



Improved logo! - by ZR6FD

# WATTS

07 - 2003

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



PARC, PO Box 73696 Lynnwood Ridge 0040, RSA



<http://www.qsl.net/zs6pta>



Bulletins : 145,725MHz 08:45 Sundays / Sondae  
Relays : 1840, 3700, 7066, 10135, 14,200 MHz  
depending on season

Swapshop: After bulletin 2m and 40m

(drukwerk / hardcopy courtesy ZS6BAQ, ZR6STB)  
(papier / paper courtesy ZS6HVG,ZR6ZRO,ZS6OB)

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## Management team/Bestuurspan 2002-2003:

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-Secretary and Rallies	Johan de Bruyn	ZR6JHB	<a href="mailto:johandbr@absa.co.za">johandbr@absa.co.za</a>	012-803-7385
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## In this issue

- Editorial
- Club meeting minutes /
- Birthdays
- Anniversaries
- Coming events
- Technical
- Your contributions?

## in hierdie uitgawe

van die Redaksie  
Klubvergadering-notules  
Verjaarsdae  
Herdenkings  
Komende gebeure  
Tegnies  
U bydraes?

## Next Meeting

Date: 10-07-2003  
Time: 19:30 for 20:00  
PARC Clubhouse,  
South Campus,  
University of Pretoria.  
SE cnr University and  
Lynnwood roads.

## From the Editor

The SARL is again a functioning body with a budget and a full complement of Councilors. An analysis of the status-quo and recommendations by the Special Committee (your Chairman included) for SARL survival and image improvement, was given special permission to be presented prior to the official agenda and will hopefully be taken to heart in future. Budget voting favoured the SARL proposal by just over half the votes for a R285 flat rate and R60 for family members. This is a substantial increase and our only consolation is that Council now realizes full well that it has **services to deliver, show maximum dedication and minimum expenditure**. I would like to appeal to all our readers to bolster this effort by joining or continuing your SARL membership. Our mouthpiece for Amateur Radio must not fall silent.

Another matter I wish to touch on is whether you have allowed your hobby to stagnate. We have done it all, and we know it all – please don't stir. Not true - new technology can enter your life. This is true for the technical hobbyist as well as the non-technical operator. Remember how keen you once were to absorb and try things. I appeal to you to get involved again to tackle something new on your own; else create or join an interest group. If you are already involved, let us hear about it and **send us something for publication**. It does not have to be technical as long as it involves practical amateur radio. **This newsletter is distributed all over the country** (more often than Radio ZS..!) and even to the State Library – Get some limelight and contribute to our club's image and simultaneously the knowledge base of all amateurs.

## Van die Redakteur

Die SARL is weer 'n funksionele liggaam met 'n begroting en 'n vol span Raadslede. 'n Analise van die status-quo en aanbevelings deur die Spesiale Komitee (U voorsitter ingesluit) vir SARL oorlewing en verbetering van uitwaartse beeld, was spesiale toestemming gegee om voorgedra te word voor die amptelike agenda en sal hopelik ter harte geneem word in die toekoms. Stemme vir 'n begroting het die SARL voorstel met net oor die helfte van die stemme begunstig en stel ledegeld nou op R285 met R60 vir gades. Dit is 'n aansienlike verhoging en ons enigste troos is dat die Raad wel deeglik besef dat **dienste gelewer moet word, volle toewyding moet toon en minimum besteding laat plaasvind**. Ek wil graag 'n versoek doen aan al ons lesers om hierdie nuwe poging te rugsteun om as lid aan te sluit of om u SARL lidmaatskap weer te verleng. Ons mondstuk vir Amateur Radio mag nie stil word nie.

