSA to Offer Amateur Radio Operator Rating Strip

The Boy Scouts of America (BSA) has approved an Amateur Radio Operator rating strip for Scouts and Scouters to wear on their uniforms. According to BSA Communication Services Director Jim Wilson, K5ND, the strip recognizes the Scout or Scouter's availability as an Amateur Radio operator for communication services for events and activities, as well as emergencies. All registered youth members and adult leaders who also hold a valid FCC-issued Amateur Radio license of any class are eligible to wear the rating strip. Read more [here](#).



### Postage Rates to Rise this Month

Beginning Sunday, January 27, it will cost more to mail first class letters, postcards and packages within the US. The cost to mail a first class letter will be 46 cents, while the cost to mail a postcard will be 33 cents, an increase of 1 cent for each; this is the third increase for postcard postage in less than two years. This month, the USPS will also introduce a First Class Mail Global Forever Stamp that will allow customers to mail 1-ounce letters anywhere in the world for one set price of \$1.10. The cost to mail flat-rate Priority Mail packages and letters will also increase. Click [here](#) for more information on all the postal increases.



## *The Doctor is In: More Power for EME Stations*

Carl Hasbargen, KN0WS, of St Paul, Minnesota, wrote to the ARRL's Doctor, wanting to know how to use more transmit power for the new Earth-Moon-Earth (EME) station that he plans to build later this year. In the past, he has used a portable generator to power a 180 W, 432 MHz linear amplifier into a quad Yagi antenna system. While Hasbargen was successful using that setup to make a contact via the Moon, he figures additional transmit power would be helpful. He told the Doctor that he would like to be able to use his current generator.

Hasbargen asked "If I have two identical model solid state linear amplifiers, each capable of amplifying a 25 W input into a 180 W output, can I simply take the 50 W from my transceiver, divide the power using a commercial antenna power divider to drive each linear amplifier, then combine the two 180 W outputs from the pair of amplifiers back through another power divider (used backwards as a coupler) to produce a final 360 W to the antenna?"

*Here's what the Doctor had to say:*

If you pull off the covers of many high power solid state amplifiers, you will see that is exactly how they are constructed internally (see photo). While it seems like a straightforward idea, the main issue, especially at EME frequencies, is relative phase delay. While a single dual-module amplifier is relatively easy to build and test as an integrated system, your separate amplifiers were not built with that in mind. At 70 centimeters, a wavelength is 70 centimeters long, but 1/10 of a wavelength is only 7, about 5 centimeters, or 2 inches in coax.

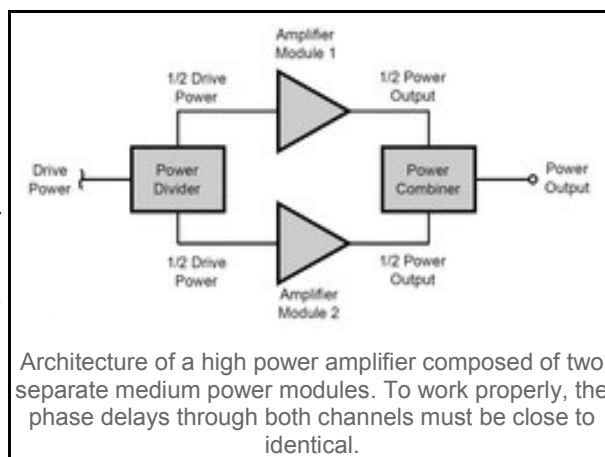
I would think you would want tolerances to accumulate to well less than that for reasonable operation, and with independent assembly and device selection (not selected as matched components) and alignment, I would be surprised if two randomly selected amplifiers would be that close. If you have the capability to phase match them, the difference, if any, could be accommodated in a short length of coax, preferably on the input side.

If the amplifiers are linear and can amplify at very low levels, it would be safe...to drive them with an input splitter and measure the power at each output. If they are the same and you put them in a combiner and the level is twice each, less the attenuation of the combiner, you are probably good to go. I would bring up the power slowly and watch for heating and other undesired effects.

