

OCT 1993

FEEDBACK

THE OFFICIAL NEWSLETTER OF THE
GEORGIAN BAY AMATEUR RADIO CLUB

Sponsoring

VE3OSR FM REPEATER 146.940- Mhz WOODFORD
VE3OST FM REPEATER 145.290- Mhz OWEN SOUND
VE3GBT FM REPEATER 146.895- Mhz BARROW BAY



20th ANNIVERSARY

REGULAR EVENTS

GBARC MEETINGS

SECOND TUESDAY OF
EACH MONTH

BREAKFAST MEETINGS:

SECOND AND LAST SATUR-
DAY OF EACH MONTH

EDITORIAL.....

By VE3TSA

Greetings to all. It looks as though fall is upon us and all of those antenna dreams will have to wait till spring very shortly. Bob XOX tells me that he could use some help to get Ian HXX's antenna back up in the air. Ian bought a new tailtwister rotor because the old one was damaged. When the antenna goes back up, the new rotor should solve a lot of troubles Ian has had with this setup. So drop Bob a line if you can lend a hand.

Speaking of lending a hand, it won't be too long before Club Elections are upon us. It would sure be nice if we had some new names on the ballots this year. We now have 71 members, it seems to me that there should be someone out there that could take an Executive position, and I'm not talking about the half dozen or so that seem to do everything, organize everything and repair everything. What will happen if this trend continues is this: those that are the prime movers now..will become discouraged at having little help in the operation of "OUR" Club. As a result they will drop out and the Club will suffer. It will be either sink or swim for those that remain. We have put considerable effort into making "OUR" Club what it is today but no one small group can carry the rest indefinitely. Think about it "please". The Presidents, Vice-Pres, Secretary or Treasurer etc position do not take up all that much time.

I would like to see a short story from each member on how he/she became interested in Amateur Radio. This will be used in Feedback, as I explained at the last meeting, I am running short of material to put in the bulletin.
.....editor

MINUTES OF THE LAST GBARC MEETING

Minutes of GBARC inc for meeting of September 14, 1993

Meeting opened at 7:37 at the Owen Sound Billy Bishop Regional Airport, with 25 members and 3 visitors Steve, XKM Mo, IBI and Marion, DDC. All 3 joined the club before the evening was over. The minutes of June 8 were read and accepted with no changes. Moved by Bill, HMZ seconded by Bob, LKD. The treasurer reported that we have \$99.43 in the club account and \$238.74 in the education account. Please pay your dues as soon as possible.

OLD BUSINESS: Rick, HIO reported that repeater VE3GBT is on the air at Barrow Bay and is linked up with VE3OST. VE3GBT gives very good coverage reaching out to London, Manatoulin island, Elliot lake, North Bay and Huntsville. The next project is an Autopatch. FIELD DAY was very well attended. 726 contacts were made, logs were sent to the ARRL, results should be in the November QST. Cy, CC said that he received a QSL card from Ohio for a field day contact. **PACKET:** Gene, IJD reported that the BBS is working well now after many problems in August. Gene altered the Auto Exec Bat so that the BBS comes back by itself after a hydro failure. The hard drive is starting to run out of room so bulletins are now cleared after only 4 days. There are now over 8000 listings on White pages. There is now a link up at Allen Park to Calgary and Ottawa, It is on our 145.63MHZ LAN frequency and the call is VE3USG. **FAIR:** Ian, HIP reported that not enough guys showed up to work the booth at the fair. Many of the members never heard about it however. Gene, IJD suggested maybe we should skip the fair next year and do a display at the mall instead. Bob, XOX asked how many would want to help out at a mall display and also how many would help at the Santa Clause parade, there was a good response to both.

