

November 2006
 KL7KC
 Fairbanks, Alaska



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City Lot and 80m? No Problem!

By *Shelley Levine KL1SE*
 and *Dan Wietchy KL1JP*

Shelley KL1SE is an active DXer from his home in North Pole. He has enjoyed some excellent successes — including contacts in the Middle East and Africa as well as the Antarctic 3Y0X DXpedition — with his multi-band GAP vertical antenna planted in the middle of his back yard. Unfortunately, reliably checking into any of the Alaskan regional nets (Snipers in particular) has been a consistent problem. Even in Two Rivers or in Fairbanks, his signals on 75m phone were often very weak, and he needed a solution. Shelly was looking for an antenna that would give low SWR on 75/80m, be resonant at 3.92 MHz, fit nicely inside his yard and be relatively inexpensive to build. Larry N1TX did some preliminary antenna modeling resulting in the decision to install an inverted vee. It was a simple design with only one support pole, had a low cost, and fit in Shelly's existing yard space.

Why such a poor signal from the existing vertical and why settle on a vee? The problem arises from the nature of the vertical antenna pattern, which is shaped much like a doughnut. The energy is broadcast equally in all directions of the compass, but most is delivered at low elevation angles. (Figure

1). That's fine for DXing, but it has a tendency to propagate long distances and hop over stations within Alaska. For "local" work, signals need to extend upward at high angles to be refracted back to earth nearby rather than towards distant lands. The ideal radiation pattern would be shaped like an inverted cone, just the opposite of his vertical. Clearly, Shelley needed an antenna very different from his GAP.

Thanks to Jim Movius KL7JM, low-slung horizontal loops are gaining popularity among Interior hams. They have the desired radiation pattern, tend to pick up less noise than high antennas, and are very simple to build. Unfortunately, a loop around the KL1SE homestead would be problematic, because the back yard only measures about 50 x 100 feet, and it is devoid of trees from which to hang loop corners. Also, power lines feeding the house limit available acreage. A full-wave loop cut for 3.92 MHz requires just a bit less than 260 linear feet, which is do-able,

but three (delta loop) or four (square/rectangular loop) vertical supports would be required. The fewer vertical supports required, the better in this case.

The antenna height was not much of a consideration, since lower is better for this project, which may seem counter-intuitive. An antenna suitable for near-vertical incident sky-wave propagation (NVIS) propagation theoretically should be somewhere between 1/10 and 1/4 wavelength above the ground. Even lower heights are quite usable, and some hams have experimented with NVIS dipole antennas as low as a few inches above the ground.

It was time to get back to basics.

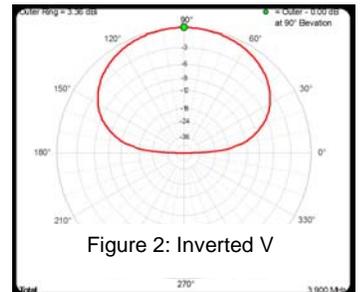
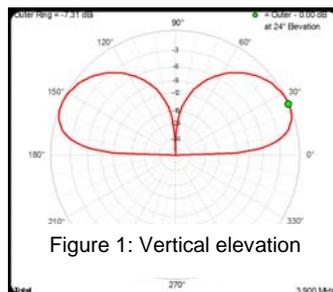
A dipole is the simplest resonant antenna to build, and a dipole with a single center support becomes an inverted V. The result of the modeling shows an inverted V mounted low to the ground to potentially be a very good NVIS antenna (Figure 2), and in this

(Continued on page 2)

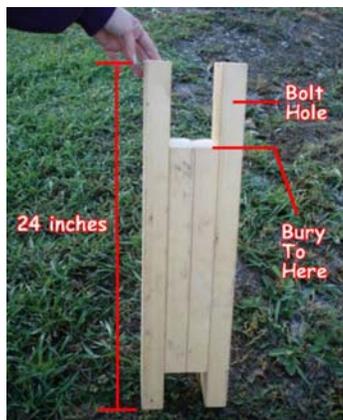
Yukon Quest Signups

We need volunteers to help set up the AARC Net Control (Log Cabin), volunteers to man checkpoints and safety locations, radio operators to provide 24/7 support at the Log Cabin, spotters and miscellaneous support personnel. The race begins 2/10 in Whitehorse.

