WATTS 06 - 2009

Year 79 +6m

Monthly newsletter of the Pretoria Amateur Radio Club
Maandelikse nuusbrief van die Pretoria Amateur Radio Klub.

PARC, PO Box 73696 Lynnwood Ridge 0040, RSA

web http://www.parc.org.za mail:zs6pta@zs6pta.org.za

Bulletins :145,725MHz 08:45 Sundays / Sondae
Relays : 1840, 3700, 7066, 10135, 14235, 51400, 438825, 1297000kHz
Activated frequencies are announced prior to bulletins
Swapshop:Live on-air after bulletin 2m and 40m
Bulletin repeats | herhalings : Mondays 19:45 on 145,725 MHz

ZR6FD logo

Drukwerk printing ZS6JPL

Papier / Paper ZS6JPL

The shack of Frank ZS6GE - preparing for the next solar cycle (if it ever comes!) More on p.4

In this issue / In hierdie uitgawe

Next Meeting
13 June 2009

Time: 13:30 for 14:00
PARC Clubhouse
South Campus
University of Pretoria
SE cnr University and
Lynnwood roads

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Minutes of the monthly club meeting of the Pretoria Amateur Radio Club held at the South Campus of the University of Pretoria on 13 May 2009

Welcome: The chairman welcomed all present.
Present: See register, 13 members.
Apologies: 2 as per register
Minutes: The minutes of the previous meeting were in Watts, and were accepted. Proposed by Alf ZS6ABA and seconded by Alméro ZS6LDP.
Matters Arising: None.
Finances: The balance in the current account is now R2726.78 and R639 in cash. R330 subscriptions were received. It was recommended and approved that the kitchen microwave be replaced.

Club Activities

Rallies: Johan ZS6JHB reported that the last rally was the Tzaneen event. The next rally is in Bapsfontein on 6 June, and then the Ermelo rally on 12/13 June. Johan is looking for assistance. A regional rally on 7 August will be held in Witbank.
Fox Hunts: The fox hunt is in recess for winter.
Flea Market: The next PARC flea market will be held on 30 May at the PMC premises.
Social: Doréén ZR6DDB is ill. There will be a bring and braai after the June meeting.
Technical: The Donkerhoek site now has eskom power. Craig ZS6RH is doing some course and is less available at present. The repeater is, however, working well.
RAE: There was a discussion on RAE training. The exam is Wednesday 20 May.
SARL AGM: Richard ZS6UK was at the SARL AGM and repoted back briefly on happening over the weekend.
General: Alf ZS6ABA and a team are working on the spider beam antenna and have a problem with certain required material.
It was noted that we advertise certain frequencies for relays of our bulletins and that lately we have not been doing those relays.

Next meeting: The next meeting will be Saturday 13 June 2009 at 14:00.

Editorial

A traumatic incident befell your editor and his wife when being held up at gunpoint at home and robbed of various possessions. I must warn all of you that when engrossed in something in your shack, to keep a wary (electronic) eye behind your back. They do not ring the doorbell and may even be in your property for a while before they strike. Luckily your editor is still alive to tell the tale…

Redaksioneel

'n Traumatiese gebeurtenis het u redakteur en sy vrou oorgekom toe ons tuis onder gewapende dreigement beroof is van verskeie besittings. Ek moet julle almal waarsku dat wanneer jy met iets verdiep is in jou hok, om agter jou rug elektronies, of andersinds op jou hoede te wees. Hulle lui nie voordeur klokkies nie en mag altreeds op jou eiendom wees voor hulle toeslaan. Gelukkig is altwee van ons nog hier om die storie te vertel…

Birthdays June Verjaarsdae

02 Elma, LV van Chris ZS6LOG
06 Mari-Louise, dogter van Rita en Sarel ZS6AC
06 Simon ZS6AST
07 Claus ZR6CMU
08 Ronel LV van Pieter ZR6PSR
11 Nadia, daughter of Pat ZR6AVC and Frank ZS6GE
14 Attie ZS6REY
14 Hilary ZR6HAP, daughter of Molly ZR6MOL and Richard ZS6UK
20 Malcolm ZR6OLM, Son of Retha and Roy ZS6XN
22 Richard ZS6UK
26 Pieter ZR6PSR
27 Selma, sw of Joe ZS6TB

Anniversaries Junie Herdenkings

24 Anniversary (38) of Marieta and Roy ZS6MI

Joys and Sorrows | Lief en Leed

Ivan ZS6AUT is still in frail care
Molly ZR6MOL is still in hospital
Hans ZS6KR and his SW were robbed of various items at gunpoint
Antoinette ZS6D, SW of Danny ZS6AW was in hospital for 3 weeks
Heather, sw of Vincent ZS6BTY, ran the Comrades on 23 May.

