

# HOT BANANAS

Oakville Amateur Radio Club

January 2005

## VE3HB



**Meetings:** The Oakville Amateur Radio Club meets on the second Monday of the month at 7:30 p.m. The January to April meetings will be held at the Oakville Fire Department Training Campus at 1144 South Service Road West.

**Breakfast:** We also meet for breakfast at 7am most Saturdays at *Angel's Diner*, at 369 Speers Road.

**Coffee:** Finally, we meet at Friday 10:30 a.m. for coffee at Tim Horton's on Cross Ave.

Please join us at all these meetings: All current and future radio amateurs are welcome!

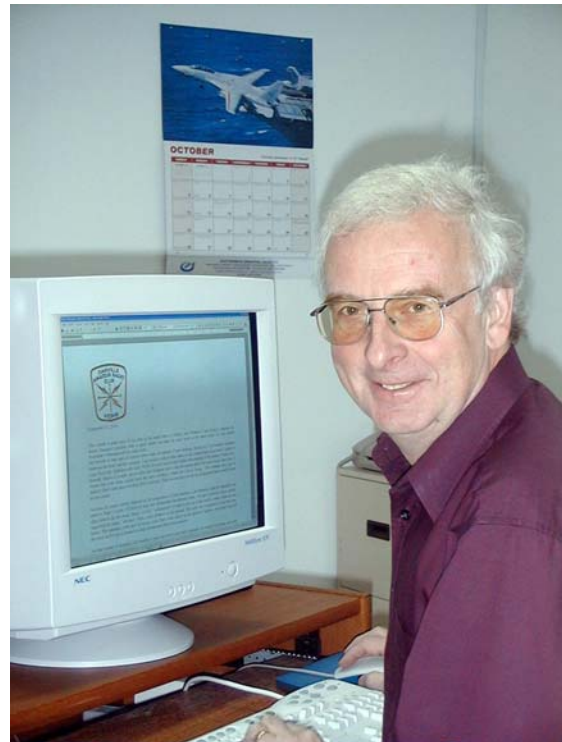
VE3OAK - 147.015 +.600 (131.8Hz CTCSS)  
VE3OAK - 444.325 +5 MHz

**NET:** Mondays at 7:30 pm (except meeting nights and holidays) on 147.015 VHF.

[www.oakvilleamateurs.net](http://www.oakvilleamateurs.net)

## President's Message

January 2005 – here we come! Walking in the New Year with a bunch of good resolutions and enthusiasm. I mean walking imaginatively. Do not try to leave your easy chair in front of your radio rig.



I hope your Christmas holiday was a relaxing time and you found some presents or at least a money order under the glistering tree to buy new radio gear.

First, I would like to wish you all the best in the Year 2005, many satisfactory hours in front of your radio and many happy hours in the circle of your ham radio friends.

We finished the year 2004 with OARC's traditional Christmas Dinner and it was nice to see so many club members in lively and friendly discussion. Sometimes I wonder – shall we have our meetings at some cozy restaurant ....? After all, the atmosphere at the breakfast gathering every Saturday morning proves this.

Any suggestions?

Last year our club had some ups and downs and as far as I can say, we were able to overcome all obstacles. As a club, we are starting this year in yet another location for our meetings. Thanks to the hard work of Russ, VE3JUZ who secured the meeting room at the Oakville Fire Department Training Center on 1144 South Service Road, we can have the meetings and presentations at this modern facility. For detailed directions to this location and a map, visit our web site: [www.oakvilleamateurs.net](http://www.oakvilleamateurs.net)

Our next meeting will be on January 10<sup>th</sup>, 2005 @ 7:30pm. I invited Peter Shilton, VE3AX as this month's speaker, he will talk about his favorite vintage radio, Drake. Peter always has plenty of pictures and interesting stories to share.

For our February 14<sup>th</sup> meeting, Jim, VE3YZA invited Don Agro, VE3VRW. Don's presentation will be on satellite communication.

Jim is doing a really good job in finding speakers for our meetings. Just remember Mr. Bertuzzo and his QRP equipment presentation, and our December visit to Star Choice Company and others. Needless to say, we need more people like Jim and organizing club activities will be just smooth sailing.

Speaking of club activities! I believe that one of the greatest benefits of being in a ham radio club is helping each other install and repair radio equipment. In my November President Message I mentioned my misfortune in building an antenna in my backyard. Yes, I drilled a hole in my hand and subsequently I had only one (fortunately right) hand available to do some work. I tried hard to work on the antenna with the help of my wife. She would hold the parts together and I would turn the screwdriver. But!! Very soon I realized, that eventually I might have the antenna standing on my backyard, but I also might be a single bachelor.

