

APRIL 2005

THE MONTHLY NEWSLETTER of the SANTA CRUZ COUNTY AMATEUR RADIO CLUB

SHORT SKIP

An Expedition with a Difference

I ran into Steve Hemenway VY1SK on Echolink recently and he began to tell me about the very unusual work that he and his team have been doing to study radio propagation in high latitudes and elsewhere around the world. He calls his activities "20,000 Leagues, to somewhere!" Here are a few extracts from his diaries on trying to document his Auroral Bounce experiments. He also has some very strong views on Amateur emergency communications.

"In the very low humidity of the low Western Arctic, (69° N x 132° W) plastic parts will build up static charges, which wreak havoc, even on the floppy disks. These static charges will bring disaster to information.

We are presently using voice recognition software to assist in the preparation of this document. Laptops are subject to severe temperatures, and are vulnerable to destruction or loss as a result of a rude environment. It is not wise to bring out the best of laptops but rather to use low-tech expendable units. Normal wear and tear is bad enough and costs can rise unexpectedly, when at least needed.

Oil and Gas Companies, and other exploration parties are involved in the development of the Arctic Ocean also called the Beaufort Sea. Corporate millions have been spent to prosecute high science activities; our activities were simply to use natural phenomena to assist in the propagation of radio waves. That natural phenomenon was the Aurora Borealis.

Our procedure then, was to utilize two-way radio service monitors being fitted with RSSI indicators, or 's' meters. The service monitors constituted high precision radio receivers, and were largely thermally compensated. Knowing the frequency and location of certain high powered transmitters allowed repeatable measurements over a wide delta temperature.



Problems: Our project started with losing one of the support vehicles due to an engine/wiring fire while en-route to the site. The truck was not destroyed, but was instantly unserviceable. Those supplies on board were transported via helicopter and fixed wing aircraft at extraordinary cost.

Many of the tribulations were due to severe conditions during initial deployment. The first deployment had to be done in the winter, due to the fact that the last 120 miles is an ice road on the MacKenzie River, suitable for large transport trucks.

Solutions: A used International Harvester truck seemed to be good purchase but the

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Field Day Idea Circa 2000

I surveyed the Watsonville Airport facilities with Bob Wisner, and I am enthused about it as an alternative site. This is coming from someone who absolutely LOVES the CDF Nursery site we have been visiting the past few years. The Airport site offers good public exposure and more convenient accessibility, and good HF propagation. (maybe not quite as good as a mountain top, but unquestionably solid cross country propagation)

While this is not as nice a camping setting as the CDF nursery site, I think it would still afford a quite pleasant experience as the Airport traffic dies in the evening and early morning. In terms of emergency preparedness, this site offers a much more realistic environment for what a communication set up would be like in a real emergency. If SC County were to be cut off from the rest of the world, the Watsonville Airport probably would be

the center of emergency relief activity. The specific area at the airport that seems best suited for us would add the challenging factor of airport noise to our operations, but at the same time it is far enough removed from the runways to not be debilitating.

So, the airport definitely would be different. It would emphasize different aspects of Field Day than the CDF site. I'd like to give it a try. I think it would be fun, and I think more club members would visit us due to the more convenient accessibility. But the bottom line is if we procure it, will the operators come? I know that for some (myself included) the woody camping experience is a large part of the attraction of Field Day. Are we willing to exchange that experience for a different one: an environment that offers another side of Field Day, that of public exposure and emergency preparedness? I'm willing to give it a go. How about you?

— 73, Tom, KQ6DV

CLUB MEETING FRIDAY APRIL 15, 7:30 P.M.

Expedition continued

delivery was 2,000 miles away. Someone had to fly to Vancouver, British Columbia to take delivery of this bigger vehicle. Our small mini-van was not likely to do any damage to an ice road 10-ft. thick but we did have some concerns about a 5-ton truck, but those fears were allayed, when we saw 50,000-pound vehicles, driving on the river with impunity.

While the outer skin is aluminum we have insulated this with fiberglass after first wiring for when we are able to plug in to AC power. The low voltage power distribution was a much longer project.

Our 'lighting' solution was to use many ultra-high output LED's. About 60 of these are positioned around the interior roof line perimeter and mounted in an aluminum bar. Their diffuse illumination has slightly blue tinge, but the majority of the lumen output is in the white range and makes for a pleasant situation when reading or doing any other work within the truck. Most important is there is NO interference to the Radios. A secondary benefit is the very low current consumption. We consume a total of three amperes to well illuminate the interior of the truck and have NO noise in the other electronics.