† Melvyn Slater ZS5MF, a long standing member of our club, passed away on 19 May. Our sincere condolences go out to his wife Heila, family and friends.

New members | Nuwe lede

Web applications received | Web aansoeke ontvang:

ZR4LP	Johan Visagie	**ZS6WDL**	Jaques Swanepoel
ZR6IIF	Pierre Massyn	**ZR6JLL**	Jaco Lubbe
ZR6RAF	Liam Harrison		
ZS6ALP	George Tokarczyk	**ZS6OS**	Johan v/d Schyff

Diary | Dagboek (UTC times)

June	**06**	**PMC Bapsfontein 7-stage rally**
	12-13	**Rally of SA**
	13	Portugal Day Contest 00:00-24:00
	16	**SARL Youth Day Sprint 07:00-11:00**
	17	World QRP Day
	17-21	**SARL 160m QSO Party**
	20-21	All Asian DX Contest CW 00:00-24:00
	27-28	Ukranian DX Digi contest 12:00-12:00
	27-28	HM of Spain Contest SSB 12:00-12:00
	27-28	Marconi Memorial HF Contest 14:00-1400
	28	**SARL Digital Contest**

Be an Early Bird!

Parc subs | Ledegeld 30-06-2009

Please remit your subs in time to our treasurer or by transfer to:

Betaal asb u lede-geld betyds aan ons tesourier of per oorplasing na:

Bank : FNB
Branch : 25 20 45
Account : 546 000 426 73

Ordinary members | gewone lede R70
Spouses, children, pensioners R50

Your callsign must appear on the statement text!

SARL Subs also due 30-06-2009

Bank : Absa R320 (R200 pensioners)
Branch : 632 005
Account : 407 158 8849

Snippets | Brokkies

- An Antenna Brag Day is being planned to coincide with our spring fleamarket in August.
- Foxhunts are suspended until spring.
- Volunteers are needed for Sunday HF relays on various frequencies.

Ivo Chladek awarded VHF plaque

He is the second to receive this honour in Czechoslovakia.
In 1966 he also received a
"Champion of Radio Sports on VHF" medal as the first Czech station.

The translation says:
"for many years of work in development and spread of Amateur Radio, propagation of OK and development of EME operations in the world"

Congratulations !

Frank ZS6GE getting it up...

The photos show his newly acquired Opti-Beam OB11-5 that has separate elements for all bands including WARC bands from 14MHz up, (no traps) and replaces his old trusty 5-band TH7DXX.

A new rotator is also incorporated.

Frank is slowly upgrading his station in anticipation of partial retirement and more ham activity.

His activity is mostly SSB, some CW and poking around on digital modes.

Amateur radio licence forgeries

(from the Southgate ARC newsletter)

Earlier this year, South Africa's regulator **ICASA** suspended the printing of amateur radio licences on plain paper as some fraudulent licences were printed outside ICASA.

ICASA Management has ordered special paper with security water markings to ensure that any fraudulently printed licenses can be easily identified.

The supply of the special paper is expected within the next two weeks, when all outstanding licenses will be printed and sent out.

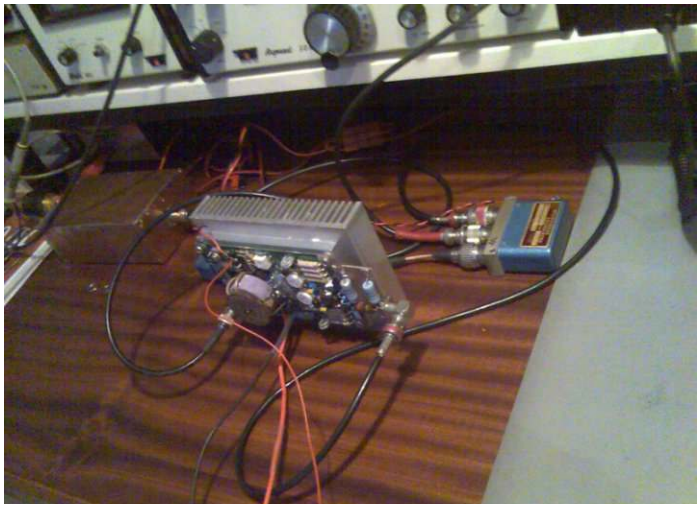
ICASA assures all radio amateurs who have passed the RAE, and who have been issued with callsigns, that they may operate, even if they do not have the printed license.

