THE EMITTER

Information and Resources for Amateur Radio

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NARC Activities

Club Nets

NARC VHF Net
Tuesdays@19:30 on VE6HM-147.060MHz

New Hams Net
Thursdays@ 9:30 on VE6NHB 145.410MHz

6m SSB Net
Sundays @ 21:00 on 50.140 USB

The Emitter

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Send corrections, articles, and news to emitter@narc.net
Contact the NARC Treasurer for advertising rates

Contents

President's Page

Winds of Change

My my, it has been windy these last few days. Coupled with the near-freezing overnight temperatures of late, the leaves will soon be turning yellow and falling and we'll be hunkering down for the Winter. These windy September days remind me that everything changes, everything is cyclical and Winter is coming, whether you like it or not. You only have a few precious weeks left to make sure your outside antennas are fit for the coming months, but at least huddled up in your hamshack, you can turn your attention away from the cold outside and to the warm glow of a radio's display. Perhaps your shack is heated by a nice set of valve finals on that kilowatt amp! I notice that the HF bands tend to become more active over our colder months and I'm pretty sure it's simply due to being adverse to the cold.

"Winds of change" is an interesting saying. It can be taken figuratively and quite literally too. It is of the winds of change blowing across the Amateur community that I want to speak this month, now that we (N.A.R.C.) are holding our first general meeting after the long Summer break. "Winds" might be too harsh a word. Perhaps "gentle breeze" would be better. At almost every meeting I attend, whether it's a formal club business meeting or just a social coffee grab, I hear the same thing about the dwindling numbers of Amateurs involved with the club and participating with club events. I know, I know, we've beaten this point around many times before, and honestly, we will continue to, because if we are to keep a hold of our part if the radio spectrum to continue our hobby, we must remain a strong force and we must be visible to our community and our government. Yep, I know that I'm young and a bit naïve, but I still remember why I sought to be re-licensed after dropping the hobby for over a decade and a half. It was my daughter and her interest in science and my realization that Amateur radio is something that I can share with her to expose her to physics, mechanics and science in general. More importantly, it is a source of quality time...something that also seems to be dwindling these days. I want this hobby to be around when she's grown and has children of her own so that maybe one day she might share her time and knowledge to future generations.

On the other end of the spectrum, an unfortunate but undeniable fact is that a great many of our Ham population are well into their senior years and sadly wont be with us in as little as a decade or two. Yes I know, I'm not quite at mid-life yet, but I'll tell you one thing, the finality of life and the realization of just how short a time-span we walk in this world, is becoming more and more alarming to me every day. However, I gain solace in the fact that we all have legacies and our actions today will ripple through tomorrow, and the day after that. So with that in mind, I pose this question to you: Where do you want to see our great hobby and the Northern Alberta Radio Club go in the future?

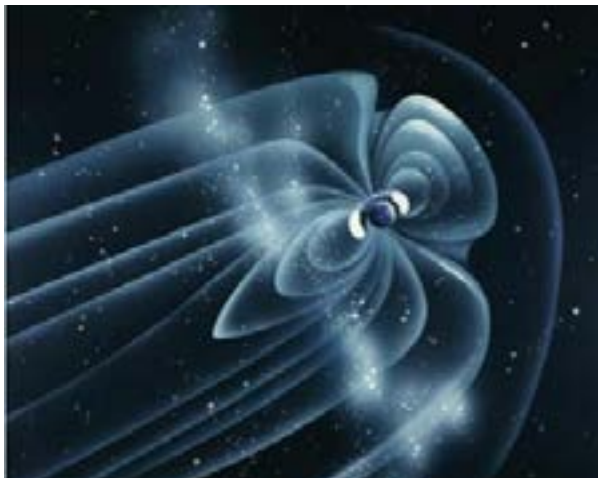
Another undeniable fact is that our membership is dwindling. A decade ago, this club was well over 600 strong, but now we're a quarter of that. This is despite the fact that the number of Amateurs in Canada is now rising at around 3000 per year. In my mind, I believe we as a club need to ask two primary questions; 1) What are we doing for our community and 2) What are we doing for our members? These two questions have been in my forethoughts since taking the position as Club President and I have some ideas to present to the club in the coming months, but more importantly, I want to hear from you. I want to hear your thoughts. To me, I feel that the relationship between the club members and the executive has become a bit topsy-turvy of late, in that the membership has been generally quiet and the executive has been left to its own devices to steer and run the club. However, I can't stress enough that the primary function of the executive is to carry out the wishes of the membership. That's you! The AGM is coming up in November and 1/2 the executive positions will be up for election, including mine. It's imperative that you carefully consider your candidates and it's even more important that you tell the executive where you want the club to go.
As inevitable are the winds of change, the direction from which they blow is entirely up to you.
73 for now,

