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HAMS Waywite News

MIDLANDS AMATEUR RADIO CLUB
P.O.Box 1076, HILTON, 3245

September 2007



AFFILIATED TO
THE SARL & IN
ASSOCIATION
WITH THE NATAL
CARBINEERS

Chairman & Clubhouse Manager

Bert Cornell, ZS5MQ
(033) 344-3659

Committee Members

Mike Boast, ZS5BGV

Secretary / Treasurer

■ (033) 342-1241

✉ mboast@pmbnet.co.za

Robin Seal, ZS5MRS

PRO & Media Liaison

■ (033) 343-1942

Shaun Rudling, ZR5S

VHF/UHF & Digital

■ (033) 342-1609

**Mickey Esterhuysen,
ZS5QB**

*Technical Adviser & Club
Bulletins*

■ (033) 386-4808

Wessel du Preez, ZS5BLY

Vice-chairman & HHN Editor

■ (033) 702-1968

✉ dupreezw@futurenet.co.za

The Chairman's Fax

Spring has now sprung and peach blossoms and all the new shoots are clearly visible and it is just a matter of time before most of us will partake in the weekly ritual of mowing the grass again.

The high frequency bands are still up to maggots but there have been a few openings on the VHF notably on two metres with some excellent comms between the Underberg repeater and Maritzburg, pity the hill-billys are not always around to take full advantage!

In the coming weeks the club will be advertising a basic electronics course to be held at the clubhouse each Saturday for a period of ten weeks.

Hopefully this course will be the forerunner to the complete RAE and possibly a few more new hams on the air.

I do have some news of various items for sale the first is a well built telescoping tower of about fourty feet at the bargain price of R500.00, purchaser to dismantle and remove same.

The next items are a TS-130 and amplifier with supporting documentation for R1 600.00 or nearest cash offer.

The above items are available ex PMB for more information contact ZS5MQ.

Remember the time of the monthly meeting has been changed to 13:00 hrs on the third Saturday of each month. Your annual subscriptions can now be paid into the club banking account at FNB.

The Senility Prayer

Grant me the senility to forget the people I never liked anyway,

The good fortune to run into the ones I do,

and the eyesight to tell the difference.

Why don't you join in on the Thursday MARC net at 19:00 on 3,620 MHz

NEXT MEETING ON THE 15/09/2007

CU THERE

PS! Don't forget to send your apologies if you can't make it!

73 DE ZS5MQ

The club meets on the third Saturday of every month, except December at 13:00 at the Natal Carbineers Conference Center, Geere Street, PMB. Sunday Morning Bulletins (MARC and SARL) as well as the Club Net from 07:45 on 3620 kHz and the 145.750 MHz repeater.

Sunday Club Net Controller: Mickey Esterhuysen, ZS5QB
National News Bulletin: Robin Seal, ZS5MRS

From the Editor

The readers of this newsletter are very fortunate - this year they get two issues labeled "September"! There will be no extra charge levied for this as it has been 100% sponsored by the editor's stupidity! This is the genuine September issue. Having received no flak or comments just makes me wonder.....!

It seems that OM Mike, ZS5BGV has set off a spark in the interest in amateur satellite operation in his recent bulletin. Requests for more information have been received so hopefully the articles in this issue will lift some of the fog.

A little bird has informed me that there is a lot of activity on both VHF and UHF in the Town-in-the-Hollow! This is very good news and will force me into getting the long Yagi back on the tower to monitor the goings on!

I suppose that one cannot come to any conclusions after taking one sample of an event. This refers to the first 1pm meeting that took place last month. Once more it was the faithful few that were present with one or two extras: is this the best we can do?

Wessel, ZS5BLY

News and Views

① **The Underberg Show** was held over the weekend of 1-2 September and Hamnet was invited to participate. Keith, ZS5WFD, Glen, ZS5GD and Dave, ZS5HN turned up with their well equipped vehicles and proceeded to show us exactly how it should be done! A pneumatically operated mast took the 80/40 m trapped dipole and 2m antennas up in no time. Conditions were rather poor on HF, but they managed to get a couple of contacts. Yours truly tried to demonstrate satellite coverage but the DC-AC inverter caused havoc on HF and was switched off. On Sunday our visitors volunteered to do the coms for a race between riders on horseback and riders on mountain bikes - they certainly scored some points for amateur radio! Also in attendance were Malcolm, ZR5MRI and Philip, ZR5PDL who not only organized the whole thing, but also hosted our visitors on his farm. Craig, ZS5CID paid a visit, but was pressed for time as he was on duty at the salt mine. All of us got a very good layer of dust deposited on our person and equipment as this was the first show held at the new site which is not yet fully developed. Speaking to Keith on their way home he remarked: " We enjoyed it very much. It was so different from what we usually do." Thanks, guys!



