

# HOT BANANAS

Oakville Amateur Radio Club

MAY 2004

## VE3HB



**Meetings:** The Oakville Amateur Radio Club meets on the second Monday of the month at 7:30 p.m. from Sept. to June at the Red Cross, 167 Navy Street.

**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 Road.

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

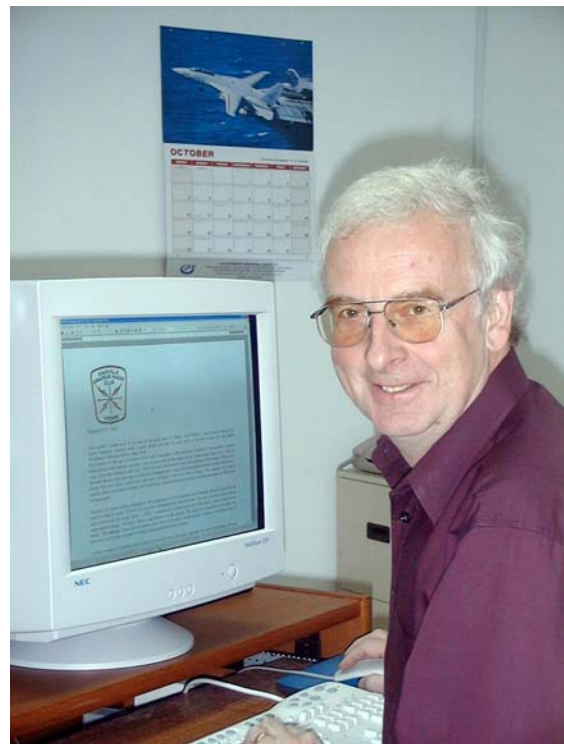
VE3OAK - 147.015 +.600 (131.8Hz CTCSS)  
VE3OAK - 444.325 +5 MHz

**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

Nice and warm weather is finally here. We can go up on the roof or tower and do the antenna work, which we were planning since October of last year. Spring and summer contests are coming. The signal propagation is not at its best and therefore a good antenna will help to get that extra contest point or a long desired DX station.



Speaking of DX stations. Mike Brown, VA3GRL has recently received a diploma for his DXCC QRP award. Well, we all know that Mike has a good radio setup, ground wires going to the creek in his backyard and counterpoise of his antenna connected to a wire fence, which is running for about half a mile along his house! Nevertheless, he had to work hard for his diploma and

he deserves congratulations from all members of the club. Well done, Mike! If anyone else is working on any diploma or award, please send me an e-mail and I will be pleased to announce it on this page. We, as a club are proud of achievements like this.

In the May/June issue of RAC magazine (TCA) the results of last year's Field Day competition were published. As previously unofficially announced, in category 2F, our club station VE3HB finished in second place with 3060 points, after Halifax station VE1FO. Still, pretty good result. Preparations for this year's Field Day are in full swing. Greg, VA3GGF is in charge of organizing the installation of antennas, schedule for the operators, and prayers for the good weather and signal propagation. The location of this event will be at Mike's, VE3QSK home QTH at Appleby Line. It is a nice location with tall trees, good for installing antennas and no QRM in a wide neighborhood. I heard rumors, that in the case of inclement weather, Mike is asking for the privilege of working from the comfort of his living room in order to get the most points. The other poor souls will have to pitch tents at the back of the property and brave the weather. So, we all hope for good weather and we are looking forward to this event. I hope that many members of the club will volunteer for a midnight shift as operators. Remaining members are welcome as visitors.

During this "club" year we had a number of interesting speakers for our club's meetings. The May meeting was no exception. Those of you, who have ever try to organize a meeting would know, how much work it takes to make sure that everything is in order. For May I was planning to invite Bob Nash, VE3KZ, the new Vice-president of RAC and President of the Ontario Contest Club. When I e-mailed Bob in April and asked him to do a presentation, he just replayed "sure, when?". What a relief! His presentation was divided into three parts. Little bit about contesting, a lot of information about communication on 6 meter band and then some interesting news about the RAC organization. Needless to say, it was an interesting evening. Again, I would like to emphasize the importance of the RAC organization in taking care of Canadian ham operator's interests. So, if you are not member yet, become one. Forty Dollars for the membership is not that much, and it is put into good use. Keep in mind, this is not a government organization, so with your money you will be supporting only ham radio causes and not some advertising agencies. On top of it, every two months you will receive a TCA magazine. I know I am doing

some free advertisement for RAC, but personally I believe it is worthwhile.

