



## Automatic Position Reporting System

*Here's some information on this month's program topic, from the Northwest APRS Web site (<http://othello.localaccess.com/nwapsr>):*

• **What is APRS?** The Automatic Position Reporting System (APRS) is a radio system used for tracking objects, including people, vehicles, boats, aircraft, manned/unmanned balloons, even cows; weather systems, or just about anything, using an Amateur Radio mode called unconnected packets.

APRS was developed by Bob Bruninga, WB4APR, and was first introduced to the Amateur Radio Community at the ARRL Computer Networking Conference in New Jersey in 1992. Over the past five years APRS usage has grown and expanded across the globe. Many new features and capabilities have been added since its inception.

An APRS system consists of a computer (DOS 286 or better, or Macintosh color system), a TNC (take your pick), and a radio (HT, mobile, desktop) operating on VHF or HF, or both. A mobile APRS system is complemented with a GPS (one with data output), and a home-brew or store-bought port splitter for toggling location information to the computer. Routine updates in position are transmitted over the air, and show up as moving symbols on a map. This is similar to commercial systems found in rental or high priced cars, yet different because the information is transmitted over the air and displayed on computers running APRS. WinCE and PalmPilot versions are under development.

## Useful applications for APRS:

• **Disaster response:** Display APRS at your EOC. Emergency response teams equipped with APRS stand-alone trackers will indicate their location. Mobiles encountering blocked highways, fires, or other emergency, can plot the exact location. Voice reports from field units can be manually input and keep everyone on-line informed.

• **Race/parade support:** APRS is an excellent resource for marathons and parades. Stand-alone trackers can be fixed to key vehicles tracking lead runners or groups, and report exact location back to the start/finish line staff. Emergency resources can be tracked and have their positions routinely updated.

• **High altitude balloon tracking:** Here's an event that has drawn much interest. HAB events require a lot of manpower to launch, track, and recover the balloon and its package that is released upon balloon burst at 90,000+ feet. A stand-alone package consisting of MIM, radio, and telemetry package (GPS, temperature, altimeter, etc.) can downlink real-time data and allow tracking the balloon during its descent. Tracking crews manned with mobile APRS stations (computer, TNC, radio, GPS) can drive to the recovery area and quickly get the package back.

• **Manned balloon tracking:** Much like HAB, ground crews can easily track the flight with APRS, even predicting potential landing areas downstream.

• **Routine mobile tracking:** Probably the key to APRS "addiction". With a GPS providing automated location information, the TNC is routinely updated and keys the transmitter to send the current location to receiving stations. Mobile symbols can be modified to show car, truck, semi, RV,

*Next general meeting* - Thursday, Nov. 19 at 7:00 PM at the Bellevue Senior Center, 4063 148th Ave. NE in Bellevue. Doug Wetzel, K7IP, will present a program on the Automatic Position Reporting System. And be sure to join us at 5:30 PM for dinner at Coco's, 14804 NE 24th St. in Redmond. Visitors are always welcome at the meetings and at Coco's.

*Next board meeting* - At the home of Al Staples, N7VOF, 409 - 109th Ave. SE in Bellevue, Thursday, Dec. 3 at 7:00 PM. All PARS members are welcome.

boat, bike, airplane, or any other common mode of transportation. For remote tracking applications no computer is required. If you want to track yourself and bring along a computer, a port splitter is required (build your own or buy one).

- **Weather Reporting:** The "second best" feature of APRS, allows you to integrate inexpensive weather stations, like the Davis units, or those from Peet Brothers, and accurately record and report the wind speed and direction, rainfall, barometric pressure, and other criteria. Excellent for supporting weather nets and disaster response.

- **Boat Tracking:** Similar to mobile tracking, a great way to track boats of any size. Trackers have been used for both VHF and HF operations, allowing those near and far to track the vessel as it cruises around the bay or ocean.

- **Manned Tracking:** Very similar to what's already been described, just the portable version. Running from internal battery power, a common system might include an HT, miniature TNC (like the Pico Packet or Handi Packet from PacComm), and a TripMate GPS with batteries. The combo can be easily backpack mounted for a hiker or other person on routine trail tracking or hunting for lost persons in the wilderness.

- **Direction Finding:** APRS can be used to track interfering signals on the radio, or zero in on the fox, by incorporating the Agrelo Engineering DFjr. The system consists of an antenna array, control module, and APRS interface. Your TNC, GPS, and computer all put into the interface. DF lines of bearing appear on the APRS screen. Triangulation can be easily accomplished with two

or more DFjr equipped mobiles. The DFjr can be semi-permanently mounted at a fixed site and report lines of bearing on any received frequency. A common scanner will work just fine.