NEW BUSINESS: Bob, XOX reported that the club has a UHF repeater pair at 443.525-448.525 and that he owns equipment to put it on the air. **SANTA CLAUSE PARADE:** it was decided the club will help with the parade. Gene, IJD reported that we may lose the airport as our meeting site. Gene also said some one had mentioned to him that it is not always possible to get help on the repeaters, it was decided that an autopatch would be the best way to solve this problem. Tom, TSA said he needs material from the members to put in feedback. The meeting closed at 8:30 moved by Jack, DTS 2nd by Don, VTO. The 50/50 draw was won by Jack, JLZ

J.O.T.A

SCOUT J.O.T.A. HELP NEEDED From: VE3IJD

DATE.....SAT.OCT. 16 AND SUNDAY OCT.17,1993
WHERE.....HARRISON PARK , OWENSOUND
TIME.....SETUP AT 1300 LOCAL (1PM)SAT AND TAKE
DOWN SUNDAY 1300 (1PM)

J.O.T.A. IS THE BOY SCOUT JAMBOREE ON THE AIR, AN INTERNATIONAL FIELD DAY FOR BOY SCOUTS AND GIRL GUIDES. LAST YEAR WE HAD OVER 50 SCOUTS HELP SET UP OUR TOWERS AND 2 TRI-BAND ANTENNAS AND WE

HAD 6 GBARC MEMBERS. WE OPERATED PACKET AND VOICE AND MADE MANY CONTACTS WITH OTHER GROUPS. CAN YOU LEND A HAND THIS YEAR? IT WILL BE IN A BUILDING AT HARRISON PARK AND BRING ALL YOUR CAMPING SKILLS, LIKE THE KNOWLEDGE OF THE PHONE NUMBER FOR PIZZA-PIZZA. WE HAD A GREAT TIME AND WHO CARES THAT IT SNOWED. THE BOYS AND GIRLS WILL BE CAMPING ALL WEEK-END AND WE NEED YOUR HELP FOR THIS. I CAN SLOT YOU INTO 4 HOUR SLOTS OR YOU CAN STAY THE NIGHT AND EAT PIZZA AT MID-NIGHT WITH US. SOME GREAT CONTACTS CAN BE MADE AND THERE WILL BE ADVANCED OPERATORS AROUND SO YOU NO-CODE GUYS CAN GET ON 20 METERS AND DO-DXING... SPREAD THIS NOTICE AROUND TO THOSE NOT ON PACKET... CONTACT VE3IJD FOR ANYMORE DETAILS.... THANKS FOR NOW... GENE.....

FEEDBACK — OCTOBER 1993

HR AMSAT NEWS SERVICE BULLETIN 248.01 FROM AMSAT HQ SILVER SPRING, MD SEPTEMBER 4, 1993 TO ALL RADIO AMATEURS BT

More Information About The Chilean MICROSAT

ANS has received additional clarifying information on CESAR-1 which was the subject of an ANS bulletin released 14-AUG-1993. CESAR-1 is a 100% amateur radio satellite project being constructed by AMSAT-CE. Contrary to other reports, the Chilean Air Force has no participation in it. The MICROSAT type satellite is being built under an agreement between AMSAT-NA and AMSAT-CE under which AMSAT-NA is providing AMSAT-CE with basic information regarding the MICROSAT design, and rendering any possible assistance when needed. AMSAT-CE estimates the total cost of completing its first satellite project at around \$1M US DOLLARS! This amount includes more than merely the cost of building CESAR-1 but represents the total outlay needed to establish the necessary infrastructure to accomplish the task. To appreciate this, one must consider that the newly established Chilean AMSAT group exists in an environment much different than in most countries in which satellites have been built. There are no aerospace companies with employees who are radio amateurs. Therefore AMSAT-CE must set up its own laboratory and machine shop and train people to make them; and parts must be procured. All of this requires the mounting of a fund raising campaign to publicize the project within Chile, including travel within the country to raise the interest of hams and the general public. Understandably, a lot of Chileans are somewhat skeptical of the concept of a Chilean radio amateur satellite. The money raised, so far, is mainly based on personal contributions by members of AMSAT-CE. The organization has only one paid employee, a part time secretary. Everyone else in the team are volunteers, all of them licensed hams. With this information in mind, AMSAT-CE can be considered to be in the best tradition of other AMSAT-OSCAR projects in various countries. Once more, they are trying to accomplish a difficult task in the environment of a country that is making efforts to shed the image of a "underdeveloped" nation.

CESAR-1 will be a typical MICROSAT to which the builders expect to add a GPS receiver and digital voice transponder experiments. The latter will receive an L-Band uplink and transmit an S-Band downlink. Among other applications, this experiment will allow terrestrial repeaters to be linked via the satellite. The present plan calls for completion of a flight unit by January '96

[The AMSAT News Service (ANS) would like to thank Eduardo Diaz (CE3GA) for this bulletin item.]