An Astron 50 ampere, rack mount power supply is wired in parallel with several high output Solar Panels on the top of the box. This will feed all the batteries on board when not plugged into landside power. There are several other 12 VDC power supplies for operation of smaller radios and laptop when operating in packet or other digital modes, including SSTV on the 20-meter band.

Are we ready? Alaska Highway! Here we come!

For the first part of the mission we head for Northern British Columbia, then into Watson Lake, Yukon Territory, 300 more miles to Whitehorse, then on to the Klondike highway heading north to Dawson City. A stop there for rest and recuperation as the road has been tiring. Gallons of cold beer and a bottle or two of good Whiskey for me, and a night of a real hot shower, and a soft bed.

Now the work begins! As we depart Dawson, we backtrack about 25 miles to the junction of the Dempster Highway. The use of the word 'highway' is being VERY generous, as these highways are really mud tracks of slippery surfaces and twisting mountain traverses. Then comes the boredom of the long passages to another mountain. As you look into the distance you see another pass, only one of many you will cross and another great valley, 50 miles away. Are we tired? I don't

know! We are so numb from the pounding of the road; we don't have a sense of tiredness!

A night of rest at the Eagle Plains lodge is a treat. Eagle Plains is just short of the Arctic Circle. A Bar, (Good whiskey!), a restaurant (?) expensive motor fuel, and a coin laundry for the tourists. We plug in the truck for the night and will consume about 1050 Watts for the space heater and the engines block heater.

Next we depart for Rat Pass—the last of the mountain passes before dropping down to the plains of the Mackenzie Delta. There are two rivers to cross—each by barge. The Peel River crossing is done by driving through the mud to a tilted steel plate, which is the boarding ramp. If you get stuck in the mud, (likely) there is a Caterpillar bulldozer to drag you, or push you to the deck of the barge.

Not quite so bad is the Arctic Red River crossing. More sand and rocks rather than mud. Still there is a bulldozer in the event you do something stupid and get stuck!

Now, after crossing the mighty MacKenzie River, we are only 6 hours from Inuvik, Northwest Territories, Canada.

Land of the Midnight Sun and Gateway to the Beaufort-Delta. But no Sun in winter, Inuvik lies 2' north of the Arctic Circle. The name "Inuvik" (roughly transliterated as 'the place of Man') has become a sometimes thriving town of 4,500 persons. The Emblem of this city, is the superimposed figures, of an "Igloo",

a "Teepee", and the "white mans house" symbolizes this meeting of the three major cultures, and the unity of all there.

This is the last fuel stop for our little convoy and we join a number of other vehicles, making the trip to Tuktoyaktuk, on the ice road, carrying supplies to the Hamlet of 'Tuk'. A good plan, as any unexpected 'breakdown' is a potential for costly disaster. An Ice breakthrough could cause the loss of life, much less the loss of vehicles and supplies.

We also make our contribution to the emergency communications in the region and maintain 12 different repeaters within this truck. They can be selected to replace any civil authority repeaters, which may be knocked out as result of some severe situa-

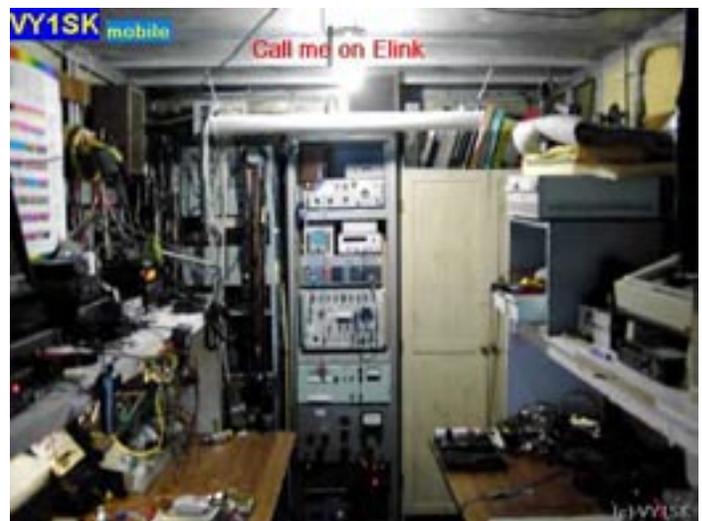
tion. A recent event was to replace several Fire repeaters in the Kamloops region during a very severe forest fire season. Numerous mountain top repeaters went down, or were destroyed due to fire in the mountains.

Now a very severe criticism of Amateur operations. Many Hams claim to be able to replace al communications necessary with their 2 m handhelds. Most of which failed within 2 hours as a result of poor battery management. How could they possibly substitute for highly trained fire fighters in bush? We don't speak the same language. Firespeak, Hamspeak, and Copspeak are never going to work in a situation of extreme duress. Keep Amateurs in the area of Health and Welfare communications where a history has already been developed".