Of course, in real life, each of the power divider/combiners will introduce a little loss, so don't expect the full 360 W -- still it should be close.

*Thanks Doctor! Do you have a question or a problem? Send your questions via [e-mail](#) or to "The Doctor," ARRL, 225 Main St, Newington, CT 06111 (no phone calls, please). Look for "The Doctor Is In" every month in [QST](#), the official journal of the ARRL.*

postal increases.





## ***On the Air: Icelandic Amateurs Get MF Privileges***

According to the Íslenskir Radióamatörar (ÍRA) -- Iceland's IARU Member-Society -- radio amateurs in Iceland now have operating privileges on 472-479 kHz, or 630 meters, as of January 16. Amateurs in Germany, Sweden, the Netherlands, New Zealand and Monaco already have operating privileges in this portion of the MF spectrum. Delegates at the 2012 World Radiocommunication Conference approved this method of addressing Agenda Item 1.23, as the Conference considered a possible allocation of approximately 15 kilohertz between 415 and 526.5 kHz. After discussions and taking into account spectrum conflicts with the Maritime Mobile Service, delegates ultimately decided to allocate 472-479 kHz to the Amateur Radio Service on a secondary basis. Read more [here](#).



## **DXCC Desk Approves Two Laotian Operations**

ARRL DXCC Manager Bill Moore, NC1L, reports that the 2010-2011 XWPA operation and the current XW4XR operation in Laos have been approved for DXCC credit. "If you have had these operations rejected in a recent application, please send an [e-mail](#) to the ARRL DXCC Desk," Moore said. "Once updated, results will appear in Logbook of The World ([LoTW](#)) accounts, as well as online in the [daily listings](#)."



## **The ARRL Letter for January 31, 2013 ARRL Board of Directors Convenes in New Orleans for 2013 Annual Meeting**

The ARRL Board of Directors held its 2013 Annual Meeting January 18-19, 2013 in New Orleans, Louisiana, under the chairmanship of President Kay Craigie, N3KN. The Board welcomed two newly elected members to the Board family: Hudson Division Director Mike Lisenco, N2YBB, and Northwestern Division Vice Director James Pace, K7CEX; Lisenco and Pace were elected in November 2012. At its meeting, the Board set its legislative objectives for the 113th Congress, approved the organization's amended financial plan, elected members to the Executive Committee and ARRL Foundation, bestowed awards and more. Read more [here](#).



ARRL First Vice President Rick Roderick, K5UR, and ARRL President Kay Craigie, N3KN, prepare to start the 2013 Annual Meeting of the ARRL Board of Directors. [Harold Kramer, WJ1B, photo]

Membership in **The Bridgerland Amateur Radio Club, Inc. (BARC)** is open to anyone interested in Amateur Radio. You do not need an amateur license to join. Learn more online at <http://www.barconline.org/> or by emailing [membership@barconline.org](mailto:membership@barconline.org).

The Bridgerland Amateur Radio Club provides the following to its members:

- A repeater system that covers northern Utah from Bear Lake to Salt Lake Valley.
- Events where you can practice your radio skills in a fun learning environment.
- Club meetings are held the second Saturday each month from October to May. An opportunity to meet and learn from other amateur operators.
- Social activities where members can make friends and interact with other members.



Your tax deductible membership supports club activities and the BARC repeater system.

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### The Bridgerland Amateur Radio Club, Inc.