From: VE3TTV

MIR SATELLITE Hi guys.....I worked the "MIR" satellite this week, actually I digged through "MIR" to a ham in the states, a most enjoyable experience. The big trick with any of the satellites is to know what time they are making a pass. If you have a satellite tracking program this is the way to go..... the frequency for "MIR" is *****145.550*****....73..<<<HENRY>>>

RADIO GHANA HI GUY'S IF YOUR INTERESTED IN LOGGING **RADIO GHANA** ON SHORTWAVE TUNE IN AROUND ***0024 UTC.*** ON 3.360mhz ***I LOGGED THIS ONE LAST WEEK,,THE FREQUENCY WAS A BIT NOISY BUT IT HAD A FAIRLY STRONG SIGNAL...

From: VE3MWU

I found something in a book that might fit in feedback. Its on the history of the word computer. Up until 1940, computers were people. Dictionaries said a "computer" was "a person who computes". For example astronomers hired many computers, who computed the positions of the stars. People who computed were called "computers"; machines that computed were called "calculators". After 1940, human computers were gradually replaced by gigantic machines. at first, those machines were called "gigantic calculators"; but enthusiasts soon began calling them "electronic computers". Today the word "computer" means "a machine that computes".

NITROGEN ICE DISCOVERED ON PLUTO

The distant planet Pluto is covered with surface ices that are 98 percent nitrogen, University of Hawaii, NASA and other scientists say. With such abundant nitrogen surface ice, Pluto's thin atmosphere must be primarily gaseous nitrogen, they conclude.

This is the first clear detection of nitrogen on Pluto and the first clear indication that the atmosphere is mostly nitrogen gas rather than methane, as previously believed. Carbon monoxide also was detected for the first time.

"Rather than methane as previously thought, it appears that frozen nitrogen dominates the surface," said Dr. Ted Roush. Roush, employed by San Francisco State University, works at NASA's Ames Research Center, Mountain View, Calif.

Methane was detected on Pluto's surface in 1976. Extremely small amounts of methane are easy to detect because it strongly absorbs specific wavelengths of sunlight.

"The small amounts (1.5 percent) of methane ice are 'dissolved,' or mixed at a molecular level, in the frozen nitrogen," Roush said.

The abundant nitrogen recently found on Pluto is a poor absorber of sunlight and produces very weak features in the light reflected from the planet, so it previously had not been identified.

The observations were made in Hawaii with a new instrument on the United Kingdom Infrared Telescope in May 1992. The results are published in the current issue of Science magazine, along with similar observations of Neptune's moon, Triton.

Pluto resembles Triton in size and in surface and atmospheric composition. Both have nitrogen, methane and carbon monoxide ices on their surface.

Because their surfaces are made of similar materials, scientists think Pluto and Triton may have formed in a similar location in the solar nebula, Roush said.

Pluto, almost 3 billion miles from Earth, is the only planet not yet explored by a spacecraft. Pluto is unusual in several respects. Although classified as a planet, it is smaller than Earth's moon. Pluto's only moon, Charon, is at least half as big as the planet itself. It also is the only planet in the solar system with an orbit highly inclined out of the plane of the solar system.

From: VE3MTG

Field Day with "Captured RF"

By Charles H. Owston VE2RO

The harsh winter had been a long, cold dreary experience for George. The warm sun and gentle breezes of spring made him feel exhilarated as he walked the three kilometres from the library to his home. The afternoon had been spent researching the subject of his thesis. While reading, George had come across an article by Benjamin Franklin describing his experiments with flying kites during electrical storms. If old Ben were around today, he thought, with his luck he would be sure to win the Lotto 6/49. The more he thought about the lightning experiments, a scheme to harness power began to form in his mind. The next day he discussed his ideas with Ralph, a friend and fellow Amateur. Ralph suggested they should test the idea on Field Day, about two months away. Ralph suggested they use the QRP transceiver he had built for use in his sail boat. The rig was the ideal way to combine his sailing and ham radio interests during the summer months. A powerful 50 kW transmitter site 20 kilometres from town would be the object of their experiment. Next day they drove around the area of the transmitter until they found a suitable field about two km from the antenna site. They approached the farmer who owned the field, and explained to him their interest in setting up a transmitter for Field Day. It turned out that the farmer had been a wireless operator years ago; although not interested in Amateur radio, he was familiar with the hobby. George explained that it was their intent to run out six or seven hundred feet of copper wire about ten feet above the ground, to capture enough energy from the broadcast station's signal to power the QRP rig. Their new

