Radio ZS

Volume 61 No./Nr 2

March - April 2008
Maart - April 2008

Taking Amateur Radio to School
Riglyne In Verband Met Torings
Working the AO-51 Satellite

Amateur Radio - Communication Technology in Action

Mar — Apr 2008

Volume 60 Number 5

South African Radio League
Suid-Afrikaanse Radio-liga

RADIO ZS

Published by the S A Radio League
Uitgegee deur die SA Radioliga

PO Box 1721 Posbus 1721
Strubensvallei 1735 Strubensvallei 1735
South Africa Suid-Afrika

Telephone 011 675 2393 Telefoon
Facsimile 088 011 675 2793 Faksimilee
Email admin@sarl.org.za E-pos
secretary@sarl.org.za
Website www.sarl.org.za Webwerf

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Editor / Redakteur
Dennis Green, ZS4BS
082 770 9126 (H) 051 446 2039
zs4bs@netactive.co.za
radiozs@sarl.org.za

Afrikaanse Taalversorging
George Honiball, ZS6NE

FRONT COVER / VOORBLAD

The group photo taken at the “Feast of Decisions” at the School of Armour, 12 April 2008

Die groepfoto geneem tydens die “Fees van Besluite” by Pantserskool, 12 April 2008

Radio Technology in Action

SOUTH AFRICAN RADIO LEAGUE
SUID-AFRIKAANSE RADIOLIGA

Address / Adres:
National Amateur Radio Centre, P. O. Box 1721, Strubensvallei, 1735
Nasionale Amateurradiosentrum, Posbus 1721, Strubensvallei, 1735

Tel: 011 675 2393 Fax / Faks: 088 011 675 2793
Email / E-pos: admin@sarl.org.za Website / Webwerf: www.sarl.org.za

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Vice President; HF Manager; Contests; IARU Liaison; Radio ZS
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Martin Harper, ZS6MSG; Viv Wells, ZS6CAA; Ron Caldecott, ZS6BHH and/en Willem Weideman, ZS6WWJ

ARMI and Intecnet / ARMI en Intecnet
armi@sarl.org.za
Hans van de Groenendaal, ZS6AKV
Laurie Devereux, ZS5DL

Administrator at NARC
Administrateur by NARS
Vee Antal, ZS6ZEN
admin@sarl.org.za

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Silent Keys Stil Sleutels

They shall grow not old as we that are left grow old
Age shall not weary them nor the years condemn
At the going down of the sun and in the morning
We will remember them."

Hulle word nie oud soos ons wat bly vergrys,
Die jare sal hulle nie raak nog die tyd se eis
En, soos die son sak of die more ontvou,
Eer hul herinnering – ons sal onthou."

Lawry Lauf, ZS5HV
Susan Hendriks, ZR6ZQ
Edgar Gabbott, ZS6SI
Victor Makkink, ZS6VFM
Lawrence Delport, ZS6LAW
Fred Aust, ZS6MRA
Colin McNally, ZS6MAC
Jack Koen, ZR1JAC (ex ZR6JCK)
Gert Kleynhans, ZS5GK
Peter Keanley, ZS1W

CQ de ZS6GJH

After 5 years at the helm of the South African Radio League, it is time for me to move over and let someone else take the chair. When I was elected as President, I set goals for myself and for the SARL, to bring financial stability to the organization. This goal was not an easy one to achieve. We basically had two options: to either reduce our expenditure and liabilities or dramatically increase the subscriptions. The latter would have been the easy choice, but not an acceptable one. We had to cut our expenses to match our income and over a two-year period, we turned a negative bank balance into positive one. In that, process we had to cut our membership services which was not popular and resulted in some members not renewing their membership.

I have always found it difficult to understand why people who belong to an organisation that works for their benefit cannot ask themselves what they can do for the SARL.

We have certainly weathered the storm and have come out on the other side as a better SARL; a SARL that takes care of Amateur Radio and its future. I have, with the support of my fellow Councillors and a loyal membership achieved my goal.

We have already achieved several other goals, such as taking over more and more administration from the regulatory body; running the RAE more regularly; the issuing of HAREC certificates; as well as the long outstanding update of the radio regulations; the implementation of the ZU licence and the 5 option upgrade strategy; re-instating 6 copies of the Radio ZS and a constantly growing membership as well as the registration of the SARL as the National Body for Amateur Radio.

Is our job complete? No! It will never be complete. There will always be issues that need to be addressed, for example the draft regulation for Power Line Telecommunication, a further update to the radio regulations to remove anomalies, expansion of the 40 metre band and a possible allocation around 5 MHz to mention just some of the projects the SARL is working on.

The SARL has a great future and it is my dream that one day soon every radio amateur becomes a member of the SARL; it will unify the voice of Amateur Radio and show the various authorities that we are serious about what we do.

I would like to thank members and councillors for their support throughout my term of office. After 5 years, I have my business shouting for dedicated attention, and to achieve that I have to scale down my other activities. I hand over the portfolio to a new person with confidence that the SARL will continue to grow.

I will always support the SARL and perhaps I will now find some time to have that long outstanding QSO.

73, Graham Hartlett ZS6GJH

Ham Pride: Our Legacies and Traditions

By Dave Ingram, K4TWJ
Winner of the 2007 Radio ZS Shield

Once again international amateur radio columnist K4TWJ sends encouragements for newer ZS amateurs to become active in globe-spanning HF band communications. He emphasizes the 30 and 17 metre WARC bands are easy starting points with many exciting secrets waiting to be discovered and many other amateurs around the world are anxiously waiting to contact you.

Radio amateurs enjoy a proud history of pioneering new areas of communication and newer amateurs may understandably assume every frontier has now been fully investigated. Look closer, however, and you will notice an endless number of opportunities awaiting progressive-minded amateurs - enthusiastic amateurs just like you. Even in today's era of high tech electronics, real-life experiences - not computer analysis or projections, but actual on-the-air observations and related reports of unique HF activities like gray line propagated signals, very low power (QRPp) communications and Long Delayed Echoes still beg for further study. Investigating these areas begins by operating our globe-spanning HF bands and the (lightly pioneered) 30 and 17 metre WARC bands in particular, but the pursuits are not difficult or complex - they are fun! The cost of getting started is low, especially with QRP and you can also help propagation studies progress by writing an article on your findings for Radio ZS magazine.

A fancy transceiver and large antenna are not vital for WARC band operations. A low power transceiver and simple vertical or dipole antenna is quite sufficient. In fact, worldwide transmissions of exceptionally low power (one to 10 milliwatts) and exceptionally slow speed CW (10 Words Per Hour) are being conducted almost every day on 10.140 MHz Listen at various times and note if you can hear these weak signals. Use a time chart recorder to read long messages. Your reports may become part of radio history! Also, try contacting other amateurs in the popular range of 10.100 to 10.120 MHz on 30 meters while using less than one watt of power. Yes it is possible—and you could even set a new world record in Miles-Per-Watt covered or qualify for the famous 1,000 Miles-Per-Watt Award (details at www.qrparci.org. Click on "Awards" in left column for more info).

Two prime times for long distance HF communications occur every day: the hour around your local sunrise/dawn and the hour around your local sunset/dusk. During these times, the earth's ionosphere is undergoing noticeable change between sun heating and night cooling. The "separator" between them (sunlight and darkness) is called the "gray line": it is the edge of a shadow that continuously circles around the world. It is occasionally possible for your low power signals to enter the gray line, ride or propagate along it and emerge from it hundreds or thousands of miles away - in a

(Continued on page 7)

(Ham Pride from page 6)

distant land also amidst their gray dawn or dusk hour. Listen on 30 and 17 meters near the middle of gray line time, and you may even hear its distinctive rushing noise indicating global propagation opportunities. Now that is exciting!

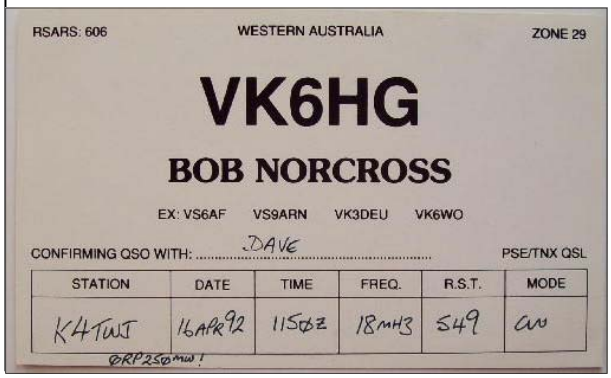
The previous horizon-expanding encouragements assumed you are properly licensed for HF operations. If not, rest assured working toward and acquiring that license is one of the best and least expensive forms of self-improvement you will ever make. Every licensed radio amateur is special (10 dB above the crowd!) and HF licensed amateurs are EXTRA special! Everyone is on your side and wishing you success in becoming HF active - on SSB, CW, QRP - on any band and any mode. We also understand some fellow amateurs live in areas that restrict HF antennas, but a little creative thinking goes a long way to helping you become HF active.