Nog 'n aangeleentheid wat ek wil aanroer is of u u stokperdjie laat stagneer het. Ons het dit alles al gedoen, en ons weet alles – moenie nou roer nie. Dis nie waar nie – nuwe tegnologie kan jou lewe betree. Onthou hoe vurig julle self eens op 'n tyd was om dinge te absorbeer en te doen. Ek doen 'n beroep op u om betrokke te raak om iets nuuts op aan te pak; andersinds stig of sluit aan by 'n belangegroep. As u alreeds betrokke is, laat ons daarvan hoor en **stuur iets vir publikasie**. Dit hoef nie tegnies te wees nie solank as dit praktiese Amateur Radio betrek. **Hierdie Nuusbrief word ooral in die land versprei** – (meer gereeld as Radio ZS..!) en selfs na die Staatsbiblioteek – Kry 'n bietjie kalklig en dra by tot ons klub se beeld en tegelykertyd die kennisbasis van alle amateurs.

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### WATTS DISTRIBUTION - STATUS - WATTS VERSPREIDING

Elektroniese verspreiding het met die laaste uitgawe suksesvol plaasgevind en tans kan ons 58 lede met e-pos bereik. Dit beteken 'n aansienlike posgeldbesparing. Voorts kan 5 nie-lede en 40 klubs nou ook kosteloos bereik word. Die perk op grootte sal 8 bladsye wees. Die formaat sal in vervolg PDF wees vanweë oordraagbaarheid. Die van u wat nog per gewone pos ontvang, en oor e-pos beskik, stuur asb. 'n blanko boodskap met u roepsein as titel aan [hans@qrv.co.za](mailto:hans@qrv.co.za) – dankie.

Electronic distribution has taken place successfully with our last issue and presently we can reach 58 members by e-mail. This presents a considerable saving in postage. Furthermore 5 non-members and 40 clubs can be reached at no cost. The size limit will be 8 pages. The format will in future be PDF for portability. Those of you still receiving by normal mail and have e-mail, please send a blank message with your callsign as title to [hans@qrv.co.za](mailto:hans@qrv.co.za) – thanks.

# Minutes of the monthly club meeting of the Pretoria Amateur Radio Club held at the South Campus of the University of Pretoria on 10 June 2003

- 1a. **Welcome** : Hans ZS6KR declared the meeting open and welcomed all present.
- 1b. **Attendance** : The meeting was attended by some 20 members and 3 visitors.  
Special welcome to Kobus Conradie ZR6D (SARL councilor)
- 1c. **Apologies** : ZS6BZS and ZR6OLM
- 1d. **Personals** : ZS6OB Pine het eerste keer oupa geword  
ZS6TB Joe became grandpa for the second time  
ZS2CWP Callie het 'n hand operasie ondergaan.
- 1e. **Minutes of the previous meeting**: The minutes as published in Watts were approved.  
Proposed by Brian ZR6BJS and seconded by Doreen ZR6DDB.
- 1f. **Matters arising**:none
2. **Club activities**
- 2a. **Website** : Still maintained and updated by ZS6DX.
- 2b. **DF Hunting** : No DF hunts in the winter season.
- 2c. **Repeater2m** : Maintenance work to continue.  
Donated Kenwood repeaters by ZS6SO to be modified for Amateur use  
Quotation approved by meeting.  
Digipeater 144,800 available to all courtesy ZR6I (Buckshee Club)
- Repeater70cm** : IRLP working well - anyone in range welcome to use it.
- 2d. **Mega-Fleamarket**: Magalies Club to host Mega-Fleamarket 2 Aug 2003 9:00am  
Contact Magda ZS6MVW for table bookings etc.
- 2e. **Rallies**: : Johan ZR6JHB verslag:- Sasol Tydren 20-21 Junie  
Sabie / Witrivier / Nelspruit  
15 mobiele, 6 veldstasies, 1 beheerstasie  
Een mobiele hehaler op Bakenkop  
- TMCC Leesol Tydren Babsfontein omgewing  
Benodig 2 mobiele, 5 veld, 1 beheerstasie  
Kontak Johan 012-803-7385 of 082-492-3689
- 2f. **Social** : "Day in the sun" 13 July bring and braai at LC de Villiers  
Recreation Centre. Please bring own tables, chairs, umbrella etc.  
All clubs welcome. We will provide the fires.
- 2g. **Financial** : Doreen reported on the past month's expenses and balance in  
our cheque account.
3. **Ham diary**: : The meeting was informed of various local and international  
amateur events of interest in the coming month.
4. **General** : Appeal to return PARC Trophies at the next meeting.  
: SARL SGM 21 June 2003 - Kobus ZR6D gave general background talk  
- Hans ZS6KR gave overview of issues to be  
addressed within the SARL according to the Special Committee.
5. **Presentation** : Digital Modes talk was postponed and Pine ZS6OB gave a short talk  
on antenna designs and urged members to try the new digital modes  
where only little outlay and mainly enthusiasm is required.
6. **Next meeting** : **Thursday July 10, 2003**
7. **The meeting closed 22:08** Doreen served soup and bread afterwards  
ZR6JHB

