BARC
BRIDGERLAND AMATEUR RADIO CLUB

THE OHM TOWN NEWS

Voice of the Bridgerland Amateur Radio Club

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

June, July, August
Summer 2015

Some Contents…

ARRL Affiliated

PRESIDENT'S MESSAGE

It is June already and Field Day is just days away.

Our club will be participating in the American Radio Relay League (ARRL) 2015 Field Day event on the 27th and 28th of June. Field Day is an annual amateur radio exercise, encouraging emergency communications preparedness among amateur radio operators. It is typically the largest single emergency preparedness exercise in the country, with over 35,000 operators participating each year. Field Day is part educational event, part operating event, part public relations event. But most of all, we have a fun and enjoyable time operating the radios. Anyone can attend and participate, licensed or not, club member or not. You can operate a radio (with a control operator present) in making contacts to other amateur radio operators. If you want to listen and not operate, you can help with logging the radio contacts on a computer. We use this opportunity to let everyone try HF. We will have several radios setup, including one radio for digital mode (PSK) and one for Morse Code (CW).

Our location for Field Day will be the same place as last year, a half mile up the Swan Flat Road. Swan Flat Road is about 30 miles up Logan Canyon just past the State Maintenance station after mile marker 490. Swan Flat Road is suitable for automobile travel. The area is open camping so there will be a few of us that will go up early in the week to claim a spot. Others are welcome who would like to arrive early for some radio camping. We should have a radio set up to use so we can enjoy the airwaves with less man made interference that in the valley.

So here is the Field Day schedule:

Friday

Noon - Those that can, arrive at site to help set up antennas until about 6 PM. It takes about 4 to 6 people to set up the antennas.

Saturday

Morning - Setup remaining antennas and radios. Check everything; radios, antennas, computers, etc.

Noon - Contest starts. Anybody who wants to can get on the air or help with logging contacts. Contest lasts for 24 hours.

1 PM until 3:30 PM – The BARC Ladies' Project

3:30 PM - Bunny Hunt. We will have a short class and demonstration. Later, the bunny will be hidden and anyone who would like to can try to find it. Hunters don't even need a license to participate, just listening to the radio.

6 to 7 PM - Pot Luck Dinner. Please bring a large pot luck food item to share (make sure to bring plenty to share--there are lots of mouths to feed). Bring your own chair and plates/cups/cutlery. The Club will provide Dutch oven item and drinks.

Sunday

Noon - Contest ends. Start taking down antennas, put stuff away, and clean up the camp site.

Come on up and bring your family, camp chair, mosquito repellant, water (no water at the site). Stay as long as you can, and enjoy the good food and the fun of Field Day.

The next club gathering will be again on September 10th with the Fall Pot-Luck Social.

Hope everyone has a fun and safe summer. And be sure to put on your calendar June 27 & 28 for Field Day.

73
Cordell
KE7IK

UPCOMING 2015 ACTIVITIES

23-28 June — Radio Rocket Recovery (Guy Hatch)

27-28 June — Field Day (in place of Club Meeting for Month of June)
For more info see the Presidents Message or ARRL here (Ted, Cordell & Tammy)