Give it a go!

73, Dave, K4TWJ
www.k4twj.blogspot.com

Photo 1 The famed 1,000 Mile Per Watt Award like you can obtain by making one contact with another station 5,000 miles from your QTH while running five watts or 1,000 miles away while running one watt - or even 500 miles distance while running 500 milliwatts/.5 watt. Example shown here obtained when author K4TWJ in Alabama contacted VK6HG in Western Australia to set a 17 metre record of 71,096 km or 44,180 miles per watt. Yes, it was a gray line QSO.

Photo 2 Accompanying QSL for the 44,180 mile per watt QSO illustrated in Photo 1. 1,000 Mile-Per-Watt Award available from Jeff Embry, K3OQ, with QRP ARCI.


RSARS: 606 WESTERN AUSTRALIA ZONE 29

VK6HG

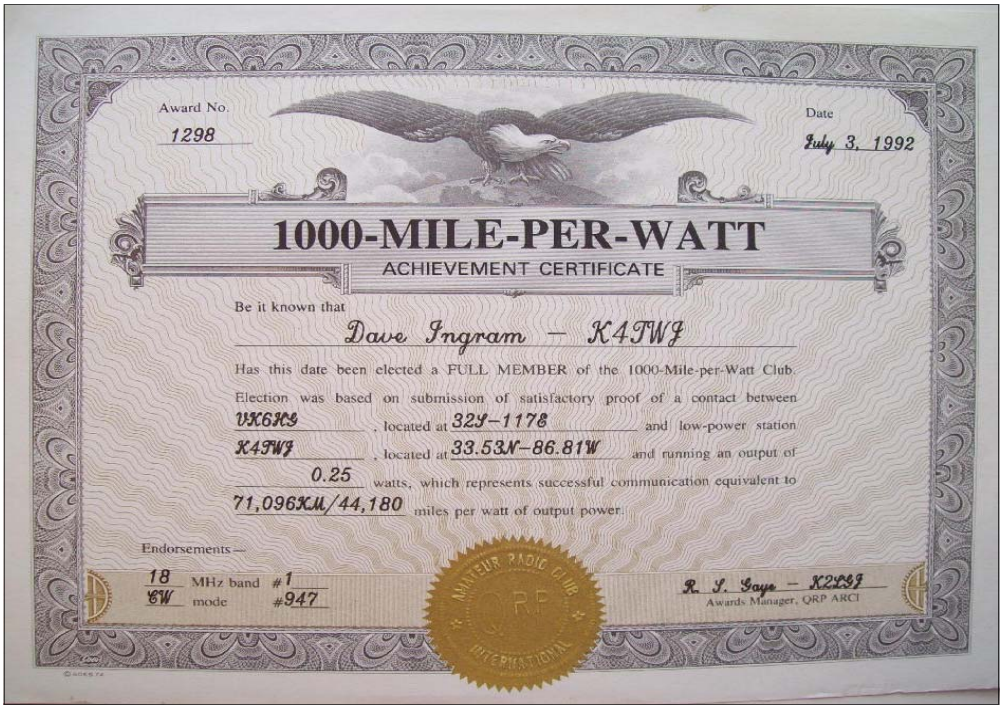
BOB NORCROSS

EX: VS6AF VS9ARN VK3DEU VK6WO

CONFIRMING QSO WITH: DAVE PSE/TNX QSL

STATION	DATE	TIME	FREQ.	R.S.T.	MODE
K4TWJ	16APR92	1150Z	18MHZ	549	CW

QRP 250mw !


Award No. 1298

Date July 3, 1992

1000-MILE-PER-WATT

ACHIEVEMENT CERTIFICATE

Be it known that

Dave Ingram – K4TWJ

Has this date been elected a FULL MEMBER of the 1000-Mile-per-Watt Club.

Election was based on submission of satisfactory proof of a contact between VK6HG, located at 32Y–117E and low-power station K4TWJ, located at 33.53N–86.81W and running an output of 0.25 watts, which represents successful communication equivalent to 71,096KM/44,180 miles per watt of output power.

Endorsements —

18 MHz band #1

CW mode #947

R. S. Gaye – K2KGJ
Awards Manager, QRP ARCI

Take Amateur Radio to School

Hans van de Groenendaal, ZS6AKV

An article on Amateur Radio is published monthly in EngineerIT (www.eepublishers.co.za). This one appeared in October 2007 Edition

The media is full of reports on maths and science education or rather the lack there of. President Thabo Mbeki in just about every State of the Nation address comments that South Africa needs more Engineers yet we seem to do very little about changing the situation. Prof Hugh Hanaran of the University of the Witwatersrand recently called on high schools to do more to prepare students for tertiary education.

Dr Edward de Bono, the author of many books on creative thinking and thinking skills, may have the answer. He says that if we add operacy - doing things - to teaching, the outcome would be greatly enhanced. Research in the USA has shown that young people who have a hobby do much better later in life! Amateur Radio is one of those hobbies that can achieve this. It is technologically based and requires the basics of maths and science. Taking it into schools could therefore add much value and create that badly needed interest for students to do better.

Taking extramural activity into schools is easier said than done. It needs the support of teachers and the parents for any project to be successful and sustainable.

A radio club in Pretoria, the Magalies Radio Amateur Club (MRK) has as part of their community outreach decided to approach the John Vorster Technology High School to explore the possibility of establishing a School Radio Club.

"Access to the headmaster and senior personnel were an open channel as MRK had for the past number of years been actively participating with the school during their open days", the architect of the project Chris Smit said.

The general approach was to involve learners as they enter high school in taking an extramural course to qualify for the introductory amateur radio licence. In South Africa there two basic amateur radio license structures, a full licence with all the privileges and an introductory licence with limited access to the amateur radio frequency spectrum and the use of lower transmit power.

The introductory license curriculum is also in support of the subject Electronics

(Continued on page 9)

(Taking Amateur Radio from page 8)
offered at technical high schools. In fact, in many instances the curricula are almost identical. This provided MRK with the necessary information to approach the school and discuss the practical advantage amateur radio would be to the students.

At the first meeting with the headmaster, these advantages were highlighted. The Headmaster and senior staff pledged their unconditional support for the project. Notwithstanding the school supporting the project, a way had to be found how to "lure" potential candidates. Amateur Radio has to compete with cell phones, internet chat rooms and television.

A communication plan was devised which included making a presentation to the school assembly about amateur radio and all the fun things one can do while learning at the same time. A number of learners signed up enthusiastically. The next step was to convince the parents. They saw the idea in a different light – something the youngsters could do at home and in which Dad and even Mom could get involved in.

The project was off to a flying start. The Magalies Amateur Radio Club now had to get their members involved in constructing a radio room and find equipment. A club without radios would not work. The School made floor space available, and members donated equipment and constructed the radio room. The South African Amateur Radio Development Trust donated a six band vertical antenna and Sam's Radio Accessories donated an HF transceiver.

After a few months of tuition, the learners sat the examination. Sixteen students passed and received their ZU6 call signs. The pass rate was 90%.

The newly licensed learners have established their own radio club functioning under the auspices of MRK who is guiding them and involving them in activities outside their normal school radio amateur activities. The club now has it own call sign, ZS6VT, and club members can be heard on the air from both their own stations at home and the radio club at school. What they talk about, surprisingly an interesting mixture of social activity and technology. Most recently, they were heard talking about how to construct a J-Pole antenna for VHF using copper water tubing!

A group of learners are already talking about upgrading to the full licence and newcomers are eagerly waiting for the next course to start in the New Year.

Chris Smit and his team are delighted with the outcome. "It was not easy but very rewarding," he said.

"Taking Amateur Radio into schools is not an easy task but very rewarding" – Chris Smit

Chris Smit, ZS6FCS Architect of the radio club at the John Vorster Technology High School in Pretoria

The Lightning Predictor

John Williscroft, ZS6EF

A Sunday Afternoon Project that is interesting to use and can be real useful.

It is a nice summer's day and you are enjoying your hobby, and then suddenly a thunderclap announces the start of the antenna race. Can you disconnect the HF antennas before the next bang or will you be holding the connector in your hand when the next strike occurs. We have all been there, we try to pull out the plugs before it gets to bad, but sometimes we are caught.

This device called the Lightning Predictor it will give you a warning of an incoming lightning strike and with a little imagination and Amateur ingenuity you can use it to disconnect things before and during a storm.