found friend thought the idea excellent, and recalled how he had once got an RF burn from his ship's antenna. It was during a trip to Cyprus; as they approached the harbour he was repairing the down lead from the ship's antenna. As he reached for the lead-in wire he received a nasty burn. Glancing over his shoulder at that moment, he noticed that the ship was passing a point of land a quarter of a mile away where there was a large curtain array and other antennas installed. With the details of the site settled, Ralph set about the installation of a high pass filter to protect the front end of the transceiver from the strong RF field of the broadcast station. Meanwhile George scouted around the used metal dealers; in due course he found one with a large roll of copper wire and made a deal for it. The next step was to build an L/C circuit into a metal box, which could be tuned to 750 kHz. A bridge rectifier, filter and zener diode were added to rectify the RF voltage and smooth out the modulation peaks. Time passed quickly while waiting for Field Day. The morning dawned bright and clear. The boys had gathered up their gear the night before, and were ready to leave after breakfast. On arrival, Ralph was in charge of setting up the operating site and stringing up the dipole antenna in the nearby trees. George drove a rod into the ground by the operating site and attached the pick up wire. The wire was then unreeled and strung on insulators toward the broadcast antenna site. The 'power supply' was connected to the grounded end of the pick up wire, taking great care not to take the ground off until the 'power supply' box had been grounded. This precaution was to prevent an RF burn. The moment of truth had arrived. Quickly tuning the L/C circuit and watching the d.c. voltmeter, the needle slowly rose to 12 volts. The transceiver was attached and the antenna loaded. The Field Day site was now powered independent of commercial mains. George wondered what Ben would have thought if he were around. It was 1730 UTC, 30 minutes before Field Day would officially begin. Ralph would operate the first hour and George would do the logging. They would alter-nate each hour. The band was quiet except for the odd signal from people testing. At 1800 UTC the 20 metre band came alive with a bang. Ralph quickly answered a CQ and made the first contact, replying "599 QUE B". By the end of the hour Ralph had made 21 contacts. Not bad for only 5 watts. Under normal operating conditions, he surmised, his 5 watts would not attract that much attention. Now it was George's turn at the key and Ralph would log. In the next hour George managed 19 QSOs. After six hours they were feeling the strain, and decided to rest and prepare something to eat. As it grew dark, the rate of contacts began to drop and our operators called it a day. They put in another four hours the next morning before going QRT. All told, they had made 147 contacts in 12 states and four provinces. In addition Ralph had copied the ARRL message for bonus points. The following week they met to discuss the success of their adventure, prepare the results and submit their log. They decided the entry should qualify for use under emergency power. While they were not connected to the power mains, using batteries or solar power, they agreed to list the power source as "captured RF power". Included with the entry was a picture of the power supply together with Ralph at the key. They had to smile when they thought of the contest committee having to ponder the power source and decide whether the entry qualified for emergency power, or whether the Field Day entry was just a hoax.

New Satellites in Orbit

Three new Amateur Radio satellites are now in orbit: KITSAT-B, ITAMSAT, and AMRAD (part of the Gyesat satellite). They were launched from French Guiana at approximately 0147 UTC September 27 aboard an ARIANE V59 rocket. The satellites were deployed 20 minutes later and all appear to be functioning normally at this time. Amateurs are asked not to use the satellites until their check-out phase has been completed.

All three spacecraft are packet satellites. KITSAT-B was designed and built by the Korean Advanced Institute of Science and Technology. ITAMSAT is a product of AMSAT-Italy and AMRAD was designed and built by the AMRAD group in the United States.

Frequencies: KITSAT-B 145.870/145.980 MHz (uplink) 435.175/436.500 MHz (downlink) Data format/rate: FM FSK, 9600 bps

ITAMSAT 145.875/145.900/145.925/145.950 MHz (uplink) 435.867 MHz (downlink) Data format/rate: Manchester FM, 12000fps (uplink) PSK, 1200 bps (downlink)

AMRAD 145.850 MHz (uplink) 436.900 MHz (downlink) Data format/rate: FM FSK, 9600 bps

See the October issue of QST magazine, page 98, for more information. Keplerian elements will be relayed as soon as they are available.