08 July, 7:30 PM — ARRL Rocky Mountain Division Net IRLP Node: 9871

15 July, 7:00 PM — Cache County ARES meeting at the Sheriff's Office

18 July, 8:00 AM — RACES HF Net 3920 KHz

18 July—Rotary Ride Around Wellsvilles (RAW) (more info) (Tyler & Jared)

31 July - **2** August—Utah Ham Fest held at Ruby's Inn, Bryce Canyon City
For more information see www.utahhamfest.com

12 August, 7:30 PM — ARRL Rocky Mountain Division Net IRLP Node: 9871

19 August, 7:00 PM — Cache County ARES meeting at the Sheriff's Office

20 Aug, 8:00 PM — RACES VHF Net 147.18 Snowbird 147.20 IRLP 146.72 Mt. Logan

22 August — Top of Utah Half Marathon (more info) (Laurie)

09 Sept, 7:30 PM — ARRL Rocky Mountain Division Net IRLP Node: 9871

10 September — Fall Social Potluck Dinner (In place of regular club meeting)

12 September — LOTOJA Bicycle Race (more info)

16 September, 7:00 PM — Cache County ARES meeting at the Sheriff's Office

19 September — Top of Utah Marathon (more info) (Laurie)

For more calendar information see the barconline.org/calendar

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)
The **BARC Ladies Net** is every **2nd and 4th Tuesday at 8:00 p.m.** on the BARC Repeater and Linked Systems (146.720). All licensed lady amateur radio operators are welcome to check in.

The ARES E-Letter for May 20, 2015
Pikes Peak ARES Has The Backs of Runners in Rugged Colorado Terrain

Pikes Peak ARES supported the 2015 Falcon 50 UltraMarathon and sister events this month. A marathon is a tough 26-mile race; a 50-mile ultra-marathon, even more so. A unique "military heavy" marathon has runners carrying 35-pound rucksacks while wearing boots and a uniform. These were the options for participants. On Saturday, May 2, 170 runners tested their mettle on the rugged terrain and high altitude of the marathon course at the United States Air Force Academy in Colorado Springs, Colorado. Of those, 125 were either ultra-marathon or military heavy marathon runners. They were not alone.

Supporting them was a volunteer team of Amateur Radio operators from the Pikes Peak district ARES. Twenty-two operators, one of whom was also a participant in the marathon, set up six stations around the course to track and report runner progress, coordinate supplies and transportation, and report any emergencies on the course. This required being up and on the air before the 6 AM start time and operating past the 8 PM finish line cut off.

Using radios in areas where cell phones often have spotty reception and using the same techniques that make Amateur Radio a huge asset in disasters, the ARES operators passed runner progress messages tracking each bib number as it passed through an aid station.

The system used was Fldigi in the MT-63 2000L mode with Flmsg sending Incident Command System (ICS) form 213 messages over UHF/FM radios. This digital system is the same as radio amateurs might use to support Incident Commands during disasters and emergencies.

The team thoroughly tested and practiced this system under the guidance of Bill Hecker, KC0ET, in the weeks prior to the event. Messages were automatically compiled into Al Glock's, KC0PRM, "Bib Track" software, originally designed to track patients during a mass casualty event. This software can even predict when a runner should arrive at the next aid station. In all, over 1070 runner position reports were passed. The hams also used voice systems for general information, coordination, weather information, and control as well as APRS to track course sweepers and give a combined operating picture.

As veterans of public service events will attest, these systems become even more valuable near the end of a race as the directors try to determine who is left on the course and where they might be, and the 2015 Falcon 50 was no exception. According to Mission Coordinator Dan Martin, KD0SMP, when the race director was desperately trying to find one particular runner and was faced with possibly calling out search and rescue, the ARES team was able to show that the person of interest had never started the race and was incorrectly listed. "It's hard to describe the Race Director's reactions," Martin said. "When he saw the database evidence, you could see his relief. He knew he could get confirmation and when it came, he literally jumped for joy." Martin said "I could not be more proud to be able to say: 'No sweat, that's what we do.'"

The Falcon 50 gives PPARES members a great chance to hone their skills for emergencies and disasters. It is one of the more unique events Pikes Peak ARES supports as a public service. This was the fourth year of the event and Pikes Peak ARES is proud to have supported it all four years. The race is open to all military ID card holders. As Colorado ARES Region 2 District 2, Pikes Peak ARES is responsible for ARES operations in El Paso and Teller counties, including Colorado Springs. -- *John Bloodgood, KD0SFY, Public Information Officer, Pikes Peak ARES, Colorado*

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The ARRL Letter for June 4, 2015
Radio Call Saves SOTA Climber Following Fall

A Littleton, Colorado, radio amateur and mountaineer was happy to have his handheld transceiver along on May 17 after he slipped and fell from an icy ledge in Berthoud Pass while snowshoeing. Summits On The Air (SOTA) enthusiast Brad Byland, WA6MM, said he's been climbing and mountaineering for many years now and never before came this close to what he called "a possible life-ending disaster."