The device is very simple it measures the static charge between the clouds and the earth and as the charge builds up before a storm the led indicators shows you the charge increasing in intensity. It is very interesting to watch the wave type motion as the led signals increase and decrease, as the static charge increases and decreases, as a storm approaches, and the sudden drop in charge when a strike occurs.

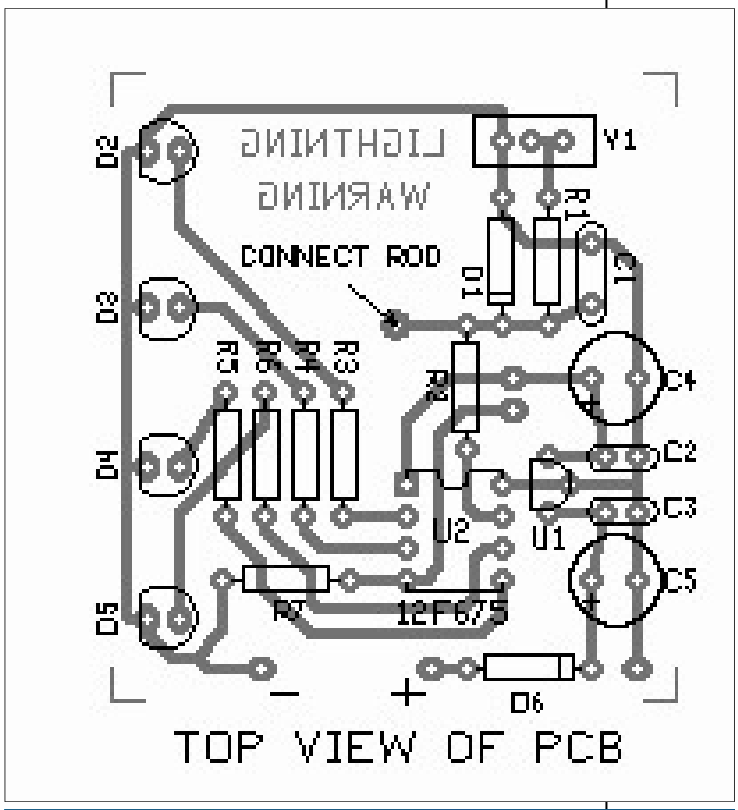
How it works

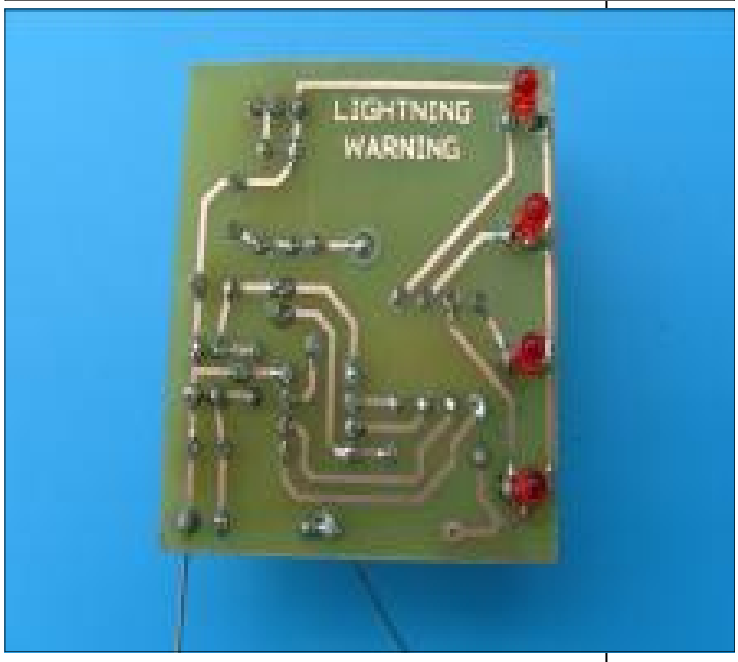
A small telescopic or single rod antenna of approximately 1 metre in length is connected to the pin of a small microprocessor together with an attenuating resistor, zener diode, and a capacitor, all connected to the negative supply.

The rod picks up the static charge together with other electronic noises. The resistor, which is adjustable, makes sure the correct level can be set on the microprocessor pin. The zener diode protects the microprocessor pin from over voltage, and the capacitor slows down the fast edges of the lightning so that the zener can

(Continued on page 11)

(Lightning Predictor from page 10)





clamp them.

The microprocessor measures the AC and DC voltage components on the input pin to determine when the result is between four set levels. When each level occurs the appropriate led is lit. No charge on the pin and the bottom led will flash every second to show you the unit is alive and the microprocessor is working. When the lower led stays alight then a small charge is present. As the charge increases the next led will light and so it carries on increasing until the top led is alight. When the top led is alight then a strike is immanent, by this time you are checking your rigs for damage.

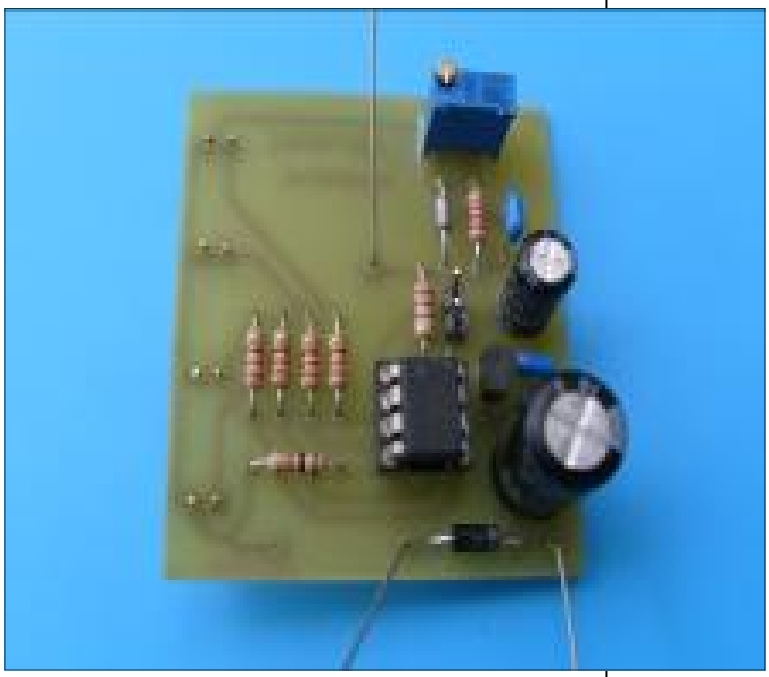
You will find an option link on the PCB LK1. When this is linked permanently the bottom led will flash each time any led is re-lit. This allows you to disconnect the led and connect a small sounder with a diode across it to the bottom led. This arrangement will give an audible warning when conditions change. The 1 second flash to show the unit is connected and working is removed so when you just hear the beep. All will be quiet until the charge builds up then you will hear the beep and know the fun has started.

Making it

Construction is not critical, the board can be made as the image given, else the unit can be made on Vero board. The shape of this PCB has been tailored to fit a small potting box 72 x 50 x 22 mm. The photo shows the unit fitted in the box. The

(Continued on page 12)

(Lightning Predictor from page 11)



rest of the construction is common sense.

That micro controller

You will need a Pic micro controller 12F675 DIL that has the firmware programmed into it. If you have not used a micro controller before now is the time to start. There is no escape if you want to construct a today type project you must master this process, which is very easy, and this is an ideal project for you to make a start.

If you think you cannot manage to program the micro controller, we will take pity on you, and supply the some of the parts at cost. Please see the components list for details.

For brave people this is how you go about programming the 12f675 DIL. If you do have a Pic programmer then send an email to saying LP.hex to iesupport@lantic.net and LP.HEX file will be sent to you and you can load this into your programmer and program your Pic following the programmer instructions.

If you do not have a programmer then you will have to build one, this is a separate project. This is not difficult and you can download all the details for a programmer from many web sights.

There are many programmers advertised on the web, to go the easy way purchase one from Avnet Kop 011 809 6000.

Now the hardware

If you are constructing a PCB for the first time check, your work carefully, in particular, the direction of U1 and U2 put these in backwards and

(Continued on page 13)

(Lightening Predictor from page 12)

you have to buy new ones. Check for solder whiskers. Is the 78L05 the correct part and is it really in the right way round. Is the 12F675 DIL Programmed? Have you put the 12F675 DIL in the right way round? Are the leds in the right way round?

Connect the POS and NEG to a 12 VDC battery. Check with a multi meter the voltage between pins 1 and 8 on the end of the microprocessor. It should be very close to 5 V. If you have 5 V then all should work well.