## K7PAR on your FM dial

In response to a couple of motions passed at the October general meeting, I've purchased and installed an FM converter and crystal calibrator in the club's IC-740 radio. The converter allows us to transceive on 10-meter FM, while the crystal calibrator generates marker signals every 25 or 100 kHz, to ensure that we're really transmitting where the dial tells us we are.

Bill Martin, N7EU, was good enough to follow me around the top of the 10-meter band a few weeks ago, so I could make sure that the FM unit was operational. I have to admit to being a neophyte on 10-meter FM, but Bill informs me that most of the simplex activity congregates around 29.600. There are only four repeater pairs for the band: 29.52 transmit/29.62 receive, 29.54/29.64, 29.56/29.66, and 29.58/29.68. 10-meter repeaters seem rather superfluous as we approach the peak of the sunspot cycle ... I could hear them as far away as Long Island! - de N7UK

## PARS on-line

John Heflin, KD7E, has been busy embellishing our new Web site: [www.qsl.net/k7par](http://www.qsl.net/k7par). You'll find the club roster with e-mail links, and a brief history of the club. Be sure to take a look and tell Hef what you think.

### PARS 1998 - 99 Club Officers:

President - Jim von Seggern, KC7FEH

360-638-1715

Secretary - Kirk Bellar, N7UK

206-542-6742

Vice President - Lorie Graff, N7LCO

425-392-5846

Treasurer - Charles Beckmeier, KC7GMF

425-822-2339

**The Puget Amateur Radio Society, Inc. (PARS)** is an ARRL-affiliated club serving radio amateurs in the greater Seattle area. Meetings are normally held on the third Thursday of the month (except July, August, and December) at 7:00 PM at the Bellevue Senior Center, 4063 148th Ave. NE. Visitors are always welcome.

**Annual dues** are \$15.00 for individual membership, \$22.50 for family (2 or more). PARS will prorate the dues of new members joining after Jan. 31. Call Kirk, N7UK, for a membership application.

**Join us on the PARS net** every Wed. night at 7:00 PM, on the WS7K repeater, 443.2 MHz (103.5 Hz PL). The repeater is located on Rose Hill in Kirkland.

**Visit our Web page** at <http://www.qsl.net/k7par>. We've just started building this page, so check back often.

**Send articles**, comments, want ads, innuendos, etc. for inclusion in this newsletter to Kirk Bellar, N7UK, 19353 Greenwood Ave. N, Shoreline WA 98133, fax to 425-867-2160, or e-mail to [n7uk@aol.com](mailto:n7uk@aol.com).

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## Jamboree on the Air

John Heflin, KD7E, and Jim Von Seggern, KC7FEH, squandered the better part of a Saturday on Oct. 17 to show off ham radio to about 30 Cub Scouts at the PARS trailer.

Hef reports: "All in all things went quite well. What probably helped me out the most was Jim, KC7FEH. He answered a ton of questions from the Scout leaders while I was busy entertaining the troops.

"I was planning on around 12 kids showing up, but it turned out to be more like 30. Luckily they came in waves, about 6 or 7 at a time, and from what I hear we would have had more kids show up, but they couldn't find the trailer!

"On HF we only made 2 contacts, Wisconsin and Utah, but on VHF we managed to get all of the scouts on the air at least one time. We were very lucky to have a few real nice hams out there for them to talk to.

"There were a few cub scouts that seemed pretty interested in ham radio, but I have a feeling that their parents were more interested, especially when I got out my QSL cards. I've got cards from all over the world, but I think the one that kind of sold them on ham radio was my MIR card. They were pretty impressed that I've connected to the Mir space station (no big deal, really!).

"Let's see what develops out of all of this. Hey, I had a great time and I hope that I can do it again next year!"

I was also helping out with JOTA from the Shoreline ARES' communications van. We had about a dozen Cub scouts, and one Bluebird (pre-Girl Scout). Our HF efforts were similarly unsuccessful (5 contacts), but we also put some of the scouts on 2-meter simplex for some "parking-lot DX", which immediately piqued their interest.

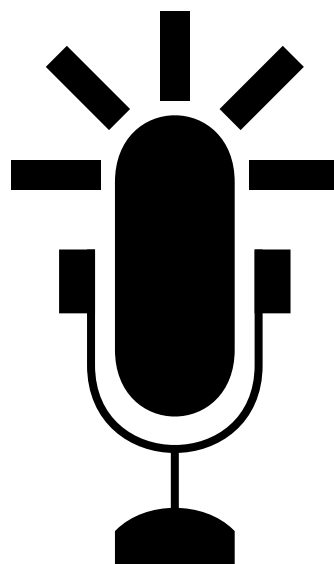
Thanks to Hef and Jim for giving these youngsters a taste of what hamming is about. FB, gents!  
- de N7UK

## Hamfest donations

It's not too early to be thinking about donating your unwanted ham-, computer-, or electronics-related items to the club for the Mike & Key hamfest in March. All donations are tax-deductible.