Contact AD4BL or sign up using the on-line form at <http://www.kl7kc.com/QuestVolForm.htm>



(Inverted Vee —Continued from page 1)



case, would likely be far superior to the GAP for communications out to 300-400 miles. Moreover, since it requires about 110-120 linear feet, it would fit neatly when installed diagonally in KL1SE's lot. A 1:1 balun, wire, end insulators, and coax are the only parts needed for the antenna itself, so attention was then turned to finding a suitable center support.

Push-Up Masts

The inverted vee requires an apex angle of no less than about 120 degrees, and for safety reasons, the antenna wires should be well clear of the ground, structures, and power lines. The designers settled on a push-up mast to provide 30-45 feet of center height.

Included here is a general guide to installing Rohn (now Radian Communications) telescoping masts. Other vendors' poles can be installed in identical or

very similar manners. The Rohn push-up masts are relatively inexpensive, moderately easy to erect, and provide a simple way for any amateur to get an antenna high in the air in a short time period. KL1JP has used several techniques to achieve a solid and stable in-



stallation, and the purpose of the following section is to provide some basic, time-tested methods that work.

If the Shoe Fits...

The bottom section of the mast should sit inside a buried shoe (left) for a variety of reasons: It gives the mast a lot of stability; it gives one person the ability to swing the mast up or down without too much trouble; the shoe keeps the mast off the ground so the precipitation can run through and out the bottom; and finally, it's nice to have the mast slightly elevated so that, if need be, adjustments can be made during the long winter.

The construction technique for the shoe shown was gleaned from Jim (KL7JM) during the first AARC field day in 2005. As one of several neophytes during the FD antenna installation process, particular attention was paid to how antennas were being installed. For FD 2005, we had no fewer than four antennas in the air and helping to set each one was a worth-while lesson in something related to amateur radio. Using Jim's shoe and realizing how much it stabilized the push-up mast really caught everyone's attention. KL1JP used Jim's general construction technique but lengthened the assembly to 24 inches for a more permanent installation purpose.

This particular shoe is composed of four lengths of 2 x 4's, nailed and screwed together to provide a stable assembly. For a semi-permanent location, use two 24-inch lengths of 2 x 4 for the outer walls and two 16-inch lengths

of 2 x 4 for the inner sections. A single 3/8-inch bolt-hole through the top of the shoe about 2-4 inches from the top lip provides the point for inserting the bolt that suspends the mast. All Rohn masts come with a pre-drilled hole near the bottom end. Dan KL1JP usually enlarges that existing hole to 3/8 inch to provide the use of the larger bolt. Most of the shoe is buried, with about 3 inches sticking out of the ground. You can use a post hole-digger or a shovel to dig the emplacement hole.

Once the pole's bottom is set and bolted in position, you can proceed in either of two ways. You can fully extend the pole while it's on the ground, connect wire guy lines and raise it into position. Using this method, you'll need two people and you'll go through several iterations of balancing the now vertical pole, adjusting the wire guys and tying the guys to steel rebar ground stakes. The second method is to raise the still-collapsed pole into a vertical position, run guy wires from the 8 foot height out to steel rebar ground stakes and after stabilizing the pole, then raise the remaining sections while perched precariously on a step-ladder. Either method has advantages and disadvantages.

A Steady Platform

Built mostly from scrap lumber, this platform (left) consists of 4 x 4's, 2 x 8's, with some 2 x 4's and 2 x 6's for the decking. It is approximately 7 feet long and 4 feet wide and sits

(Continued on page 7)

DXLab Suite for All Your Needs

By Larry Ledlow, Jr. N1TX

It's been ages since I put any serious effort into my shack. The past couple of months have been quite busy at the N1TX station as I and several others have been getting ready for contest season.