Keehan – VE6XVK
President, N.A.R.C.
president@narc.net

Space Weather Basics Part 2: The Aurora

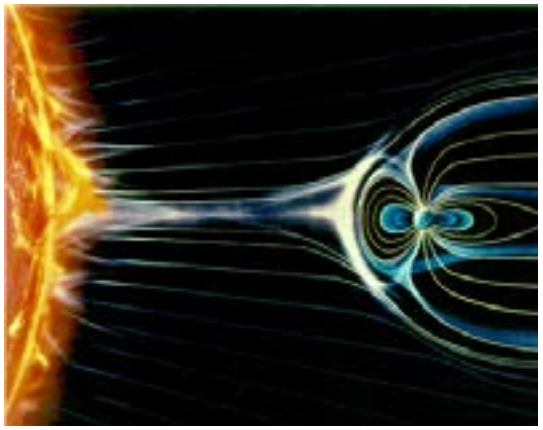
(all images courtesy NASA)

Last time I made an attempt to introduce the types of phenomenon occurring and factors causing and affecting space weather. The main driving force for these things is our friend the Sun. The most widely recognized and commonly experienced of these phenomenon are the aurora. Aurora Borealis occur in the northern hemisphere and are known to most of us as the northern lights. Their counterpart occurring in the southern part of our globe are called Aurora Austrialis. Aurora occur when the plasma expelled into space by the Sun interact with the magnetic field of the Earth. The magnetosphere is the area around our planet in which it's magnetic field has an influence. If the Earth was not moving through space and wasn't pushed upon by the solar wind then the magnetosphere would be fairly symmetrical and have more or less equal influence all around the globe except being more intense in the area of the poles. As the Earth is in constant motion in it's orbit around the Sun the magnetosphere is compressed toward the planet in the direction of movement and stretched out on the trailing side.. When the plasma and particles coming out of the

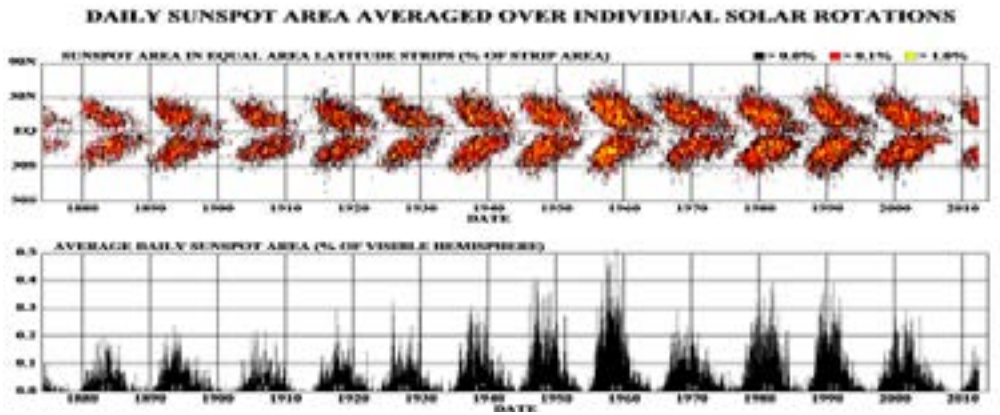


Sun collide with the magnetic lines of force on the leading edge they are mostly deflected around the planet and out to the trailing side. It is this effect that provides us with protection against all of these energies and particles. Without the influence of this magnetic shield all of these things would fall onto the face of the planet and very probably would make the planet uninhabitable. Because the magnetic lines of force are compressed on the leading edge they are closer together and possess more strength than on the trailing side of the field. The weaker lines of force on the trailing edge interact with the plasma that was deflected from the leading edge. Where these interactions occur the plasma follows the magnet field lines and are deposited around the poles. It is these deposits that we see interacting with the atmosphere as aurora. . The more intense the plasma coming off of the Sun, the more intense and widespread the aurora. Another factor affecting this is the polarity of the plasma. If the plasma is polarized opposite to the magnetic lines of force in the magnetosphere the intensity of resulting aurora are increased.