As mentioned in the meeting minutes this month, we'll also sell items on consignment for club members. We still have yet to determine what percentage of the sale PARS will keep.

Call Hef, KD7E, to arrange for a donation pickup, or if you have something to consign.



## Field Day results

The ARRL has published this year's Field Day scores at its Web site: [www.arrl.org](http://www.arrl.org). (Scores will also appear in the Dec. *QST*). Our FD effort, with a score of 1260 points, earned us a fifth-place finish (out of seven) in the 3A category for western Washington. Notably, we beat out W1AW by 30 points!

Even though the club has never approached Field Day with the same competitive fervor as many other clubs, we've managed a respectable showing for the past several years. The real winners are all of you who participated, and gained a bit more insight into what it takes to operate under emergency conditions. - de N7UK

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## Minutes of the PARS general meeting, October 15, 1998

The Society met at the Bellevue Senior Center. Sixteen members were present, a quorum. Six visitors, also attended, including ARRL Section Manager Harry Lewis, W7JWJ, and ARRL Vice Director candidate Mary Lewis, W7QGP. The President called the meeting to order at 7:09 PM.

Following introductions and the Pledge of Allegiance, the President introduced the night's speaker, ARRL Northwest Division Director Mary Lou Brown, NM7N. Mary Lou discussed the FCC's and ARRL's license restructuring proposals, FCC rules enforcement, code-waiver abuses, and the arguments for and against lowering the code-speed requirements. A question-and-answer session followed.

After the break, the President called the business meeting to order. He reminded the members to submit their nominations for the Ham of the Year Award to any of the Award committee members (Jim Von Seggern, Chuck Stroehrer, or Al Staples), and that the club was still looking for someone to host the Christmas party.

Hamfest chair John Heflin, KD7E, asked the members to call him if they had any hamfest donations, and suggested that the club could sell equipment on consignment for the members, with a commission rate to be determined. No one objected to this idea. The Secretary reminded everyone that equipment donations to the club are tax-deductible.

The members approved, without revision, the minutes of the September general meeting, as published in the October issue of *Sparks*.

**Treasurer's report:** The Treasurer reported a positive balance for the 30 days ending October 7, and reported the expenditures for the same period. *[Budget statements are available from the Treasurer - ed.]*

The President, Treasurer, and Bob Adams, KJ7BP, considered repairs to the metal box which

the Treasurer had donated to house the club's generator. Bob volunteered to make the needed repairs. He also mentioned that 1997 Field Day results had not yet appeared in *QST*.

**Trailer report:** The Secretary announced that John, KD7E, was hosting a group of Cub Scouts for the Jamboree on the Air on Oct. 17. The Secretary had inspected the trailer, erected the club's discone and two-meter beam, and connected the Icom R-7000 receiver to the discone in anticipation of this event.

**Old business:** The members approved, without revision, the proposed FY 1999 budget as published in the September Sparks.

**New business:** The Secretary noted that Icom was having a closeout sale on some of its accessories, including an FM converter and crystal-controlled marker unit for the IC-740 HF transceiver. The Secretary moved that the club purchase a marker unit for the club's IC-740 at a cost of \$20.50 plus tax, which the members approved. Bill Martin, N7EU, moved that the club also purchase an FM converter at a cost of \$41.50 plus tax; the members approved this also. The Secretary said that he would place the order for both items, assuming they were still available.

Jim Darby, W7FYH, announced that he had an unwanted TH6DX triband beam, and offered to donate it to the club. The President accepted the donation.

The Treasurer congratulated John, KD7E, for his efforts at publishing a club Web page.

The Secretary reminded the members to report any additions or corrections to the club roster, which everyone had received with their October issue of Sparks.

With no further business, the President adjourned the meeting at 8:43 PM.

*Respectfully submitted-*  
Kirk Bellar, N7UK  
PARS Secretary

## ARRL Phone Sweepstakes

As I mentioned in last month's *Sparks*, the **ARRL Phone Sweepstakes** will take place Nov. 21-22. The object is to work as many stations in as many ARRL and RAC sections as you can.

Hef, KD7E, Charles, KC7GMF, and I will put K7PAR on the air for the occasion. We'll be working for a Clean Sweep (all 79 sections). Contest rules are at [www.arrl.org](http://www.arrl.org), or in the Oct. *QST*.

We'll be operating from about 1:00 PM 'til midnight Saturday, and from 7:00 AM to 7:00 PM on Sunday. Everyone's welcome to drop by the trailer and join in on the fun. - *de N7UK*

## Christmas party

Since no one's stepped forward to host this year's party, we'll be considering several options at the November meeting:

1. Hold the party at a restaurant. Chuck Beckmeier, KC7GMF, has suggested the Old Country Buffet in the Factoria area, since they'd be willing to cordon off part of the restaurant for us at no extra charge. We could do this on our normal Thursday meeting night (Dec. 17), or move it to a Friday or Saturday if the members prefer.

