



FIVE AND NINE PLUS

THE OFFICIAL NEWSLETTER
OF THE
APPLEDORE AND DISTRICT
AMATEUR RADIO CLUB

Club Callsigns: G2FKO and GX2FKO
Web Site : www.adarc.co.uk

CLUB'S OFFICERS

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Chairman	Terry Adams	G4CHD	
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Editor	Terry Adams	G4CHD	

November, 2014

EDITORIAL

Welcome to another Club 5&9 Newsletter. After the last 2 months' of excellent talks by Peter Christie and our Secretary Alan, this **November's meeting** offers members a complete change as **John (G3JKL) will be entertaining us with a light hearted quiz.** If you are rubbish at quizzes - like me - don't worry as the object of the evening is to have a good time.



As always, any help in setting out the chairs etc prior to the talk would be much appreciated.

As mentioned in last month's 5&9, our Club will be helping the **Bratten Fleming Scouts on Wednesday, November 19th** to achieve their communications badge. A **2m vhf** transmitting station will be used - so **please listen out for GX2FKO** on the night between **6 - 7.30pm** on the club frequency of **145.450MHz** to enable the Scouts to get their necessary number of contacts.

The **Club Christmas Party** will take place on **December 15th** and will follow a similar pattern to last Xmas - ie entry will be **free**, with food, coffee/tea provided. Seasonal music - possibly live (!) will be played - and hopefully Dave will offer his customary enjoyable light hearted quiz. The customary Raffle will be held with the Club providing some tasty prizes but **members are also asked to bring a raffle prize** to make the draw a good one to end the night on.



As always, other halves are very welcome. Enjoy the Newsletter

Terry (G4CHD)

CLUB MEETINGS

Unless otherwise stated, Meetings are held at the Appledore Football Social Club starting at 7.30pm for 8.00pm. Visitors are always welcome.

For further information, contact Alan (M6CCH)

- November 17th** A Light Hearted Radio Quiz - by John (G3JKL)
- December 15th** Club Christmas Party
- January 19th** "Contests - Beauty or a Beast?" by Terry (G4CHD) & Mike (G3PGA)
- February 16th** "Whisper & WebSDRs" by Mike (G4KXQ)
- March 16th** Club AGM
- April 20th** TBA

YET MORE NOSTALGIA

One of the finest rigs that I ever owned - the Kenwood TS-830S. Valve output stage using a pair of 6146Bs. Only downside was the need to occasionally neutralise the output stage for it to work effectively on the 10m band.



REPORT ON THE OCTOBER MEETING

A BRIEF HISTORY OF POLICING TERRORISM by Alan (M6CCH)

As mentioned earlier, regrettably I was unable to attend Alan's talk and by all accounts I missed a very enjoyable evening.

I am therefore grateful to Alan for the following resume of his talk.

The talk began with the current threat levels and examined where they come from. Suggested threat sources included those from both Islamist extremists as well as from Ireland. Other possibilities were discussed including : animal extremism, left/right wing groups and developing themes. The legal side of terrorism, the groups, and solo players were discussed followed by considering the stages of terrorism and stages of an attack: ie planning, funding, equipment, and hostile recognisance. Finally a few case studies were examined to show what was involved. A very big thank you Alan for the huge amount of preparation that went into producing such an informative and interesting talk.

LOCAL SKEDS

- Zepp Net:** Mon, Tues, Thurs :
145.450 MHz **Wed**
via **GB3DN** 1600 local time
- 6m Net:** Wednesday, 8pm, **51.480 MHz FM**
- HF Net:** Friday at 1500 local time
7.145 MHz ± qrm
- Slow Morse:** Run by **Dave (G3YGJ)** every
Tuesday and Thursday, 7pm clock time
on **145.250 mode FM.**
- 70cm Net:** **Sunday, via GB3ND, 1100 - noon**
local time.
Available on Echolink node 221334

LOCAL REPEATERS

- 70cm Handy Cross Repeater/Echolink (#221334)**
Gateway (GB3ND)
User: Listen 433.35MHz– Transmit 434.95MHz
Access 1750Hz Tone (Timeout 4.25 mins)/ 77Hz CTCSS
Repeater keeper is Jeff (G4SOF)
- 2m Stibb Cross Repeater (GB3DN)**
<http://www.g0rql.co.uk/gb3dn.htm>
User: Listen 145.6375MHz - Transmit 145.0375 MHz.
Access 1750 Hz Tone or 77 Hz CTCSS Repeater keeper is
Tony (G1BHM).
Yahoo users group for general chat and banter at :-
<http://groups.yahoo.com/group/GB3DN/>