May is also the month of pilgrimage south to Dayton for many amateurs. The snowbirds have returned to Canada in March and now they are going a half way back. This year the delegation from our club is somehow smaller then last year. Never the less, the hard core hams went there with a wish list of bargain purchases in one pocket and digital camera in the other. Doug Smith, VE3RG and Jim Byers, VE3YZA promised to bring a pile of brochures, digital photos and write about their experience. That will be a big article for the June issue of Hot Bananas.

In conclusion of my message, I would like to remind everyone, that the next meeting of the OARC is on June 14<sup>th</sup>, 2004 and along with the recapitulation of all events and successes of past fiscal year, we will hold an election of new club directors. All volunteers for the positions are welcome to step forward. There is always a need for enthusiastic people, who can make our club a living organization. Also, the time has come to award some hams from our club for their contribution to the club and ham spirit. So, please submit your nominations for the Amateur Of the Year and Dizzy Isz (highest number of QSO) awards. Please e-mail me [ve3okd@rac.ca](mailto:ve3okd@rac.ca) or any director with your nomination.

Ian, VE3ESH – editor of HB just called and reminded me that I am late again with my President's Message. So, it is time to stop my rambling, save the file and e-mail it to the editor.  
Enjoy the hobby. Many DX.

73, Denny VE3OKD

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# CQ CQ CQ

## Executives & Coordinators

|                |                |        |
|----------------|----------------|--------|
| President      | Denny Zidek    | VE3OKD |
| Vice President | Brian Kremer   | VE3DNF |
| Secretary      | Greg Foster    | VA3GGF |
| Treasurer      | Carvell Pelkey | VE3CPQ |
| Membership     | Russ Schwandt  | VE3JUZ |

### CLUB COORDINATORS:

|                                    |                   |        |
|------------------------------------|-------------------|--------|
| Program                            | Denny Zidek       | VE3OKD |
|                                    | Brian Kremer      | VE3DNF |
|                                    | Doug Smith        | VE3RG  |
|                                    | Ian Amos          | VE3ESH |
| Emergency Coord.                   | Rick Harrison     | VE3YRH |
| Regional Emergency Liaison         |                   |        |
|                                    | Russ Schwandt     | VE3JUZ |
|                                    | Jack Livingstone  | VE3ITM |
| Help Committee                     | Harry Kosterman   | VA3EC  |
| VHF Net Activities                 | Denny Zidek       | VE3OKD |
| Repeater Programming / Maintenance |                   |        |
|                                    | Greg Foster       | VA3GGF |
|                                    | Gary Hetherington | VE3TGH |
|                                    | Harry Kosterman   | VA3EC  |
| Website                            | Michael Willems   | VA3MVW |
| Club Bulletin                      | Ian Amos          | VE3ESH |
| Training & Examiner                | Jack Livingstone  | VE3ITM |
| Equipment/Shack                    | Mike Brown        | VA3GRL |
|                                    | Jack Livingstone  | VE3ITM |

## Editor's Note

Welcome to another issue of Hot Bananas. This month's meeting we had an excellent presentation by Bob Nash, VE3KZ, thanks Bob for your time and effort. The Field Day Team are finalizing plans and Greg, VA3GGF has the full details below.

As the club's year is drawing to a close and I have been reflecting on what events happened this year. We have had a number of very good meetings with great speakers, however club attendance was usually less than 15. We are fortunate enough to have Denny leading a group of hard working directors and a few regular members that are always helping out. With the June meeting only a few weeks away please consider helping the club out by becoming active. Volunteer to help with just 1 meeting, 1 event or just promise yourself to come to half the meetings, because without all of you, there is no club.



