Arctic Amateur Radio Club

September 2005

KL7KC
Fairbanks, Alaska

The Short Circuit

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Fresh Faces, Fresh Ideas for AARC

At the September 2nd meeting, members elected the 2005-2006 slate of officers and board members, among them several faces new to club leadership positions.

Justin KL1RL, an engineering student at UAF, comes poised to merge Internet and ham radio technologies. He hosts the KL1RL IRLP node in downtown Fairbanks (see below) and expresses a keen interest to recruit new hams from the ranks of computer-philes wanting to extend the boundaries of wireless networking.

MaryBeth KC0CWG received her license in 1998. Before moving from Colorado, she followed the Yukon Quest from afar. She says, "We as hams have so much to offer our community. It is amazing when you make a list of just what the hams in Fairbanks and the area already do, not to mention how much we can all learn from each other." She has jumped right in to help Linda Mullen AD4BL organize our efforts for the new YQ management team. Way to go!

Board member Shelley KL1SE is a long-time businessman and currently owner of Below Zero Gunsmithing in North Pole. He knows a lot about overcoming challenges, personal and otherwise. Shelley cites the need for more mutual support between local hams. The club can help a lot here.

Among the challenges AARC faces is recruitment of new members as well as retention of existing members. **As of this writing, 89 members have paid their 2005-06 dues.** Alaska has over 3200 licensed hams, more than 500 of whom are in the Fairbanks area!

Among our commitments is renewed publication of this newsletter, continuing expansion of information and services offered through the AARC web site, and a more aggressive public relations campaign.

But we need more help! Support for public events and emergency preparedness are also key to the club's success. However, without increasing the number of willing volunteers, our ability to serve the community as we have traditionally is at risk.

Active mentoring of new licensees is very important, and **we need "Elmers" to help the new gang along.** Even a little on-air experience can go a long way to aid their enjoyment of the hobby. Don't be bashful!

If you can help or have ideas, then talk to one of our officers or board members. ⌗

IRLP operating tips to remember:

- Multiple node connections ("reflectors") are possible.
- Use a 2-sec delay between keying your mic and speaking.
- DTMF 9070 connects to the Alaska reflector.
- DTMF 9990 gives status or is test mode.
- DTMF 73 disconnects.

Internet Radio Linking Comes to Fairbanks

The Internet Radio Linking Project (IRLP) got its start back in late 1997 when David Cameron VE7LTD set out to connect Canadian ham stations using the Internet. The first full-time link was established between Vancouver, BC, and St. Johns, NB, several months later. The technology has evolved considerably and now uses dedicated nodes across the planet using Linux computers and voice-over-IP protocols.

Dave Cloyd KL7M and TJ Tombleson KB8JXX both recently donated IRLP equipment for use here in Fairbanks. Justin Burket KL1RL hosts one node on 147.55 MHz FM simplex with 97.4 Hz PL. The other node is planned for installation in Fox using a 440 MHz link.

IRLP is as easy as using any repeater, but extra delays are needed to make sure all nodes in the network connect and synchronize. Try connecting to node 9990, which will record and play back your audio. Also see http://www.irlp.net ⌗

Interior APRS Growing

APRS can be useful for search and rescue or even camping trips.

If you tune your 2m radio to 144.39 MHz around Fairbanks, you'll quickly hear the distinctive *brrrrrp* of stations sending Automatic Position Reporting System (APRS) packets containing location, weather, and brief messages. KL0RN, AL7N, KL7FWX, AD4BL, KL1OQ, and KL1BE are just some of the stations you will hear. In the Lower 48, APRS has been ubiquitous for years, but it is just catching on in earnest here in the Interior.

APRS is the brainchild of Bob Bruniga WB4APR, who devised the system as a way to exchange digital critical information between stations. The utility arises in a rapidly changing "tactical" communications scenario, where radio operators need to know each others' locations, status, etc. Stations may send GPS position, weather, and/or text messages. Also, "objects" such as the location of a fire or auto accident can be created and sent to the network. Mapping software such as WinAPRS or UI-View can be used to display all this information.

