URL: http://www.qsl.net/rssl

RSSL NEWS

APRIL 2006 | THE MONTHLY NEWSLETTER OF THE RADIO SOCIETY OF SRI LANKA

The General Meeting for the Month of April will be held at the Seminar Room (Ground Floor) of Sri Lanka Association for the Advancement of Science (SLAAS), Vidya Mandiraya, 120/10, Vidya Mawatha, Colombo 7 on Wednesday, April 26th, 2006 at 0530 pm.

MONTHLY MEETINGS

Please note that unless otherwise notified, monthly General Meetings will be held at SLAAS at 0530 PM on the **last Wednesday of the month**. Please also monitor the RSSL net regularly on 145.625 MHz at 0900 PM and 145.650 MHz at 0930 PM for announcements of RSSL. You are welcome to contact any Council Member if you need to verify. Membership and ID Card applications can be obtained at the meetings. Membership renewals are accepted by the Treasurer at the monthly meetings. Renewals can also be done by posting a cheque or money order to him.

YATI REPEATER & 4S7B

A group comprising OM Wijey 4S7VJ, OM Arosha 4S6AK and OM Bharath 4S5BA had visited Yatiyantota repeater site, carried out needy repairs and put back the repeater in proper working order.
OM Asantha 4S7AK has performed repairs in 4S7 Beacon and it is back in operation. RSSL is waiting for reports from Dx locations to determine working condition of 4S7B.

FUTURE ACTIVITIES

The RSSL Council has decided to organize following events this year:

1. annual get-together with a fox-hunt event
2. VHF contest
3. an ISS Station in a school

NEW MEMBERS

The council has admitted Mast. J.G.L. Jayaweera to the student membership of the society.
CONGRATULATIONS: To Uthpola our QSL Manager from 4S6 to 4S7UV. We wish other 4S5 and 4S6s will soon get 4S7.

ECHOLINK FOR 24 HOURS

The Yatiyantota repeater will be connected to EchoLink for 24 hours for a limited period on experimental basis. Members can make use of this opportunity to contact Dx stations. RSSL wishes to thank OM Ranuka 4S5RD for spending his time and using his own equipment to provide this service.

SRI LANKA Back on UTC+5.30. As you know on the 14th of April at midnight Sri Lanka which was on UTC+6hrs put the clock back 30 minutes to go back to UTC +5.30 synchronizing the clock with India as well. There are many disadvantages and advantages as discussed in the media, which we do not need to go into here. However, one distinct advantage is for 40Metre HF operators on our Local 7060 kHz rag-chew net. During the low sun spot cycle and when the sun is deep in the Southern hemisphere and our sunrise is later than other times, the 7 Mhz bands opens only around 7.45 AM when the clocks are at +6 hours UTC. This made it difficult to keep activity going as 7.45 was too late for many who go to work/school to be on the bands. However, at +5.30 there is enough daylight at 7.15 A.M. for the band to open up and for a quick hi on 7060. Hope more and more folks will come up on the 7060 kHz frequency.

Talking of activity **Hemantha 4S7HP** made his first contacts using his home brew rig on 18/04 around 0230 UTC on SSB with good mod and excellent frequency stability. Hemantha will be demonstrating his rig in the not too distant future at one of the RSSL meetings after he irons out a few bugs. He was running under 10 watts into a dipole not more than 10 feet off the ground. Congratulations on your success Hemantha and I have no doubt that all hams here send their best 73 to you.

CONTEST INFORMATION – MAY 2006

Courtesy ARRL

ARI International DX Contest -- CW/SSB/Digital from 2000Z May 6-1959Z May 7. Frequencies: CW/SSB -- 160-10 meters; Digital -- 80-10 meters. Exchange: RST and Italian Province or serial number. Logs due 30 days after the contest to aricontest@kkn.net.

40th Annual Baltic Contest -- CW/SSB from 2100Z May 20-0200Z May 21. Frequencies (MHz): CW 3.510-3.600, SSB 3.600-3.650 and 3.700-3.750. Exchange: RS(T) and serial number. Logs due Jul 1 to lrsf@lrsf.lt.