SUDOKU PUZZLE

The aim is to enter a number into each cell so that **any column, or any row, or any block of cells contains all numbers from 1 to 9.**

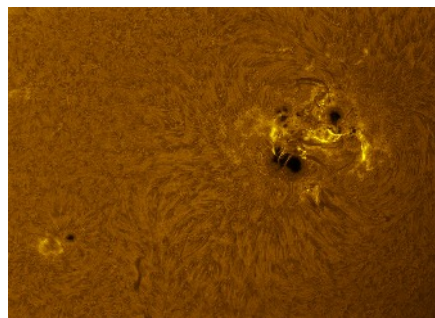
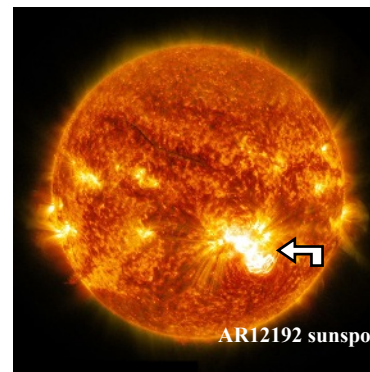
					8			
	2				3		4	7
1			7	9				
8		2						
5	3	4				2	6	9
						8		1
				6	1			4
9	6		4				5	
			8					

Terry (G4CHD)

OCTOBER SEES ONE OF THE LARGEST SUNSPOTS IN CYCLE 24

Many thanks to Dave (M0JAP) for the following info :-
As of October 23, 2014, AR12192 is now the biggest sunspot in 2 solar cycles. Just yesterday is reached the rank of largest sunspot in cycle 24.

The sunspot measures a whopping 2700 microhemispheres (MH or millionths of a visible solar hemisphere). Now it has surpassed AR10486 (2610 MH) of the famous 2003 Halloween storms. It is the largest sunspot since AR6368, which measured 3080 MH on November 18, 1990. This makes AR12192 is the largest in almost 24 years!



A reminder for scale - the surface area of Earth is 169 MH making this latest massive sunspot the size of approx 16 Earths!

CROSSWORD

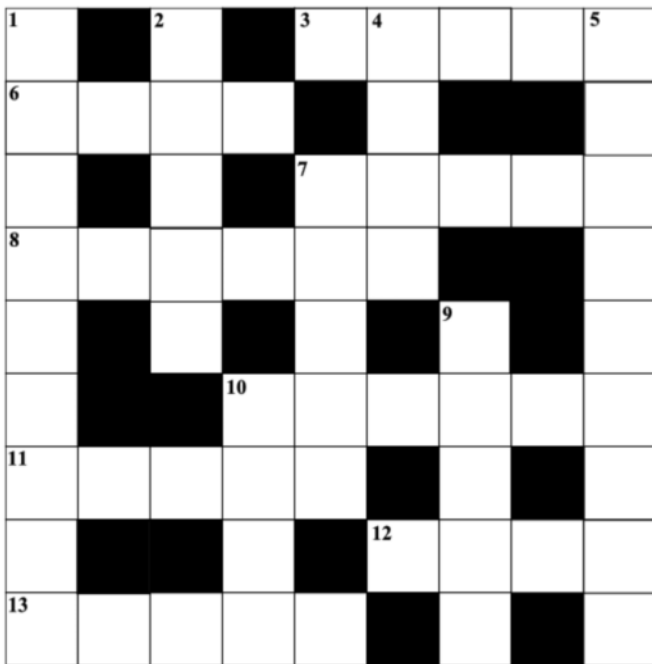
This month's Crossword is by Stuart (M1FWD).
The answers will be published in the next month's Newsletter. Good luck !

Clues Across

- 3) ? And Howland islands, Kilo Hotel One (5)
- 6) The first man, in the biblical and Koranic traditions (4)
- 7) Victor Kilo Zero island (5)
- 8) Common mechanism in printers (6)
- 10) Weeping (6)
- 11) A device activating changes in an electric current, etc. (5)
- 12) This river forms the border between Cambridgeshire and Norfolk for about 3.7 miles (4)
- 13) A combined device for modulation and demodulation (5)

Clues Down

- 1) A picture obtained by X-rays, gamma rays, etc. (9)
- 2) ? Ickx, former Belgian racing driver, six times winner of the Le Mans 24-hour event (5)
- 4) Encourage or assist (an offender or offence) (4)
- 5) Three Bravo Nine island (9)
- 7) The SI unit of inductance (5)
- 9) Five Uniform country (5)
- 10) A Faraday ? Will shield its contents from static fields (4)