The Spiderbeam project

The group leader in this project is Alf ZS6ABA and can be contacted at 082-373-9369 or on aahj@absamail.co.za
Currently some materials are needed to be sourced:

1. "Copperweld Silky Wire" PE outside insulation, 1 sq mm Cu. Also copper-clad steel wire.
2. A source of RG142 for the specified balun has not yet been found locally. (1m per balun)
3. T240-61 toroids
4. Kevlar rope

Vince ZS6BTY 's PA Module



The Distributed Amplifier is a 28V /150W PA module that he cobbled together with a diplexer filter and some coaxial relays for skeds on 20m with OM Greg ZL3IX (ex ZS6BPL) who was once a club member.

He calls it a Distributed Amplifier because it is 'distributed' across my work bench, as can be seen. The copper box is a diplexer filter made out of PCB sheets.

and antenna in the sunset...

Finally, a Worthy Successor to DigiPan!

(Email received by one of our newest members Mark ZS6/KW1O currently in Pretoria) marklukinovich@yahoo.com

To PARC members:

I recently contacted KH6TY, Howard (Skip) Teller, the inventor of the DigiPan Software.
I inquired about any upgrades to DigiPan which is one of the best pieces of PSK software available. Skip told me about the latest version of the NBEMS (Narrow Band Emergency Messaging System) software. I had worked with NBEMS before, so I went to the website and downloaded the new version: http://w1hkj.com/

The new NBEMS software system is based on FLDigi 3.11 and FLARQ 4.1 software as a package. The new FLDigi is excellent. I has all the functionality of DigiPan including a multi-channel display which is available as a separate window called PSK Viewer. FLDigi also supports a number of other narrowband modes, MT63, MFSK, Olivia, and RTTY just to name a few.

FLARQ is a separate program that connects into FLDigi and allows error free file transfers using the ARQ protocol. It is not an automated mail system, but it does allow for Emails, files, and pictures to be transferred manually, and error free, under various modes supported by FLDigi.

FLDigi and FLARQ are written to run under a number of Operating Systems, there is a Windows and Linux version of both. I am presently running the Windows version under WinXP. FLDigi requires at least Win2000 and there is a Vista version.

I invite other members to take a look at the NBEMS package and see what they think about it. If you would like to test it out on the air, I can generally be found in the PSK sub-bands in the evenings, mostly on 20 meters since no one in Europe seems to know that there are 8 more PSK sub-bands in the HF radio spectrum. Contact me on 20 meters and we can go down to 40 or 80 meters to keep down the QRM for the 20 meter DXers. I sometimes have the 2 meter rig on, so you can also try giving me a shout on 2 meters to coordinate some testing.

I have gone live with my NCDXF Beacon Monitoring Site:
http://www.ncdxf.org/beacon/monitors.html VE3SUN (Peter) added me to the official website on 22 April.

73, Mark ZS6/KW1O

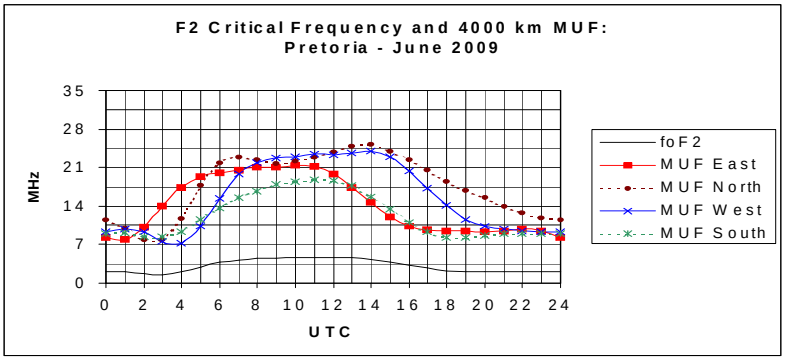
SARL AGM in Cape Town 24-26 April:

our representative was Richard ZS6UK

Long Term HF Propagation Prediction for June 2009

courtesy ZS6BTY

(see also our website prop tab)



DX Operating

The graph shows the 4000 km maximum useable frequency (MUF) to the East, North, West and South from Pretoria for the first hop using the F2 layer.

Local Operating

The F2 critical frequency (foF2) is the maximum frequency that will reflect when you transmit straight up. E-layer reflection is not shown.

RF BURNS

www.rfsafetysolutions.com

Close or direct contact with RF transmission lines or antennas may result in RF burns. These are usually deep, penetrating, third-degree burns. To heal properly, these burns must heal from the inside to the skin surface. To prevent infection, you must give proper medical attention to all RF burns, including the small "pinhole" burns. Petrolatum gauze can be used to cover burns temporarily before the injured person reports to medical facilities for further treatment.