I feel like kid in the candy store. There are lots of cool tools out there. The latest "sweet" I discovered is the DXLab Suite for Windows. It has everything from logging to rig and rotor control to propagation to soundcard interface to PSK modes. Each key function (e.g., rig control and logging) are handled in separate applications, which you can invoke individually from the START menu or from a central "LAUNCHER".

I was perusing alternatives to long-used Win-EQF, and I stumbled on some rave reviews of DXLab Suite at www.eham.net. Intrigued, I downloaded the whole kit and caboodle recently and spent a little while playing.

The rig control implementation for the FT1000MP Mark V is very comprehensive, and I learned the CAT control can also handle PTT. With just a serial port connection, I can control transmit on and off with a click of the mouse button. I see immediately the potential for soundcard interfacing for digital voice keying and digital modes. Contesting software like Win-Test will do the same, but for a "general logging" program to have so

many augmentations is astounding to a guy like me, who's been obviously out of touch with some of the latest developments.

Rig management is really quite simple with loads of customization. Frequency entry and tuning are by keyboard and slide controls. You can program memories with frequency, mode, and filter settings, organize the memories in banks, and scan them. VFO swapping can be momentary (quick check) or complete. On the Mark V, dual receive can be controlled on and off. There is hardly a reason to touch the radio.

One application grabs DX spots from a cluster according to your filter settings: Follow transceiver band or show any bands selected from tick boxes; show only certain modes; show only particular DX. The package also allows voice announcements of spots in case you're across the room or have vision problems. It fills in a spreadsheet with filtered spot details, and you can tune quickly to the correct frequency with a double click.

The logging app seems easy enough to deal with, and it operates with the usual callbook databases. I tested it with QRZ. Keeping track of awards and DX seems very comprehensive, but I did not explore this much. I noted some features for automatically uploading eQSL and LoTW entries for electronic QSL exchanges.

It just seems to get better and better.

And I didn't get to the other modules at all.

I think for you to use the system with several modules open, it would be best to have dual monitors. That said, you don't need a multi-gigahertz processor and 4 GB of RAM to run DXLab effectively. My shack PC is a 400 MHz Intel box running Windows 2000 Professional with 256 MB of memory.

You begin the installation process by first downloading an installer application, DXLab Launcher, which then allows you to select which core modules to retrieve. Not everyone will want the entire package, of course. The downloads, installation, and update proceed without much interaction from the user, except a few confirmations and selection of the install directory.

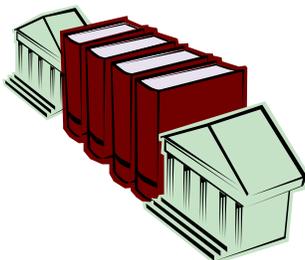
Eight modules make up the core package, but since DXLab Suite uses an open protocol, other programmers have added additional "bridges and extenders" for more functionality and interoperability.

Now the icing on the cake: It's free! Before you rush to download it, make sure you're using a high-speed line. Some of the files exceed 10 MB. However, I think you'll be glad you made the effort to get it on your system.

<http://www.dxlabsuite.com/>



FCC Continues BPL Obfuscation



(ARRL, Nov 7, 2006) The FCC has declared Broadband over Power Line (BPL)-enabled Internet access service to be an information service. The November 3 Memorandum Opinion and Order (MO&O) in WC Docket 06-10 places BPL-enabled Internet access service on an equal regulatory footing with other broadband services, such as cable modem and DSL. BPL proponent the United Power Line Council had asked the Commission last December to

issue a declaratory ruling in the matter. The FCC said competition among broadband services providers will provide consumers with more and better services at lower prices. "The Commission's broadband statistics show that subscribers to BPL Internet access services, although few in number overall, increased by nearly 200% in 2005," FCC Chairman Kevin Martin said in a statement. Specifically, the MO&O finds that the transmission component underlying BPL-enabled Inter-

net access service is "telecommunications," and that the provision of this telecommunications transmission component as part of a functionally integrated, finished BPL-enabled Internet access service offering is an information service. The FCC said the approach it's adopted with respect to BPL is consistent with the framework that it's established for cable modem service and wireline broadband Internet access service. #