Glen, ZS5GD and Keith, ZS5WFD in operation

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① Shaun and Mike seem to be very busy installing, moving and repairing VHF and UHF repeaters and hunting down good sites. We thank them for their efforts in getting the network going again.

① The proposed electronics course to be held at the Club has been mentioned in the Chairmans Fax. Though it will be advertised in the press, it will be appreciated if you could spread the word to youngsters (and others!) in your neighbourhood.

① Mickey, ZS5QB will be placing an order for crystals for the Club in the near future. If you need to get xtals, please contact him so he can do one order.

② It was good to have such a long list of callers for the last Sunday Club Net - they don't come to the meeting but at least we hear them!

③ The Thursday Net surprised all of us with 80m getting better as time marched on instead of sending all of us back to the bench as usual. Summer must be coming!

SPUTNIKS

In October we celebrate the 50th anniversary of Sputnik I. The Physics Department of the university where I was a student at that time, showed a great interest in this event. They set up a receiving station in a portable shack on the golf course which was within walking distance of the Physics building. Volunteers were called for to enable a round the clock monitoring of this wonder. Naturally most of the second year students volunteered in order to earn Brownie Points with the professor. Being junior students, we ended up with the night shifts. For many hours we listened to the beep-beep while frantically trying to measure the signal strength, Doppler shift and also keep an eye on the tape recorder and the ZUO time pips.

Meanwhile the post-graduates were designing and building all kinds of weird looking antennas, calculating and cutting endless lengths of feed lines to get the phasing right. (at that stage these were words only to be understood by the learned senior students!). All our hard work resulted in only more suffering as our teachers now presented endless problems regarding take-off angle, launch velocity, orbital heights and orbital periods in tests and exams. My friend and fellow student, Vidi, ZS1EL (then ZS1AL) and I wasted many hours listening on his good Hallicrafter instead of dealing with the Applied Math problems that we were supposed to be doing, but we developed a very healthy respect for the Russian scientists that put a man-made object into orbit.

I missed OSCAR 1 and 2 but managed to put together a rather temperamental down converter for OSCAR 3 in 1965 which at least got me in the listening mode. Its 16 day life did not impress me at that time! The effort caused satellitis, an incurable disease affecting only radio amateurs. Its main symptoms are the depletion of bank accounts and deprivation of sleep. It does, however, compensate for these by providing numerous challenges and endless thrills!

Fortunately the modern OSCARS are much easier to work as a result of the development in space communication: our radios have not lagged far behind and make satellite working almost effortless.

Oscar-3 was the first amateur satellite to carry a transponder. It received signals at 144.1 MHz and re-transmitted them on 145.9 MHz with a bandwidth of 50 kHz. Its transmitter output was 0.8 W! No wonder one needed a large antenna and good pre-amplifier to hear it at all.

Satellites are more weight conscious than the most fanatic YL and are therefore limited in output power by the weight of the batteries and other essential payloads. Fortunately the miniaturization of electronic components and the increased capacity for a given mass of battery has changed all this and our modern satellites pack much more punch. This makes life much easier for us here on earth.

Apart from their use as communication vehicles, satellites open a world of experiments that can be done by any amateur. These include a study of the Doppler effect, telemetry, extended range reception and low-power tests. More about these in future issues.

Getting started with satellites

Before you rush out to the local emporium with the piggy-bank under your arm, you must first find out whether this is for you. As with DXing, contesting or any other worthwhile activity, success at space communication requires a serious investment of time, effort and often cash. As a first step, I would advise you to listen to the satellites. For this you will need:

(i) a 2m (and preferably 70 cm) FM or multimode receiver. (FM only may restrict the possible satellites to be heard) and some form of antenna to receive signals on these frequencies. For this first step it is not necessary to have 14 element crossed Yagis mounted on an Az-El rotator!