When you have unit completed turn the trim pot to minimum resistance and switch connect the battery. (The way you turn the trim pot depends on which one you bought and which direction you put it in the board, so measure with a multi meter or just try it and watch the led.)

With the unit on, increase the resistance slowly triggering your 2 metre 5 watt handy talky with a rubber ducky about 500 mm away from the rod antenna of the unit. PTT for a 2-second period and when you see the first led only alight then you have the trim pot set. Minor adjustments can be made to this resistor to increase or reduce sensitivity.

Components

C1 0.01 uF Ceramic
C2, C3 0.1 uF Ceramic
C4 220 uF Electrolytic
C5 1000 uF Electrolytic

R1 2k2 resistor
R2, R3, R4, R5, R6
220 ohm resistor
R7 10k resistor

D1 1n5231B 5 VDC Zener 600 mW
D2, D3, D4, D5 3 mm Red LED
D6 1N4007 Diode

V1 100k multi turn trim pot

U1 78L05 5 V 3 term regulator
U2 12F675 DIL PIC Microchip
U2 12F675 PIC Microchip pre programmed iesupport@lantic.net R14.00 inc vat but not including post or postnet please send address so we can get a cost.

Firmware: Available free, just say LP.Hex please to iesupport@lantic.net

PCB: Single sided etched PCB for cost @ R4.10 inc VAT from iesupport@lantic.net

Riglyne In Verband Met Torings

Louw Erasmus, ZS6LME

'n Radio-amateur se toring is sy trots! Blaai maar enige tydskrif wat vir amateurs bedoel is deur, en jy staan verbaas oor die vindingrykheid van amateurs wanneer dit by die bou van torings kom.

Dit is belangrik dat hierdie torings en maste aan al die toepaslike wetgewing en regulasies voldoen ten einde eerstens die veiligheid van die konstruksie te verseker en tweedens boetes en moont-

(Vervolg op bladsy 14)

(Torings vanaf bladsy 13)

like gevangenisstraf vir ‘n oortreding daarvan te vermy.

Die National Environmental Management Act, 107 van 1998 is gepromulgeer met die uitsluitlike doel om die Minister van Omgewingsake en Toerisme te magtig om beheer uit te oefen oor skadelike praktyke wat die natuurlike omgewing kan benadeel.

Om daardie doelstellings te verwesenlik het die Minister regulasies uitgevaardig wat bekend staan as die Environmental Impact Assessment Regulations, gepubliseer as Goewermentskennisgewing nr. R385 van 2006.

Hierdie wet en regulasies word landswyd op nasionale en provinsiale vlak toegepas.

Vir radio-amateurs is item 14 van die Skedule tot die regulasies van besondere belang: Torings en maste wat eksklusief deur radio-amateurs gebruik word en wat 15 meter of laer is, is van die bepalings van die betrokke wet uitgesluit.

Daarteenoor, enige toring of mas hoër as 15 meter, is onderworpe aan die bepalings van die wet en die regulasies en moet magtiging van die Minister of sy gedelegeerde verkry word, voordat daar met die oprigting daarvan ‘n aanvang geneem word. Die regulasies skryf die prosedure voor wat gevolg moet word om sodanige magtiging te verkry en word amateurs aangeraai om ‘n afskrif van Goewermentskennisgewing nr R385 van 2006 in die hande te kry en te bestudeer.

In ‘n neutedop behels die prosedure dat ‘n Environmental Assessment Practitioner aangestel moet word om ‘n studie te doen oor die impak van die beplande toring op die omgewing, ‘n verslag daaroor voor te berei wat dan by die aansoek aangeheg word as motivering vir die oprigting van die struktuur.

Louw Erasmus, ZS6LME discusses some of the legal aspects of towers. He refers to the National Environmental Management Act, 107 of 1998 and the Environmental Impact Assessment Regulations, published as Government Notice no. R385 of 2006.

Radio amateurs must look at Article 14 of the Schedule to the Regulations with regard to the height of towers. Towers below 15 metres are not subject to the Act and Regulations; towers over 15 metres are subject to the Act and Regulations.

Radio Amateurs are encouraged to obtain a copy of Government Notice no. R385 of 2006.

Bo en benewens voormelde wet en regulasies wat met die bewaring van die omgewing te doen het, is amateurs in stedelike gebiede ook onderworpe aan die bouregulasies en dorpsbeplanningskema wat op die betrokke dorp of stad van toepassing is.

Daar bestaan nie eenvormige regulasies en voorskrifte in hierdie verband nie en is dit ‘n onbegonne taak om te poog om riglyne in hierdie verband te verskaf. Amateurs word aangeraai om by sy plaaslike owerheid navraag te doen en spesifiek insae te kry in die dorpsbeplanninskema wat op sy woongebied van toepassing is.

Radio-amateurs wat in sogenaamde sekruteitsdorpe woonagtig is, is verder onderhewig aan die reëls wat deur die eienaarsvereniging afgekondig is en wat in die kantoor van die Registrateur van Aktes geregistreer is. Die oprigting van torings en maste in sulke dorpsgebiede is gewoonlik verbode en is amateurs aangewese op hul vindingrykheid en ini-

(Vervolg op Bladsy 15)

(Torings vanaf bladsy 14)
siatief in die verberging van antennas ten einde steeds die opwinding van DX kontakte te ervaar.

Ten slotte is dit belangrik om die veiligheidsaspekte met betrekking tot die oprigting van torings en maste te beklemtoon. As daar iets fout gaan, is jou buurman se huis in gevaar? Of nog erger, bestaan daar 'n gevaar van beserings of dood? Skadevergoedingseise het al menige persone geruïneer. Wees dus versigtig en beplan die oprigting van die struktuur deeglik. Win professionele raad in met betrekking tot die effek van wind op die toring asook die konstruksie van die basis.

Daar staan geskrywe:

"Wie van julle wat 'n toring wil oprig, gaan nie eers sit en die koste bereken, om te sien of hy genoeg geld het om die werk te voltooi nie? Anders, as hy die fundament gelê het en nie in staat is om die toring te voltooi nie, sal almal wat dit sien met hom die spot begin dryf. Hulle sal sê: "Hier is 'n man wat begin bou het, maar nie kon klaar maak nie." (Luk.14:29,30) (OAV)

Working the AO-51 satellite

Eddie Leighton, ZS6BNE

There has been a lot of interest and activity on the AO-51, FM, LEO (Low Earth Orbit) satellite lately. This is really good news! Newcomers, young and old, are joining in almost daily and there is always a new contact to be made. The little cube satellite covers quite a large area during its pass so the whole of South Africa and neighbouring islands and countries can be worked via this satellite. A few of us managed to work a French station, Phillipe, FR5DN in Reunion Island the other night! I looked on the Internet; it is about 200 km east of Madagascar!

Equipment required to work the AO -51 FM satellite

You will need a sensitive 70 centimetre receiver and a five watt 2 metre rig that is able to send a 67 Hz PL Tone (Same as 88.5 Hz tone used to activate some repeaters), an antenna for the 2 metre uplink and a 70 centimetre antenna for the downlink. The antennas can come in many forms from handheld crossed yagis to an "Eggbeater" type antenna. Many designs can be found on the Internet. See this link for details on how to build a simple satellite antenna. My first satellite antenna was this one and it worked very well! www.qsl.net/vk3jed/2m70cmant1html.html. A video to construct an Eggbeater antenna can be viewed here www.youtube.com/watch?v=1u7aoHDc-gw

I have had a lot of success with the following configuration:

Receiver. An Alinco DJ-C7 miniature dual band handheld with head-

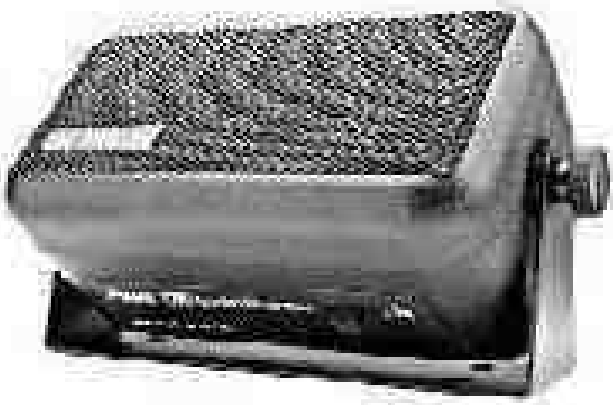
(Continued on page 18)