With regards to editing the bulletin, I now know just how much work this job really is. But what is really hard is getting material to publish. To have a good bulletin we need material from our members. The best "Stuff" is when it is about people we all know. The "Stuff" can be about an antenna you just put up, how you designed it and how it works or your Dxing / QRPing / contesting / etc. Write about a new software program you tried or a new piece of equipment. Half a page is good, 1 page is great and the more often the better, but please write something for all of us. Hope you enjoy the bulletin

73s  
Ian, VE3ESH

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### **Hot Bananas**

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PO Box 69615  
109 Thomas St., Oakville, Ont., L6J 7R4.

### **Editor:**

Ian Amos, VE3ESH

### **Publisher:**

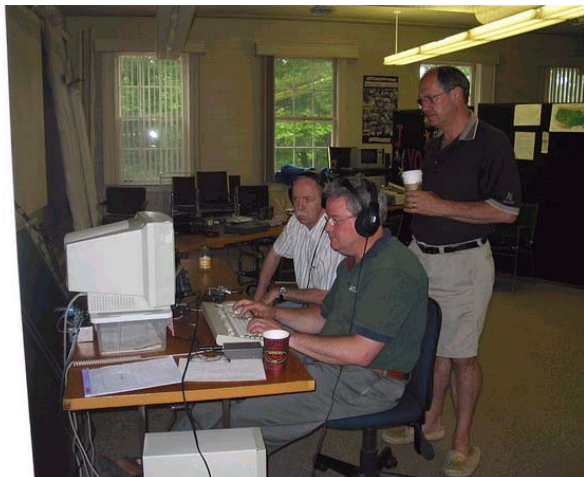
Oakville Amateur Radio Club  
President Denny Zidek, VE3OKD

## Field Day 2004

Well the results are in for Field Day 2003 and Oakville Amateur Radio club has placed 2 in Canada in its category. Not a bad showing for the first Field Day in a number of years (we won't mention that there were only three entries in the category). In 2003 the club ran in the new "F" category, allowing us to operate from the Red Cross from commercial power.

This year the organizing team has settled on a 2A category with a "Get On The Air" (GOTA) station. This will allow us to run 2 HF transmitters and a third HF transmitter designed to allow clubs to entice operators who do not normally operate HF to come out and try their hand. Along with the HF stations we will be running 6 meters, 2 meters and 70 cm. These stations will account for the majority of contacts the team will amass but there are additional bonus points that can not be overlooked.

There are plans to attempt satellite communications, slow scan TV, packet, APRS and alternate power capabilities. As you can see there



are many facets of the hobby we hope to display and operate throughout the 24 hour period.

Mike VE3QSK has volunteered his yard as our Field Day site. Mike is located about 5 miles north of Dundas on Appleby line in Burlington. He has a large lot with lots of room for antennas. For the HF stations we have decided to go the traditional

beam and only use wire antennas. We will be raising a full wave 160m loop, a full wave 80m loop and a Lazy H antenna.

For the two primary HF stations we will be running a Kenwood TS-850 and a Yaesu FT-100MP. The GOTA station will have two rigs at different times, a newly built (by Jim VA3YZA) Elecraft K2 and Dave VA3DDA's IC-706MKIIG. Each of these rigs will be connected directly to a PC to aid in the logging of the mega number of Q's they will make.

As always there are many areas that one can become involved in Field Day and everyone is welcome to participate. If you would like to become involved please contact Mike VE3QSK or Greg VA3GGF. Field Day is not only a contest but another opportunity for hams to get together and demonstrate their operating ability while at the same time sharing their fondness for the hobby.

Greg  
VA3GGF

Mike VE3QSK - 905-315-7887  
cauterman@sympatico.ca  
Greg VA3GGF - 905-822-8726  
greg.foster@sympatico.ca

# HF Propagation Part 3 - Improving Propagation Predictions

By: Ian S. Amos, VE3ESH

## Introduction

In my last article, HF Propagation Part 2 – Predicting Propagation, I covered the basics of predicting propagation using Sheldon C. Shallon, W6EL's, software program W6ELProp. In this article I will show you how to improve your propagation predictions, by fine-tuning your model.

## Improving your Propagation Predictions

There are a number of things you can do to improve your prediction model in W6ELProp. The adjustments are:

- Antenna type and power output per band
- Angle of radiation of your antenna
- Noise Bandwidth
- Signal Level Suppression Threshold
- Man made noise levels

Start the “**W6ELProp**” program. Once the program loads, select the “**Options**” item from the main menu, the “**W6ELProp Options**” screen is displayed, next click on the second tab “**Frequencies and Constants**”.