(ii) a computer running one of the prediction programs to tell you when the bird is going to fly over your QTH. Try WXtrack, available at www.satsignal.net or SatScape available at www.marc.org.za. Both these programs require relatively "fresh" (ie less than 10 days old) keplerian element data for accurate position calculations. Keplerian element data can be obtained from www.amsat.org/mailman/listinfo/keps.

Also install one of those programs that set your computer clock more accurately than SABC time signals.

(iii) go to www.amsat.org to get information about the current operational satellites. This will give the modes and frequencies they operate on as well as the telemetry frequencies and other data.

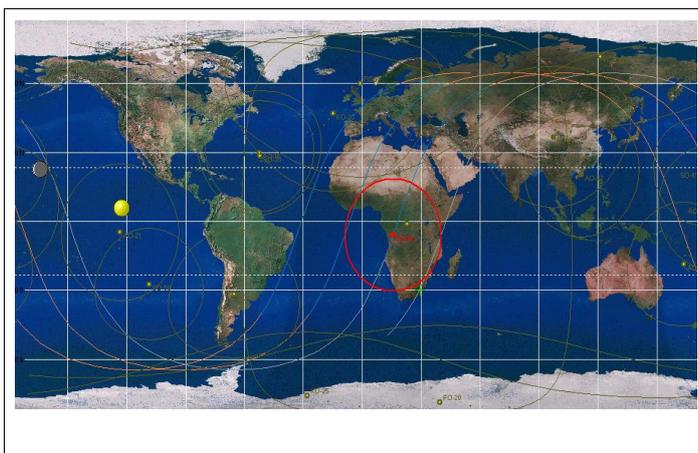
(iv) install the software and read the help files.

(v) wait for the satellite to come within your reception circle and listen. There may be no voice activity while it passes over SA but the telemetry beacons will be active and provide a signal.

(vi) I have successfully used a 5/8 ground plane antenna on 2m and 70cm for communication with the Sunsat satellite.

(vii) it is even easier to visit an active satellite user during a pass and get an idea what it is all about!

(viii) the photo to the right shows a screenshot of a WXtrack screen of a satellite just coming within range of my station. The circle indicates the footprint or coverage area of the satellite. All stations that lie within the circle are able to communicate with each other via the satellite provided that it is high enough above the horizon.



Standard Resonators		
Power Rating 400 Watts		
Part Number	Description	Approximate Bandwidth
		2:1 SWR or better
RM-10	10 Meter	150-250 kHz
RM-12	12 Meter	90-120 kHz
RM-15	15 Meter	100-150 kHz
RM-17	17 Meter	120-150 kHz
RM-20	20 Meter	80-100 kHz
RM-30	30 Meter	50-60 kHz
RM-40	40 Meter	40-50 kHz
RM-75	75 Meter	25-30 kHz
RM-80	80 Meter	25-30 kHz



Ameritron's SDA-100 is without a doubt the best built, best looking, best performing HF Mobile Screwdriver Antenna in the world! When properly installed on your vehicle this antenna will provide continuous coverage from 10 Meters through 80 Meters with a 6 foot whip. Remove the whip to get 6 Meters through 40 Meters coverage.



Stop tuning, start talking.

The SG-230 Smarttuner was the first product in the HF market to offer fast, flexible tuning without any user interface. This unit works with ANY radio and ANY antenna without any special interface, making it the most versatile tuning product available. The SG-230 can be used in base station, mobile, marine and aviation and has been the "Gold Standard" of automatic antenna tuning for nearly twenty years. The SG-230 is built in a rugged ABS plastic enclosure which is sealed to protect it, and allows ultimate versatility in installation.

X200
 144/430MHz(2m /70cmz)
 Gain:6.0dB(144MHz),8.0dB(430MHz)
 Max. power rating:200W
 Impedance:50ohms
 VSWR:Less than 1.5:1
 Length:2.5m
 Radial length:approx.52cm
 Weight:1.2kg
 Rated wind velocity: 50m/sec.
 Mast diameter accepted:30mm to 62mm
 Type:2 x 5/8wave(144MHz),4 x 5/8wave(430MHz),FRP outershell



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9 Carnation Street,
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 Gallo Manor,
 Rep. of South Africa
 2052

Archimedes

Most of us know him from the Archimedes principle and his reputed naked run through the streets of Syracuse yelling "Eureka" (I have found it). He lived from 287 to 212 in Syracuse and was the greatest mathematician of antiquity. He invented war machines to defend his city against the Romans under Marcellus and was killed at the fall of the city.