DIAMOND ANTENNA

Radio Accessorie

Incorporating SAM'S RADIO AC

bhi

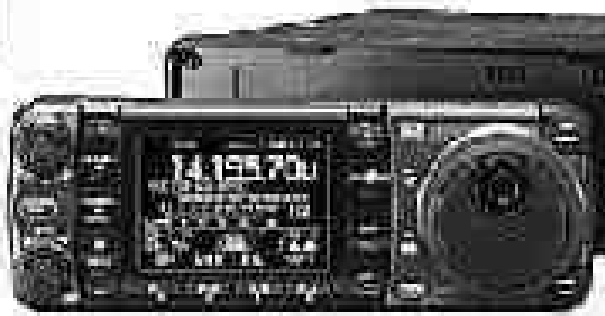


bhi NES10-2 Noise Eliminating Speaker
Incorporates Digital Signal Processing to remove unwanted noise and interference
Fully adaptive noise cancelling
Noise cancellation 9-35dB
4-65dB tone reduction
8 user selectable noise cancelling levels

MFJ259B SWR/RF Analyzer
Read SWR and Impedance 1.8-170MHz
Determine Velocity Factor, coax cable loss in dB, length of coax and distance to short
Built-in frequency counter
Ni-CD charger circuit

MFJ

ICOM



Icom IC-7000 HF/VHF/UHF Mobile Tran

.03-199 MHz Receive	503 Alp
RIT	Preamp
VFO A/B	1 Hz Di
Digital IF	Twin PB
S/RF/SWR Meter	100 Wa
50 Watts 2M, 35 Watts 440	Manual
All band Multimode	Remova
CW Receive Reverse	Mini Spe
Memory Keyer	2.5" Col

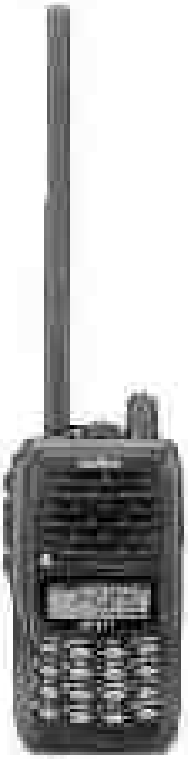
9 Carnation Street,
Gallo Manor
Tel: +27 (11)802-2976 o
Fax: +27 (11)804-4847 f
Mobile: +27 (82)974-8248
Email: radioacc@telkomsa.net
Website: www.radioacc.co.za

s & Data Modems

CESSORIES CK88/18857/23

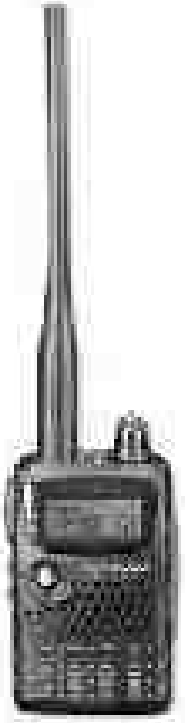
ALINCO

Alinco DJ-V17 VHF Handheld Transceiver
New, two-touch repeater access
High grade waterproof materials (submersible 1m/3ft. for 30 min.)
Rugged polycarbonate body resists dirt, dust and moisture
Highly visible backlit alphanumeric display
Direct frequency input through illuminated keypad
200 Memories and one call channel
VFO, Memory and Scan modes



KENWOOD

Kenwood TH-F7E Dual Band Handheld Transceiver
Simultaneous 2 frequency RX, even on the same band
0.1~1300MHz high-frequency range RX (Sub B band)
FM/FM-W/FM-N/AM plus SSB/CW receive
7.4V 1550mAh lithium-ion battery for 5W output and extended operation
1200/9600bps packet function (ext. TNC)



YAESU
Amateur Radio Division of Vertex Standard

nsceiver
ha memories
/Attenuator
play
T
tts HF+6M
Notch
ble head
ectrum Scope
our TFT

HUSTLER®

AOR

PO Box 691,
Gallo Manor
2052 Rep. of South Africa

(AO-51 from page 15)
phones, which is necessary to be able to hear weak signals and hear yourself on the downlink, while transmitting, without any feedback. The DJ-C7 has an S Meter, which helps tremendously while looking for the strongest downlink signal by pointing the antenna in the correct direction.

Transmitter. A Kenwood TH-235 handheld. I have had good success using only 1 Watt but 5 Watts are acceptable – Nothing more! I also use a remote microphone, which helps for good uplink audio quality.

Antenna. Homebrew crossed yagis of various designs.

Accurate watch. For keeping time with the satellite's path and an indicator to manual Doppler settings.

This configuration works best for me, using audio feedback and the S Meter to determine accurate pointing of the crossed yagis. Find the point of the most "Quieting," horizontal (Azimuth) and vertical (Elevation), full quieting can be achieved sometimes but not at all times! QSB is often very noticeable on the signal. Note: Practice the flight path beforehand; see below, "Practical planning for each pass."

Here is a link to the homebrew satellite antenna shown above, www.g6lvb.com/HomebrewArrow.htm ; this antenna has a duplexer in line combining both the 2 metre and 70 centimetre antennas into one feed line. The antenna has also been mounted on a camera tripod, which helps a lot when you need your hands for tuning for Doppler and microphone PTT! Rigs like the Icom 706 Mk IIG use one coax connector for the 70 cm and 2 m frequencies. This setup is typically used for the SSB satellites but with this configuration, you cannot hear yourself on the downlink while transmitting unless you use a rig like the TH-7DA in "Duplex" mode (FM). I have not had much success with this rig working AO-51 though, its place lies more with APRS.

Practical planning for each pass

Look at the AO-51's Control team's news at www.amsat.org/amsat-new/echo/CTNews.php. This will give you up to date information on the status of the satellite for a particular date. This is an absolute must; otherwise, you may be calling on the standard frequencies while the satellite has been put into a different mode! On this website, there is a tab "Passes," click on this tab. Select AO-51, and enter your grid locator, for example KG33BU and click the "Calculate position" button. Enter your elevation above sea level, for example 1500 metres and click the "Predict" button. A screen similar to the following will be displayed. You can print this page for easy reference.

Look for suitable pass times with reasonable elevation. I have found many passes with maximum elevation of 30 degrees and above are workable. The times are in UTC so add two hours for local time. You will notice there are passes in the mornings and evening most days. The next impor-

(Continued on page 19)

(AO-51 from page 18)

tant thing to do is to go outside (if using handheld antennas) and VISUALIZE the satellite flight path, practicing using the data in the table. Know your azimuth directions, starting at AOS (Acquisition of Signal), the azimuth at your highest elevation point and your elevation, and finally, ending at LOS (Loss of Signal). AOS at start time and LOS at end time, this goes hand in hand with the Doppler settings too. At the highest elevation point, halfway through the pass, note the time +- 7 minutes after AOS, you can listen on 435,300 MHz and the signals will be clear if your antenna is correctly aimed at the satellite. At AOS, tune to 435,310 MHz and move down 5 KHz at a time, testing continuously for best-received audio. As the satellite "Flies away," tune down to 435,295 and 435,290 MHz, again, testing for best audio. I have found in most cases it is easier to work the satellite as it flies away so do not give up until LOS time has been reached! You may just work someone new via the satellite. I have found too, if you cannot hear yourself clearly on the downlink, stop transmitting and try again a few seconds later. If you cannot hear yourself, no one else will either. A good, red light, headlamp is handy to use in the dark. Not all ham radio equipment has a backlight on their dials for the dark.

Frequencies to use

The best is to look at the AO-51 Schedule on the AMSAT website. As mentioned above, see www.amsat.org/amsat-new/echo/CTNews.php. The frequencies and modes can be different for certain times of the month. In most cases the uplink would be 145,920 MHz (PL Tone 64 Hz) and Downlink 435,300 MHz plus minus Doppler. You have to cater for Doppler, so in the beginning of the pass, tune in 5 kHz steps from 435,310, 305, 300, 295 and 435,290 MHz, by then the satellite will be out of range. Tuning for Doppler is required for proper audio reception on the downlink. You will be limited to communicating via the satellite only when it is directly overhead if you do not, or cannot, do this and that is two or three minutes at the most!

Voice procedure

There have been suggestions for proper voice procedures while working via the satellites. This is necessary to give many a chance to make contact in the limited amount of time available for each pass. The time available is a maximum of about 15 minutes and in most cases only 10 minutes is usable. The suggested voice procedure is as follows:

CQ

Short call, "CQ AO-51 <Call sign>" - Listen! (At least 5 second breaks)
Example "CQ AO Fifty One, ZS6 Bravo November Echo"

Call station

<Call sign of station called>, <Call sign> Listen!
Example "ZS6 Bravo November Echo, ZS1 Lima" (Wait at least 5 seconds)

(Continued on page 20)

(AO-51 from page 19)

Reply to call

<Call sign of calling station> , <Call sign> , "Report 59"
Example "ZS1L, ZS6BNE, Report Five Nine"

Confirm report

<Call sign of working station> , <Call sign> , QSL 59 , Yours 55"
Example "ZS6BNE, ZS1L, QSL Five Nine, Yours Five Five"

Confirm and sign off

<Call sign of working station> , <Call sign> , QSL 55 , Best 73's" - Listen!
Example "ZS1L, ZS6BNE, QSL Five Five, Best Seventy Three's"

That should be reasonably fast and give all a chance to work in the limited time available per pass. If there are fewer people on frequency, a little more information can be exchanged like grid location and further comments. Always strive to sound professional.

