



HAMS Haywire News

August 2006

MIDLANDS AMATEUR RADIO CLUB

P.O.Box 1076, HILTON, 3245



AFFILIATED TO
THE SARL & IN
ASSOCIATION
WITH THE NATAL
CARBINEERS

CLUB COMMITTEE 2006 / 2007

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National News Bulletin
Robin Seal, ZS5MRS

THE CHAIRMAN'S FAX

A jolly good turnout at the AGM held last month has installed a new committee with a couple of new faces to serve you for the next year. The biggest change has been that OM Wessel, ZS5BLY will now produce the Hams Haywire News with the hardcopy of the Newsletter being assembled at the Clubhouse and posted to the members who don't require the e-mail version. Please let us know what your choice is and do try to let the Editor have the odd bit of news or article you might think will be of interest to the rest of us

OM Mike, ZS5BGV will now become our minutes secretary for meetings and Rod, ZS5RK will do the the general secretarial work and handle our financial duties. Please pay your subs promptly as this will assist him. OM Willem, ZR5ZS will assist me in running the clubhouse and also be responsible for any functions and PRO work.

Your committee has arranged for work to commence on the Pinewood project and, at the time of writing, it has been heard operating well. The 750 repeater is undergoing an aerial upgrade and will be operating again one of these days when it will be linked to the Pinewood hub which in turn will be linked to the Underberg 775 repeater. We must thank all concerned for the willing spirit shown in assembling all the various facets involved in the project.

We do need help for the Capital Climb which takes place on Saturday, 19 August 2006. Just remember that our club meeting will take place on the same morning at 11.00hrs. We need six operators with 2m capabilities, it might have to be done on 145.500 MHz as the 750 repeater might still not be ready

That is all for this month cu soon.
Bert, ZS5MQ

The Club meets on the third Saturday of each month, except December, at 11h00 at the Natal Carbineers Conference Centre, 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)

VHF __	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	

UHF	Pinewood	439.225 Mhz (Tx)	431.625 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

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)	(Out of order)
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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 or www.pmbcomp.co.za/marc
South African Radio League www.sarl.org.za

Hams Haywire News

Contributions and suggestion can be sent to dupreezw@futurenet.co.za

From the Editor

For as long as I have been a member of MARC, Robin has been the editor of our newsletter. In this capacity he has set a high standard which will be difficult to achieve, especially for a complete tyro. To you then, Robin, our sincere thanks for all the hours of hard work that you have put into HHN.

I am sure that I speak for all our readers when I say that we will miss you. Enjoy your temporary leave!

I will start this new position with the standard "Editor's Lament" which goes something as follows: *This is your Newsletter, not mine, so you better let me have some decent material for publication like news, views and technical articles otherwise I will have to publish what I have and this may sometimes be nothing.*

On a more serious note, I would like to have monthly reports from all the different portfolio holders in order to keep those members as well as our other readers that find it impossible to attend meetings informed about what MARC is doing. It need only be a sentence or two. Please also tell me what you would like to see in HHN: the contact details are on the front page together with details of the other committee members. It would be very easy to start some course or a club project using these pages if there is a need for such a project.

As I do not use MS Word to put this newsletter together, the e-mail version will go out in .pdf format. Most computers come with a copy of Acrobat Reader installed so it should hopefully not pose any problem. In the unlikely event that you do not have a copy installed, please let me know and I can bring a copy or two to the next meeting. It is also available for free on the Internet as well as on the SARL web page at www.sarl.org.za

Wessel, ZS5BLY



Your new Committee for 2006-07

For the sake of those who never see them, they are

Front row L to R: Mike, ZS5BGV Bert, ZS5MQ (Chairman) Shaun, ZR5S Willem, ZR5ZS
Back row L to R Craig, ZS5CID Rod, ZS5RK Wessel, ZS5BLY

Plastic

Plastic is the generic name for a range of synthetic materials that are in common use in our modern time. The name “plastic” is derived from the Greek word *plastikos* which means “to give form to”, a very appropriate name for a material that can readily be formed into any required shape. Plastics fall into two main classes according to the way they react to heat. *Thermoplastics*, such as polythene and perspex can be repeatedly softened and hardened by heating and cooling. *Thermosetting plastics*, such as epoxy resins and polyurethane, are initially soft but set hard after heating, and cannot be softened again by further heating.

One of the earliest synthetic plastics was invented in 1909 by L.H. Baekeland, an American chemist, and was called Bakelite. This material is a member of a class of phenol-formaldehyde resins that are very strong and hard because of their three-dimensional network of chemical bonding. Close on its heels followed a much more flexible plastic called Nylon 66 which was invented in 1935 by W.H. Carothers while working at the E.I. Du Pont de Numours company.

All plastics are polymers of unsaturated hydrocarbons. Polymers are chains of molecules made by a repetition of some basic sub-unit which, in the case of carbon, is a carbon atom linked to two hydrogen atoms. As the carbon atom has four arms or valences, this sub-unit is free to bond with other similar sub-units or other atoms using the two spare arms. In the simplest form it forms the gas methane and in the most complex combination we get polypeptides or proteins. By controlling the environment in which these reactions take place, manufacturers can vary the physical properties of the plastics. In the case of nylon, very long but thin strands are formed which makes the material very suitable for weaving eg. nylon stockings. In other applications the hydrogen atom is replaced by a fluor atom yielding teflon.

As radio experimenters we are more interested in the electrical properties of plastics than their mechanical properties. Most plastics are good insulators at DC and also at the lower radio frequencies though conductive plastics have been developed for specialised applications. Other than using epoxy resins to weatherproof our antenna feedpoints, the major application of plastics in electronics is as dielectric material in non-electrolytic capacitors and as insulating and protective coatings in co-axial and other feedlines.