DIELECTRIC HEATING Dielectric heating is the heating of an insulating material by placing it in a high frequency electric field. The heat results from internal losses during the rapid reversal of polarization of molecules in the dielectric material.

In the case of a person in an RF field, the body acts as a dielectric. If the power in the RF field exceeds 10 milliwatts per centimeter, a person in that field will have noticeable rise in body temperature. The eyes are highly susceptible to dielectric heating. For this reason, you should not look directly into devices radiating RF energy. The vital organs of the body are also susceptible to dielectric heating. For your own safety, you must not stand directly in the path of RF radiating devices.

The first human exposure guidelines were developed by the U.S. military in the 1950's. The military funded most of the research in those days because they were the ones with most of the high power emitters.
The first general RF exposure standard was issued by ANSI – the American National Standards Institute – in 1966.
It was only four pages long and suggested limiting human exposure to levels no higher than 10 mW/cm^2 from 10MHz to 100GHz.
Other than the military, broadcasters were the only ones who faced concerns over RF radiation.
Most broadcasters focused on the concerns of the public.
In reality, RF radiation is ***almost*** exclusively an occupational problem.
It is rare for someone to be exposed to significant RF field levels outside of work, although the proliferation of wireless antennas is making public exposure more of a concern than ever. We'll get back to that point later.
Now, a concerned public can impact broadcast operations and must be dealt with, even if the fears are almost always unwarranted. But it has been found ironic that those dealing with some of the most dangerous RF exposure situations – broadcasters – almost totally ignored occupational exposure issues. Until recently, that is.

As biological research continued, it became apparent that three primary questions needed to be answered:
1. How do various RF fields affect the body?
2. At what levels does the body suffer adverse effects?
3. At what levels are the effects permanent?

Well, early on we knew that the primary concern was thermal – quite simply the body heats up in the presence of significant RF energy. The first ANSI standard was a best guess and suggested limiting exposure to the same 10 mW/cm^2 field level at all frequencies.
But, as research continued, it became apparent that many factors impact how much the body heats up. The concept of Specific Absorption Rate, or SAR, evolved.
SAR designates heat absorbed into the body in units of Watts per kilogram. Ultimately, it was determined that much of this follows basic antenna theory.

In an ungrounded situation, the body represents a fat, lossy dipole. When well grounded, the body represents a grounded quarter wave antenna.
Researchers consider the "standard man" to be 1.75 meters tall, about 5 foot 9 inches. That makes him resonant at about 86 MHz.

The biology is certainly more complicated than that – but height, grounding, and polarization are the most important factors in determining SAR level.
The next question is: How much heat can the body tolerate? It was determined that the most heat the human body can deal with is approximately 4 W/kg.
Much of this research was based on exercise levels rather than on actual exposure experiments. And these levels are averaged over the body since our circulatory systems function much like a radiator. For this reason, an arm exposed to a strong RF field from a satellite uplink dish can tolerate about twenty times as much energy as the whole body.
The eyes and a male's testes are particularly vulnerable, however, since the limited blood flow of these organs limits the benefits of the circulatory system.
Time is also a factor – most standards average exposure over time, which only makes sense since we are dealing with heat. Six minutes is the averaging period for most occupational exposure limits.

How can RF energy hurt me? Moderate level exposures cause heat stress and behavioral changes. The effects are often mistaken for the flu because the symptoms are often similar. And as the level of exposure increases, the potential for harm increases. Human cells die at 107 degrees Fahrenheit. This is the reason that doctors get concerned if anyone's temperature goes above 105 degrees. The body is constantly replacing cells so
the amount of damage that is done depends on how many cells are killed and what kind of cells are killed. Kill off some cells and the effects may pass in minutes or hours. Cook off a lot of cells – liver cells for instance – and you will have liver damage.

LISTENING-IN

In the winter of 1923, just a year after broadcasting began, there were over 500,000 licensed receivers grouped around the eight main stations and one relay of the British Broadcasting Company. Unless you happened to live close to one of these stations, the type of receiver you could afford to buy did limit your listening. It would be a bad investment to purchase a cheap crystal set if you lived a hundred miles or so away from a transmitter, for the receiving range of this type of set was very limited. Of course, if money was no object, you could buy a long-range multi-valve set and be assured of hearing *something* entertaining practically anywhere in Britain, and there was often the possibility of picking up some really long-distance stations from Europe or even America, especially during long winter evenings when conditions were more favourable.