APRS can provide real-time information of all stations participating in, say, a special event or an emergency response. Equipment needs are minimal, and HTs like the Kenwood TH-D7A(G) combine TNCs into the radio for convenient data display. Visit http://www.aprs.org

Power Talk (Part 1): NiCd vs. NiMH for HTs

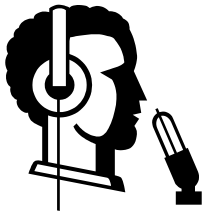
Lithium-ion and lithium-polymer batteries are evolving and offer much promise. Special current and voltage limiting circuits are needed for safety due to so much energy packed into small, lightweight units.

Handheld radios have many options to consider for power: nickel-cadmium versus nickel-metal hydride, for example. Beyond basic capacity for a given size (power density), you also need to think about how long a battery takes to charge, cycles to expect, and undesirable features like "memory effect". Then there's cost!

NiCd batteries use very mature technology and offer an extended operating temperature range (-40 to 60C) and up to 1500 charge cycles when properly maintained. These batteries require periodic full-discharge to avoid reduced capacity. NiCd batteries also contain toxic material and are environmentally unfriendly.

NiMH pack more punch in a given battery pack but at the cost of reduced lifecycles. Use a properly-rated charger, because they have low tolerance for overcharge. Cost per cycle is about 3X compared to NiCd cells. However, they are relatively free of toxic materials. Make sure you visit www.batteryuniversity.com

Elmer Central: Questions & Answers



Send your questions to n1tx@amsat.org

Q: What's the difference between IRLP and other VoIP applications like Echolink?

A: While on the surface IRLP and EchoLink look somewhat similar, they are actually quite different in their approaches. EchoLink allows users to use their PC to connect to the network. IRLP is designed to prevent this sort of connection. Security is different, too. IRLP uses a PGP based authentication scheme. EchoLink uses a simpler password scheme, and its callsign validation procedures are not accepted as adequate by all parts of the IRLP community.

EchoLink does *not* require a specialized hardware interface for connections to transceivers. All timing functions and DTMF decoding take place within the EchoLink software. This means that you can enjoy EchoLink with the radio of your choice by using common

(Continued on page 3)

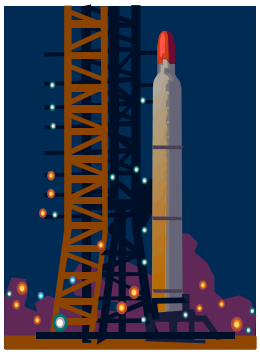
SSETI Express Set to Launch September 30th

The SSETI Express mission is an educational and amateur radio mission scheduled for launch on 30 September 2005. Lift off is expected at approximately 06:52 UTC from the Plesetsk Cosmodrome in Russia.

SSETI's goal is to deploy three CUBESAT pico-satellites developed by universities in Japan, Germany, and Norway. SSETI will function as an amateur radio transponder for the remainder of the mission. SSETI will also downlink earth images and demonstrate technology for the European Student Earth Orbiter.

The satellite will automatically transmit general telemetry at 9600 bps on 70cm. Hams can also to request specific downloads. SSETI will be available for amateur voice operation as a Mode U/S transponder (437 MHz uplink and 2401 MHz downlink) after initial tests on the satellite have been completed.

The bird's 70 cm FM transceiver at 437.250MHz that transmits and receives the AX25 packet telemetry and payload data at 9600 bps with 3W into a canted 1/4 wave whip mounted on the top plate. It also has an S-Band FM transmitter at 2401.835 MHz, which will transmit 38.4 kbps and can be configured to work as a voice transponder. It produces approximately 2.5 watts of RF output, and feeds three patch antennas. ⌗



SSETI Express will carry both 70 cm and S-band downlinks.

Try Something New on Six Meters!

You worked hard for that Tech license. Now that you've experienced a little 2m FM on the repeater, you're looking for something more. TRY SIX METERS!

Worldwide propagation on 6m is possible just like HF. However, six-meter CW and SSB operators do a lot of waiting, because of the unpredictable nature of the band. To help show when the band is open, six-meter fans around the world have put a fairly extensive suite of beacons on the air. In the U.S., beacons occupy the region between 50.060 and 50.080 MHz. In other countries, beacons are spread more widely throughout the band.

Don't think you have to wait for DX openings. Try using 6m FM instead of two meters. Propagation is very different, and you'll be surprised at the distances you can cover on the band. Try 52.525 and 53.4 MHz FM simplex. Remember to be considerate of the band plans and regulations for modes and frequencies. ⌗

A handful of local ops consider 6m their personal domain and have been known to chase off or discourage newcomers. Report any intentional interference. Take back *YOUR* band!