The “**Frequencies and Constants**” tab is where the prediction model can be adjusted for frequencies needed, your antenna type and power output. W6ELProp is initially setup to calculate propagation on 3.6, 7.1, 14.1, 21.2, and 28.3 MHz but, you may change, delete, or add frequencies to any combination of up to ten frequencies between 3 and 30 MHz. This means you can add the WARC bands or even short wave broadcast bands if so required. Next, you may specify for each frequency you have selected, the number of db, that corresponds to your antenna gain and power output as compared to W6ELProp's built-in values of 100 watts for power output and a half-wave dipole for the antenna. If you know the power output and antenna gain of the station you are calculating a path to, you would add this db gain to the constant as well. Also, note that you can use negative values if power output is less than 100 watts or an antenna gain less than that of the assumed half-wave dipole. Please read the Help pages for more information on how to use the Frequencies and Constants calculations.

Next, click on the “**Prediction Parameters**” tab. You can now adjust for:

1. Angle of radiation of your antenna. W6ELProp uses a default of 1.5 degrees, which is probably the lowest practical radiation angle an antenna can have. This is the starting point for the program to calculate propagation for the minimum number of hops and the maximum signal strength possible on the path chosen path.

2. Noise Bandwidth. W6ELProp uses a default of 1Hz. The larger the noise bandwidth the lower the signal to noise ratio will be, so be careful how you use this item.
3. Signal Level Suppression Threshold. W6ELProp uses a default of -10db, which means signals below an "S0" will not be calculated. This will keep the calculation speed fast and usually we are not interested in predicting based on weak signals. You do however have the option to choose a level appropriate for your own needs.
4. Man made noise levels. Select the best option for your own location.

I recommend that you use the default values until you get use to the program and when you do adjust these items, change them one item at a time to see the effect.

Next, select the "**User Preferences**" tab. W6ELProp will calculate propagation using either the solar flux number or the current number of sunspots. However, I recommend that you use the solar flux number instead of the number of sunspots, because the sunspot number is calculated by counting the number of sunspot groups and the number of individual sunspots. The "sunspot number" is then given by the sum of the number of individual sunspots and ten times the number of groups. Since most sunspot groups have, on average, about ten spots, this formula for counting sunspots gives reliable numbers even when the observing conditions that are less than ideal, as well small spots are hard to see. This means daily sunspot numbers may vary considerable, but average out over time. Also, the Sun rotates every 27 days, which means the sunspots are constantly moving and will have a varying effect depending on whether the sunspot is actually pointed at the earth. However, if you use the solar flux number, it is measured every day and is therefore a more reliable indicator of the solar energy reaching the earth.

I prefer that Signal levels be displayed on the propagation prediction data screens first instead of Signal to Noise ratios. However you do have the option to toggle between the two on the propagation prediction data screens. I always use UTC time. A 3 minute map auto updating feature works well for me. You can choose a time that suits your needs. Select the "**High (877 areas)**", you will need this later. Select the "**Save My Settings and Exit**" button, to save all the changes made. Your propagation model is now complete and you can predict propagation using W6ELProp, very accurately, but most importantly, fast and easy.

## Now the "COOL" Stuff

Calculate a propagation path to Japan (JA) using SF = 121 and a K = 4 on Jan 20, 2004. Next, on the propagation predict screen, select "**Maps**", then, "**Rectangular Map**" from the menu. A map is then displayed that is centered horizontally on the longitude of your QTH (the default terminal) (see Figure 1).