In the regular course of it's life the Sun has been observed to go through regular cycles in which sunspot activity rises and falls in a fairly regular pattern. This is known as the sunspot cycle. These cycles repeat themselves every 22 years. At the mid-point in each cycle, about every 11 years, the Sun's magnetic field reverses itself. Generally it is during periods of high sunspot activity when there is an increase in both solar flares and coronal mass ejections which greatly increase the amount of plasma which will interact with everything in their path. All of the factors involved make for a very complicated process! Records have been kept for quite some time and when represented graphically the data set forms an interesting shape



known as the butterfly diagram. It is of major interest to us as amateur radio operators how all these things affect the atmosphere and the corresponding affects on radio propagation.It is a whole study in itself and I look forward to reading more about it myself but wouldn't presume to understand it. I hope to learn more through my research and maybe someone out there will get inspired and write an article for us on these things. I'm sure there are those out there who have a better understanding of these interactions than most.



I hope that this little article has explained some of how aurora happen and why. I know I had fun researching it and wish I had more time to spend on it. Alas, I have to leave it at this for now but I will keep writing a few more of these until I have at least touched on the causes and effects of the various things under the heading of Space Weather. Hope everyone had a great summer and talk to you on the bands.

73 Mike/VE6XZM

News From RAC

RAC Bulletin 2012-054E - Two Commercial Operations Evicted from Two Meter Band

2012-09-07

Following investigation into several member complaints, the Radio Amateurs of Canada is pleased to announce that two cases of frequency incursion have been resolved.

In the first, a transportation company based in Reinfeld, Manitoba was observed to be operating illegally on 144.100 Mhz. In addition to operating inside the amateur radio two meter band, this operation posed a threat to low signal operations across a wide portion of North America. The company in question had purchased VHF radios from a US based supplier who failed to indicate correct licensing procedures. Upon contact from RAC, the company agreed to immediately cease operating in the two meter band and shifted their operation to a business band frequency. Industry Canada was notified of the incursion and continues to work with the company to secure a licensed channel.

In the second matter, a home moving company was observed to be operating on 144.940 Mhz. The company is based in Winkler, MB but the operation was observed in Alberta during the moving of a house. In this case, the company had already licensed frequencies with Industry Canada. They had requested 144.940 Mhz as a channel. Their request was denied by Industry Canada and a business band channel was issued. However, the company failed to check their license paperwork and assumed they had been approved for their requested channel.

The moving company was also contacted by RAC and agreed to move their operations to their correctly licensed frequencies. Given their wide geographic operations Industry Canada has licensed their operation on four separate channels including 140.730, 154.325, 158.940 and 151.730.

In both cases, it appears that channels in the two meter band were chosen by these businesses because their new vhf radios defaulted to that frequency range. As well, both businesses indicated they could simply dial a new frequency into the radio to move out of our band. This is strong cause for concern that the actual radios being used are modified Amateur Radio equipment. The use of equipment intended for Amateur Radio operation outside of the Amateur Bands or by persons who do not hold an Amateur Radio Certificate is illegal.

Action on these and other incursions has been made possible by quality reports from monitoring stations. RAC thanks those Amateurs who have provided assistance in these specific files. The strong national voice for Amateur Radio that the Radio Amateurs of Canada provides is made possible by members across our country and associate members beyond our borders. You can find out more about the benefits of membership for you and the benefits to Amateur Radio as a whole at www.rac.ca

Reports of confirmed or suspected illegal operation should be sent to regulatory@rac.ca

Bill Gade, VE4WO
Regulatory Affairs

The Edmonton Gorilla Run is a charity fun run with a difference. Everyone who takes part wears a full gorilla costume - from fluffy head to furry toe - and helps raise funds for the Mountain Gorilla Conservation Fund, the international charity working to save the world's last remaining mountain gorillas and keeping Dian Fossey's dream alive for the past 27 years.