"I'm doing fine," Byland told ARRL. "I didn't get hurt...only bad wind and sunburn on my face! My daughter says my geeky hobby -- ham radio -- saved me from my dangerous hobby -- climbing and mountaineering!"

Byland said that while this was his first climb in the Berthoud Pass area, he was never "lost," as some media accounts reported. He had prepared to climb Mount Flora -- which would have been his 29th SOTA peak -- by studying maps and others' trip reports, plus he had his iPhone with GPS, a compass, and his radio along.

"[T]hings went smoothly until about 12,700 feet," Byland said, at which point, with visibility deteriorating, he decided to turn back. "It wasn't long before I was in a total whiteout," he recounted. "The ground is white, the air around me is white, and I had no perception of direction and elevation. My iPhone GPS was of no use, as I couldn't read the display. I pulled out my compass for navigation." Byland said he knew the basic heading he should follow along the ridge, and he proceeded.

"A short time later I had a strange feeling I was floating in air. I didn't realize I was falling until I landed on my back on a snow-filled ledge about 20 feet below a cornice," Byland continued. "I was quite surprised and amazed that I suffered no injuries."

But he was essentially "stuck," and, while his snowshoes remained on, he was unable to climb back up, due to the overhanging nature of the cornice. "I needed to wait for better conditions," he concluded. "After about an hour I decided to make a call for help, as I knew it would take time for a rescue party to mobilize and find me. Spending the night would probably not end well, and I might have had to take on significant risk to attempt a self-rescue."

Byland said he'd programmed his radio to a few local mountain repeaters, he was able to quickly contact another ham, "and the rest of the story unfolded with my eventual rescue."

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While well equipped for his situation, he remained on the ledge for 4 or 5 hours. "I was in good spirits," he said, "and I can't tell you enough about how comforting it is to have another person on the radio keeping me informed of the rescue process. I didn't feel so alone on that ledge."

Brad Byland, WA6MM, took a selfie while awaiting rescue on an icy ledge.

Byland thanked the Alpine and Grand County Search and Rescue members who got him off the ledge. "Words alone cannot express my feelings of gratitude for the work you do and the countless hours you invest in this service," he said. "My donations to both SAR groups are forthcoming."

He also expressed his gratitude to the hams who picked up his distress call and quickly notified authorities. "The outcome would have certainly been different without their help," he said. "I particularly want to thank Alpine SAR ham radio operator Mike, KC0CNT, who spent countless hours with me exchanging vital information during the rescue operation."

In retrospect, Byland said, he should have taken another route or hunkered down and waited for better visibility before descending.

It's Alive! *LightSail* Spacecraft Restored After Being Silenced by Software Issue

After going silent for a few days, The Planetary Society's *LightSail*™ spacecraft has resumed transmitting. A suspected software glitch had caused the satellite to stop sending telemetry back to Earth on the 70 centimeter Amateur Radio band. The communication issue now out of the way, the *LightSail* team will soon determine when to attempt deployment of the spacecraft's Mylar® solar sails.

"Our *LightSail* called home! It's alive!" The Planetary Society's CEO Bill Nye (The Science Guy) said in a statement on the organization's website. "Our *LightSail* spacecraft has rebooted itself, just as our engineers predicted. Everyone is delighted. We were ready for three more weeks of anxiety."

According to Nye's statement, the *LightSail* team has coded a software patch and has it ready to upload. "After we are confident in the data packets regarding our orbit, we will make decisions about uploading the patch and deploying our sails -- and we'll make those decisions very soon," Nye said. "This has been a rollercoaster for us down here on Earth, all the while our capable little spacecraft has been on orbit going about its business."