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## SNIPPETS / BROKKIES

- **Hal ZS6WB** was the overall winner on digital modes in the first PEARS VHF/UHF contest.
- Greetings from **Otto ZS6OFW** currently in Austria as OE9OWV - (operates I-link also)
- **Paul ZS6BMF** het einde Mei 'n sinnige draai in Pretoria gegooi.
- **Basjan ex ZR6BW**, lankal werksaam in die VSA het op IRLP deurgekom na Kobus ZR6D.
- **Jean ZS6ARA** praat nou die heel wereld vol op HF nou dat sy TH3 antenna op is...
- **Herman ZS6SN** het Vrydag 6 Junie verjaar - geluk met #76! (Ons databasis sal #77 nie vergeet nie)
- The Pretoria area now has a **digipeater** on 144,800MHz - courtesy ZR6I (Buckshee Club)
- **Pine ZS6OB** het vir die eerste keer oupa geword
- **Joe ZS6TB** het vir die tweede keer oupa geword
- Coming up: Invite to **open day** at 1 Signals Regiment Wonderboom courtesy ZS6AN - details later.

## Birthdays Verjaarsdae

Julie



02 Peter ZS6RX  
04 Lynette, daughter of Bill ZS6KO  
06 Helen, daughter of Roy ZS6XN  
11 Peter ZR6FD  
13 Chris ZS6FCS  
13 Pieter ZR6AHT  
17 Lynn, daughter of Andre ZS6BRC  
17 Pine ZS6OB  
19 Sarina sw van Willie ZR6WGR  
20 Roy ZS6XN  
22 Rozanne, daughter of Tjerk ZS6P  
26 Frank ZS6GE  
27 Julie, sw of Paul ZS6BMF  
27 Rachel ZR6RDB

## July Anniversaries Herdenkings

04 Beatriz and Mannie ZS6AKX  
06 Julie and Paul ZS6BMF  
15 Ellen and Joe ZS6AIC  
23 Pamela and Harry ZS6HRD  
23 Lorraine and Stan ZS6SDZ (50<sup>th</sup>)  
28 Pat ZR6AVC and Frank ZS6GE

**IF YOU ARE NOT MENTIONED,  
YOU MAY NOT BE ON OUR DATABASE**

## New Members

ZS6JOR Jorge Rodriguez (Elec Engineer)  
ZS6IRA Arrie Neveling (IT ops Manager)

Eben du Toit (Student)  
ZSL103 Sander Wissing

## Sick parade



Roy ZS6MI says he will soon again take his place in the Flou-Bulle scrum.

## Krukkelys

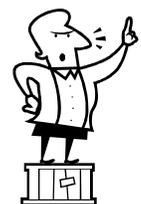
-Die LV van Gert ZS6ZB het 'n ernstige oog probleem opgedoen – sterkte aan Petro.  
-Callie ZS2CWP se hand was onder die mes.