118 William St.,
Meaford, Ont. NOH 1Y0
Box 1764 until they change it.

My dear Sir:

You have asked for notes from the members to help fill up your paper; well, here's mine.

I think if I knew ~~it~~^{1/4} as much as the fellows at the September meeting, yes, even 1/8th as much, I would consider myself very clever.. not so VERY unlearned as I am... so I do hope there's some hope for me, little as it may be.

It's dreadful to sit among people who are so good at Ham Radio and listen to all the Greek that they throw at you... I sure would like to know a little bit as much as they do...

Thanks for allowing me to become a member.. I'll sure try to become better... I would like to take more lessons if I could get a ride with someone in the winter time, so I hope there will be others from Thornbury or Collingwood who would like to learn more.

Yours sincerely,

Marion Chapple

Marion Chapple

P.S. I only took lessons for a short time, then moved up here, so I need to know a lot of the practical work, such as how to speak to a friend in Nova Scotia, or someone in Nfld...

M.C.

GEORGIAN BAY AMATEUR RADIO CLUB
1993 MEMBERSHIP LIST

PRESIDENT						
— VE3XOX	BOB VARY		RR#8	OWEN SOUND	N4K5W4	376-0715
VICE-PRESIDENT						
— VE3IJD	GENE MCDONALD		RR#4	TARA	N0H2N0	934-2380
SECRETARY						
— VE3MWJ	NICK KLAASSENS		RR#3	HEPWORTH	N0H1P0	935-2494
TREASURER						
— VE3HIP	IAN TRENHOLM		180 7TH ST S.W.	OWEN SOUND	N4K5S9	371-5479
PROGRAM DIRECTOR(S)						
— VE3UWJ	JERRINE VERKAIK *		RR#3	ELMWOOD	N0G1S0	363-5785
— VE3AEO	TED SCARROW		308 12TH ST W.	OWEN SOUND	N4K3V4	376-9004
TECHNICAL DIRECTOR						
— VE3HIO	RICK SLACK		RR#7	OWEN SOUND	N4K6V5	371-0463
BULLETIN EDITOR						
— VE3TSA	TOM ST. AMAND		1232 3RD AVE E	OWEN SOUND	N4K2L5	371-9805

— VE3BFV	JIM HARRON *		RR#2	KEMBLE	N0H1S0	371-1209
— VE3BIS	DICK SHAVE *		BOX 351	SOUTHAMPTON	N0H2L0	797-2401
— VE3BZC	ROSS MILLS		136 6th AVE W	OWEN SOUND	N4K6C8	371-4326
— VE3CC	CY COLE		350-10TH ST E. APT 811	OWEN SOUND	N4K6P8	376-2841
— VE3CAH	CAROL ANNE LOSEE		265 9TH ST. EAST	OWEN SOUND	N4K2N8	372-2094
— VE3CRV	JIM VAMPLEW *		BOX 324	OWEN SOUND	N4K5P5	376-4951
— VE3CUV	ROSS SNIDER		BOX 31	THORNBURY	N0H2P0	599-3870
— VE3DDC	MARION CHAPPLE		P.O. BOX 1764	MEAFORD	N0H1Y0	538-4591
— VE3DIQ	BILL DOWKES *		764 3RD AVE W	OWEN SOUND	N4K4P3	376-1921
— VE3DKF	JIM FOOTE *		49 EMERSON AVE, BOX C46	RR#1 SAUBLE BCH	N0H2G0	422-1769
— VE3DTS	JACK AVIS		RR#6	WIARTON	N0H2T0	534-0151
— VE3DXO	DAVE DIXON		BOX 265	MARKDALE	N0C1H0	363-3307
— VE3DQC	DAN HANINGTON		BOX 281	OWEN SOUND	N4K5P5	372-1491
— VE3EBM	ROY MARGETTS		GEN DEL	WILLIAMSFORD	N0H2V0	794-2008
— VE3FFN	WALTER STOYKO		RR#1	PROTON STATION	N0C1L0	923-3544
— VE3GDH	DEREK HARDCASTLE		RR#1	MAR	N0H1X0	793-4203
— VE3HGL	HAROLD ROLFE		334 TYENDINGA DR. BOX 93	SOUTHAMPTON	N0H2L0	797-5389
— VE3HMZ	BILL CLIFFORD		850 6TH ST E. APT 509	OWEN SOUND	N4K6T7	376-3548
— VE3HXX	IAN SUTHERLAND		1775 9TH AVE E	OWEN SOUND	N4K3G6	371-7739
— VE3IBI	MAURICE WILKINS		RR#5	WIARTON	N0H2T0	534-2329
— VE3IEV	JOHN COTTRELL *		BOX 932	OWEN SOUND	N4K6H6	376-2799
— VE3ILO	BERT FARMER		C/O BILLY BISHOP AIRPORT	RR#8 OWEN SOUND	N4K5W4	371-6936
— VE3INP	JOHN CUTTS *		RR#6	OWEN SOUND	N4K5N8	371-2065
— VE3IOD	GARY BELL		10-945 9TH AVE W	OWEN SOUND	N4K4N8	376-4525
— VE3IXG	DOUG HAMES *		RR#1	PROTON STATION	N0C1L0	923-2387
— VE3IXR	MURRAY LONG *		RR#1	ELMWOOD	N0G1S0	364-4329
— VE3JLZ	JACK SEAMAN		RR#1	OWEN SOUND	N4K5N3	371-3439
— VE3LKD	BOB DROINE		242 7TH ST E	OWEN SOUND	N4K1H9	371-2257
— VE3LPD	LAVERNE WYVILLE *		BOX 365	MEAFORD	N0H1Y0	986-3731
— VE3LPT	MOE HURLBUT *		BOX 37	LEITH	N0H1V0	376-8458
— VE3MTG	LARRY WEDOW *		RR#3	ELMWOOD	N0G1S0	363-0151