ZS-Sat Satellite email forum hosted by Barry, ZS2EZ

Up to date news from all interested hams working satellites. Various mail delivery options can be set on the site. A must for the South Africa satellite operator!

Send ZS-SAT mailing list submissions to zs-sat@mailman.qth.net

To subscribe or unsubscribe via the World Wide Web, visit http://mailman.qth.net/mailman/listinfo/zs-sat or, via email, send a message with subject or body 'help' to zs-sat-request@mailman.qth.net

You can reach the person managing the list at zs-sat-owner@mailman.qth.net

Hope to hear you on the satellite downlink. This way of communicating wakens the will to homebrew, gives a similar feel to DF hunting and generally a lot of fun. Best 73's!

The Digital Modes

Eddie Leighton, ZS6BNE

From ALE , Airmail , PaclinkMP , PACTOR to RMS Packet and Winlink 2000

ALE Feedback

As promised in the last edition of Radio ZS, here is feedback on the tests done between Stuart, ZS6OUN and myself. Quartus, ZS6QDW and Barry, ZS2EZ joined us. We took part in sounding exercises and passing a few messages between us. Ideally, there should have been a lot more active operators to make the experiment a success. ALE should be used to set up voice nets, messaging is an added

(Continued on page 21)

(Continued from page 20)
facility which we found not to be too effective. ALE can be used to accumulate propagation information too if there were sufficient active stations covering a wide area. I scanned international frequencies without a single signal received using a G5RV multiband antenna and an Icom AH4 antenna tuner.

New Discoveries

The messaging side of ALE made me look into the Airmail software again where, similar to packet radio, I could connect to ZS5S, a PMBO (Packet Mail Box Operator) in Natal via HF using PACTOR1 and a Kantronics KAM-XL TNC. The guys in Lichtenburg were interested in getting packet radio active, again which led me to discover more software specifically to do with Winlink 2000. I initially wanted to access a packet BBS using a VHF packet frequency, via the Internet using Telnet which can be done, typically with Dick, ZS6RO's BBS, ZS0MEE. This BBS is still the centre of packet radio in South Africa. I needed some sort of packet gateway software.

Searching the Internet led me to some pretty interesting software, namely Telpac, Paclink AGW and Packlink PO only to discover this software was already outdated and replaced by RMS Packet (Telpac) and PacklinkMP (Paclink AGW and PO). I joined the various Yahoo Internet groups and downloaded the software. I installed RMS Packet together with the AGW packet engine in order to use the simple TASCO TNC on the Alinco DR135 that comes with this and other modern rigs. The TNC is certainly not ideal and not supported by RMS Packet or PaclinkMP; it has to do with buffer overflows and handshaking problems with large data transfers. Somehow I got it to work running in parallel with UI-View32 as an Igate and Winpack 6.8 as a packet monitor to the AGW Packet Engine.

RMS Packet provides a connection between the Internet and VHF packet radio networks, just what I was looking for, but not quite! RMS Packet allows you to send and receive messages but they are more in the form of email, which is very handy anyway! It allows you to send email to any email address on the Internet so there are third party issues but ham to ham email communications are legal. The Winlink 2000 worldwide network is the controlling system behind RMS Packet, ideal for emergency communications and effective too.

I used my Kenwood TH-D7A in packet mode (built in TASCO TNC) to send an email message, via radio, to test the system and it worked! Sending email (typing by hand) from a PC using Hyperterminal, connecting to RMS Packet via a VHF link and RMS Packet passing the message on to the CMS (Common Message Servers) strategically placed in four places in the world using the Internet for transport. The message is delivered just as fast as any Internet email message! The mail system is protected by a "Whitelist" which is automatically updated by sending mail to a recipient via RMS Packet. Mail sent to you without the initial mail sent to a particular address will result in that message being rejected. The Whtelist

(Continued on page 22)

(Digital Modes from page 21)
also serves as a spam filter. Certainly unwanted mail should be blocked from appearing on the ham radio networks.

The other half of the story

I went on to discover PaclinkMP. I am still not sure if this is a replacement for the excellent Airmail software but it certainly has some exciting prospects! Instead of using Hyperterminal on the "Client side," PaclinkMP acts as an email server but an intelligent one at that. The default message path is the Internet when available also using Telnet and it is fast! Being an email server, a front end program is used and PaclinkMP has been so designed as to talk to any email client like Outlook Express or Thunderbird, it uses SMTP and POP3 ports to communicate. The idea is to keep the user interface familiar for the user especially under emergency situations where possibly not only hams are involved! Regulations in South Africa prohibit some of the facilities available with Winlink 2000 compared to America for example but really an ideal system to use. The standard Winlink email format is CALLSIGN@Winlink.org

If the Internet fails

This is the intelligent part of the PaclinkMP email server. It will revert to a VHF network passing mail traffic to a nearby RMS Packet gateway that does have Internet access and if that is not the case it will revert to HF looking for a PACTOR PMBO anywhere in range, in the world! There is a move away from PACTOR1; it is simply far too slow in comparison with PACTOR 2 and 3. PaclinkMP will not just work with any TNC, certainly not with the TASCO TNC's it requires high end TNC's like the Kantronics KAM-XL or better!

The objective

The objective in the beginning was to provide a gateway for VHF packet users to access BBS's via the Internet using Telnet. What was discovered in the process was very worthwhile, maybe even better! I did however talk to Dick, ZS6RO and he suggested building a Suse Linux box running node software. I have not got to that stage yet but maybe I can give a little feedback on those successes in the next issue of Radio ZS.

The Future of Space in Support of Mankind

Jan Louw Kampman, ZU6JLK, HTS John Vorster

Jan Louw is a runner-up in the SA Amsat essay writing competition.

The first man-made object put into orbit didn't look like much. It was an aluminium sphere filled with pressurized nitrogen and carrying two transmitters, which sent wavering radio signals to planet Earth. Since the launch of Sputnik 1 on 4 October 1957, by

(Continued on page 23)

(Continued from page 22)
the Soviet Union, the competition known as the space race was on. Within a dozen years, footprints of man were left on the dust of the Moon. It is now 50 years later and in that 50 years technology grew the most ever. We went from orbits to moonwalks to satellites. The next 50 years promise even more interesting milestones: life seeking rovers, a lunar base, and the ultimate off-earth adventure - A COLONY ON MARS!

For the general population on our planet, the very real threat of an asteroid hitting and destroying earth is of more importance than potential living quarters on Mars. Scientists estimate that in April 2029 a 25 million-ton, 250 metre wide asteroid known as 99942 Apophis, will barrel towards Earth at more than 45 000 km/h. This huge rock will have the energy of 65 000 Hiroshima bombs. Enough to wipe out a small country or cause a 240 m tsunami. Fortunately, Apophis needs to be nudged only about 1,6 km to avoid a gravitational "key-hole" in space – a region that would send the asteroid on a collision course with Earth. This reduces the energy required to deflect Apophis by a large factor, which makes it theoretically possible to use current technology.

We do have the technology to nudge it slightly off course well before it reaches the "keyhole" it must travel through to hit the Earth. According to NASA, a simple 1-ton "kinetic energy impactor" spacecraft can be used to "thump" into Apophis at 8000 km/h to alter its course slightly. Alternatively, an ion-drive-powered "gravity tractor" spacecraft could hover above Apophis and use its own gravity to gently pull the asteroid off course. Another option is to use a thermonuclear bomb buried deep within Apophis to turn it into a swarm of smaller, less harmful asteroids. In 2005, another alternative was planned as a mission to land a radio transponder on Apophis. Tracking data from this device will allow scientists to make an educated guess whether the asteroid will actually collide with Earth, or whether we can all relax until next time. If the information from the transponder indicates that a collision is going to happen, there is still time to design and launch a device that can be used to deflect the asteroid. NASA is taking a wait-and-see attitude with Apophis, but has started a program to find and track all near-Earth asteroids at least 1 km in diameter.

It is clear that there is still much to learn about tracking and deflecting large asteroids from hitting Earth, but at least current technology can be used to good effect to help us protect Earth in the future.