Last month's answers :-

Across 1) scarab 6) Iowa 7) Fresno 9) dissipate
11) Oregon 12) hour 13) skewer

Down 2) cardio 3) resistors 4) biosphere 5) var
8) otiose 10) mho

Stuart (M1FWD)

TIME, GRAVITY AND RECENT ATOMIC CLOCK DEVELOPMENT

As many of you may know, Dave (M0JAP) is very interested in the concept of time and its implications and the difficulties in its accurate measurement. The following article by Dave raises some fascinating issues and is worth the read.

The following web reference :-

<http://www.npr.org/2014/11/03/361069820/what-time-is-it-it-depends-where-you-are-in-the-universe>

led to some chatter on the time-nuts discussion forum, to which I am addicted, and that in turn led to this decent article along the same lines: -



'Time Too Good to Be True', by Daniel Kleppner, in Physics Today, March 2006, page 10 as reported in :-
http://scitation.aip.org/journals/doc/PHTOAD-ft/vol_59/iss_3/10_1.shtml

A rather nicely written comment by Tom van Baak, founder of time-nuts, is well worth careful consideration (in quotation marks below). He has taken his children up Mt Washington for a couple of days along with a few of his atomic clocks and battery packs on sleds (he has a huge selection of clocks in his specially modified house) and verified well relativity theory's predicted effect on the ages of his clocks (and the family). The children are a little older than their school friends now, but only by ~ 20ns. J
"When it comes to frequency standards the official SI second is defined only for sea level. We know time and frequency are "bent" by speed or gravity; time is the integral of frequency; and frequency is a function of height (h) by approximately gh/c². It's that simple. But it's a very tiny effect.

Planet gravity fields decrease quadratically over large distances (1/R²) but approximately linearly near the surface. So here on Earth, with g = ~9.8 m/s² and c = ~300,000 km/s, frequency increases by about 1e-18/cm, or 1e-16/m, or 1e-13/km. This is called gravitational time dilation, or blueshift.

Now, for amateurs like us who just make things at home or buy and repair atomic clocks on eBay, numbers like 1e-18 and 1e-16 are completely out of range: that's what government labs are for. But the 1e-13 number is interesting, and approachable - especially if you live near a tall mountain.

If you take a 1e-14 stable caesium clock up 1 km, it will run fast by about 1e-13 (in frequency) and thus it will gain about 10 ± 1 ns per day (in time, or phase) compared to a clock left down at home. These days, time differences at the nanosecond level are easily measurable - so that's what I did with <http://leapsecond.com/great2005/>

Of course, NIST & USNO always have much better clocks than we do, so they can measure the effect of smaller elevation changes, over smaller time scales. Just amazing.

Maybe we'll be able to buy an optical clock on eBay 20 years from now.

Note that their clocks are not (yet) portable and consequently you can make a more accurate gravitational time dilation / general relativity measurement at home by taking vintage hp 5071A caesium beam microwave clocks up a tall mountain than they can with record-setting strontium optical clocks inside a NIST building.

Essentially, if you take a clock to high altitude for a weekend you create a super-duper blueshift "microscope". Instead of unimaginably small numbers like $1e-18$, I went up about 1340 meters (instead of just 1 cm) and I stayed up there about 42 hours (instead of one second). Thus my cm-second "magnification factor" was $1340 * 100 * 42 * 3600 = 20$ billion! That reduces a crazy tiny number like $1e-18$ to a real, tangible, measurable, fun-with-family, DIY time dilation number like $2e-8$, or 20 ns. /tvb"

Incidentally, when I retired I had over 0.8million frequent flyer points – and many carriers I had used did not grant such specious 'rewards', so this figure under-estimates. So all this has got me thinking. I've been estimating how much older I am as a consequence of all that uncomfortable and stressful flying I did over the years and have concluded that my human rights have been impaired in an additional small way that those drafting the UN Universal Declaration of HR never foresaw. Relatively speaking, of course ...er, I mean relativity speaking.... ;-)

Dave (M0JAP)

Well that's it for another month, enjoy the read.

If any member has written an article that they feel would be of interest to Club members, please send it in to me and it will make your Club Newsletter all the more interesting. This is particularly relevant as my article on Frequency Modulation in the October 5&9 did not raise a single comment suggesting that perhaps such articles are not required.

Terry (G4CHD)