—	VE3MTV	NORM BIGGAR	*	RR#2	OWEN SOUND	N4K5N4	376-0247
—	VE3MVS	MERV SOLOMON		RR#5	WIARTON	NOH2T0	534-4413
—	VE3NEM	TOM MERNER	*	RR#7	OWEN SOUND	N4K6V5	371-9499
—	VE3RHJ	BRAD RODRIGUEZ		RR#7	MARKDALE	NOC1H0	986-4266
—	VE3RLW	ROB WALLINGTON		RR#4	MARKDALE	NOC1H0	986-4750
—	VE3RVG	GERRY INSHAW	*	180 13TH AVE "A"	HANOVER	N4N3P5	364-1244
—	VE3TDF	PAT O'SHEA		RR#2	TARA	NOH2N0	934-2314
—	VE3TDV	DOUG BOVELL		282 GRAHAM ST.	MEAFORD	NOH1Y0	538-2500
—	VE3TFQ	JIM ROWE		BOX 707	DURHAM	NOG1R0	369-2622
—	VE3TFV	KEN SLACK		645 4TH ST "A" E. 378 McINTYRE ST.W	OWEN SOUND NORTH BAY	N4K1C2 P1B2Z1	371-1456
—	VE3TTV	HENRY VANDERHEIDE*		450 28th ST W APT 209	OWEN SOUND	N4K5X9	371-0467
—	VE3TUK	RUSSEL LEES		BOX 1461	PORT ELGIN	NOH2C0	832-6779
—	VE3TUM	RICK MCGILLIVRAY *		2230 6TH AVE W	OWEN SOUND	N4K6S6	371-5017
—	VE3TUP	KLASS VANDERHEIDE		BOX 707	DURHAM	NOG1R0	369-2622
—	VE3TUQ	AUBREY ALDERDICE *		RR#4	MEAFORD	NOH1Y0	538-3839
—	VE3TUS	BARRIE DOHERTY		RR#2	MARKDALE	NOC1H0	986-3845
—	VE3TWI	OKKE BOS		769 6TH ST "A" E	OWEN SOUND	N4K1H4	376-5473
—	VE3TWW	DAVE CLEAVER		RR#1	DURHAM	NOG1R0	369-6415
—	VE3TWK	JACK DOHERTY *		2805 3RD AVE W	OWEN SOUND	N4K4T1	376-3440
—	VE3TWL	CATHY WALLINGTON		RR#4	MARKDALE	NOC1H0	986-4750
—	VE3TXB	JOHN APSITIS		750 DURHAM RD E	DURHAM	NOG1R0	369-2336
—	VE3TYL	JIM LYTTLE		RR#2	SHALLOW LAKE	NOH2K0	371-1796
—	VE3UIC	JASON MCDONALD		RR#4	TARA	NOH2N0	934-2380
—	VE3UUL	JOHN NADJAWON *		RR#5	WIARTON	NOH2T0	534-2798
—	VE3UWD	HENRY OLSEN		373 12 AVE. APT 4	HANOVER	N4N2T4	364-1544
—	VE3UWX	MORRIS ST.ONGE *		805 10TH ST.	HANOVER	N4N1S1	364-2997
—	VE3VTO	DON SLOANE		RR#1	MAR	NOX1X0	793-3523
—	VE3WNV	BILL WALPOLE		754 6TH ST E	OWEN SOUND	N4K1G7	371-4206
—	VE3WWS	VIHLO SALMELA *		971 BRICKER ST.	PORT ELGIN	NOH2G3	832-5614
—	VE3XKM	STEVE SHARPE		P.O. BOX 362	DURHAM	NOG1R0	369-3533
—	SWL	STAN GUZONAS		BOX 11	FLESHERTON	NOC1L0	924-2473
—	N5ZIK	JACK FARMER	*(WIN) (SUM)	2110 VERNON AVE 2031 8TH AVE E.	MISSION, TEXAS OWEN SOUND	78572 N4K3C5	534-1737 376-3210