This is by no means the end of Steve's tales of the Arctic but enough for now.

How about this for a QTH and interior of his truck truck?

—Ron W6WO



The Art of CW

This is a picture of a fine German-made Schurr key. A present for my friend Gert's (OE3ZK) birthday from his XYL Susi. No wonder he sounds so good on the air HI HI





By Art Lee WF6P

CHATTER

Band conditions are terrible on 40 meters. We are still headed downward on the sunspot cycle. The other morning I couldn't hear Terry Parks, N6NUN, in Watsonville. Rich, KI6EH, heard us checking in on the Baja Net. When Terry and I QSY'd to 15 meters on ground wave, he followed. Rich and I were booming in on 21.314. We carried on a nice QSO for a while, but Terry couldn't copy Rich. Then we all QSY'd to 80 meters to finish. This points up again, an advantage that we hams have in that we can change frequencies to get our contacts made.

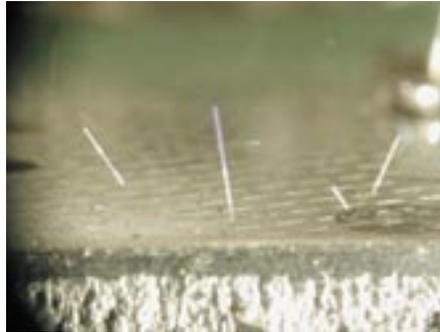
On my last trip to Sacramento I had a chance to see the tower my son wants me to remove. He's not a ham and has no need for the tower. It's only up about 45 feet and the former owner (now a SK) did a good job of putting it up. It has a solid block of cement for a base, has about 3 good ground rods sunk into dense, moist soil. About half way up, it is securely bolted to the eaves of the house. I'll have to check to see who in the club has a gin pole. At our repeater shack there is a helmet and belt. At one time I thought Bob Brouwer, K7GF, donated a pole. Cap and I may make a trip to the repeater site to inventory what is on hand.

A few weeks ago Rich Hanset, KI6EH, and I went up to his boat at Discovery Bay. Took the boat to a marina for refueling. Rich turned the helm over to me for the trip. He knows every inch of those waters, so he acted as our pilot. It was fun



Tin Whiskers Destroy Satellites...

I found a most interesting site on the web while looking for some relay photographs. I found a relay photo of a scorched aircraft quality relay that had a failure mode due to whisker growth, that is becoming more common in these modern times, leaning away from lead-based solders. Turns out that electronic components whose leads are



plated in pure tinplate, are susceptible to a wierd, dangerous phenom, of teeny, tiny single crystal, tin whiskers of tin growing out of the surface. Really! The process is being studied by NASA, big time, as some satellites have failed due to short circuits caused by the tin 'whiskers'. They have been found also in Microwave waveguides, causing havoc with the microwaves, contained within...(see photo, at URL below: They grow often to multi millimeter lengths, and sometimes reach a full centimeter. They can punch through conformal coatings of circuit boards (!) Sometimes they take a year to do damage, sometimes 20 years. Not just relays, but IC packages, PC board traces, especially anything in pure tin plate. Seems Tin-Lead alloys don't do this... This may become the new Y2K time bomb.... Check out the NASA reports, complete with photos at:

<http://nepp.nasa.gov/whisker/photos/>

—Pat AA6EG

New Members

Welcome Cody Adams KG6YPK. Cody likes to build antennas and has been active on our repeater. Give him a call when you hear him. Cody also set a fine example by joining the ARRL as well. We have another new member Jeff Watson KG6YPS. Please welcome him to our club. Jeff has also joined the ARRL through our club.

—73 de N1IPP

High Speed Multi Media

As you are aware HSM is an important ARRL initiative and our first foray into the arena is to assist CSUMB with a 5.8 GHz microwave link to Elkhorn Slough. To my mind this demonstrates our interest and ability to provide a service to the community and gains us experience with 5.8 GHz technology. A working relationship is developing nicely with the faculty at CSUMB. Over the next few weeks a core group of amateurs expect to be putting a 5 GHz link in for them between the campus and Elkhorn Slough. This will be operating under Unlicensed-National Information Infrastructure (U-NII) rules but our 5GHz allocations partially overlap this band so it will be useful experience for us.

I have been investigating HSM activities in other states and have found most informative information from the North Texas Microwave Society. From their site you will find a text-based handout and a full blown Powerpoint presentation of about 9 MB.

