



# HAMS

# KEYWITE NEWS

MIDLANDS AMATEUR RADIO CLUB

P.O. Box 1076, HILTON, 3245

October 2006



AFFILIATED TO  
THE SARL & IN  
ASSOCIATION  
WITH THE NATAL  
CARBINEERS

## CLUB COMMITTEE

2006 / 2007

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Manager

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National News Bulletin

Robin Seal, ZS5MRS

## THE CHAIRMAN'S FAX

Once again the past month has come around so quickly and it is time for your HHN to be produced again, no mean task for all those involved with the production of it.

A very successful boot sale was held in lieu of the September meeting with many unusual items being offered for sale. I even saw a bird feeder for R5 on one of the tables. Barbara and Rose sold wors rolls for the club. The highlight of the morning was the arrival of Swazi Willie and Andy who did a quick trip down from the Swaziland Kingdom to meet old friends and to make new acquaintances with members who were present. Stout effort chaps! It was nice to see OM Willie, ZS5WI from Eshowe and of course OM Alan Smith who nipped up from Durbs. From down the South Coast we had OM Charles, ZS5QR, who was a keen buyer of many bits and pieces.

JOTA is upon us again and we will be having our October meeting at the Girl Guide camp which will end with a bring-and-braai at lunchtime, club to supply the fire. Please support this function so we don't look like a six man committee on its annual outing! We need you, the members, to make an effort to attend. **Bring your SW, YL, your kids and dogs\*\*** and have a day in the sun with your ham friends!!

With a cold snap at our doors as this is being written I'm sure that the weather will be fair for JOTA and us on the 21<sup>st</sup> October.

CU there,  
73 from ZS5MQ

\*\* Rod to leave his mutt at home !!

The Club meets on the third Saturday of each month, except December, at 11h00 at the Natal Carbineers Conference Center, Geere Street, PMB. Sunday Morning Bulletins (MARC and SARL) as well as the Club Net from 07h45 on 3620 kHz and the 145.750 MHz repeater

Sunday Club Net Controller: Mickey Esterhuysen, ZS5QB

# The M.A.R.C Infrastructure

## Voice Repeaters (FM)

<b>VHF</b>	Worlds View	145.750 MHz (Tx)	145.150 MHz (Rx)	Emcom SA256	25W
	Hilton	145.700 MHz (Tx)	145.100 MHz (Rx)	Emcom SA256	25W
	Estcourt	145.675 MHz (Tx)	145.075 MHz (Rx)	SCR200	15W
	Underberg	145.775 MHz (Tx)	145.175 MHz (Rx)	Yaesu FTC1525a	20W
	Greytown	145.775 MHz (Tx)	145.175 MHz (Rx)	Storno	

<b>UHF</b>	Pinewood	431.625 MHz (Tx)	439.225 MHz (Rx)
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## Packet Digi-peater

Hilton	144.625 MHz (Tx & Rx)	Kantronics KPC3+ V9.1 Alinco DJ-135 50W Diamond X-700 Omni 9.6dB
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The standby BBS is on ZS0HIL-1. The digi is on ZS0HIL-2. The KA-Node is on ZS0HIL-7  
The digi will also respond to APRS beacons ( WIDE or TRACE ). The I-Gate is at ZR5S-3

## BBS

ZS5PMB is the call sign of the Midlands packet radio BBS. Connect to it on 144.625 MHz by typing:  
C ZS5PMB, then press Enter or go in via the Hilton digi by typing C ZS5PMB V ZS0HIL-2 and press Enter.

## APRS

National APRS frequency 144.800 MHz (Tx & Rx). The I-Gate is at ZS5S-1  
Fixed stations should beacon at approximately 30min intervals with a path of TRACE 7-7  
Mobile stations should beacon at approximately 1min intervals with a path of RELAY, TRACE 7-7

## Echo-Link

Our node number is 244279      Call sign ZS5PMB  
The echo-link is available on the 145.750 MHz repeater

## Wefax

Hilton	144.700 MHz (Rx)	438.050 MHz (Tx)	<b>(Out of order )</b>
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This Weather-Fax signal is transmitted from the University of Kwa-Zulu Natal Durban Campus at 2.5W on VHF. It is received at the Hilton site with an 8-element beam and re-transmitted on UHF using a Diamond X-700 omni.