**Satgen228 Satellite Propagation Worldwide
Part 1 by GM4IHJ 7th Aug 93**

Signals going to and from satellites travel through the atmosphere and, the ionosphere (the upper portion of the atmosphere above 40km altitude which is non uniformly electrified by bombardment from the Sun and other agencies). Signals going up or down can be seriously attenuated, and, bent away from a straight line of travel. The first part of this report discusses some of the ionospheric effects. The ionosphere has layers of ionised gas at various heights, having been electrically charged by bombardment from Solar radiation and, to lesser degree, Galactic Cosmic radiation. In general the lightest atoms form the top most layers (hydrogen) while succeeding lower layers are composed of heavier atoms (oxygen, nitrogen) and still further down the yet heavier molecules of these gases. The ionised zones are not fixed in height. They move up or down , concentrate or disperse with the changing bombardment which varies during the day and night, still further varies from season to season , and last but by no means least varies over a roughly 11 year cycle of max through min to max again in step with the varying level of Solar Flux , more commonly known as the Sunspot Cycle. The ionosphere has it greatest effect on the low frequency signals. HF satellites in the range 3 to 50 MHz, Eg 29 MHz Radiosport satellites being where most radio amateur encounter its effects .Because the Sun is absent at night, ionisation is greatly reduced, and so HF signals are less affected at night. But the worst case propagation occurs when typically a station in daylight in say Africa uses RS12 HF 2way to talk to a station in Brazil still in pre dawn darkness. The Brazilian gets excellent night time up and down links through his ionosphere but the Africans signal goes up and down through the daylight ionosphere and his results will be much poorer than those of his contact partner. In the African evening= Brazilian afternoon the situation is reversed, Brazil gets the poor links and Africa gets the good ones. This typical case of asymmetrical conditions on a satellite link can occur anywhere when operating across the Solar Terminator Dawn/Dusk line, it is regularly encountered USA Europe ; Europe Asia and S America Africa. Very few operators appear to understand or allow for this problem. AURORA . Less regular but still a nuisance on both HF and VHF satellites is Aurora. Stations above latitude 55N and 55S (GM LA SM KL etc) get auroral problems on satellite links on 30 to 50 days of the year. At best the presence of the Auroral curtain above their polar horizon gives

their signals a rough note. At worst it destroys the signal. At HF RS10 and 12 can produce multiple signals. At VHF and UHF Auroral scintillation can break up the signal completely at times. This break up effect is particularly noticable on Fuji Oscar 20 when it is accessed from Scotland whilst the satellite is seen through the edge of the auroral curtain as the sat transits down between Greenland and Labrador. Contacts G W can be ruined at times particularly when an auroral storm moves the auroral curtain further south. Stations as low as latitude 35N or 35S can be affected by once every 5 year approx monster auroras. But stations nearer the Equator are not affected by polar aurora when operating satellites. The auroral curtain is no use to them because it never comes above their horizon. By contrast high latitude sat ops are plagued by aurora almost weekly , but at least have the satisfaction of being able to use it for terrestrial DX out to about 2000 kms. 73 de GM4IHJ @ GB7SAN