ARES' Key Role in Mass Inoculation



In mid-October AARC ARES hams provided communications for the mass-inoculation exercise designed to provide flu shots to local residents while at the same time testing emergency preparedness. The scenario restricted cell phone usage. Ham radio, including packet with Airmail, was used for most exchanges between sites Above (l-r); N3WI, KL1AZ, KL1Y. Below: NL7XH, KC8MVW.



Ladder Line to Eternity — Part VI

By Eric P. Nichols, KL7AJ

"Arc" Flagston jammed his soldering iron into its holder with a yelp of triumph. "Yes!"

Jack Wattmeister peered over his shoulder. "O-o-o-kay. What is it?"

Arc held the circuit board up in front of Jack's face. "The Bunny from Hell is what it is. Those old geezers will be nothing but skeletons in their Winnebagos before they find this puppy!"

"What's so special about it?" Jack queried.

"It transmits for precisely five seconds...once every three days," Arc said, with an evil twinkle in his eye.

"Oh, you are indeed one dastardly son of a belch, Mr. Flag! Where are you gonna hide the thing?"

"You know that old abandoned silo out on Route 34?"

"Oh, you mean Crustwelder's old goat farm."

"Yeah, that place. There's a defunct electric fence around the field; it should put out a killer NVIS signal on 75 meters...but practically no ground-wave. And with this little pip-squeak's low duty cycle, it should run about a year on a nine volt battery."

"Oh man! You're more wicked by the minute! Where did you go to nasty school?!"

"I come by it naturally," Arc said, proudly.

Jack inspected the little trans-

mitter. "Ahh, I see you've got a 3866 crystal in there. Hey! Isn't that the Ironwood Falls Prostate and Periodontal Procedure Discussion Net frequency?"

Arc shrugged. "I hate glands and gums. So sue me."

Jack reluctantly agreed. "Yeah, it'll probably be the first new check-in they've had in thirty-five years. Can't do them any harm."

Arc grinned. "Yeah...it might even give them some incentive to get off their bunions and into some fresh air. If they can find this thing, they've earned their licenses for the next fifty years or so."

Jack nodded. "Maybe you aren't so evil, after all."

"Yeah, I should get PSHR for this!" Arc concurred. He glanced at the clock on his Hammarlund HQ-145 receiver. "Hey, it's only two-fifteen; the day is still young. Care to take a drive out to the old goat farm?"

Jack rolled his eyes. "Sure. Not much else to do on a Saturday afternoon."

Arc and Jack gathered up a DVM, a noise bridge, and various implements of destruction and piled into Arc's Cavalier. In fifteen minutes they were out at the old homestead. Arc approached a couple of posts where the original electric fence energizer had once been. He attached his DVM across a gap in the upper of two wires and set it to OHMS.

"Well, it looks like we have a continuous loop, anyway. No idea what the 'impudence' is though. Lemme 'tach my noisy bridge and see what we've got."

Jack handed Arc the noise bridge and some cables, and then scanned the field. "It looks like it's at least a few wavelengths. Are you sure this is going to be an NVIS antenna?"

"Well, it's pretty low. And the bottom wire should act like some sort of reflector...or something."

"Like a dummy load?" Jack suggested.

Arc raised his eyebrow. "I guess we'll find out, won't we?"

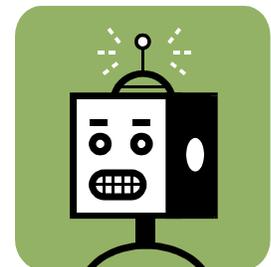
Jack peered up toward the peak of the abandoned silo. That would make a fairly good repeater site, wouldn't it?"