In a lengthy May 26 blog post, the Planetary Society's Jason Davis said the *LightSail* mission had "paused, while engineers wait out a suspected software glitch that has silenced the solar sailing

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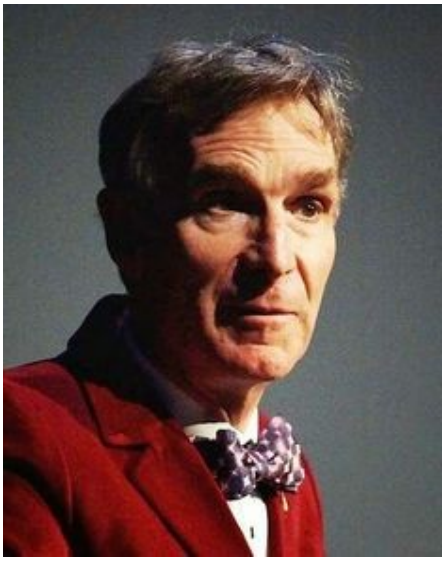

Planetary Society CEO Bill Nye. [BD Engler photo]

spacecraft." Following its successful May 20 launch, *LightSail* sent about 140 data packets back to Earth, Davis said. Over the Memorial Day weekend, however, the spacecraft's automated telemetry went silent.

Telemetry data are sent on 437.435 MHz (AX.25, 9600 bps FSK). Davis said a lot of radio amateurs have been helping to track *LightSail* and sent in data packets.

According to Davis, the *LightSail* team believes that "a vulnerability" that controls the primary avionics board was the problem. As he explained, the CubeSat's onboard *Linux*-based flight software writes beacon packets to a spreadsheet file -- beacon.csv -- which, when it reaches a certain size, can cause the flight system to crash. A patch was devised to address the problem in later software revisions, but *LightSail*'s software did not include the update, and before the fix could be uploaded, the satellite went silent.

Sarah Brightman Spaceflight Postponed

Singer Sarah Brightman has announced that she is postponing plans to go into space as a paying guest aboard the International Space Station. She was set to launch on the September *Soyuz* TMA-18M mission with Danish astronaut Andreas Mogensen, KG5GCZ, and Russian cosmonaut Sergei Volkov, RU3DIS.

There had been some speculation that Brightman might use Amateur Radio during her ISS stay; she apparently would be eligible to do so using the GB1SS call sign.

Sarah Brightman undergoes medical testing in preparation for her now-delayed visit to the ISS.

The British soprano is reported to have paid $52 million to be a "spaceflight participant" for 10 days. Brightman said she was putting her spaceflight on hold for personal and family reasons, and she has postponed her cosmonaut training and flight plans.

"Since 2012, Sarah has shared her story of a lifelong dream to fly to space," said Eric Anderson, co-founder and chairman of Space Adventures Ltd, which arranged the flight. "We've seen firsthand her dedication to every aspect of her spaceflight training and to date [she] has passed all of her training and medical tests. We applaud her determination and we'll continue to support her as she pursues a future spaceflight opportunity."

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Another Australian Balloon with a Ham Radio Payload Circumnavigates Earth

The circumnavigation of another party-type foil balloon from Australia has demonstrated that having one circle the Southern Hemisphere is no fluke. Andy Nguyen, VK3YT, launched his PS-46 balloon, which carried an Amateur Radio payload, on May 25. The balloon completed the trip on June 4. Nguyen's earlier PS-41 balloon was the first such balloon to circle Earth.

"This time it was in the right position -- before arriving in Western Australia -- for the jet stream to push it over land," Nguyen said.

The helium balloons in this series carried a solar-powered 25 mW transmitter which sent *WSPR*, *JT9*, and sometimes *Olivia* signals on 30 and 20 meters, enabling their tracking and the gathering of reports on altitude, speed, direction, and battery condition. The PS-46 balloon completed its journey around the globe in slightly more than 12 days. - *Thanks to Jim Linton, VK3PC*

In Brief...