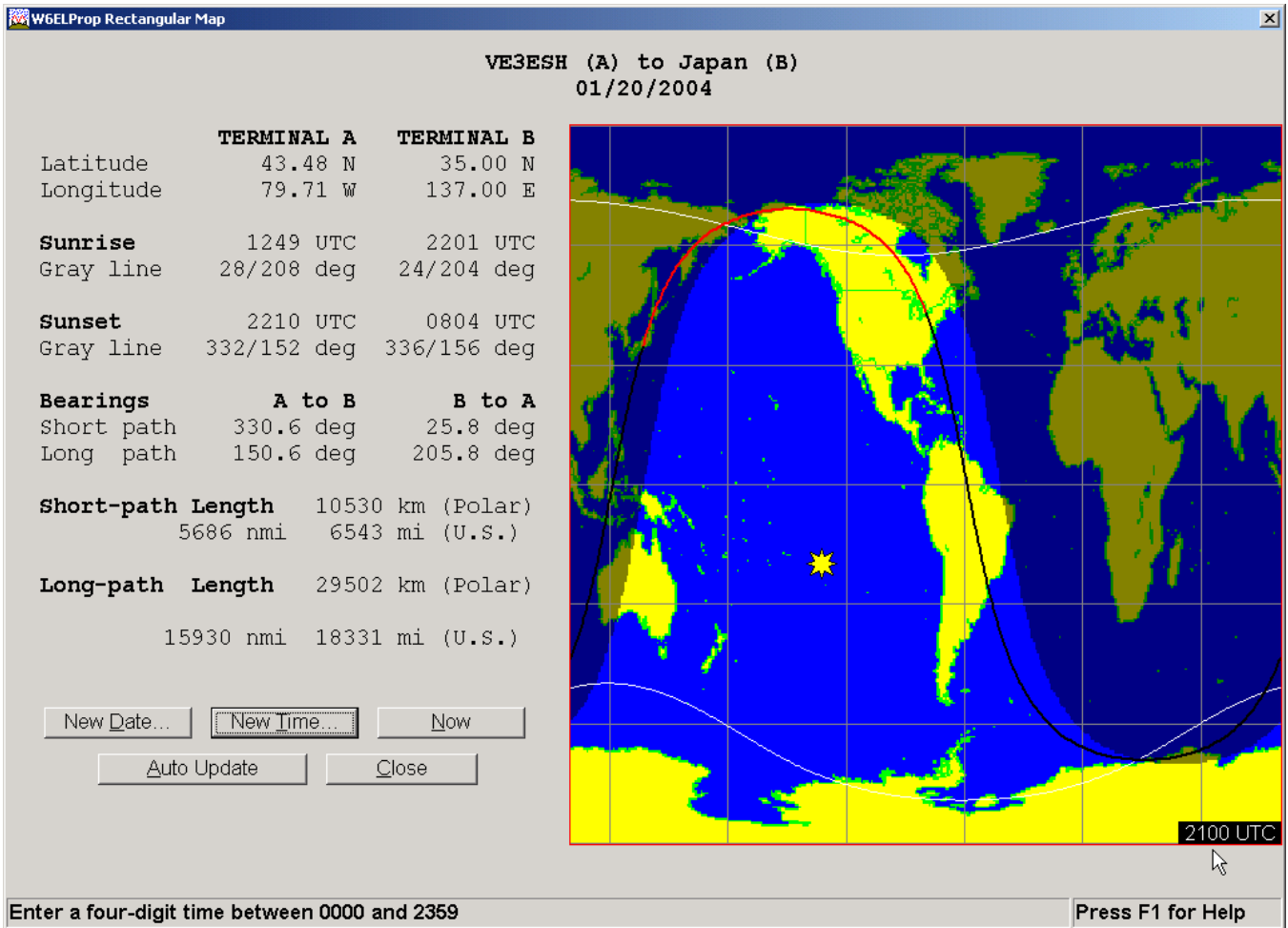


Figure 1 - W6ELProp Rectangular Map

There are four main things you see on the Rectangular Map, and they are:

1. All propagation data is shown for your calculation with the short path shown in "Red" and the long path shown in "Black".
2. The gray line or the terminator, which is a circle separating the sunlit side of the Earth from the dark side. Many great DX contacts can be made when both stations are located in the gray line zone. Therefore by looking at the map you can get a good idea where a path might exist based on the current time. Please note that this map is calculated based on your computer clock's current time, so I changed the time to 2100 UTC to move the Gray-Line closer to my QTH in southern Ontario. You can move the gray line by changing the time or date for even more flexible propagation predictions. If you try 2200 UTC you will see that my path to Japan (at this time of year) lines up perfectly, indicating a very good possibility of making a contact.
3. An eight-pointed solar star on the map indicates the halfway point on the earth where there is the same amount of daylight hours as darkness. You can see how this moves by changing the date.
4. The boundaries of the polar areas in which polar cap absorption (PCA) events occur are shown surrounding the north and south poles on both maps. When signals pass through these polar areas, increased absorption may greatly reduce received signal levels during periods when a PCA event

is occurring. Note that the path to Japan is actually a polar path and not through California, which means a PCA event will effect propagation to Japan.