His Majesty King of Spain Contest -- CW from 1800Z May 20-1800Z May 21 (SSB is Jun 24-25). Frequencies: 160-10 meters. Exchange: RST and serial number or EA province. Logs due Jun 21 (SSB by Jul 24) to concursoshf@ure.es.

CQ WW WPX Contest -- CW, sponsored by *CQ* Magazine from 0000Z May 27-2400Z .ay 28.

Full information is available at www.arrl.org/contests/months/may.html.

MEMBERS INFO: KAMAL 4S7AB

From: <mailto:4s7ab@sltnet.lk>Kamal Ediri 4S7AB
I have two items for the next newsletter. Please get them published.
1) 5 element homebrew 6m yagi for SALE !. Comes with the gamma match and all the attachments. Asking price is Rs3500.lxss
2) I took part in the CQ WPX SSB contest on the 25th and 26th March 2006. Completed 680 QSO. Thanks to all the 4S7 stations who spent their time to come up on HF and give me a point.
73 Kamal 4s7ab

4S7WP SHANTHI: Writes in to say that he has been very active on Echo Link and while he was in Houston Texas last year, had a special mission to contact as many terrestrial 4S stations via Echo Link as possible. He contacted 41 stations in Sri Lanka and another 3 Sri Lankans living abroad. Shanthi also says that he was able to get 4S7NB to come on EL from Australia and lined up another 8 stations for him. He has also been having contacts with Kusal 4S7KE now living in Australia and Romesh 4S7RF(ex 4S7NMR) who is also in VK land. So far Shanthi has contacted 105 stations in 23 countries on Echo Link. So there is plenty to work on the DX lands on Echolink if you like that mode or are stuck on VHF only due to technical reasons or your Novice Class license.

Let's go Mobile in Paradise Island

- By 4S7AB Kamal

Ham Radio has become a diverse hobby simply because of it's own horizons. CW to Digital communications, Terrestrial VHF to Satellite communications, Simple rag chewing to contesting are only a few areas to name. Mobile Ham Radio is another interesting facet of this wonderful hobby enjoyed by thousands world over.

You don't have to miss the early morning Long path opening to USA on 20m anymore, you can try to work them while driving to office. Getting stuck in a 1 hour long traffic jam is going to be fun hereafter because you can go on HF. You can go to the next JOTA in Hambantota while talking to the scouts on your way. You don't have to get frustrated anymore in the parking lot while your XYL takes her own sweet time in shopping. During the next trip to the 'world's end' you might want to wait at the Horton Planes and do some rag chewing with Indians on 40m while others take that 9km long walk. Welcome to the world of HF mobile.

Mobile HF operators have their own challenges and techniques. Often the vehicle body is not sufficient enough as a good RF ground for the lower bands from 30m and below. Modern day fiberglass automobile body parts make the situation worse. Therefore the operators will have to find ways to overcome these problems with compromised solutions. The other main issue is the heavy losses and hence remarkable inefficiencies in the vertical antennas with linear loading. Unless the operator is crazy enough to fix a 3-el yagi on the automobile, large percentage of hams survive with loaded verticals.

The mobile HF antennas evolved in a very nice fashion over the years. Initial antennas were fixed for a single band as a ¼ wave whip or a vertical with a fixed loading coil and sometimes with a top loading capacitance hat. Then the verticals came with a tapping for each band. But the problem was that the operators had to stop the vehicle and manually change the tapping for changing the bands. To overcome this situation, the motorized antennas came with the possibility of adjusting the amount of linear loading through a press of a button. The screwdriver antenna is one such commercially available solution for mobile operators. The modern mobile rigs can automatically adjust the antenna once the desired band is selected.

Another issue faced by the mobile operators is the ignition noise both in the TX and RX signals. DC filtering can be employed at various levels of the DC path to overcome the problem. Modern rigs have DSP based Noise Blankers which are very effective in fighting this problem.

Fast fading is very common in HF mobile signals since the RF ground conditions and terrain change from place to place while moving. But all of a sudden, you can see the signals peaking 20dB over S9 while passing a river, waterfront or a wet paddy field. Similarly, the RX signals get bombarded with RF hash when passing industrial areas.