HEX-BEAM® Manufacturer Traffie Technologies Shutting Down Traffie Technologies, the Massachusetts-based family business that has pioneered and manufactured the HEX-BEAM line of rotatable wire beams, is closing its doors. "This is to inform everyone that we are closing down production of the HEX-BEAM®," an announcement on the HEX-BEAM website said. The company's principal, Mike Traffie, N1HXA, has indicated that he is open to having someone else take over the business. The small firm came into being in 1992, and HEX-BEAM antennas have been developed for 40 meters through 2 meters in various monoband and multiband versions. The company's latest product is the HX5Bi, which covers 10, 12, 15, 17, and 20 meters.

SATERN to Mark The Salvation Army Anniversary in Early July: The Salvation Army Team Emergency Radio Network (SATERN) will mark the 150th anniversary of The Salvation Army with a Salvation Army 150th Anniversary QSO Party, Wednesday, July 1, through Sunday, July 5. All are welcome to take part. Operators who make contact with a SATERN station are eligible for a special event QSL card. The QSO party is being sponsored by a partnership between The Salvation Army National Headquarters, the Alabama-Louisiana-Mississippi Division of The Salvation Army, and the Jackson (Mississippi) Amateur Radio Club.

W4DXCC DX and Contest Convention Set for Late September: The Southeast's largest ham radio event, the W4DXCC DX and Contest Convention will take place September 25-26 in Pigeon Forge, Tennessee (home of Dollywood). Sponsored by The SouthEastern DX and Contesting Organization (SEDCO), the event features presentations on DXing and contesting topics and, of course, prize drawings. Ham radio equipment manufacturers and dealers will be on hand to demonstrate new products and answer equipment questions. A banquet rounds out the day. This year's convention will offer a daylong "Ham Radio Boot Camp" to Elmer newcomers on station and antenna construction, operating, DXing, and contesting.

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The ARRL Rocky Mountain update for June, 2015

===== 2015 ARRL Rocky Mountain Division Convention -- Next month! =====

Online registration is open and hotel rooms, RV spots, and camping areas are filling fast for the 2015 ARRL Rocky Mountain Division Convention, which takes place July 31-August 2 at Ruby's Inn located a short distance away from gorgeous Bryce Canyon National Park.

Carrying on the tradition of quality Division Conventions, the ARRL Utah Section (this year's host) is hard at work planning a great weekend getaway this summer. Among the numerous things to look forward
to: Spending a weekend meeting and building relationships with hams from all across Colorado, New Mexico, Utah, and Wyoming; buying and selling amateur radio equipment; technical and non-technical forums; special guest speakers and VIPs including Dan Henderson N1ND (past longtime ARRL Contest Manager and current ARRL Regulatory Information Manager); ham related competitions and awards; ham license exams; an always special Wouff Hong ceremony; delicious meals; prizes; and much more.

Visit the 2015 Division Convention website at http://utahhamfest.com for more details, to register as an attendee, and to reserve your comfortable room, RV spot, or camping area at Ruby's Inn before they are all spoken for.

We look forward to seeing you in Bryce Canyon for the 2015 ARRL Rocky Mountain Division Convention this summer.

===== 2015 Central States VHF Conference -- July 23-26 in Denver =====

The 49th Annual Central States VHF Society Conference will take place in Denver, Colorado on July 23-26th, 2015. This year's conference, hosted by Rocky Mountain Ham Radio, will occur at the Denver Marriott Westminster.

The Central States VHF Society Conference is the nation's premier conference on VHF-and-above operating, contesting, homebrewing, and experimentation, attended each year by numerous VHF+ operators from around the country and world. This year's event will have much in store including: Technical presentations, papers, and poster displays on VHF+ related topics (including antennas, RF and circuit design and construction, testing and test equipment, operating, contesting, propagation, software defined radios, digital modes, etc.); dinner banquet with special guest ARRL Vice President and accomplished VHF+ operator Rick Roderick K5UR; luncheons and hospitality suites; technical programs, noise figure measurement; an antenna range; rover vehicle show and tell; prizes; family activities around Denver; and more.