One of the practical uses of the Rectangular Map is Gray-Line DXing. When a series of favorable events occur along the gray-line it is possible for stations on one side, to be able to contact stations on the other side, on virtually any of the HF bands. Gray-Line DXing really works because I know that if I am looking to contact Japan, usually as a multiplier in a contest, I always look for their signals on 10m and especially on 15m around supptime. One of the best things about W6ELProp is you can actually see the Gray-Line zone, so that you know the correct time to try and make a contact. Remember the Gray-Line moves depending on the time of year, which makes the map extremely useful (more on Gray-Line DXing later).

Select the “Close” button to return to your prediction data screen. Next, select the “Graphs” menu item and then the “MUF” and “Signal Strength” menu items. This will display a graph plotting either the MUF or Signal Strength. Try out these features. This a great reference while on the air and you are looking for a band to choose.

Next, from the main menu select the “Maps” item and then the “Frequency Map” item, this will display the W6ELProp Frequency Map (see Figure 2).

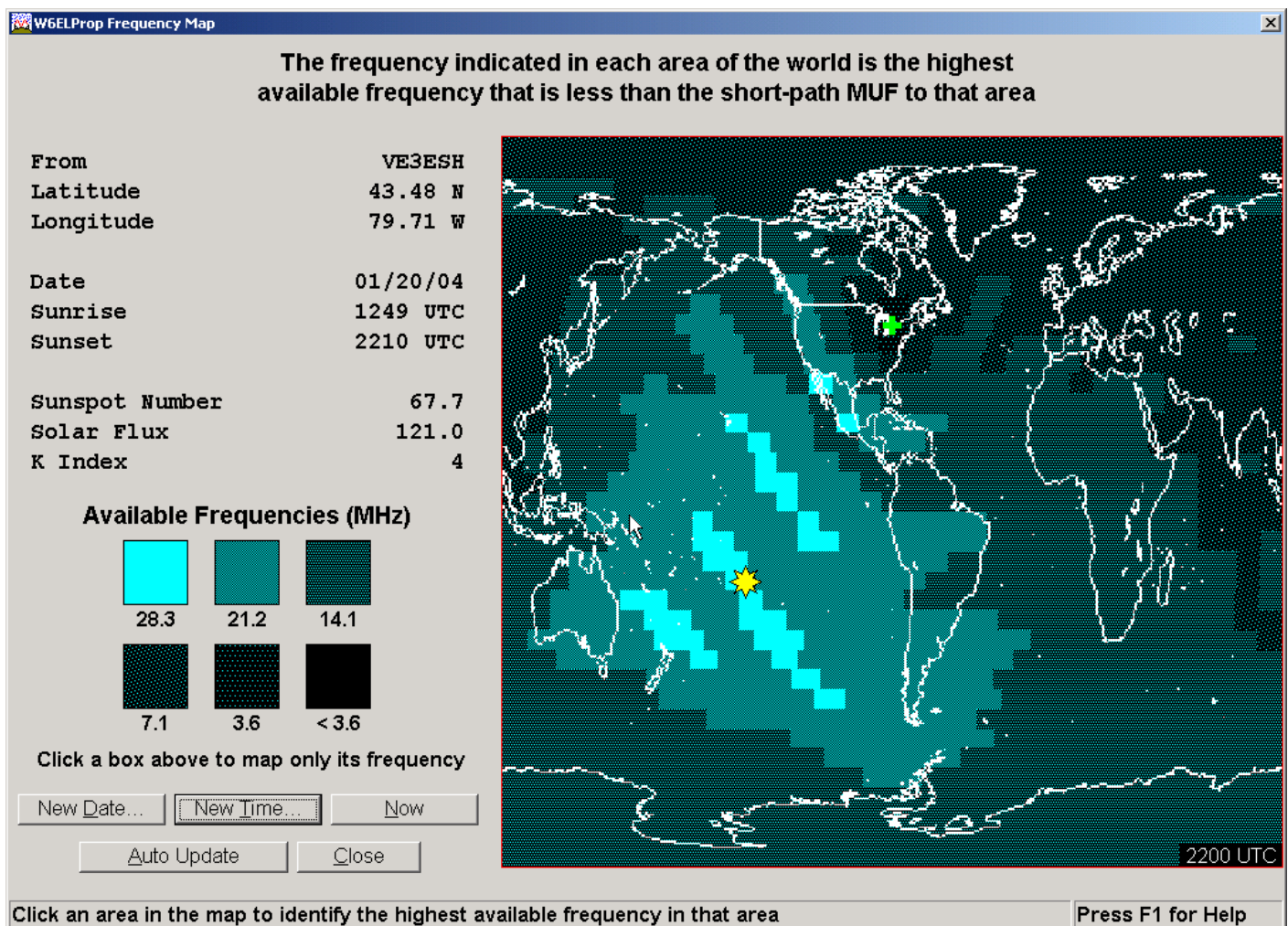


Figure 2 - W6ELProp Frequency Map 1

The Frequency Map shows which of your prediction frequencies is most likely to be useable at any time of day to communicate from your QTH to any area in the world. If your frequency map does not look like the one above, then return to the option menu and select the “User Preferences” tab, and click on the “High (877 areas)” radio button. The indicated frequency in each area is usually the best frequency to use at the specified time because signals at higher frequencies have a lower probability of propagating, and absorption loss will be greater for signals at lower frequencies. Now, if you want the map to display only the areas to which one of your prediction frequencies is shown, click on the box for that frequency on the left side of the screen. Click on the 21.1 MHz area to see where 15 m is available (see Figure 3).