## Ham diary

Jul 01 SARL Subscriptions due  
06 DARC 10m Digital Contest  
19 Pacific 160m contest  
19-20 CQWW VHF Contest ( [www.cq-amateur-radio.com](http://www.cq-amateur-radio.com))  
26-27 RSGB IOTA contest ( [www.rsgb.org.uk](http://www.rsgb.org.uk))  
26-27 Russian RTTY contest  
27 SARL President's net  
Aug 02-03 10-10 International summer SSB Contest  
02 European HF championship  
03 SARL HF Phone Contest

**Sunday 13 July – Day in the sun.  
All Amateur Clubs  
bring and braai  
at the LC de Villiers grounds, UP.  
11am**

**Presentation next meeting:** Part 3 "Digital Modes for Dummies"  
Practical analysis demo of real sound recordings by ZS6OB, ZS6WB, ZR6DXB

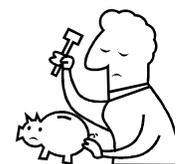


**PLEASE... Return your Club Trophies at this July 10 meeting.**

## Forgot? / Vergeet?

PARC membership subs (R50) are due by the end of June.  
Payment details are: FNB Account 546 000 426 73  
FNB Branch 25 20 45

Enter your **callsign** in the info space else we get **anonymous** donations!



**AGM Motions : Please submit at 10 July meeting or 31 July latest.**  
**AJV Mosies : Lê asb voor by 10 Julie vergadering of laastens 31 Julie.**

## Do you want to print a specific page of this newsletter?

1. Note the page number
2. Click on "File" (not the printer icon in the top bar)
3. Select "print"
4. Select "pages" ie from 3 to 3 and OK

### **Marconi plc – eens 'n reus** (Reuters) met toestemming uit *Amateur Nuus*

Meer as \$6 miljard in skuld, het hierdie eens magtige kommunikasie maatskappy aan die einde van Augustus 2002 handoek ingegooi en is die maatskappy gedwing om eienaarskap aan sy skuldeisers te oorhandig in die voltrekking van 'n reeks groot bate-vir-betaling-transaksies wat aangegaan is om hom van bankrotskap te red.

Volgens die nuwe transaksie sal 'n nuwe Marconi Corporation gestig word om die bates en kliënte van Marconi plc oor te neem. Aandehouers van die gewese maatskappy sal slegs 0,5% van die nuwe maatskappy se likwidasiëdividend ontvang.

**It's nice to be important – but more important to be nice.**

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### **Meet Stan ZS6SDZ** - An eminent club member

Some older amateurs may know Stan Zway as a well known constructor of equipment from as early as 1946 after joining Philco in Pretoria as an apprentice in 1945. In 1950 he worked for Philco in the USA and returned in 1952. These were the heydays of valve radios and Pretorians may remember electrical emporiums such as "Schelling and Zway" and "du Plessis and Zway" where he was actively involved until he was bound permanently to a wheelchair at an early age. Undaunted, Stan went QRT on electronics and took an interest in cattle farming and the agricultural business.



He also has interests in Africana, Boer War, general history, collecting books and some aspects of philately. As can be seen, he currently has a very impressive collection of professional and amateur receivers – all personally restored to perfect working order. Unfortunately he had to dispose of an equally impressive collection of restored domestic radios as his new residence does not have sufficient space. He did, however make sure of reserving a private empire in which he can pursue his technical interests and still be active on HF and 2m. He and his wife Lorraine of fifty years are now in Jaffa and well cared for. Their roots in South Africa go back many years en hulle is altwee ten volle tweetalig. Stan will welcome you heartily for a chat and demonstrate the virtues and operation of all his boat anchors.