**Satgen229 Satellite Propagation Worldwide
Part 2 by GM4IHJ 14 Aug 93**

Part 1 discussed Asymetric HF satellite communications and the effect of aurora on satellite communications. This part 2 discusses AURORAL Es, a form of propagation which can benefit both the satellite and the terrestrial user but which is only available where stations have the aurora above their horizon. It is no use to stations below latitude 35 The aurora is an oval curtain around the magnetic pole where incoming solar bombardment finds an easy way down to the atmosphere by travelling between the open polar magnetic field lines. The oval is squashed and pushed away from the Sun , which moves the oval centre well over to the anti Sun side of the magnetic pole. This off centre, combined with the fact that the magnetic pole is not at the geographic rotation pole , causes the edge of the oval as seen from further south , to oscillate so that it is furthest north in the late morning, and nearest to you (furthest south) around local midnight. In this way , what ever the auroral state , quiet near the mag pole or disturb , well south away from the mag pole, from a station in UK the edge of the oval appears to move about 500 kms towards UK between late morning and midnight. So even if the aurora stays quiet the auroral curtain comes to the far northern UK horizon in the late evening. If the Sun is disturbed , the auroral oval expands south, to be in range of UK to the north from about noon and overhead UK in the late evening. There is therefore an ionised curtain north of

UK (and stations at equivalent magnetic latitude) all day. In the evening, in quiet conditions the top of the aurora is visible to stations in the north of UK, and by pointing an antenna at it you can get HF and VHF propagation forward scattered through the auroral curtain to locations in say Northern Sweden , or to satellites in the same direction but at far longer range. At between 1600 and 1900 local in quiet auroral conditions RS12 on the Pacific side of the North pole can be accessed from UK on at least one evening in three, when it is 10 degrees below the horizon. This "THROUGH THE AURORA" propagation has been called Auroral Es for a long time because it was first recognised during major auroral storms ,when after several "rough signal" contacts using the aurora to talk by back scatter to middle Europe , GM and GI stations lost backscatter comms but suddenly found they had a clear signal path to Northern Sweden. This clear signal via Auroral Es does not necessarily use the E layer, in fact it more often uses the F layer at heights up to 400 km. Through the auroral events, occur between 1600 and 1900 local when the aurora is quiet, but when it is disturbed they can occur only during the passage of the "HARANG DISCONTINUITY" the mid evening spin of the earth which brings the split in the auroral circulation pattern past your station. Please note that the more disturbed the Aurora, the earlier part 1 aurora back scatter ends and, the end occurs as the Harang Discontinuity goes through. After the passage of the discontinuity , Auroral Es in disturbed conditions , cease, and normal back scatter part 2 rough signal aurora may begin. Please Note. Auroral Es terrestrial DX and satellite DX has only been reported by stations above magnetic latitude 50N. There have been no reports from the Southern Hemisphere. Reports of Auroral Es outside Europe would be welcomed by GM4IHJ. PS PERSEIDS Forecast Monster Shower. In fact it was a poor one. Apologies to all. 73 de GM4IHJ @ GB7SAN



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WANTED

Articles and cartoons suitable for feedback...also i would like a short story from all members outlining how you became interested in ham radio and what your main interests are....73 tom

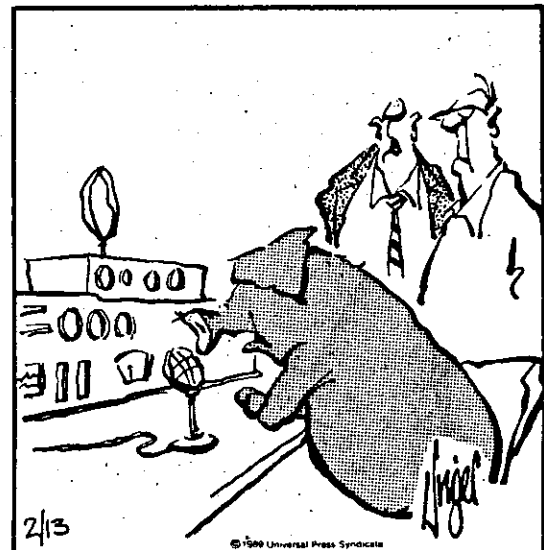


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