2. Have an abbreviated meeting at the Senior Center on our normal meeting night, with coffee and dessert in lieu of a dinner.

3. We'd still like to find someone to host a potluck in their home. Jim, KC7FEH, offered to host it at his shiny new abode, but assumed that most of the members wouldn't want to deal with a ferry ride across the Sound for the occasion.

We'd welcome any other ideas you might have. Be sure to give some thought to your preference before Thursday.

## EARS hoping you'll call

Eastside Amateur Radio Service - interested parties contact John, W7HIL, at 425-391-8026 or Chuck, WA7EBH, at 425-392-5303. Always room for more help in this community activity.

## Seattle Marathon

One last reminder: Bob Calkins, WA7NUU, is looking for at least a hundred (!) hams to provide communications for the Seattle Marathon on Sunday, Nov. 29. The 26.2 mile event will begin at the Seattle Center, wind through downtown Seattle, make a round trip across the I-90 bridge, head north along Lake Washington Boulevard and through the Arboretum, and cross Capitol Hill and the Queen Anne neighborhood before finishing back at the Seattle Center. There'll also be a half-marathon run, and 8K and half-marathon walks.

Anyone interested in volunteering can call Bob at 425-745-3543.

**There is a very fine line  
between "hobby" and  
"mental illness."** - *Dave Barry*

### ❖ ❖ ❖ ❖ **PARS BAZAAR** ❖ ❖ ❖ ❖

Buy, sell, or trade your ham-, electronic-, or computer-related treasures here. Ads are gratis for PARS members. Call or e-mail Kirk, N7UK, to place your ad. The Editor reserves the right to capriciously refuse any ads he deems unsuitable, e.g. velvet paintings or mood rings.

**WANTED TO BUY** Ham radio and test equipment that glows in the dark (anything with tubes). I enjoy restoring and most of all operating these beauties from a BYGONE ERA. They will get a loving home. Also will buy any tubes, parts, extra manuals, pre-1970 CQ-73-ARRL handbooks, or anything else relating to ham radio of that era. These items are of great value as a resource when restoring equipment. Jerry, WA7BUY, 360-457-6671 or **kit-susa@olypen.com**.

**KEYS WANTED** - Collector wants to buy straight keys, bugs, keyers, other telegraph-related instruments, books, and ephemera. Kirk, N7UK, 206-542-6742 or **n7uk@aol.com**.

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## Restructuring redux

Those of you who attended the October meeting were treated to a lively discussion of the FCC's and ARRL's licensing proposals. Remember, comments are due to the FCC by Dec. 1. Be sure to comment on all of the changes in the NPRM, not just license restructuring, and give reasons WHY you're for/against any particular features of the NPRM.

Since the October meeting, the ARRL Board has renamed its proposed class A, B, C, and D licenses as Extra, Advanced, General, and Technician, respectively. It also proposed allowing Technician licensees to operate in the General portions of the CW bands, their rationale being that the Techs will have to be proficient in CW to use their privileges, and thus will be in compliance with the International Telecommunications Union (ITU) rule requiring code proficiency for amateurs operating below 30 MHz.

Amateur Radio Newsline reports that most comments to the FCC so far are from Technicians and Tech Plus licensees, who want an across-the-board 5 wpm code test. Newsline also reported on a meeting between the National Conference of Volunteer Examination Coordinators and the FCC's Private Wireless Division on Oct. 21, during which the VECs requested that the Amateur exam elements be reduced from eight to four -- a single 5 wpm telegraphy test, and three written tests (and therefore three license classes): Technician and General, with 50 questions each, and a 100-question Extra exam.

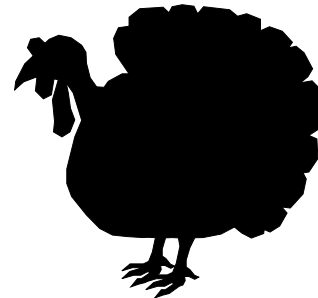
Don't expect the FCC to issue a Report and Order until next fall, because they're in the process of moving to new digs in southwest Washington DC.

The complete text of the NPRM, and instructions for filing comments, are available on the Web at <http://www.arrl.org/news/restructuring/98-143/nprm.html>. If you prefer to comment by mail, send your response and four (!) copies to:

Magalie R. Salas  
Office of the Secretary  
FCC  
1919 M St. NW, Room 222  
Washington DC 20554

## Board meeting minutes available

Anyone wanting minutes of the Oct. 1 board meeting should contact Kirk, N7UK.



That's all for this month. I'm looking forward to seeing all of you at the meeting, and hope that you have a terrific Turkey Day! - de N7UK