Fig. 45 . The chance of getting America or other distant stations often kept the really keen listener-in up till the early hours of the morning.

In January there had been a large increase in the purchase price of many valve receivers due to the introduction of the Marconi A1 Licence. A royalty was payable to Marconi's at the rate of 12s.6d per valve holder on receivers covered by Marconi patents and made by member firms of the British Broadcasting Company. (The 'Big Six', under the A2 Licence, paid only 7s.6d per valve holder). During the Marconi Company's existence, it had probably done more original research than any other firm, and this had resulted in an accumulation of patent rights made out in the names of various employees of the firm. Added to this were numerous other patents which had been purchased outright from other companies. Since practically every type of valve set made for broadcast reception was likely to involve the use of various circuits patented by Marconi's, it was usual for manufacturers to work under their patent licences.

By 1923, the public were getting more used to having the wireless in their homes and as well as hours of entertainment of all kinds, it was providing special services of news, "S.O.S." messages and communiques and weather forecasts, although to some, wireless was still regarded with suspicion. A dealer who ran a battery charging service round the Exmoor farms in his district in the early 1920s recalled a remark made by a farmer's wife whose husband was off hay-making. "He'd better be careful," the dealer told her, "the *wireless* speaks of rain!" "Where did 'ee 'ear that?" she demanded. "Why, on Mrs P.'s set up at Higher House." he replied. The woman sniffed the air disdainfully. "Don'ee take no notice of what that wireless tells 'ee," she said, "'tis only a cheap ol' set!"

The wireless was a distraction and as 'Ariel' reported in the January 20th 1923 issue of *Popular Wireless Weekly*, "the craze for wireless is spreading more rapidly than ever. People are indeed going wireless mad and are forgetting their work. One business man has complained to Marconi House that wireless has been responsible for his wife neglecting her household duties. 'At half-past five each evening,' he wrote, 'instead of my wife preparing the evening meal, she sits down to listen-in'. Perhaps before long, we shall hear of wireless divorces."

An Illuminating Story... 26 Feb 2008

A 71-year-old pensioner met a shocking end when his attempt to illuminate his yard with power siphoned from the National Grid backfired spectacularly.
He illegally opened a major power junction box at the front of his house, intending to hard-wire a cable to his garden shed. Unfortunately, the poor chap attempted to do this rewiring during a major downpour.

The fatal result was all too predictable. He was immediately deep fried and declared deceased at the scene.

A man was found dead in his trailer home, with burnt remains of a Lava Lamp strewn over his kitchen.
Puzzled investigators eventually pieced together a likely scenario for his last moments:
Lava lamps are a mesmerizing distraction. He couldn't wait to fire up his new Lava Lamp. He plugged it in and waited for the pretty globs to begin their surreal dance. But when after several minutes, nothing happened, a bright idea hit him: "Why not accelerate this painfully slow process?" He took the lamp to his stove, and turned up the heat. In short order, the wax melted and began its sinuous dance. But the liquid was designed to be warmed by a 40-watt bulb. Entranced by the display, he forgot that "heat expands". As there was no room for expansion in the glass bottle, the Lava Lamp exploded violently to relieve the pressure.

One thick shard of glass blew straight through his chest and into his heart. He stumbled into his bedroom, perhaps uttering *"Aeternum vale!"* (latin: farewell forever) as he collapsed and died. Police found no evidence of alcohol or drug use, so it is safely presumed that he was in full possession of his senses when he went out with a bang.

In a US coal-burning power plant, an employee named Jack had the responsibility of supervising the coal runner. The runner resembled a small treadmill, and transported coal from the hopper to the burner. Jack was stationed near the hopper chute, and watched to make sure nothing blocked the flow of coal, and that nothing inappropriate was burned.

One day, Jack's co-workers returned from their break to find Jack missing. All that remained was his lunch pail and, curiously, his work boots. No one could explain his continuing absence. After several days, the company launched an investigation. The truth came to light, though it took a bit of persuasion to extract the story from his reluctant co-workers.
Jack's doctor had recently suggested regular mild exercise. And Jack thought that he could fit in some exercise during his lunch break. He would eat lunch, then change into sneakers and hop onto the coal runner to jog until his break was over. Because he was self-conscious about his weight, he always made sure nobody was around when he exercised.

Jack's body was never found. Fortunately he had confided his novel exercise regime to a few people at the power plant, or we would never have learned of his tragic demise. Jack must have passed out and been converted into power for hundreds of homes, paving the way for a new, ecologically sound replacement for fossil fuels: Darwin Award contenders.