Source:
Popular Mechanics, January 2007
Popular Mechanics, October 2007

Radio Scouting

by Dave Gemmell, ZS6AAW
and the Broomstick Warriors

JOTA Website

The World JOTA Report has been published and can be found on the website www.scout.org.jota, from here click on "Scout Library" and follow the "Read more …" instruction. Those of you who have a fair knowledge of the ways of getting around these international websites should no trouble finding the Radio Scouting Library. Here you will find all the reports from the 4th to the 50th. No reports were written for the first three Jamborees. These 47 reports make very interesting reading! South Africa was mentioned as having taken part in the fourth JOTA but no details were supplied. Then in the 6th, South Africa got a longer mention.

It is time I started written the history of JOTA in South Africa! I have gathered some interesting bits of information in the form of old scout magazines, personal recollections, etc., but I would like some more input from any of you "readers" who took part in any JOTA from the first in 1958! Putting your thoughts on paper is a very interesting and a good mental exercise. It shows just how good your memory is and not as bad as you are loved ones make it out to be!

While you're about it jot down some of your reminiscences about ham radio, no matter how short, and send them to me. The history of SARL does not go further than 1950. Richard ZS2CLI has asked for long

(Continued on page 25)

Scout Nets

Country	Day	Time (UTC)	Frequency	Net Control
Denmark	Sat	13:00	3,740	
European	Sat	09:30	14,290	
Japan	3rd Sat	23:00 (local)	21,360	JA1YSS
Norway	Sat	15:30 (local)	3,740	
Sweden	Sat of even weeks			
		15:00 (local)	3,740	
Sudan	Fri.	13:00	21,360	ST2M
UK	Sat	09:00 (local)	3,740	G3BHK
USA	Sun	20:30	14,290	K2BSA
Brazil	Sun	13:30	7,090	
Brazil	Wed	19:30	7,090	

World Scout Net 1st Sat22:00 Echolink 131124 PA3BAR

(Radio Scouting from page 24)
enough about sending him some pictures to spice up the SARL History page so please help all of us by sending them to zs2cli@qwest.co.za. What sounds trivial to you could be important to some other ham.

Scout Nets

I thought it would be a good idea to include the following table for those scouting hams who would like to contact their counters in distant lands. Despite the poor prevailing conditions, some who try may have reasonable luck on the frequencies above 7 MHz! These nets are evidently ongoing and do not apply to the JOTA weekend!

Please note the second e-mail address! I am busy changing over but at the moment both are applicable. The address information stays the same, namely PO Box 77, Irene, 0062 and tel 012 667 2153, e-mail davegemmell@bmknet.co.za or dave@zs6mus.org.za.

Museum News

by Dave Gemmell, ZS6AAW and the Old Timers

ZS0AWA Flea Market

Most of the ZS0AWA Members from the PWV area came together at Rand Airport on Saturday 5 April 2008 for a most enjoyable Flea market. Even stalwarts like Rod, ZS5RK and Don, ZS5DR came all the way from Pietermaritzburg for the event.

As I said last year, this is an excellent venue. I like it because my XYL can sit back, have a cup of coffee and watch the aircraft take-off and land. Normally she's more interested in bird watching as is Cliff's ZS6BOX XYL but "twitching" on a larger scale is just as fascinating. There were other activities, as well! The most important being chin wagging with chaps you normally hear on the air! Then, of course, the facilities of the local light aircraft clubhouse did add to the charm!

I met Rex, ZS6REX whose brother owned the T1154 and R1155, which Richard, ZS6TF is restoring. Rex relates how this brother had to learn CW at 25 wpm when he qualified as a pilot during the war. More details will be available when Rex sends them to me.

I am pleased to say that Dick, ZS1AQD represented ZS1MUS whilst Cliff, ZS6BOX, Richard, ZS6TF and I represented ZS6MUS.

Richard Dismore, ZS5TF has been busy with the restoration of a T1154 transmitter and a R1155 receiver and, thanks to Dick, ZS1AQD has obtained a "bath tub" morse key and the antenna switch type-J which goes with this arrangement.

One apology is very necessary! Willem, ZS6ALL I am dreadfully

(Continued on page 26)

(The Future of Space from page 25)
sorry… I forgot to buy you a "dose of alkaloids"!!! Never mind I will remember you at the next flea market!

ZS6MUS, Swartkops

On 29 March 2008 Dick Busby, ZS1AQD of ZS1MUS fame, and his friends Frank Mercier, ZS6MER and Jim Houston, ZS6BUR visited ZS6MUS at AFB Swartkops. Jim gave us some very interesting tips on learning CW.

Thanks to Cliff, ZS6BOX the cleaning of the exhibits in the Wireless Room has made a world of difference!! The Wireless Room is looking like a museum now! One day we will have the place in a fit state to have the entire Antique Wireless Association around for a visit!!

Beacons and BACAR

(This paragraph should actually be in the Radio Scouting column together with the "errata" but as the content has an historical content I have included it here!!)

I made a mistake in the Radio Scouting column when giving an approximate date when the radio sondes changed from valves to transistors! 1970 should read 1960. This reminded me of an interesting story Marten, ZS6ZY told me some years ago. He was down in the SANAE Base (near the South Pole) in the late 1950's and when the daily radio sonde balloons (weather balloons) were released they were "tracked" by means of measuring the phase difference between the signals, from the individual antennas of an array, with the aid of an oscilloscope!

This was before the days of the Radar method! Most, if not all, the communication was "done" with CW!! Barrie, ZS6AJY, of CW/QRP and ZS0AWA fame can vouch for that! He spent some time on Gough Island doing very much the same as Marten! Hoe lyk dinge vir so 'n storie Marten???

Ionospheric Propagation (or should I say comment???)

Ionospheric propagation continues to been very interesting. Solar Cycle 24 may have started a few weeks ago. According to NASA scientists, studying solar physics who became excited when a knot of magnetism appeared over the sun's eastern limb back on 11 December 2007.

They say that the knot of spots may not look like much, but that patch of magnetism could be a sign that the next solar cycle has begun. These chaps can only say when the sunspot cycle has started or finished a few months after it has happened. It will take some time before there is any effect on propagation.

Tail Piece (TV Morse Code!! Again!!)

I have just been watching the Sunday afternoon film, "Flying High" (6 April 2008) about the delivery of Hudson Bombers from Canada to the UK about November 1940. The morse send by two prospective pilots was

(Na bladsy 27)

(Museum News from page 26)
not quite up to standard.

Yes! They were using an ordinary flash light and the message was in French. Now my knowledge of the French language is zero but I can read morse and they could have sent a word or two correctly.

Another criticism was to a scene of a technician repairing an electronic circuit board, which had four transistors on it!! In 1940!!! Really! Anyway it is a good film and I did enjoy seen those old aircraft flying around.

Please note the second e-mail address! I am busy changing over but at the moment so both are applicable - e-mail davegemmell@bmknet.co.za or dave@zs6mus.org.za, PO Box 77, Irene, 0062 and Tel 012 667 2153

The magical (noise cancelling) properties of Delta Loops

Felix Scerri, VK4FUQ

Yes, I know we are all concerned about BPL but, as I recently remarked to someone, 'BPL, that's nothing. I've got severe power line noise!' Blessed (cursed?) with aerial power lines in my location, power line noise 'hash' has been a very long time problem at this QTH (since at least the mid 1980s, when I was first licensed). By its very nature, it is dependent upon general weather conditions and, as such, can be highly variable in its appearance and intensity. It is often so severe that interference is evident on the VHF FM broadcast band and UHF television channels, not to mention the HF bands!

Speaking of the HF bands, trying to read any station through an S9 noise level is a painful and demoralising experience, let me assure you! Noise blankers have very little useful effect, and DSP units are marginally useful, but not a cure. Particular antenna configurations can be useful, but nothing really solves the problem to any great extent.

However, perhaps now I have at least 'cured' the problem as much as it is ever likely to be! In some ways I have been revisiting the past, as the solution involves the use of an antenna type that I was heavily involved with, particularly on 20 m, when I first became licensed in the late 1980s, 'The One Wavelength Delta Loop'. In those days, when I had several pipe masts available to me (sadly, no longer the case), a favourite configuration of mine was the 'inverted' Delta Loop supported between two pipe masts.

Apart from the general excellence of that antenna, as a result of several experiments, I had noted at the time

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that general power line noise hash pickup could be minimised by a specific feed-point position along the loop. As the loop runs through both horizontal and vertical planes (when mounted 'vertically'), it is easy to vary the general polarisation of the antenna through feed-point position. Due to changed circumstances, it has been many years since I have been able to erect a Delta Loop antenna. However, spurred on by this maddening power line noise hash, I decided to give it another go, at least on the 20 m band.