Pictures from the September 8, 2012 Gorilla Run

The "New" HM Repeater System

Contributed by VA6TK David Beale

Preface:-

The HM repeater system consists of five repeaters,

1. VE6HM, located on the east side of Edmonton, just south of Baseline road and west of highway 216. Channel 2 on the ARES list- Tx 147.060 MHz Rx 146.460 MHz, 100 Hz CTCSS
2. VE6UV, located on the University of Alberta campus. Channel 1 on the ARES list- Tx 147.090 MHz Rx 147.690 MHz, 100 Hz CTCSS (normally unlinked)
3. VE6PLP, located just west of Falun Alberta by Pigeon Lake. Channel 3 on the ARES list- Tx 147.240 MHz Rx 147.840 MHz, 100 Hz CTCSS
4. VE6JN, located on the roof of the River Cree Marriot Hotel. Channel 4 on the ARES list – Tx 147.330 MHz Rx 147.930 MHz, 100 Hz CTCSS
5. VE6TNC, located close to Chipman Alberta outside the NE corner of Elk Island park.Tx 146.610 MHz Rx 146.010 MHz, 100 Hz CTCSS
6. VE6HM 70cm, same location as 2 m. Channel 22 on the ARES list- Tx 444.100 MHz, Rx 449.100 MHz, 100 Hz CTCSS

The repeaters are normally "linked" together by a 70 cm linking system. That is, if you access any one of the five, the other four also repeat your audio signal. Note that UV, PLP, JN, and TNC use "simplex links", which means they can only receive or transmit, not both at the same time on the link as the 70cm HM to 2m HM can. That can have effects during operation. Note also that the ARES group as requested UV remain unlinked, though it can be linked at any time by users. That link will time out after 5 min of no use.

You can unlink any of the repeaters from the 70cm linking system. Most of these commands will work from any one of the five repeaters, even though you may not be able to directly contact the repeater you may be controlling. You can also use one in a "stand alone" unlinked state, for example, for an ARES incident or a community event. These commands unlink the repeater and leaves it that way until a second command is given to relink it.

The following commands were created with simplicity in mind, and they can be figured out rather easily as they were created by the following process:

1. All commands begin with a controller number (1a and 1b to 5).
2. To link use a “1” and to unlink use a “0”. e.g. to link UV send “21*”.
3. All commands end with a “*”. This is because the new controllers (SCOM 7330) require that character to act on a command – the Link Comm. controller codes were changed to be consistent with this.
4. Note that a command is acted upon when PTT is released, so you must have a good signal to the repeater you are using to issue the command and you must hold the PTT until you have sent the complete command. Note also that the Link Communications controllers at the HM site are linked together via virtual ports digitally, and as such there is no PTT release detection. So a “D” is required (it’s interpreted as a carriage return) to have a command executed across the virtual link. e.g. you want to bring up the SARA link from HM VHF – the SARA link is on controller 1b and the HM VHF repeater is on controller 1a, so you would send the code “662*D”. If you were doing this from the SARA backbone you would only need to send “662*”.

Because the commands were created this way, it -should- be possible to figure them out without having a “cheat sheet” handy to look them up. At least, that was the intent.

So here they are, have fun!

The commands have been simplified as follows:

Link Command :-

1. HM VHF- 1a11*
   HM UHF - 1a21*
   HM link repeater (links all slave repeaters except UV) -1a31*
   HM 220 repeater - 1a41*
2. UV - 21* (unlinks after 5 min of no activity on the system)
3. PLP - 31*
4. JN – 41*
5. TNC - 51*

Unlink Command :-

1. HM VHF – 1a10*
   HM UHF – 1a20*
   HM link repeater (unlinks all slave repeaters) - 1a30*
   HM 220 repeater - 1a40*
2. UV - 20*
3. PLP - 30*
4. JN – 40*
5. TNC - 50*

Auto Patch (access):- (on VE6VPR)

Manual dial – A1 then the number.
Speed dial – A1 then the speed dial number.
Exit autopatch – A0
Reset autopatch timeout – A3