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**Our website has many more personal profiles and photos – have a look and why not add yours?**

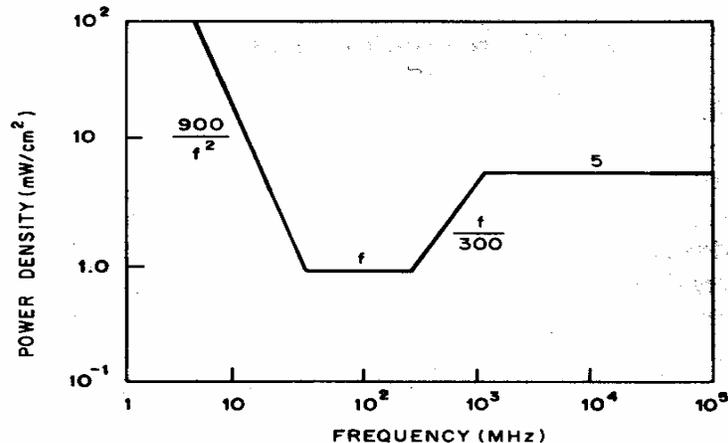
# RF SAFETY PRACTICE

(Extract from ARRL UHF/μWAVE Experimenter's Manual)

The biological effects of RF exposure on humans have been studied for more than two decades. Maximum permissible levels for frequencies between 0,3MHz and 100GHz were laid down by the American National Standards Institute in 1982. This recognizes that in a uniform RF field, the human body absorbs RF energy more effectively at a frequency where body length is about 0,4λ and the body's long axis is aligned with the incoming field polarization.

The ANSI guide aimed to provide RF safety by limiting whole-body RF rate-of-energy uptake to no more than 0,4W/kg, which has a built-in safety factor of 10. For example, an average male adult weighing 70kg and 1,75m tall would have a maximum uptake at about 60MHz; not far from the 6m amateur band.

ANSI 1982 maximum power density for far field exposure of human beings and animals, averaged over 6 minute periods, and isolated more than 10cm from ground.



The far field energy density S can be imagined as the illumination of the inside of a sphere of diameter d(m) by an energy source is in its centre:

$$S = \text{illumination density} = P(\text{watts}) / 4\pi d^2 \text{ watts per sq m}$$

Near field power density calculations are more complicated due to antenna geometry and polarization. The point where the one 'merges' into the other is where the rate of increase of S above slows down from that dictated by that of a true inverse square law. Without going into complicated calculations, the far-field locations FF for various antenna types are as listed:

Parabolic dish	FF= $2d^2/\lambda$ m	d=dish diameter	$S=P/8d^2$	W/m <sup>2</sup>
Waveguide a,b	FF= $2a^2/\lambda$ m	where a=longest side of opening	$S=Pb/5a^3$	W/m <sup>2</sup>
Yagi	FF= $\lambda/2$ m	B=boom length	$S=P(5,8+11,1B) / \pi\lambda^2$	W/m <sup>2</sup>

Vertically polarized **antennas fed at high power levels should be approached with caution.** 1kW of CW/FM at 30MHz meets the ANSI protection level at 5,2m. Access should be denied within that radius. Experiments performed with full size models of human beings (phantoms) at 350MHz with a vertical dipole are close enough to Amateur radio practice at 430MHz and produced the following results for the ANSI limit of 1,2mW/cm<sup>2</sup>:

- 1 meter for 92W beyond the far field**
- 50-75mm for 6W near the neck and shoulders**
- 50-75mm for 2W adjacent to the head**

Additionally the guide states that any peak value would not exceed 8W/kg over any one gram of tissue and over any time period of 6 minutes. There is also a special ANSI exclusion for handheld radios: "...the protection guides may be exceeded if the RF input power of the radiating device is seven watts or less."

From 1986 various trains of thought have sought to modify the 1982 ANSI standard arguing that a worker with occupational exposure only spends 1/5 of his life on the job and that the public could tolerate brief high RF exposure "while passing a civil communications system."

In early 1987 the FCC exempted Amateur Stations from "routine evaluation of their environmental impact due to human exposure to RF radiation" mainly due to ARRL appeals that amateurs are only exposed intermittently to RF, that amateurs in the long term may use different frequencies; but that awareness would be part of preparation for FCC license exams, and by practicing self-regulation. Standards have, and will continually change as more knowledge of bio-effects is gained.