I mentioned my situation at Saturday's breakfast table and the next weekend I had a bunch of guys helping me to reinstall the vertical antenna and a weekend after, the quad/yagi was shining in the winter sun.

The attached pictures tell only part of the story. Yes, it was a cold day, it was a windy day and on top of it we had a bit of drizzle. But we persevered!! Here comes the time to praise the effort of Derek, VE3DDL. He was the one standing on the tower and with his strong voice commanding, which rope to pull and what screw to tighten.

For myself, I could only say THANK YOU guys. I am in debt to you. And for next time, I promise to start to work on my antenna in balmy June weather. Never mind that the general wisdom says otherwise.

I appreciated all that antenna work during the Christmas time, when I was able to enjoy a good signal and talk to the other amateur radio operators.

Yes, the spirit of our hobby is in the cooperation and shared enjoyment. I believe, that in the upcoming year 2005 we will have plenty of opportunities to prove it.

73, Denny  
VE3OKD

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## Executives & Coordinators

President	Denny Zidek	VE3OKD
Vice President	Brian Kremer	VE3DNF
Secretary	Greg Foster	VA3GGF
Treasurer	Jim Byers	VE3YZA
Director	Russ Schwandt	VE3JUJ

## Club Coordinators 2004-2005

Membership	Russ Schwandt	VE3JUJ
Meeting Programs	Denny Zidek	VE3OKD
Emergency Services	Rick Harrison	VA3NV
Assistant Emergency Coordinators	Russ Schwandt	VE3JUJ
	Jack Livingstone	VE3ITM
	Rob Hagley	VA3WXR
VHF Net	Denny Zidek	VE3OKD
	& Club Directors	
Repeater Maintenance	Greg Foster	VA3GGF
	Harry Kosterman	VA3EC
	Gary Hetherington	VE3TGH
Web Site	Brian Kremer	VE3DNF
Bulletin Editor	Ian Amos	VE3ESH
Training and Examiner	Jack Livingston	VE3ITM
Public Relations	Peter West	VE3HG

## Editor's Note

Welcome to the winter issue of Hot Bananas for the 2004 / 2005 club year. Well we have had a great meeting in November when, Serge Bertuzzo, VE3SB, gave a full-featured presentation on QRP. This included dozens of actual QRP kits that Serge has built himself.



This bulletin will be quite short because just before Christmas I fell and fractured my right shoulder, making typing difficult to say the least.

So I hope you have all had a great Christmas and will have a Happy New year.

Hope you enjoy the bulletin and see you on January 10<sup>th</sup>, 2005 @ 7:30pm for our next meeting.

73s  
Ian, VE3ESH

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President Denny Zidek, VE3OKD

**Denny has his vertical relocated to make way for his new Mini-Quad**



# HF Propagation Part 4a - The Layers within the Ionosphere

By: Ian S. Amos, VE3ESH

## Introduction

In my last article, HF Propagation Part 3 – Improving Propagation Predictions, I outlined how to improve your propagation predictions, by fine-tuning your propagation model in W6ELProp. Also, I outlined GrayLine DXing. In this article I will review the various layers within the ionosphere and how each layer effects propagation.

## The Ionosphere

The earth's atmosphere is made up of a series of layers. They are the troposphere, stratosphere, ionosphere and lastly the magnetosphere. The ionosphere is the region or layer responsible for most of our HF propagation and it is also made up of a series of layers, each with it's own unique effect on propagation.

## The "D" Layer

The first layer is the "D" layer, which is located from 37 miles to about 57 miles above the earth's surface. The "D" layer is relatively close to the earth's surface and is therefore still fairly dense. This means that ions will collide and knock electrons free (ionization) and then recombine quickly into neutral atoms. This ionization occurs shortly after sunrise and dissipates quickly after sunset. The longer the wavelength of a signal the more energy will be absorbed because the signal spends more time in the "D" layer. This is also, true as the entry angle of the signal increases. The "D" layer has little effect on signals with a frequency greater than 10 Mhz, but below it will absorb most of the signals energy, which is why 40m through 160m are only good for short distance through the day.

## The "E" Layer

The second layer is the "E" layer, which is located from 62 miles to about 71 miles above the earth's surface. This layer is not as dense as the "D" layer but does account for some signal absorption in the lower HF bands, but it also provides some refraction for signals in the upper HF bands. The "E" layer is ionized by solar radiation, meteors and X-rays and it reaches maximum ionization at noon local time. In general the "E" layer does not do a lot to help HF propagation, however, there are two types of very unique propagation that do occur in the "E" layer.