<http://www.n5oom.org/hsmm/index.htm>

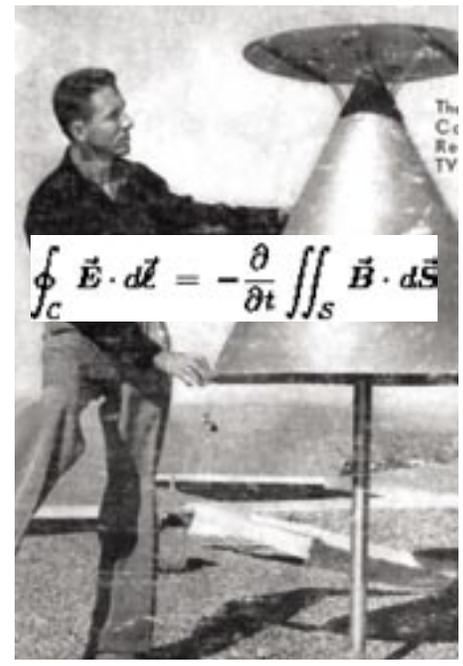
—73, Ron W6WO

Are You Ready for Your CAKE

We entertain questions, opinions and facts in about equal proportions on any and all topics of technology.

We welcome participation by new and prospective Hams and promise that you won't be blinded by science.

CAKE Meetings each month. Contact Ron, W6WO for time and location.



SCCARC Board - 2005

President	Vic Linderholm	AE6ID	476-5567
Vice President	Christopher Angelos	KG6DOZ	688-3562
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	Allen Fugelseth	WB6RWU	475-8846
	Bob Wolbert	K6XX	426-5699
K6BJ Trustee	Royce Krilanovich	AC6Z	475-4798

MONTEREY BAY ACTIVITY

- SCCARC Repeaters: K6BJ 146.790- PL 94.8 Santa Cruz (linked w/Watsonville full time)
KI6EH 147.945- PL 94.8 Watsonville (linked w/Santa Cruz full time)
K6BJ 440.925+ PL 123.0 Santa Cruz
- SCCARC Net Monday 7:30 PM 146.79- /147.945- /440.925+ linked
 - SCCARC 10 Meter Net 28.308 MHz USB Monday 7:00 PM
- SLVARC Repeater WR6AOK 147.120+ PL 94.8 Ben Lomond
- SLVARC Net Thursday 7:30 PM
- LPRC Repeater WR6ABD 146.640-(PL 162.2)
- LPRC Net Tuesday 8:00 PM
- NPSARC Repeater K6LY 146.97- PL 94.8 Naval Post Graduate School, Monterey
- NPSARC Net Wednesday at 8 PM on K6LY/R
- 6 Meter Local Net 52.8 MHz (PL-114.8) Sunday 8:00 PM
- ARES Nets
- SC ARES Tuesday 7:15 PM K6BJ 146.790-(PL 94.8)
 - SLV ARES Tuesday 7:00 PM W6JWS 146.745-(PL 94.8) & WR6AOK 147.120+(PL 94.8) on alternate Tuesdays
 - South County ARES Tuesday 7:15 PM K6RMW 147.00+ (PL 94.8)
 - LP ARES Tuesday 7:15 PM AE6KE 146.385- (PL 98.4) & AB6VS 440550+ (PL 94.8) linked
 - SC County ARES Tuesday 7:30 PM 146.79- / 147.945- / 440.925+ / 147.180+ (all PL 94.8) (linked)
 - Monterey ARES Net Wednesday 7:30 PM K6LY 146.970- (PL 94.9)

FOR MORE INFO SEE: <http://www.k6bj.org/freq.html>

SCCARC Calendar of Events

SCCARC Board Meeting 6:30	Friday	April 15
SCCARC Meeting	Friday	April 15
County ARES Meeting	Thursday	April 21
Short Skip Deadline	Sunday	May 8
SCCARC Meeting	Friday	May 20
Field Day		June 25-26

MONTHLY MEETINGS.

The SCCARC Meets at 7:30 PM, on the THIRD FRIDAY of the each month (except December). Meetings are at Dominican Hospital, 1555 Soquel Drive, Santa Cruz.

SHORT SKIP

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Free to members.

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CLUB MEETING FRIDAY APRIL 15, 7:30 P.M.

The Santa Cruz County Amateur Radio Club occurs on the third Friday, April 15, of this month. The scheduler, Gary Jackson at Dominican Hospital has scheduled the two adjoining conference rooms, B1 and B2, on the second floor of the Education Building behind Dominican Hospital for our use that night. The monthly meeting begins at 7:30pm. after the SCCARC Board holds their meeting. I am hoping find a speaker to tell us about satellite communications for the night's program. Hope to see you there.

—Chris Angelos, SCCARC Vice President