#### Membership application for the year 2013

*Dues are in effect January 1, 2013 through December 31, 2013  
New Members Only, individual membership dues prorated quarterly  
Please indicate if you or family member is an American Radio Relay League (ARRL) member*

Name \_\_\_\_\_ Call Sign \_\_\_\_\_ Date Paid \_\_\_\_\_

ARRL member

P.O. Box \_\_\_\_\_ Street Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Home Phone ( ) \_\_\_\_\_ Work Phone ( ) \_\_\_\_\_

E-mail \_\_\_\_\_

(The club's newsletter, THE OHM TOWN NEWS, is sent to the E-mail Address)

Individual Membership - \$25 \$ \_\_\_\_\_

Addition Family members in same household - \$3 ea \$ \_\_\_\_\_

Donation for Repeater upgrades / equipment purchases \$ \_\_\_\_\_

Total \$ \_\_\_\_\_

#### Names and Call Signs of additional family members

Name \_\_\_\_\_ Call Sign \_\_\_\_\_

ARRL member E-mail \_\_\_\_\_

Name \_\_\_\_\_ Call Sign \_\_\_\_\_

ARRL member E-mail \_\_\_\_\_

Name \_\_\_\_\_ Call Sign \_\_\_\_\_

ARRL member E-mail \_\_\_\_\_



Bridgerland Amateur Radio Club is an ARRL affiliated club

Mail your completed form and a check to: B.A.R.C., P.O. Box 111, Providence UT 84332-0111 or pay online at <http://www.barconline.org/?q=node/242>

*B.A.R.C. is a non-profit organization*

## Questions for General Class License

1. (G1A09) Which of the following frequencies is within the General Class portion of the 80 meter band?
  - A. 1855 kHz
  - B. 2560 kHz
  - C. 3560 kHz
  - D. 3650 kHz
  
2. (G2B03) If propagation changes during your contact and you notice increasing interference from other activity on the same frequency, what should you do?
  - A. Tell the interfering stations to change frequency
  - B. Report the interference to your local Amateur Auxiliary Coordinator
  - C. As a common courtesy, move your contact to another frequency
  - D. Increase power to overcome interference
  
3. (G3A15) How long does it take charged particles from coronal mass ejections to affect radio-wave propagation on the Earth?
  - A. 28 days
  - B. 14 days
  - C. 4 to 8 minutes
  - D. 20 to 40 hours
  
4. (G4B03) Which of the following is the best instrument to use when checking the keying waveform of a CW transmitter?
  - A. An oscilloscope
  - B. A field-strength meter
  - C. A sidetone monitor
  - D. A wavemeter
  
5. (G5B02) How does the total current relate to the individual currents in each branch of a parallel circuit?
  - A. It equals the average of each branch current
  - B. It decreases as more parallel branches are added to the circuit
  - C. It equals the sum of the currents through each branch
  - D. It is the sum of the reciprocal of each individual voltage drop
  
6. (G6B06) Which of the following is an advantage of using a Schottky diode in an RF switching circuit as compared to a standard silicon diode?
  - A. Lower capacitance
  - B. Lower inductance
  - C. Longer switching times
  - D. Higher breakdown voltage
  
7. (G7B03) Which of the following describes the function of a two input AND gate?
  - A. Output is high when either or both inputs are low
  - B. Output is high only when both inputs are high
  - C. Output is low when either or both inputs are high
  - D. Output is low only when both inputs are high
  
8. (G8B04) What is the name of the stage in a VHF FM transmitter that generates a harmonic of a lower frequency signal to reach the desired operating frequency?
  - A. Mixer
  - B. Reactance modulator
  - C. Pre-emphasis network
  - D. Multiplier
  
9. (G9B03) What happens to the feed-point impedance of a ground-plane antenna when its radials are changed from horizontal to downward-sloping?
  - A. It decreases
  - B. It increases
  - C. It stays the same
  - D. It reaches a maximum at an angle of 45 degrees
  
10. (G0A12) What precaution should you take whenever you make adjustments or repairs to an antenna?
  - A. Ensure that you and the antenna structure are grounded
  - B. Turn off the transmitter and disconnect the feed line
  - C. Wear a radiation badge
  - D. All of these choices are correct

(For answers to test questions see page 12)

# BARC Club Officers

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Answers to questions on page 11: 1-C, 2-C, 3-D, 4-A, 5-C, 6-A, 7-B, 8-D, 9-B, 10-B