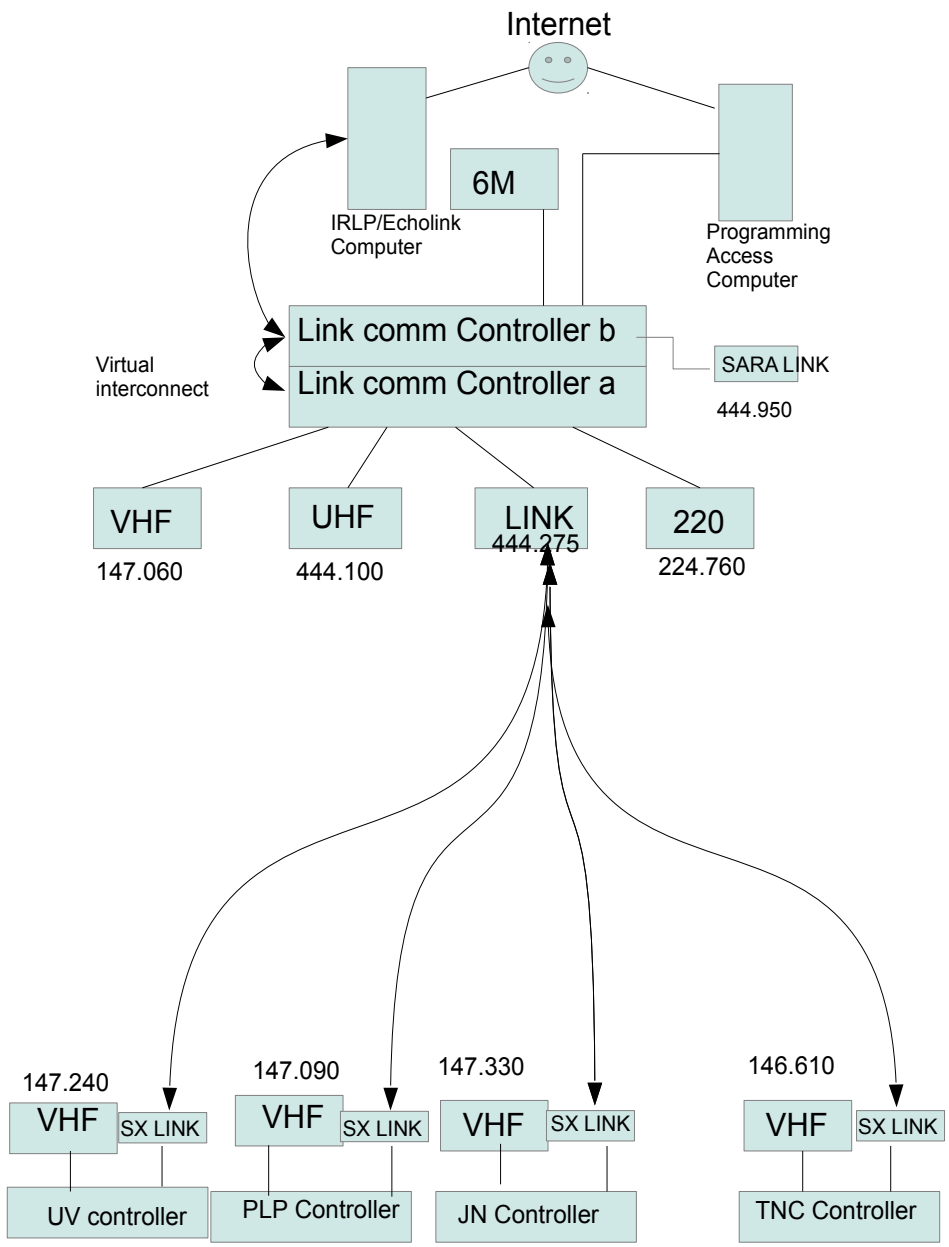
IRLP (access):-
From any of the four repeaters whenever they are in “normal” operation (linked). Just dial the four or five digit code for the IRLP site you want to link to. To disconnect, dial 73.