Present day hams living in the urban areas have a challenge of limited space. Mobile operation is a nice solution for such hams all over the world. They can ride to an open space, mountaintop or to a beautiful beachfront and enjoy the hobby at leisure. Some extra gain can be obtained by throwing some radials to the water if needed. Further the hash and all QRN can be avoided when you go away from the town. Such mobile operators are heard on all bands and it is not very uncommon for them to get a 'priority' in a pileup.

There is HF nets and contests dedicated to mobile operators around the world if you are a contest chaser. Some major contests have a mobile category to encourage mobile operations. If not, HF mobile can give you continuous coverage independent of the VHF repeater coverage. This is also a very handy way to be prepared for disaster relief operations. It is always advisable to jump into such an operation with a previously tested setup.

In Sri Lanka, HF mobile operations were restricted until recently. I was able to get the first HF mobile license on the 6th of April 2006, after a seven-month waiting period. Everyone who can fix a HF mobile setup is encouraged to apply for the license and join this fascinating side of our hobby. I have completed my first 3 QSOs with Colombo based stations 4S7EA, 4S7WN and 4S7AA respectively on the 7th of April 2006 on 40m getting 57 while 'mobiling' from Attanagalla to Nittambuwa in my home area. Special thanks goes to the present and past office bearers who have pushed the authorities for obtaining the HF mobile licenses for ham operators.

I hope to see many more stations coming to this exciting area of our hobby

High Frequency Radio Propogation – Emphasis Sri Lanka
- Victor Goonetilleke 4S7VK

Getting a radio signal from one place to another, in very simple language, is radio signal propagation. Ionospheric propagation takes place when signals bounce off the ionosphere as opposed to ground wave, line of sight and satellite transmissions. The knowledgeable Radio Amateur does not get on the air and call CQ hoping for a call from somewhere in the world. A good understanding of HF propagation will enable the radio ham to plan operations and know when a certain part of the world could be heard and worked. Radio Signal propagation is the most challenging art in the field of radio communications. The best transceiver and antenna without an understanding of propagation will definitely not get one very far, while modest equipment and antennae with a good understanding of propagation will definitely give the radio amateur much better results and enjoyment. It might be worth considering some of the points below.

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- When a radio signal hits the Ionosphere(I), depending on the level of ionization it either bounces back(refracts), is absorbed or goes through it.
- When ionization is high, low frequencies are absorbed while high frequencies are refracted.
- When ionization is low, high frequencies go through the "I" and are lost in space while low frequencies propagate better.

From the above it is clear that during ***high solar cycle years***, higher frequencies perform much better, thus giving good reception over long distances on the higher bands. On the other hand low frequencies are absorbed to a great degree, thus giving poor long distance communication on the lower frequencies.
Correspondingly ***low solar cycle years*** provide much better low frequency long distance communication while higher frequencies perform much poorer than during high sun spot years.

The Next point to remember is that the amount of ionization over a region of the "I" depends on several factors. The cardinal factor is the Sun. Without the Sun not only wouldn't there be solar radiation either high or low, thus resulting in no radio communication, but life on Earth itself will disappear! Therefore, if the Sun is the main factor in the process of Ionization, it would be clear that regions of the world and their position in relation to the Sun at any given time, will be receiving varying levels of Ionization.

- The Sun has an 11 year(approx) solar cycle where the number of Sun Spots go from low to high and the number of Sun sports determine how much solar radiation falls on the "I"
- During Day time, the "I" will be charged more than at night.
- As the Sun rises ionization will more or less start and reach a peak during noon and start decreasing as we approach sunset.
- During winter months there will be less Ionization that in Summer.