Having only one 10 metre pipe mast available, I erected a Delta Loop antenna as a triangle, with the apex up. It was initially fed (with balanced feeder as a 'tuned line'), in the middle of the lower horizontal section. Sadly, no real reduction in power line pickup was noted, compared to my standard inverted V antenna.

Next, I tried feeding it at one of the corners along the bottom horizontal section. The result was a very marginal improvement but not significant. I was ready to give up on the loop, but there was one more position to try - feeding it at the top. It was at this point that I was glad I use pulleys on the mast, something that makes raising and lowering an antenna relatively easy. I quickly reconfigured the antenna with the feed-point at the top and pulled the loop into shape.

I went upstairs and switched the transceiver on. The noise level on receive, previously around S7, now was only S 1 - 2. A remarkable reduction in noise pick up. To be sure, I looked out the window to check if the antenna was still up. It was! This was clearly the optimum feed-point position for minimal noise pickup.

One of my antenna texts tells me that the antenna polarisation in this case should be 'mixed', containing both horizontal and vertical components. Whatever the reason, it works just fine. It would be interesting to find out if the Delta Loop is actually preferable to a traditional Quad Loop owing to this 'mixed' polarisation profile. It is indeed a pleasure to be able to hear signals normally hidden beneath the power line noise. The power line noise is still there, even on the Delta Loop, but at least now, it is at a tolerable level. The reason for this improvement is probably complex but, without a doubt, being able to tweak the overall antenna polarisation is the key; and as I already knew, the Delta Loop is a pretty good antenna overall!

It would be nice to see if this noise reduction can be further enhanced. However, my personal feeling is that individual noise problems are likely to be unique and, as such, will need to be customised for best results. Certainly, carefully optimising the feed point position on my 20 m Delta Loop has effected a great reduction in power line noise hash pickup at this location on that band.

It is interesting to note that, before I decided to erect the Delta Loop, I had tried different 'orientations' with my standard inverted V antenna. No

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reduction in noise pickup was noted during those tests. Sadly, it would appear that 20 m is the only band where I can take advantage of this approach, given space and other practical considerations. Having said that, if you are plagued with severe power line hash interference and/or other noise problems, and are able to erect a full wave Delta Loop, then this approach is worth trying.

It has been nice to re-establish my earlier love affair with the Delta Loop antenna, even though this latest investigation has been prompted by a strong desire to ameliorate the effects of severe power line hash interference. I had initially thought that the 'triangle' form of the Delta Loop I ultimately used would suffer from a big reduction in 'effective' height compared to other loop configurations or simple dipoles. But, at least on 20 m, I have noticed absolutely no performance deterioration compared to my usual 20 m inverted V with a top height of 10 metres. I suspect that 'top' feeding actually helps matters here as well.

In fact, using the Delta Loop for an extended period has made me realise that there is something special about the Delta Loop antenna overall. Those who have also extensively used full wave loops in their various forms, either singly, or as a parasitic array, will probably know what I mean. Anyway, I am very happy with mine. It's an easy antenna to erect, works very well and, best of all, with a little 'feed point position optimisation', is a very quiet antenna 'on receive'.

Incidentally, the Delta Loop data is as follows: length formula l (m) = 300 / frequency. Each side length is ⅓rd of the formula length (equilateral triangle).

Used with acknowledgement to Amateur Radio January/February 2007, the journal of the Wireless Institute of Australia.

The 2008 SARL National Convention - “A Feast”

At the 2007 SARL AGM, the Bloemfontein Radio Amateur Club indicated that they would host the 2008 AGM. At that stage the 2008 AGM was still a year away and planning was something for the future.

At the Free State RTA in Augustus 2007, Dennis, ZS4BS had a chat with Graham, ZS6GJH and Hans, ZS6AKV about the AGM weekend and a few ideas were discussed. Slowly the planning got underway and the idea of making a weekend of the AGM started taking post. Start the Friday evening and end off on Sunday, making it worthwhile to travel to Bloemfontein. The organising committee [Jan, ZS4JAN, Martin, ZS4MS, Philip, ZU4PE and Dennis, ZS4BS] set about planning the events.

What to do the Friday evening - the

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BBQ - done that, got the t-shirt. At the FS RTA, Dennis had met Jacques von Delft, chairman of the Bloemfontein Branch of the Astronomical Society of SA, and a visit to the Boyden Observatory was on the books. Boyden is home to a 60 inch [152,4 cm] telescope, the 3rd largest in South Africa.

AGM venue - no problem, the School of Armour has suitable venues and a letter to the officer commanding confirmed that venue.

Now for the Awards Dinner - this must be something special, in previous years the Awards Dinner had lost some of its glamour. The restaurant at the historic Onze Rust farm would be a suitable venue. Pres M.T. Steyn, the last president of the Free State Republic bought Onze Rust in 1898 as a weekend retreat.

To close the weekend, well what about breakfast at ZS9X, the contest station of the Bloemfontein Defence ARC.

The theme of "A Feast" came from Mrs Jackie Steyn of Onze Rust. Part of the M-Net production "Feast of the Uninvited" was filmed on the farm, and she suggested that the awards dinner be "a feast of the invited." This theme was then taken for all the functions: Boyden "A Feast of Stars"; AGM "A Feast of Decisions"; Dinner "Feast of the Invited" and ZS9X "Breakfeast."

The various venues and events were arranged and confirmed and a listing of accommodation was obtained from Mangaung Tourism. We arranged a caterer for the meals at Boyden, the AGM and ZS9X and Dennis together with Jackie Steyn arranged the menu for the awards dinner [all the food he likes!] Arrangements were also made with Colin Steyn as to the programme before the awards dinner.

The National Convention Weekend

The weekend had arrived and Friday morning in Bloemfontein was overcast - Boyden needs open skies! By the time we arrived at Boyden the clouds were gone. Jan, ZS4JAN chairman of the Bloemfontein RAC welcomed everybody and after grace, supper was served. Then everybody went on a journey through the stars as Gerrit Penning of ASSA, Bloemfontein took us through his presentation. Then on to the roof of the Auditorium to look at the night sky. The 8-inch Dobsonian telescope and a pair of binoculars were set-up looking at Orion's Belt. Saturn with its rings was visible through the 16-inch telescope. Boyden is home to some 12 telescopes of various sizes. To close the evening, the group was taken to look at the 60-inch telescope.

Saturday morning and the SARL AGM at the Little Willie Auditorium at the School of Armour. The chaps from Verstay and from Radio Accessories & Data Modems set-up their displays and radio hardware. A group photo was taken [front cover] before the AGM got underway. By approximately 12:00, the meeting was closed. Following the first SARL Council meeting, Francois, ZS6BUU presented the Hamnet workshop. Lunch was provided at the SA Armour Museum.

At 16:30, guests arrived at the museum at Leeuwberg where Dennis introduced them to Colin Steyn, great grandson of President MT Steyn and owner of Leeuwberg and Onze Rust. As there had been a WW II shoot at Leeuwberg, Colin and his friends were dressed in German and British uniforms. After an introduction to the museum, everybody moved to the Barbarossa shooting range

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where everybody had a chance to shoot with Anglo Boer War and WW 2 vintage .303 rifles. Richard, ZS2CLI was judged the shotist of the day.

We then moved to Onze Rust and had a look at the British Blockhouse and area where the M-Net film was made. Then a visit to the home of Colin and Jackie, where we had a look at the study of Pres Steyn and the collection of Mauser rifles. One needs more than a day to really see everything.

Then across to the restaurant for dinner and the Commando bar looked after the thirsty guys. Dennis welcomed all and after grace, the entree was enjoyed. Then Hans, ZS6AKV introduced the new SARL President, Rassie Erasmus, ZS1YT. After the speech by Rassie, Henry, ZS1AAZ spoke about the role played by Graham, ZS6GJH in the SARL. Graham was called forward and Rassie award him with Honorary Life Membership of the SARL. Willie Wilson Gold Badges were awarded to Colin, ZS6COL; Peter, ZS6PHD and Richard, ZS2CLI. Jack Twine Awards went to Richard, ZS6UK, Johan, ZS6JHB; Bill, ZS2AB; Johan, ZS6JPN and Paul, ZS6PR. The Icom Excellence Award was handed to Francois, ZS6BUU. And then the main course and dessert where enjoyed.

The Convention closed with a visit to the ZS9X contest station on the Gen. De Wet training area. Guests had a chance to look at the antenna farm - LogP, Optibeams and inverted V's and the take-off these antennas have in all directions. An excellent breakfast was provided under one of the huge Tropo dishes.

During the weekend, Martin, ZR4MCS took some 700 odd photographs. These are being placed on DVD.

Most definitely 'A Feast!'

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