## Beacons

Hilton	50.321 MHz (Tx)	ZS5SIX	PSK31/CW
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## Web Site

M.A.R.C.'s very own website: [www.marc.org.za](http://www.marc.org.za) or [www.pmbcomp.co.za/marc](http://www.pmbcomp.co.za/marc)  
South African Radio League [www.sarl.org.za](http://www.sarl.org.za)

## Hams Haywire News

Contributions and suggestions can be sent to [dupreezw@futurenet.co.za](mailto:dupreezw@futurenet.co.za)

## From the Editor

It is probably safe to assume that most of our readers have computers in the home and/or in the radio shack and that they are (sometimes?) used for amateur radio purposes. So what do you actually use the computer for as far as amateur radio is concerned? Somebody made a very sensible suggestion by asking: “why don't we make a club CD of the ham software that we use?”. I think that this is an excellent idea. Why don't we? If we put together a collection of the programmes that we personally find useful, then surely others may find them useful as well. If you wish to contribute, bring the software along to our October meeting so we can put a CD together for the November meeting. You are also welcome to e-mail it to me provided that it is less than 1Mb else you force me to increase the phone company's profits! I will cart the laptop along so you may bring your contribution on CD, stiffy or memory stick. Only one condition: it must be freeware or shareware that may be freely distributed (or maybe you wrote it yourself!!).

The e-mail distribution list for HHN has been updated so you may find yourself landed with both an e-mail and a snail-mail copy – please advise as to which one you prefer. Also remember that the postage is money out of the club account and that the electronic version has colour photos!

As promised last month, the “good news” article is somewhere in this newsletter. It is an abstract from a technical newsletter supplied by OM Robin, ZS5MRS and should gladden the hearts of all us oldies – maybe we see another solar cycle peak!

Wessel, ZS5BLY

## Backward Sunspot

**August 15, 2006:** On July 31<sup>st</sup> a tiny sunspot was born. It popped up from the sun's interior, floated around a bit, and vanished again in a few hours. On the sun this kind of thing happens all the time and, ordinarily, it wouldn't be worth mentioning. But this sunspot was special: it was backward. “We have been waiting for this”, says David Hathaway, a solar physicist at the Marshall Space Flight in Huntsville, Alabama. “A backward sunspot is a sign that the next solar cycle is beginning”. “Backward “means magnetically backward, Hatahaway explains:

“Sunspots are planet-sized magnets created by the sun's inner magnetic dynamo. Like all magnets in the universe, sunspots have north (N) and south (S) magnetic poles. The sunspot of July 31<sup>st</sup> popped up at solar longitude 65° W, latitude 13° S. Sunspots in that area are normally oriented N-S. The newcomer, however, was oriented S-N.

This tiny spot of backwardness matters because of what it might foretell: a really big solar cycle. Solar activity rises and falls in 11-year cycles, swinging back and forth between time of quiet and storminess. Right now the sun is quiet. “We're near the end of Solar Cycle 23, which peaked way back in 2001,”explains Hatahaway. The next cycle, Solar Cycle 24, should begin any time now, returning the sun to a stormy state.

Satellite operators and NASA mission planners are bracing for this next solar cycle because it is expected to be exceptionally stormy, perhaps the stormiest in decades. Sunspots and solar flares will return in abundance, producing bright auroras on earth and dangerous proton storms in space.

But when will Solar Cycle 24 begin? “Maybe it already did – on July 31<sup>st</sup>” says Hathaway. The first spot of a new cycle is always backwards. Solar physicists have long known that sunspot magnetic fields reverse polarity from cycle to cycle. N-S becomes S-N and vice versa.