In the case of a capacitor, the dielectric material increases the capacity by a factor, k , known as the dielectric constant for that material. Some k -factors for materials commonly used is shown below:

Polytetrafluoroethylene (PTFE)	2.1
Polycarbonate	3.1
Chlorinated Diphenyl	5.3
Polyethylene Terephthalate	3.0

The dielectric material used in co-axial lines has an influence on the velocity factor of the line. Popular materials are teflon (VF=85%), Polyethylene (VF=66%), air spaced Polyethylene (VF=84%) and foamed Polyethylene (VF=78 to 83%). The jacket is usually some form of PVC (Poly Vinyl Chloride).

To determine whether a plastic is suitable for use in an RF environment, place a small sample of the material in a micro-wave oven with cup of water and run for about one minute. If the sample does not heat up or is only slightly warm, it is safe to use. When testing epoxy resins, mix a small sample and allow it to set and harden before testing.

James Van Allen (1914–2006)

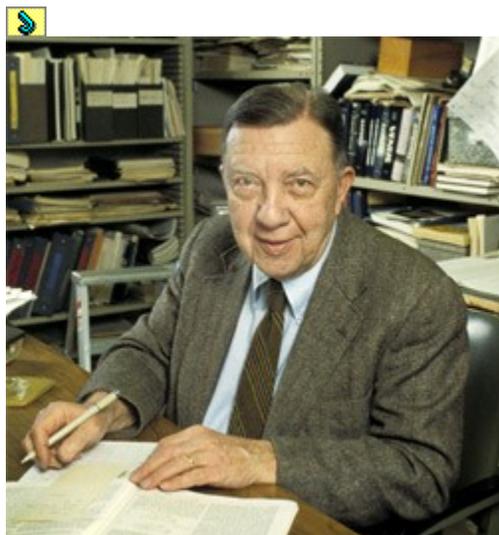
The pioneering physicist is best known for discovering radiation belts encircling Earth.

BY: Jeremy McGovern **Astronomy Magazine** August 10, 2006

James Van Allen died yesterday at age 91 in Iowa City, Iowa, from heart failure. He greatly contributed to the United States' space program during the early days of the Space Race and beyond.

"James Van Allen was one of the greatest and most accomplished American space scientists of our time, and few researchers had such wide range of expertise in so many scientific disciplines," says NASA Administrator Michael Griffin. "NASA's path of space exploration is far more advanced today because of Dr. Van Allen's groundbreaking work."

Born in Mt. Pleasant, Iowa, Van Allen graduated from Iowa Wesleyan College and the University of Iowa with a doctorate in nuclear physics in 1939 before joining the Department of Terrestrial Magnetism of the Carnegie Institution in Washington. He later moved to the Applied Physics Laboratory (APL) of Johns Hopkins University. In 1942, he enlisted in the U.S. Navy, serving in the Pacific Fleet during World War II. After being discharged, he returned to the APL to study German V-2 rockets from the war.



After a fellowship with Brookhaven National Laboratory, Van Allen became the head of the University of Iowa's physics department. There, he continued his experiments with rockets lifted by balloons prior to launch, taking instruments into the upper atmosphere.

In 1958, a Geiger detector and a cosmic-ray experiment designed by Van Allen orbited Earth aboard Explorer I, the first American satellite. The subsequent data returned from this and future satellites revealed Earth is surrounded by a radiation belt, now known as Van Allen Belt. This discovery initiated magnetospheric physics research. Thanks to his work, Van Allen became a national icon, appearing on the cover of *Time Magazine* in May 1959.

James Van Allen at his desk at the University of Iowa. Tom Jorgensen, University of Iowa Office of University Relations

name around our planet. He was a great scientist, a great explorer and a great man."

"Great discoveries are the hallmarks of exploration," says Lou Friedman, founder and executive director of The Planetary Society. "Van Allen provided many such hallmarks, including the one that will forever bear his

During his career, Van Allen was the principal investigator for scientific investigations on 24 satellites and planetary missions, beginning with the first successful American satellite, Explorer I, and continuing with Pioneer 10 and Pioneer 11.

Although he retired from the University of Iowa in 1985, Van Allen continued to live in Iowa City and served as the Carver Professor of Physics, Emeritus

Article kindly supplied by Mike, ZS5BGV

Bulletin Readers

August 20	Craig	ZS5CID
August 27	Wessel	ZS5BLY
September 03	Shaun	ZR5S
September 10	Willem	ZR5ZS
September 17	Mike	ZS5BGV
September 24	Bert	ZS5MQ
October 01	Rod	ZS5RK

If for some reason you cannot handle your bulletin session, please ask somebody else to take care of it in your stead. Try and give your substitute fair warning if at all possible, emergencies do arise!

On the Giggle-Hertz Bands

A hangover is the wrath of grapes.

Reading while sunbathing makes you well red.

When a clock is hungry, it goes back four seconds.

They said it

Life is unfair – get used to it.

Bill Gates

Most of our exports are sold in foreign countries.

George W Bush

When you cease to make a contribution, you begin to die. Eleanor Roosevelt

Repeater News

The Pinewood UHF repeater has been installed and is up and running. The coverage is very impressive. ZS5BLY/mobile had contact with ZS5QB and ZS5CID/mobile from Hilton to about 15 km from Underberg. The Pinewood to Underberg link is also on when the latter is not having a spell of antennasis – try it!

More news on the repeater network will be available next month after the presentation at our August meeting.