Arc shook his head. "Nah; the only thing holding that up is termites. Hey, look at that! This wire's resonant on 75! Such luck! Wanna run out to the car and grab that battery and the cooler?"

Jack dashed to the car and returned with an old but well-charged car battery, and an insulated plastic cooler. "I thought you said this would run for a year on a nine volt battery! What's with the car battery?"

Arc grinned. "Hey, our grandchildren will need new prostates and gums before anyone finds this transmitter. Just wanna make sure it lasts."

"It transmits for precisely five seconds...once every three days," Arc said, with an evil twinkle in his eye.



(Continued on page 6)

Well, the deed is done. With time to spare, even. Shall we go home and listen to the show?

(Ladder Line — Continued from page 5)

"Ahh," Jack said, with increasing understanding.

In no time at all, Arc deftly wired the little transmitter to the electric fence, attached the battery, and sealed the results in the plastic cooler for all eternity. "I have this set for 6:15 P.M., which should put our little broadcasts right in the middle of check-ins. With a three-day cycle, it will be a different day of the week every

time, no evident pattern except for the time of day. I'm brilliant."

"I never questioned that, Arc," Jack said.

"Now, get me a shrubbery!" Arc commanded. "We need to camel fodge this thing."

"Of course," Jack said. He scanned the premises, found no suitable shrubs, but did find a pile of ancient firewood near the silo. He returned with three times with handfuls of wood and stacked them around

the cooler. When all was done, it looked like nobody had been near the fence in decades.

Arc rose to his feet and clapped his hands in satisfaction. "Well, the deed is done. With time to spare, even. Shall we go home and listen to the show?"

"I feel unclean," Jack confessed, with a knowing grin.

Arc slapped him on the back. "Don't worry, you'll get over it."

XF4DL DXpedition Wraps Up

A team of Mexican and German amateurs have just completed a two-week radio expedition to tiny Socorro Island (IOTA NA-030), part of the Revillagigedo Archipelago approximately 300 miles south of Baja. As of this writing, over 56,000 contacts were made, according to the following breakdowns.

By bands:

- 10m = 1.039
- 12m = 1.807
- 15m = 7.636
- 17m = 7.389
- 20m = 14.073
- 30m = 5.907
- 40m = 8.372
- 80m = 6.612
- 160m = 2.956

By modes:

- CW = 26.213
- PSK = 1.408
- RTTY = 3.238
- SSB = 25.432

Even more remarkable has

been their ability to transfer their logs to the mainland to allow for on-line log searches. The crew did not have an internet connection on the island, like many of us have in our shack. All information was transmitted back via Pactor on HF to a gateway, and the gateways then forwarded the messages to the sysops.

Files size limits for forwarding is 10 kB, which equates to about 700 QSOs. Thus, the operators have to extract small parts of the main log, which then get reassembled into the central database by the support crew, XE1YJS and DL5NAM, at home.

For those of you members fortunate enough to work XF4DL from Alaska, the US QSL manager is N6AWD.

Socorro Island is a volcanic island in the Revillagigedo Islands, a Mexican possession lying off that country's western coast at 18°48'N, 110°59'W.

The size is 16.5 by 11.5 km, with an area of 132 km².

San Benedicto, Roca Partida, and Clarión are other islands making up the group. A small naval facility exists on Socorro with staff and their families numbering around 250.

The island rises abruptly from the sea to 1130 meters in elevation at its summit, Mount Evermann. It is a shield volcano. It most recently erupted in 1993. At the beginning of the twentieth century, Dr. Barton Warren Evermann, director of the California Academy of Sciences in San Francisco, promoted the scientific exploration of the island. The most comprehensive biological collections were obtained at this time.