“The backward sunspot may be the first sunspot of cycle 24”.It sounds exciting, but Hathaway is cautious on several fronts:

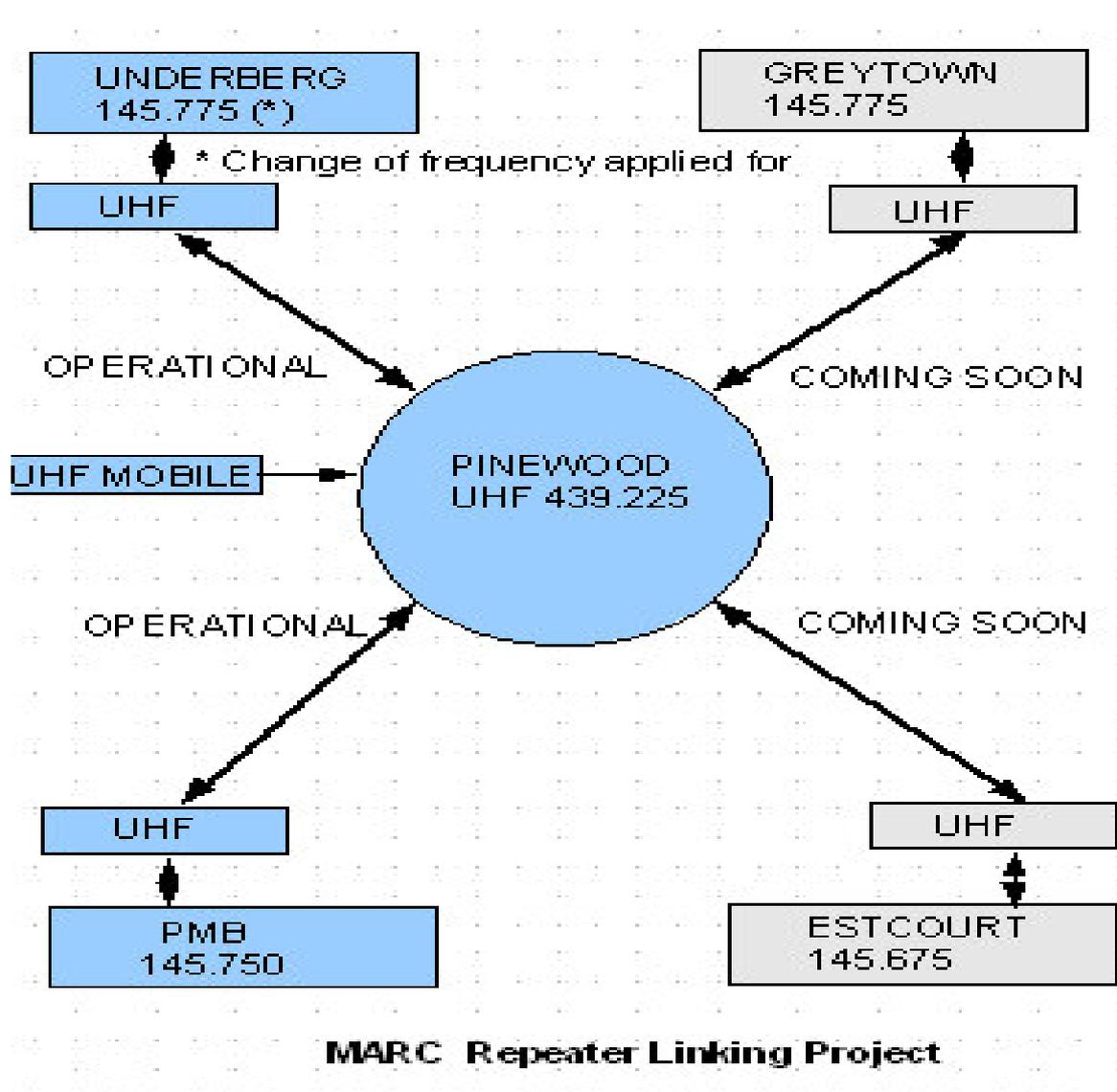
First, the sunspot lasted only three hours. Typically sunspots last for days, weeks or even months.