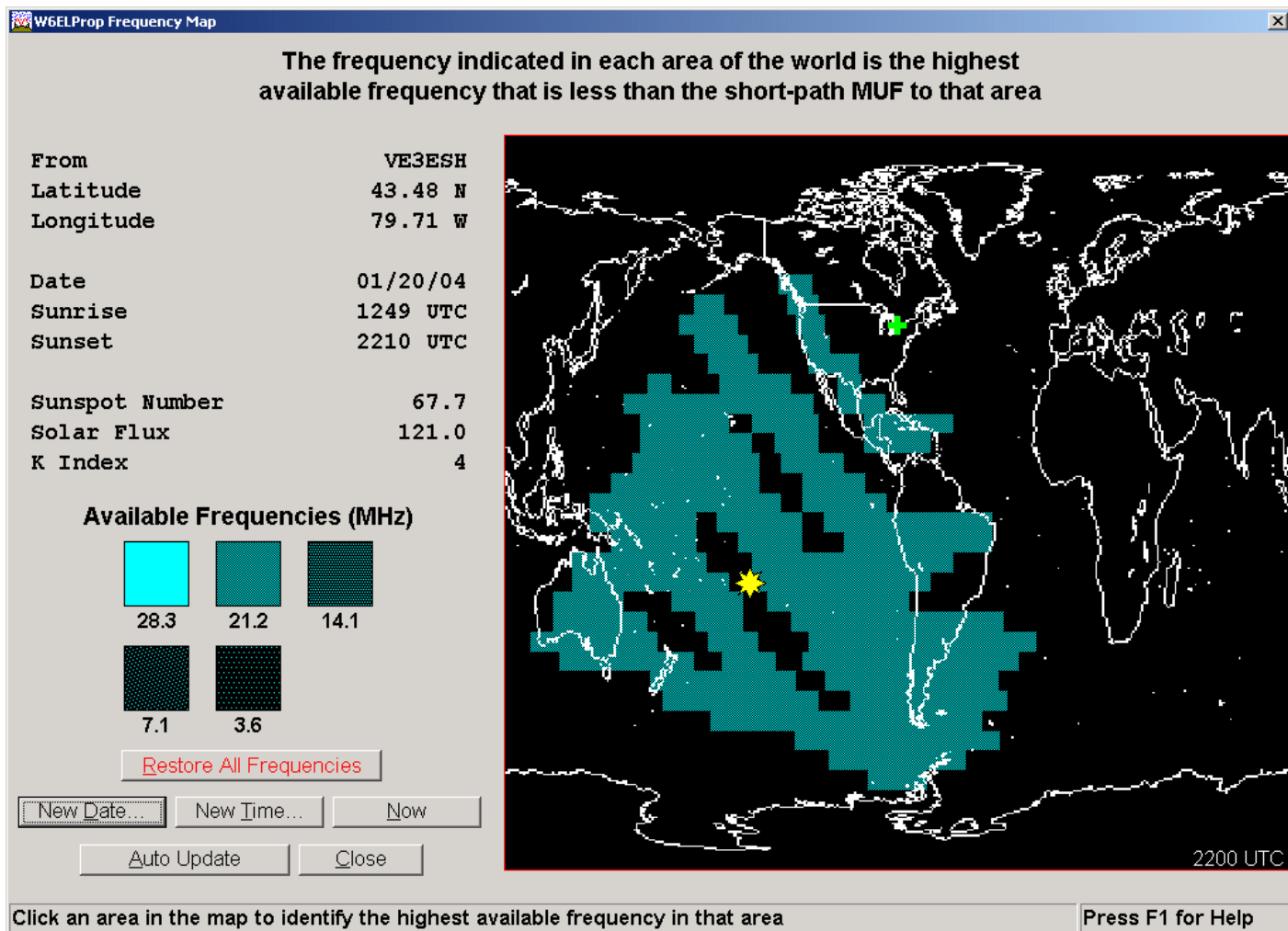


Figure 3 - W6ELProp Frequency Map 2

You can see the areas that 15 meters is the highest available frequency. By using the high resolution (877 areas), the Frequency Map shows multiple skip zones in rings around your QTH (the green plus sign). The first skip zone ring is usually very accurate, but the other rings may not appear in practice because the actual ionosphere contains many irregularities, and W6ELProp does not calculate these in its ionospheric models. However, propagation may occur at or near these outer rings, depending on what activity is occurring in the ionosphere. If the geomagnetic activity has been quiet for several days, the chance that a propagation path will occur in these outer rings increases. Please note that the frequency map shows that a contact to Japan on 15m is not probable at this time, but if you look at Figure 2, a path on 20m does.

I have discussed many of the features of W6ELProp program to get you started on predicting propagation easily. However, there are many more program features that you should explore that will help make your predictions better.

## Conclusion

Now that you have got an accurate propagation model for you station you can see how fast you can predict propagation from your QTH to any location in the world. Also, you are now able to work with Gray-Line DXing and you can determine the best possible frequency to use to make the contact you want to try for. In my next article, HF Propagation Part 4 – The Ionosphere, I will discuss how the various layers of the ionosphere function, and some other propagation concepts.

## Acknowledgements

Once again, I would like to thanks Sheldon C. Shallon, W6EL, for writing W6ELProp and making it available to the Amateur Radio community.