## André Daredevil..... (waar het die skroefie nou geval..)



Op Maandag 16 Junie het die ZS6PTA herhalerspan hulle vakansiedag opgeoffer was hard aan die werk vanaf vroegoggend tot amper donker op Keevykop.

Danksy André ZS6BRC wat die klimwerk gedoen het, is die vervanging van honderde geroeste boute en moere nou afgehandel.

Alméro ZR6RY het die gegalvaniseerde hardeware geskenk en Pine ZS6OB se lugdrukboor is geleen.

Die spanlede op die dag was Hans ZR6HVG en Johan ZR6JHB met ondersteuningsdiens, en Hein ZS6Q wat terselfdertyd die herhalershuisie gevef het.

Die redakteur verneem dat Pine op lang afstand raad en kommentaar verskaf het....

Hierdie werk is deel van noodsaaklike onderhoud en ook om sekere steurings stelselmatig te kan identifiseer wat ons herhaaldelik ondervind. Verdere werk word dan ook beplan totdat dit opgelos is.

**35m bo die grond**

**1509m bo seevlak** (alhoewel nie hoogste in Pta nie)

Foto: Hans ZS6HVG

**Is die foto skeef of is die toring skeef met André se gewig?**

Buiten Willie ZS6AEA wonder ons of daar nog vrywilligers is om daar bo te werk. Soos op die foto gesien kan word, is die antenna nie heeltalig op die bo-punt nie want dit is partykeer lewensgevaarlik en baie moeilik om hom daar te kry - veral as daar 'n briesie is. Die antenna het ook aansienlik gewig en kan nie sommer maklik aan sy onderpunt vasgehou word nie!

U kan ook hier sien dat die vier dipole omni-direksioneel georiënteer is.

**From:** [Mike Rowland](#) ZS6AFG

### **Effects of radiation on plastics**

Poor quality or non stabilized polymeric material is good when first put into use, but soon deteriorates when in service in the sunlight, due to ageing by ultra violet radiation (UV) from the sun.

UV radiation is part of the global radiation having wavelengths between 290 to 400 nanometer (1nm=0.00000001m). This part of the light spectrum is divided into category uv B 290 - 315 nm and uv A 315 - 400 nm. This spectrum is made up of approximately 10% uv A and 0.1% of uv B.

Due to different molecular structures of insulation material, some may be sensitive to a specific wavelength. The ageing process is a consequence of photo-oxidation, which can be accelerated by elevated temperatures causing oxidation of the normal structure. Materials react differently to photo-oxidation by the emergence of micro-cracks and the roughening of the surface. Over a period of time the materials may undergo irreversible degradation of their physical properties. High temperatures together with the effect of UV radiation or water diffusion will accelerate the ageing mechanisms. This is quite common on many antenna parts, especially the black plastic caps on multi band beam traps.

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## **2 Meters Where Has Everyone Gone?**

To Editor, CQ: Just read the October 2002 editorial entitled "Nobody Goes There Anymore; It's too Crowded,." Well, if it is any consolation, here in the UK much the same thing is happening on 2 metres FM, both simplex and repeater operation- silence most of the time. And again, just as in the USA, "drive time" is the busiest time, relatively speaking! There was a time when I used to take a rig with me when on vacation to your neck of the woods. However, I decided to leave it at home for the simple reason that I rarely heard anyone! Another reason is the strange proliferation of those "Super-Private" 70 cm repeaters. Why do they do that?! It was always my understanding that amateur radio is about communication!  
73, Ray J. Howes, G40WY Weymouth, Dorset, England