Socorro has the most diverse ecosystem of the archipelago, but many species of plants and animals have become extinct or are threatened by man's activities. ♯



(Inverted V — Continued from page 2)

about 5 feet off the ground. The verticals are buried approximately five feet in the ground. The back two 4 x 4's stick up a bit higher than the deck to help stabilize a small ladder used to climb up and on to the platform. The entire assembly is tied together with the 2 x 8's. After assembly, it was stained and sealed to help weatherproof it. On the east side of the platform, the shoe mount is buried (discussed above) and supports a 35-foot mast, which is attached to the platform using a 2-inch U-bolt assembly and a single fence clamp.

Three lengths of six-strand galvanized 20 gauge wire run from the pole's 20 foot height out to eye-bolts located about 10 feet above the ground. Three guys to help stabilize the antenna in the event of heavy snow or high winds. The guys are located high enough for the visiting moose population to walk under.

One nice aspect of the permanent platform is that you can safely stand on the deck to raise or lower the mast. It truly is a safer way to handle the masts if you are doing it solo.

4x4 Mounting Post

Another alternative solution for tall masts is to mount them directly to a single 4 x 4 buried deep in the ground (right). After burying the 4 x 4 to a depth of 4 - 6 feet, it too can be stained, sealed and weather-proofed. For this installation, Dan buried another shoe, this time directly adjacent to the 4 x 4. For vertical stability, he



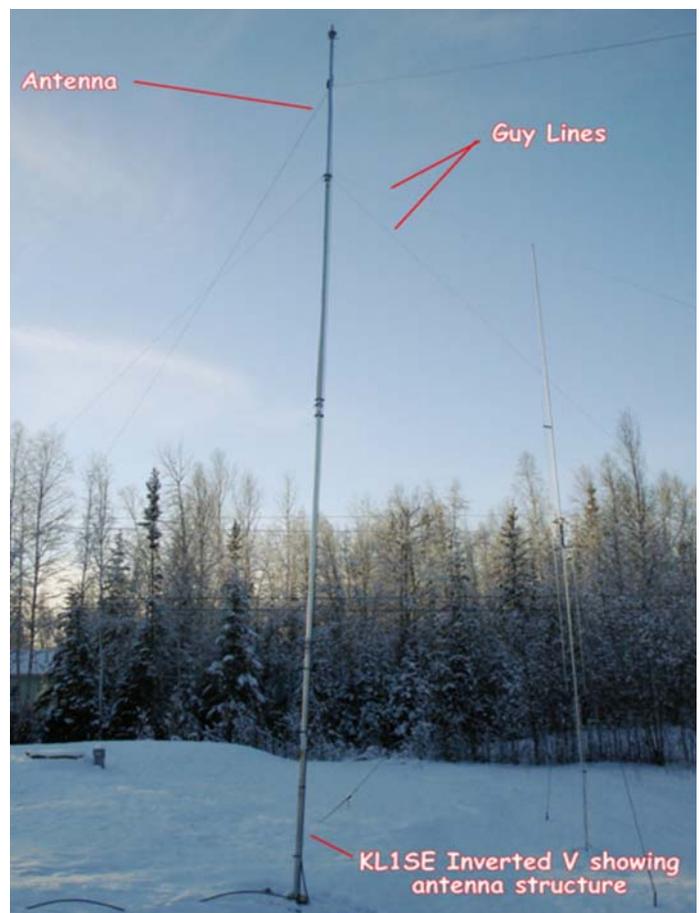
wanted to use a 2-inch U-bolt assembly to add stability. Unfortunately, the 4 x 4 is not wide enough, so it required a lag-bolted, four-foot 2 x 6 vertical extension to the 4 x 4 to provide the additional width. Once the pole is in position, a couple of strands of guy wire will run from the top of the mast to the same eye bolts used to guy the platform mast.

The Finished Antenna

Larry and Shelly completed the final assembly, trimming the antenna wire and tuning for 3.92 MHz. Tuning is iterative. The initial SWR was measured with an MFJ antenna analyzer, and resonance was found to be around 3.45 MHz, which indicated the antenna was far too long. Larry snipped off about a foot of wire from each end and then re-measured VSWR. The change in length moved the resonance up about 80 kHz. The process continued like this several more times until a good match was found at 3.92 MHz.