Second, the latitude of the spot is suspicious. New-cycle sunspots almost always pop up in mid-latitudes, around 30° N or 30° S. The backward sunspot popped up at 13° S. These odd-isms stop Hathaway short of declaring the onset of a new solar cycle. “But it looks promising”, he says.

*(Thanks to Robin, ZS5MRS for sending the original)*

## VHF News

With half the club VHF 2m repeaters linked, the network has to accommodate a lot more users. Just a reminder to observe the correct radio procedures when using the system. Don't forget to give the call sign of the station you are calling followed by your own call sign. Be specific about who you are calling."anyone out there "type of comments are not correct radio procedure. If you wish to give a general call, simply announce your call sign followed by "standing by for a call". Should you be mobile, try to indicate your location eg. Estcourt or Wartburg. If someone wants to talk to you, they will reply. Please keep overs short and leave a pause between overs to allow other users or Echolink operators a chance. Two metres, two minutes. When activating the Echolink, give your call sign before sending the DTMF tones. We will soon have a few new amateurs on the air and we need to set the example. Professional institutions might be listening in the interest of Hamnet or some other purpose and judge us by our operating procedures. Finally, please use the repeater system. A lot of people have spent time, money and effort to get it where it is today. This is what the proposed network looks like. Greytown and Estcourt have not been linked yet.



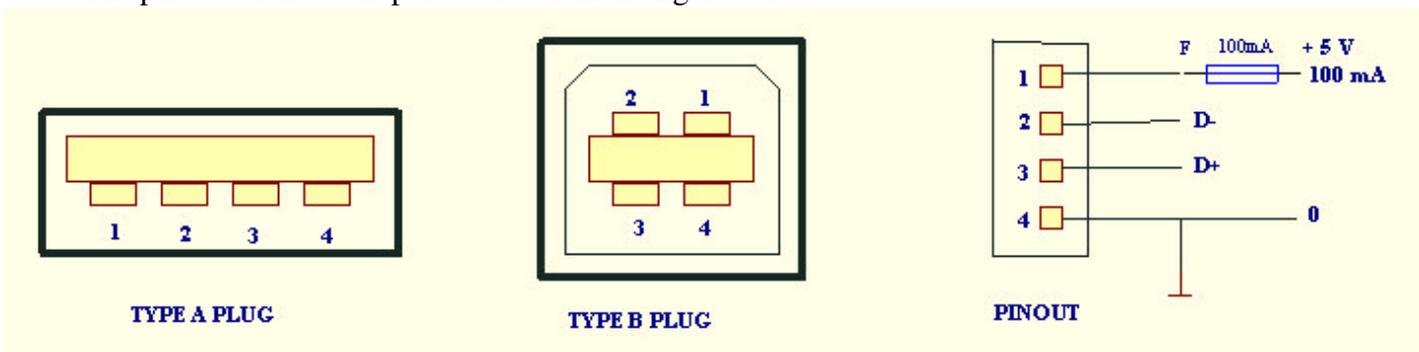
(VHF News by Craig, ZS5CID)

## Your USB Port

All modern PC's are equipped with the “new” serial interface known as the Universal Serial Bus or USB. It is another step towards the ultimate Plug-and Play approach wherein all technical activity is made transparent to the user. No more worries about cross-connected cables, null modems or DTE and DCE devices: just plug it in and switch on! This simplification to the end user has complicated the task of the designer as USB devices have to be much more intelligent than their RS-232 ( serial port ) or Centronics (printer or parallel port) equivalents. These devices make themselves known to the operating system by means of a series of description tables that enables the operating system to load the correct driver for that device. When first connected, the OS requests a disc of some sort to copy the driver to the hard disc. On subsequent connections of the device, the OS transfers the appropriate driver to memory, ready for use.