**Editor, CQ:** Regarding your question about 2 meters and where everyone has gone, all the comments I've heard are just about word-for-word. I'm sure you've heard the same. Down here it seems to be a matter of new 3x3 radio procedure, or lack of, particularly the jargon identified as "CB Chatter," the practice of ending every transmission with "OSL?", not to mention "kick-it-back" and "what's yoaarr personal?" This is coupled with the unwillingness to consider changing the way they talk. ("When in Rome...") I exceeded my ration of hearing that several years ago and joined the mobile exodus to 70 cm. Since this malpractice has spread to HF, that could be the answer to your question. I enjoy reading your magazine. Keep up the good work ... and I'll venture down to 2 meters on the way home tonight to see if anything has changed. BCNU.  
73, John, W5HX Atlanta, GA

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## **New York (Sapa DPA) met toestemming uit Amateur Nuus**

Sonder die World Trade Center met sy 120m lange lugdraad as weerligafleier, loop die Laer Manhattan meer gevaar om deur die weerlig getref te word. Die tweelingtorings van 100 verdiepings elk was die hoogste geboue in New York. Die lugdraad op een van die toringblokke het die totale hoogte op 467 meter te staan gebring! Die lugdraad is gereeld deur weerlig getref wat die stroom grond toe herlei het. Luidens 'n artikel in *The New York Times* het die probleem onder wetenskaplikes se aandag gekom nadat 'n man vroeg in September 2002 deur weerlig doodgeslaan is. Hy was op die dak van 'n gebou met ses verdiepings in Laer Manhattan. "As die WTC nog daar was, sou dit nie gebeur het nie", het die hoof-elektriese ingenieur van die hawe-owerheid van New York en New Jersey gesê. Dis algemene kennis. Weerlig tref die hoogste geboue."

## **Voëlprobleme!**

ZS6KR

Toe ek weereens die nuusgroepe op die internet besoek by die Nederlandse Amateurs het ek afgekomp op 'n amusante briefwisseling betreffende 'n amateur wat 'n oplossing soek om voëls van sy antenna af te hou. Daar het seker nog vyf ander hierby aangesluit met tipiese plaaslike humor wat natuurlik geen praktiese oplossings gehad het nie.

Dit is egter wel so dat baie amateurs daar klein behuis is en antennes letterlik binne, bo of net agter die huis gemonteer is met die gevolg van ernstige dak- en stoep besoedeling gewoonlik met 'n "blauwe bessens kleur" hoofsaaklik van klein voëlsoorte en duiwe.

Interessant genoeg is vir voëlskrieking groot nagemaakte uile te koop wat dan daar sodanig kan vasgemaak word dat hy beweeg in die wind en die voëls afskrik. Die "de luxe" model het selfs 'n toutjie wat sy vlerke laat uitkom.

'n Ander oplossing is 'n dun stywe lyn bo die horisontale antenna pypwerk te span sodat hulle pootjie as hulle wil land. Nog 'n voorstel was 'n waterdigte luidspreker met 'n "op verzoek" doodskreet. Die beste wenk was 'n praktiese bewese stelsel met PVC pypies oor sy radiale geryg sodat die voëls 'n "dubbele flik flak" maak as hulle land – hopelik nie met nog 'n skoot blou bessie ekstrak terwyl hulle tol nie...

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## **It's not all doom and gloom**

According to Fred Maia of the W5YI Report a total of 20,247 brand new hams joined the hobby for the first time in the US during the year ending May 1st. Of these, 18,967 were Technician class licensees making this the fastest growing license class of all. (Imagine the equipment demand) Statistically, that is about a 4% growth assuming a total population of 500,000. **For South Africa the same growth would have to be about 200 new licensees per year.** Surely that can be our goal too?

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Sherlock Holmes and Dr. Watson went on a camping trip. As they lay down for the night, Holmes: "Watson, look up into the sky and tell me what you see".

Watson: "I see millions and millions of stars".

Holmes: "And what does that tell you?"

Watson: "Astronomically, it tells me that there are millions of galaxies and potentially billions of planets. Theologically, it tells me that God is great and that we are small and insignificant. Meteorologically, it tells me that we will have a beautiful day tomorrow. What does it tell you?"

Holmes: "Somebody stole our tent".