If we take all the above factors it should indicate to us that, during years of the high solar activity, at noon in summer we should have the best higher frequency band conditions. On the other hand low frequencies will perform worst at that time. During low solar cycle years at night during winter the low frequencies will perform at its best while higher bands will be extremely poor. Since Sri Lanka is closer to the Equator the regions over it will receive more solar radiation than polar regions at any corresponding time. If the above factors can be understood and the 4S ham takes it in clearly, predicting communication possibilities will be even surer than reading a horoscope!! But it is not so simple because even though we are in the tropics long dx propagation paths will travel through polar regions, regions of daylight and darkness, winter, spring, summer or autumn depending on how far away the stations are, be they long or short path. But then when you design a piece or equipment haven't you got to take in voltages, capacitance, reactance, and so many factors and go about it? To add to all the above when there is a huge solar flare, the sun releases tremendous amounts of radiation that knocks out all communications by absorbing signals. During a solar eclipse for a moment or two we lose the effect of the sun even at noon, resulting in very unusual conditions
Radio Wave propagation is the most fascinating aspect of radio transmissions that I have ever experienced because there is the excitement of being able to predict as well as watch in awe as signals disappear in a massive solar flare or wait for a total or partial solar eclipse to skillfully bounce signals and establishing communications at times not normally possible. **(continued on page 4)**

On a more serious *mode on Satellite,* Shanthi has worked the ISS (the International Space Station) on the 18thMarch at 1400, and on the 19th at2400. He not only made a valid contact but also alerted Sena 4S5SS and 4S7LFG. The operator on the ISS at the time was Bill KC5ACR Commander Macarthur . We also understand that both contacts have been QSLd. His interests on the Satellite mode dates back to the times of the STF 45 29/3/1992 when at11 29 David Leesma handle Dave gave him a contact.
Congrats OM for keeping the interest going whether it was when at sea MM, on land and now restricted temporarily to VHF/UHF.

4S7AJ Athula is on the VHF bands and we welcome him aboard. May you long enjoy ham radio.

SUN'S NEXT CYCLE WILL BE STRONGER, SAY SCIENTICTS:
Mausumi Dikpati of the National Centre for Atmospheric Research in Boulder Colorado USA says that according to a new computer model the next cycle will be 30-50% more active than the present Cycle, potentially spawning magnetic storms that will be more severe and disruptive to communication systems.
.This is at odds with the previous prediction that the next cycle will be less active. Accurately predicting the intensity of the sun spot cycle which occurs about every 11 years, allows scientists to anticipate solar storms which are caused by solar flares, or giant eruptions on the surface of the sun. The next Cycle is also expected to begin a year later, in late 2007 or early 2008 which is later than previously thought

Solar storms eject billions of tons of plasma and charged particles into space that can create dazzling northern lights (aurora bolaris,) but also disrupt power lines, radio transmissions and satellite communications.

The last Sun spot cycle which peaked in 2001 caused extreme radio blackouts in the Pacific due to solar storms, but was not as intense as those that occurred in the late 1950s.

Dikpati of the National Centre for Atmospheric Research said that her team had tested the new computer model using previous solar cycle data and came up with 98% accuracy.

Dr. David Hathaway, a solar astronomer with NASA's Marshall Space Flight Centre in Hunsville Alabama does not doubt that the next cycle will be stronger than the previous. However, according to his research the next cycle will occur late this year. **AP (**condensed from the CDN 31st March**) sent in by 4S5AJ via 4S7WP.**

High Frequency Propagation cont…

Lets now look at some practical situations.

During late Nov/January/Feb we have the long path to California on 20m around 0100 open, because the signal travels over the southern hemisphere which is in summer, providing more ionization than during other months when the Sun is over the Northern Hemisphere.

When we look at 160m, we see propagation only when the signal path is in total darkness as 1.8 Mhz (160m) is a very low frequency band.

We also have much better signals during winter months than summer months even during darkness as there is less ionization resulting in less absorption during winter.

When we take 7 Mhz (40m) we see the band opening for local contacts only after sunrise and closing after sun set in low sun spot years(especially October-March), because the near vertical take off for the signal to be refracted needs high ionization. Therefore, if one needs to communicate locally before sunrise and after sunset one has to go down in frequency to the next available amateur band, 80m or 3.5 MHz because that lower frequency band needs less ionization than 7 Mhz. On the other hand during even low sun spot years 7 Mhz will open earlier and stay open that much later from April to September because there is more daylight resulting in more ionization during these summer months.

It is difficult to tackle such a vast subject in one page, but it is hoped that at least it gives some understanding of the subject to make our radio amateurs take an interest in signal propagation and get some understanding of this exciting side of Amateur Radio.

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