(Q&A continued from page 2)

sound card interfaces. Software differences also exist. IRLP runs under Linux, and EchoLink is a Windows application.

The iLink system is the brainchild of Graeme Barnes, MØCSH. iLink is one of the VoIP pioneers and is functionally quite similar to EchoLink, although it requires a specialized radio interface such as the ULI or VA3TO boards.

eQSO, created by Paul Davies, MØZPD, was designed to operate like a worldwide ham radio net. It is based around dedicated servers, and can be used from a personal computer or through a radio link.

WIRES-II is a Yaesu-developed, radio-based system similar to IRLP, except it runs under Windows. WIRES-II uses the HRI-100 interface (~$150) and is designed for use with any brand transceiver. Two modes are available in WIRES-II, which permit different configurations of node interconnections.

See http://www.arrl.org/qst/2003/02/VoIP.pdf and http://www2.arrl.org/FandES/field/regulations/faq-voip.html for details. ⌗

Voice-over-IP applications for amateur radio are finally maturing.

Arctic Amateur Radio Club

Membership $20 individual, $25 family. Send checks to AARC
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E-mail: bennie@gci.net

The Arctic Amateur Radio Club traces its roots back nearly 70 years. Ham radio has played a key role in many Alaskan's lives over the last century, including critical assistance after the Great Earthquake of 1964. Even today amateur radio provides the only means of communication with some homesteaders far off the beaten path. Headquartered in Fairbanks, AARC also welcomes all visitors to our great land and encourages you to join us for on-the-air friendship and radio fun with our members residing throughout Interior Alaska. Turn the page for details on the club, special events, and more.

Visit www.kl7kc.com for the latest club news and events!

Service to Interior Alaska: We can, we will, we do.

NEWS FLASH! Club meetings on October 7th and November 4th will be held at the International Arctic Research Center (IARC) in Room 401. IARC is next door to the traditional meeting location at the UAF Geophysical Institute (Elvey Building). Please stand by for additional updates on meeting location. The GI recently informed AARC of their decision to enforce a long-standing policy not to permit unaffiliated groups use of their facilities. Discussions continue, but the board is investigating other venues for meetings.

2005-06 Election Results

Officers

- Larry Ledlow N1TX, President
- Justin Burket KL1RL, Vice Pres.
- MaryBeth Groves KC0CWG, Secretary
- Benny Benevento NL7XH, Treasurer

Board of Directors

- Jim Movius KL7JM
- Linda Mullen AD4BL
- Dan Wietchy KL1JP
- John Slater KL1AZ
- Steve Estes KL7XO
- Kevin Abnett NL7WO
- Shelley Levine KL1SE

Calendar of Events

2005

Oct 1: License exams Noel Wein Library @ 1 PM. Contact NL7XH.

Oct 7: Club meeting UAF IARC @ 7 PM. Pre-meeting starts at 6 PM.

Oct 29-30: CQ Worldwide DX contest (SSB).

Oct 30: FISTS CW Coast-to-Coast contest.

Nov 4: Club meeting UAF IARC @ 7 PM. Pre-meeting starts at 6 PM.

Nov 5: License exams Noel Wein Library @ 1 PM. Contact NL7XH.

Nov 5-7: ARRL Sweepstakes Contest (CW).

Nov 19-21: ARRL Sweepstakes Contest (SSB).

Nov 26-27: CQ Worldwide DX contest (SSB).

Dec 2: Club meeting location TBD @ 7 PM. Pre-meeting starts at 6 PM.

Dec 3: SKYWARN Recognition Day special operating event at National Weather Service. 0000-2400 UTC.

Dec 3: License exams Noel Wein Library @ 1 PM. Contact NL7XH.

Dec 10-11: ARRL 10m contest

2006

Jan 6: Club meeting location TBD @ 7 PM. Pre-meeting starts at 6 PM.

Dec 7: License exams Noel Wein Library @ 1 PM. Contact NL7XH.

Feb 3: Club meeting location TBD @ 7 PM. Pre-meeting starts at 6 PM.

Feb 4: License exams Noel Wein Library @ 1 PM. Contact NL7XH.

Feb 4-5: Junior Yukon Quest. Contact AD4BL.

Feb 11: Yukon Quest starts in Fairbanks. Contact AD4BL.