The first type is meteor scatter propagation. This occurs when a meteor or comet enters the Earth's atmosphere and starts to burn up as it falls to the Earth's surface. Meteor scatter propagation is accomplished by bouncing signals off of a meteor's ionized trail. At 28 and 50 MHz, meteor scatter propagation can last from 30 seconds to several minutes. At 144 MHz and up, propagation may only last a few seconds. To take advantage of meteor scatter propagation both station must be able to see the same ionized trails. Using this type of propagation requires patience and practice, but it can provide some very exciting contacts.

The second type is sporadic E propagation. This type of propagation is still not completely understood, but is highly effective when encountered. It is believed that sporadic E propagation occurs when a localized area of the E layer develops a very large number of free electrons. The electron count may be as much as 100 times as much as the normal electron count in the E layer. When the electron density is high a signal will bounce off of the electron cloud like a mirror. There are three regions where sporadic E propagation (ES) occurs, and they are:

1. Auroral Sporadic E, which occurs around the North and South poles. There are two types of Auroral ES:
  - a. Night ES, which is a thick ionized layer that forms at night and is very irregular in shape and occurs at unusual times. Night ES has many of the same characteristics as regular “E” layer ionization but is very localized in nature and can reflect radio signals up to 20 MHz.
  - b. Auroral ES, which follows a more typical type of ES propagation as described above. Auroral ES can reflect radio signals up to 144MHz.
2. Equatorial Sporadic E, which occurs at the magnetic equator during daylight hours and is only a couple hundred miles wide. It also follows a more typical type of ES propagation as described above. Equatorial ES can reflect radio signals up to 60 MHz.
3. Mid-latitude Sporadic E, which occurs between the other two regions. Mid-latitude ES is the most common type of sporadic E propagation and is formed in very thin layers of concentrated electrons that are very local in nature. Mid-latitude ES can reflect radio signals up to 150 MHz.

The reason this type of propagation is called “sporadic”, is because it happens very erratically and is very unpredictable.

## **The “F” Layer**

The last layer is the “F” layer, which is located from 100 miles to about 260 miles above the earth’s surface. The “F” layer is where most HF propagation occurs, because air pressure is low enough to allow electrons to be bumped from an atom and to then move freely for longer periods of time before they bump into another atom and recombine into a neutral atom. It is these free electrons that radio waves are bent (refracted) against. The “F” layer can stay ionized long after sunset because the free electrons are still moving without re-combining into neutral atoms. The “F” layer reaches its peak ionization levels at noon local time and declines to its minimum shortly before sunrise. It is this reason that good DX communication can be achieved through out the nighttime hours.

The interesting fact about the “F” layer is that it sometimes splits into 2 parts, the “F1” and “F2” layers. When the split occurs, the “F1” layer behaves much like the “E” layer. When this happens, the “F1” layer will reach maximum ionization around noon local time and disperses quickly after sunset. This means it does not do much to enhance HF propagation. Therefore, when the “F” layer does split, the “F2” layer is responsible for the majority of HF propagation.

*Continued next bulletin*

## QRT by VE3HG



I'm creating a crisis communications plan for a corporate client and it got me thinking that members of our club who participate in community events might benefit from some of this information.

When we're operating during a public service exercise or during a real emergency, there's a very good chance we might get approached by a reporter asking questions about ham radio.

This is an excellent opportunity to promote ham radio as a great and useful hobby and your club and its members as a really excellent community resource. However, if you don't want to speak with a reporter or don't feel you're qualified then take them to one of the radio club officials who can help them. Don't ignore them or say "no comment" as not only is this behaviour rude but it implies you have something to hide. This is one of the great media mistakes that arrogant or frightened business people make all the time.

During club service at an emergency, it's not our job to release information to the media about the incident. We can always talk about the ham radio participation but any questions referring to the incident itself or its aftermath must be directed to the emergency coordinator or commander. From our point of view this will usually be a Red Cross official or a municipal official or a police spokesperson.

For example, we could have been called to help during the recent search for the missing autistic man from the Oaklands Regional Centre. Unfortunately, it ended in

tragedy and is likely to be the focus of a provincial inquiry. There maybe lawsuits involved. The last thing we would want is to see any club member who was supplying communications to be subpoenaed to testify in court to statements they innocently made to the press about the nature of the search.

Reporters might overhear or monitor ham radio communications and have very specific questions which should again be very politely referred to emergency officials. By the way, it's possible to buy scanners in Canada which can monitor the cell phone system. While this isn't a problem when the caller is moving around, it's easy to figure out the frequency and monitor conversations that are originating from the same disaster site. I always warn my corporate clients about the possibility of their cell phone conversations being monitored.

Reporters can't return to their offices empty-handed. They are always on the lookout for positive good-news stories even in the midst of a disaster. If ham radio is present, then there's the potential for a good news feature. Here's a great line to use with the media (thank in part to the ARRL): When all else fails...there's always ham radio.

73,  
Peter, VE3HG