USB devices are arranged in classes of which the Human Interface Device or HID is the most common. It includes mice, keyboards, pointing devices and joysticks. Other classes exist for printers, sound cards and other peripherals. This class allocation creates a level of standardisation and device manufacturers have to make sure that their products comply with the relevant class specification.

USB version 1 makes provision for low speed devices which have a data transfer rate of 1.5Mb/s and high speed devices which transfer data at 12Mb/s – much faster than our previous ports! Most computers have two or more USB ports but this number can be extended to a theoretical 127 ports by using extension hubs. By design, the USB port also supplies a regulated DC voltage of 5V with a rating of 100mA suitable for low power peripherals, most of which operate on a 3.3V supply using a local regulator. When expanding the number of ports, this current limitation must be taken into consideration or else a powered hub must be used. The pin out of the USB port is shown in the figure below:



Note that although sockets are available in the trade, the plugs are not – only ready made cables are sold. The cable has dissimilar plugs known as type A and type B respectively at the ends to ensure correct connection to the device. Type A is on the source side (computer or hub) and the peripherals sport a type B. The cables are all connected 1 to 1 but differ in construction for the high and low speed devices. In high speed devices the peripheral has a 1k5 pull-up resistor between the 3.3V supply and the D+ data line while the low speed units have the pull-up connected to the D- line.

The USB is a single-master bus – all activities originate from the PC. The data is transferred in packets of 8 to 256 bytes using a non-return-to zero (NRTZ) stream to enable the clock to be extracted from the signal as no clock is transmitted by the system itself.

A non-used USB connection is inactive and no data frames will be sent to it. When a device is attached to a port, the PC will determine whether it is a high or low speed device by checking the position of the pull-up resistor and then enumerate the device as to its class. The correct driver for that device is then loaded and communication is available.

For our experimentally inclined members, home brew kits are available to interface your next project to your PC using the USB port. These kits use microcomputers which have a built-in USB port and also the firmware to drive it. For those of us with older, non-USB equipped peripherals, add-on boxes are available converting your USB port to a conventional printer- or serial port.

Finally, from Windows 2000 and up, hot swapping is allowed – that means that you need not turn the computer off in order to attach or remove a peripheral device, the operating system will pick up the change!

## Bulletin Readers

October 15	Wessel	ZS5BLY
October 22	Willem	ZR5ZS
October 29	Mike	ZS5BGV
November 05	Bert	ZS5MQ
November 12	Rod	ZS5RK
November 19	Craig	ZS5CID
November 26	Wessel	ZS5BLY

## On the Giggle-Hertz Bands

Disclaimer found on the menus at *Russell's Grille* in Louisiana: "Not responsible for misplaced property, political unrest, coaching decisions, bad punctuation, misspelled words or the economy".

## They said it

A meal without wine is like a day without sunshine.	Louis Pasteur
There is nothing so comfortable to reason as this disavowal of reason.	Blaise Pascal
Old age is like a plane flying through a storm. Once you're aboard, there's nothing you can do.	Golda Meir

## Meetings

### 21<sup>st</sup> October

This meeting coincides with JOTA and the meeting will be held at the Girl Guides Hall, World's View. To be followed by a bring-and-braai. Club will supply a fire. See chairman's Fax on page 1.

### 18<sup>th</sup> November

If no one else volunteers soon to do something else, you are getting a talk on *Digital Voice Systems*.

### xx December

This is the month for our end-of-year get together. Start thinking about when, where and how.

## Next HHN

With the launch of our next South African satellite due for December, many members will want to make use of the "bird" as it will have an amateur payload on board using FM. The up link will be on 2m and the down link on 70cm. I will try to complete the construction and testing of a suitable 70cm yagi that may be constructed using commonly available materials and tools and publish it here.

This does not mean that you need not send in material that you find interesting!

Remember the software for the Club HAM-CD.