Other inventions included a screw for raising water, an endless screw, a compound pulley used for launching ships, and two *sphaerae* (a planetarium and a star-globe which were taken to Rome). He also discovered a means to determine the proportions of gold and silver in a crown made for Heiron II. It was this problem which led to the Archimedes Principle which states that *if an object is immersed in a liquid, it experiences a resultant upward force equal to the weight of the liquid displaced by the object.*

He developed the method of exhaustion and applied it to the calculation of areas and volumes (including the area enclosed within a segment of a parabola), the area bounded by certain spirals, and the area and volume of a sphere. He also calculated an improved value for π and designed his own tomb incorporating a sphere inside a cylinder to commemorate his discovery that the sphere occupies two-thirds of the space.

Archimedes wrote many books of which most were lost. Two of his works, *A Book of Lemmas* and *On the Heptagon in a Circle* have survived in Arabic form. All his work done in astronomy were also lost except for a method of calculating the sun's diameter which was described in *The Sand Reckoner*. After the discovery of some of his works in the Renaissance, Archimedes exercised a profound influence upon the subsequent development of mathematics and mathematical physics

Hadrian's Wall

Hadrian's Wall spanned the Tyne-Solway gap. Begun after Hadrian's visit to Britain in AD 122, it was stone-built from Newcastle upon Tyne to the Irthing, and turf-built from there to Bowness-on-Solway. It was between 2 and 3 metres wide and probably about 5 metres high. Just over 110 km long, there were milecastles throughout and two turrets between each. A ditch ran to the north, and a frontier zone to the south was delineated by the *vallum*, a ditch flanked by raised banks. A series of forts several kilometres behind the wall (e.g. Vindolanda) was soon moved up to the wall. Later modifications extended the wall east to Wallsend, and replaced the turf wall in stone. Hadrian's Wall, briefly replaced by the Wall of Antonius, was repaired in the 160's, and a military way added behind it. The wall, substantially rebuilt under Septimus Severus (205-7) and restored by Count Theodosius (369-70), probably remained occupied up to and beyond 410.

What is less known is that Hadrian also built a 480 km long wooden palisade of split oak-trunks along the German and Raetian borders. It was 3 m high and embedded in a ditch 1,5 m deep and fastened by cross-planking. A further Hadrianic effort has been traced in the Dobrudja, but along most of the Danubian frontier the forts were never linked by a wall or palisade.

Sundials

O God! methinks it were a happy life,
To be no better than a homely swain;
To sit upon a hill, as I do now,
To carve out dials quaintly, point by point,
Thereby to see the minutes how they run,
How many make the hour full complete;
How many hours bring about the day;
How many days will finish up the year;
How many years a mortal man may live

Shakespeare. *King Henry VI, Part III, 2, v*

Bulletin Readers

16th September	Wessel	ZS5BLY
23rd September	Mickey	ZS5QB
30th September	Mike	ZS5BGV
7th October	Robin	ZS5MRS
14th October	Shaun	ZR5S
21st October	Bert	ZS5MQ
28th October	Wessel	ZS5BLY

On the Giggle-Hertz bands

A mother was preparing pancakes for her sons, Kevin 5, and Ryan 3. The boys began to argue over who would get the first pancake. Their mother saw the opportunity for a moral lesson. " If Jesus were sitting here, he would say, ' Let my brother have the first pancake, I can wait.' Kevin turned to his younger brother and said, " Ryan, you be Jesus!"

They said it

A perfect summer day is when the sun is shining, the breeze is blowing, the birds are singing and the lawnmower is broken.

James Dent

Remember to forget the troubles that passed away, but don't forget to remember the blessings that came each day.

Anonymous

I don't think anybody should write their autobiography until after they are dead.

Samuel Goldwyn

NEXT MEETING

The next club meeting will take place on Saturday, 15th September at the usual venue.

Please note the new starting time of 13:00

This space is available to our readers to advertise those items that have become surplus to their requirements or are just simply cluttering up valuable space required for other more interesting goods. You may also use it to put out Mayday calls for manuals or components that are no longer available on the open market, but which you are sure still exist in hidden corners, attics, garages and cellars. These may include high voltage transformers, mercury-vapour rectifiers, high voltage electrolytics or 8080 microprocessors!

There will be no charge for members of MARC or those others on my mailing list. Outsiders are expected to increase the Club's bank account by making a small contribution.