Operating opportunities under consideration include operating from the Rocky Mountain Ham Radio remote base station in Pueblo, microwave operating from local mountaintops and the chance to score microwave VUCC in a weekend! Bring your equipment. There will be introductory programs geared to newcomers to weak-signal VHF+

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operation and designed to encourage younger hams to get involved in DXing and contesting.

Online registration is open right now, and more details including the event's schedule await you at http://2015.csvhfs.org. Early registration ends June 22. Rally up the hams in your area for an easy road-trip (carpool or caravan) to Denver and be a part of this unique event.

===== ARRL Rocky Mountain Division Net =====

Please join us for our next monthly ARRL Rocky Mountain Division amateur radio net.

ARRL members and hams are invited to participate in this monthly interactive and roundtable-like net, accessible through both IRLP and Echolink to interact with Division and Section leadership, meet League members, and receive pertinent League -related information while at home or out and about.

Here are the details:

DATE: Second Wednesday evening of each month (next: July 8)
TIME: 7:30 PM mountain time
IRLP NODE: 9871
ECHOLINK NODE (experimental): Conference *CANONCTY* (node 363976)

To find an IRLP-capable repeater in your area, visit the "Node Info" page at http://www.irlp.net. Generally all you need to do to link an IRLP-capable repeater into the net's reflector is enter "9871" with your DTMF keypad and wait for the voice prompt indicating that the link is open. To unlink, enter "73".

To find an Echolink-capable system in your area, visit http://www.echolink.org/ and http://www.echolink.org/links.jsp

If you've never used IRLP or Echolink before, please experiment with linking/ unlinking before the net.

We hope you'll join us for the net.

Questions for Extra Class License

1.(E1F14) Under what circumstances might the FCC issue a "Special Temporary Authority" (STA) to an amateur station?
A. To provide for experimental amateur communications
B. To allow regular operation on Land Mobile channels
C. To provide additional spectrum for personal use
D. To provide temporary operation while awaiting normal licensing

2. (E2E12) Which type of digital communication does not support keyboard-to-keyboard operation?
A. Winlink
B. RTTY
C. PSK31
D. MFSK

3. (E3C14) Why does the radio-path horizon distance exceed the geometric horizon?
A. E-region skip
B. D-region skip
C. Downward bending due to aurora refraction
D. Downward bending due to density variations in the atmosphere

4. (E4E14) What is one type of electrical interference that might be caused by the operation of a nearby personal computer?
A. A loud AC hum in the audio output of your station receiver
B. A clicking noise at intervals of a few seconds
C. The appearance of unstable modulated or unmodulated signals at specific frequencies
D. A whining type noise that continually pulses off and on

5. (E5D18) How many watts are consumed in a circuit having a power factor of 0.71 if the apparent power is 500 VA?
A. 704 W
B. 355 W
C. 252 W
D. 1.42 mW

6. (E6F12) What absorbs the energy from light falling on a photovoltaic cell?
A. Protons
B. Photons
C. Electrons
D. Holes

7. (E7H18) What are the major spectral impurity components of phase-locked loop synthesizers?
A. Phase noise
B. Digital conversion noise
C. Spurious signals at discrete frequencies
D. Nyquist limit noise

8. (E8D16) What is the RMS value of a 340-volt peak-to-peak pure sine wave?
A. 120V AC
B. 170V AC
C. 240V AC
D. 300V AC

9. (E9H11) What characteristic of a cardioid-pattern antenna is useful for direction finding?
A. A very sharp peak
B. A very sharp single null
C. Broad band response
D. High-radiation angle

10. (E0A01) What, if any, are the differences between the radiation produced by radioactive materials and the electromagnetic energy radiated by an antenna?
A. There is no significant difference between the two types of radiation
B. Only radiation produced by radioactivity can injure human beings
C. Radioactive materials emit ionizing radiation, while RF signals have less energy and can only cause heating
D. Radiation from an antenna will damage unexposed photographic film but ordinary radioactive materials do not cause this problem

(For answers to test questions see page 12)

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