Shelley put his new antenna on the air on October 19 and it's

working GREAT! It has a 1.1:1 VSWR with a bodacious signal on 75/80 meters, strong and clear on the nets even with low power, but high power can be used if needed. The 1.5:1 VSWR range is about 80 kHz, and the 2:1 VSWR is around 120 kHz, therefore covering all of the usual 75m phone band net frequencies without the need for a tuner. The new antenna will be used mostly for local contacts, but over the winter months KL1SE will be comparing it to the multi-band ground mounted vertical to see how it will fair on DXing. It is a strong and solid antenna that will hold up to our harsh Alaskan winters. See you all on the bands... #



Arctic Amateur Radio Club

Membership \$20 individual, \$25 family. Send checks to AARC
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Phone: 907-479-5203
E-mail: bennie@aci.net

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

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



FROM THE BOARD:

The monthly board meetings are now held at a new venue:

Trio Hawaiian Grill, 1235 Airport Way, near Gottschalks

First Thursday after general membership meetings, 7 PM

Calendar of Events

Nov 3: General meeting, UAF IARC Room 401. 7 PM. Pre-meeting activities start 6 PM.

Nov 4-6: ARRL November Sweepstakes -- CW. See Oct *QST*, p 103, or www.arrl.org/contests.)

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

Nov 9: Board meeting. Trio's Hawaiian Grill, 1235 Airport Way. 7 PM.

Nov 18-20: ARRL November Sweepstakes -- SSB. See Oct *QST*, p 103, or www.arrl.org/contests.)

Nov 25-26: CQ World Wide DX Contest -- CW. Sponsored by *CQ Magazine*. See www.cqww.com for details.

Dec 1: General meeting, UAF IARC Room 401. 7 PM. Pre-meeting activities start 6 PM.

Dec 2: License exams. License exams. Noel Wein Library. 1 PM. Contact NL7XH.

Dec 1-2: Skywarn Recognition Day. <http://hamradio.noaa.gov>.

Dec 19-20: ARRL 10m contest. Begins 0000Z (1500 local time).

Dec 16-Jan 1: Lighthouse Christmas Lights QSO Party - all modes, sponsored by the Amateur Radio Lighthouse Society: Frequencies: 1.830, 3.530, 7.030, 14.030, 21.030, 28.030; SSB -- 1.970, 3.970, 7.270, 14.270, 21.370, 28.370

[Http://arlhs.com](http://arlhs.com)

Authors, Please!

Every month the AARC newsletter replies on input from you, members. We like to hear about your interests and experiences, and we're in need of material for future issues.

In particular, we'd like to have more of the following:

Equipment and software reviews

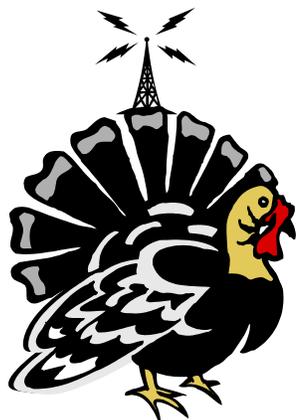
Operating activities

Construction projects

Profiles of members

Opinions!

No matter your skills, the editorial staff will work with you to make you look like a pro in print. As a bonus for contributing, you will receive a lifetime free subscription to the newsletter. Send unformatted text and photos to n1tx@amsat.org.



DX Gobbler

SRD 2006

Skywarn Recognition Day is an annual operating event sponsored by the National Weather Service. It was developed in 1999 by the National Weather Service and the American Radio Relay League. It celebrates the contributions that volunteer SKYWARN radio operators make to the National Weather Service. During the day SKYWARN operators visit NWS offices and contact other radio operators across the world.

This year SKYWARN Recognition Day begins at 0000 UTC on December 2, 2006. It will last 24 hours.

KL7FWX is not listed for operation this year, but YOU could make it happen. See a board member now!#