## QRT by VE3HG



Can you guess what happened when Denny, VE3OKD, asked for volunteers to step forward to serve on next year's executive? Denny's call, made at the last meeting, went unanswered. This isn't much of a surprise and the lack of participation isn't limited just to ham radio clubs. All of us are busy. Those of us who are retired often claim to be busier than when we were working. And yet it's true that you only get out of something what you put in it.

I'm writing this column on the morning of a memorial service for a former boss Jack Kerr who died last year in his 86<sup>th</sup> year. Jack was a well-

known leader in Canada's electrical industry and then, at a time when most of us retire, Jack started a new career as a magazine publisher. It was his company that gave me my big break in magazine publishing and I will be eternally grateful. I suspect when I attend the memorial the church will be packed with friends and colleagues there to celebrate a life well lived.

It's the same in the ham radio world. In several of the magazines that I read regularly and on a many ham radio web sites there are memorial stories about legendary contester and Dayton regular Jim White, K4OJ, who died earlier this year. I didn't know Jim but it appears that was my loss. The rest of the contesting world apparently did and he'll be missed.

So here's my point: I encourage you join our executive team and help out. It's a service to ham radio, to our club and to your fellow members. I know that those who help out get more from the experience than they put in. Don't wait until it's too late. Get involved now. Join the executive and come on out to Field Day. It could be later than you think!!

73,  
Peter, VE3HG