Time/Date readback :-
HM - 18463* (TIME=8463)

Battery voltage readback :-
HM - 12288* (BATT=2288)

HM to SARA Link -
Link from SARA - 662* from HM - 662*D
Unlink from SARA - 663* from HM - 663*D

HM SYSTEM as of 2012-09



Edmonton Area Frequency List

ARES CH	Call Sign	Output	Tone	Location	Additional Info
1	VE6UV	147.240+	100 Hz	Uof A	
2	VE6HM	147.060-	100 Hz	HM Site	Echolink (node*) IRLP (node) Exit 73
3	VE6PLP	147.090+	100 Hz	Falun	Echolink (node*) IRLP (node) Exit 73
4	VE6JN	147.330+	100 Hz	Marriot	Echolink (node*) IRLP (node) Exit 73
5	VE6VPR	145.290-	100 Hz	HM Site	
6	VE6VPR	147.150+	none	Mobile	
7	VE6NC	147.015+	100 Hz	Mobile	
8	VE6NHB	145.410-	114.8 Hz	Sherwood Pk	
9	VE6QCR	146.640-	100 Hz	N of Spruce G	
10	VE6RES	147.120+	100 Hz	Cent Edmonton	IRLP (node) Exit 73
11	VE6PRH	147.360+	none	Edmonton	
12	VE6PAW	147.180+	100 Hz	Edmonton	
13	Simplex call	146.520	none		
14	Simplex	146.550	none		
15	Main Simplex	145.695	none		
16	Simplex	145.580	none		
17	VE6SS	146.880-	none	S of Falun	
18	VE6LAW	146.940-	100 Hz	St Albert	Echolink (node*) Exit 73
19	VA6XG	147.420	110.9 Hz	simplex	
20	VE6OG	146.490	none		Echolink (node*) Exit 73
21	VE6OG	146.850-	100 Hz	Edmonton	
22	VE6CCW	147.270+	none	Edmonton	
23	VE6AFP	147.210+	none	Edmonton	
24	VE6RPA	145.190-	none	Edmonton	
25	VE6FDX	146.835-	none	Edmonton	
26	VE6ALM	146.685-	100 Hz	N of Smoky Lk	Echolink (node*) IRLP (node) Exit 73
27	VE6TOP-2	147.300+	100 Hz	Wabamun	Echolink (node*) IRLP (node) Exit 73
28	VE6TNC	146.610-	100 Hz	Chipman	
29	VE6TOP-1	147.285+	100 Hz	S of Wetaskiwin	Echolink (node*) IRLP (node) Exit 73
30	VE6TOP	147.390+	100 Hz	S Edmonton	Echolink (node*) IRLP (node) Exit 73
31	Simplex Call	223.500	none		
32	Simplex 32	223.520	none		
33	Simplex 33	223.540	none		
34	Simplex 34	223.560	none		
35	Simplex 35	223.580	none		
36	VA6RS	224.560-	123 Hz	U of A	

Edmonton Area Frequency List Cont.

ARES CH	Call Sign	Output	Tone	Location	Additional Info
37	VE6DXD	224.640-	88.5 Hz	TBA	Future
38	VE6MC	224.700-	100 Hz	Edmonton	
39	VE6HM	224.760-	100 Hz	HM Site	
40	VE6HM	444.100+	100 Hz	HM Site	Echolink (node*) IRLP (node) Exit 73
41	VE6GPS	444.400+	none	W Edmonton	
42	VE6SBR	444.800+	103.5 Hz	TBA	Offline
43	VE6NHB	444.950+	114.8 Hz	Sherwood Pk	
44	VE6NC	442.275+	100 Hz	Mobile	
45	VE6HM	444.275+	DCS	HM Site	
46	VE6EDM	444.750+	none	Cent Edm	
47	VE6TOP	444.700+	100 Hz	E Edmonton	Echolink (node*) IRLP (node) Exit 73
48	VE6TOP-4	447.750-	100 Hz	Morinville	
	VE6KM	145.470-	DV	HM site	Dstar
	VE6KM	444.900+	DV	HM site	Dstar
	VE6KM	1287.5-	DV	HM Site	Dstar

Calendar of Events

- Edmonton Gorilla Run: Sept 8 - Runners in full Gorilla costumes run 5k
- Edmonton Motorcycle Toy Run: September 30 - 3000 motorcycles in Hawlrelak
- Edmonton Fall Classic: October 14th - 5 and 10 mile runs
- Tuxedos, Gowns, and Hot Dogs: November 4th 10k run at 1:59 AM - fastest 10K in North America
- Strathcona County Christmas Bureau - Mid December, there is also a mid-November set up day

Anyone wishing to volunteer to help out with any of these events please contact Patrick VE6PY, email: ve6py@narc.net

Also: NARC breakfast Sept. 22nd, 9-10 am. Menu to be determined