

Loose Gravel

Newsletter of ROADs

Volume 2, Number 4

AB7X~Editor

Good evening Ladies and Gentlemen, and a fine Spring evening it is!

I will get right to the fun, and leave the serious stuff 'til last!

Dave, KD7VLP, has been kind enough to do a survey of a Q & A type, precipitated by a conversation among participants of last week's Polk County Simplex Net. His solicitation was:

As you may, or may not, be aware...for the past few weeks there has been a Simplex net on Thursday nights---usually at 1845 PDT. The frequency is 146.50.

Last Thursday (4/6/06), we noticed that conditions were much worse on that night as opposed to the previous Thursday(s). A minor discussion ensued on the reason for this...no conclusions were reached.

In order to expand the discussions, we asked AB7X to put together some "questions" concerning the topic to form a rough format for discussion. We are now throwing it out to ROADs, and any other interested parties, for discussion. We may place appropriate comments into Loose Gravel to enlighten our readers.

We invite you to participate in the net for further investigation into these questions.

How about it?

.....

Does 'Greyline' propagation have anything to do with the VHF and UHF bands?

If so, how does it affect these bands?

What have you noticed about the 2M band in particular, as far as the comparison between daytime, morning and evening propagation go?

Are there frequencies that work better between any two or more given, fixed stations?

If so, what does this differential appear like on the 2M-band plan?

In your estimation, which affects the 2M band more: atmospheric pressure, moisture content of the air, or temperature gradients due to daily and seasonal fluctuation?

Have you experienced contacts using 'ducting'?

If so, where, how much distance between you and the other station(s)?

Do you think that 'ducting' is predictable, as with other propagation models?

How often do you use Simplex as opposed to using repeaters?

Why?

KD7VLP
facienda fient

The first response came from Bob, K7QXG, who writes....

I'm not a VHF person, but I am a serious HF fanatic. All of your questions would be very easy to answer if we were talking about 40 meters. But we are not. We are talking about 146 MHz. So, my views

are based primarily upon what minimal knowledge I have of VHF propagation in general, plus 46 years of experience with propagation on the HF bands.

Q: Does 'Greyline' propagation have anything to do with the VHF and UHF bands?

Very darned little. Remember VHF and UHF are "line-of-sight" bands. Greyline conditions create a reflective ionospheric environment that is conducive to HF "skip". HF bands are NOT "line-of-sight" bands. However, at the top end of the HF bands, 28 MHz benefits little from "greyline" conditions. Greyline conditions benefit 160, 80 and 40 meters the most, with 20, 17 and 15 falling behind slightly. I personally have worked Europe "Long Path" on 40 meter CW with 90 watts and a vertical at 9 AM local time by taking advantage of "grey line" conditions in February.

Q: If so, how does it affect these bands?

I don't believe that it has much impact at all on VHF and UHF.

Q: What have you noticed about the 2M band in particular, as far as the comparison between daytime, morning and evening propagation go?

I don't notice any difference at all. If the other station falls in the "line-of-sight" category, I work them, regardless of time of day or night. You can't experience the impact of propagation variations unless you operate frequently on the HF bands. Right now we are at the bottom of the sun spot cycle, yet I and other fans of 10 meters and of PSK regularly snare a good contact or two on 10, 15, 17 and 20 meters. Many of these contacts are DX contacts. I will admit though, that there is a constant flow of email, daily, between many of us around the USA and New Zealand who look for the beacons on 10 meters and who read every bit of propagation info published each week so we can time our operations with the best forecast conditions. There is propagation out there if you want to look for it.

On 2 meters its kind of boring unless you chat with a good friend. You key up a repeater and chat with someone... as easily as picking up the telephone. Not much of a challenge there.

Q: Are there frequencies that work better between any two or more given, fixed stations?

Yes. Why? Because of antenna gain/loss at certain frequencies. Example: I work Harry on 147.500 Simplex. My Yagi is close to resonance there. Then we work each other at the bottom end of 2 meters, and my antenna is not so resonant there. So, I must take into account my losses. If the SWR is 1:1 at 147.500 and only 1.6:1 down around 145.000, how many db do I lose in the transmitted signal? And if I use RG213 for a feedline, with a velocity factor of .66, and it is a 57 foot run, then those losses become even more visible.

So, its a matter of antenna, SWR, power, etc, etc that may cause a signal to be a bit weaker in one part of the band than another.

Q: If so, what does this differential appear like on the 2M-band plan?

Doesn't seem to bother me at all. If I hear 'em, I work 'em.

Q: In your estimation, which affects the 2M band more: atmospheric pressure, moisture content of the air, or temperature gradients due to daily and seasonal fluctuation?

Moisture content will affect HF bands...not when its raining, but when its foggy. When its foggy, conditions go to pot in a hurry. Its my theory that the dense fog creates a path to ground from the antenna. Also, when it rains, the SWR on my beam and on my 3 HF verticals rises. That is normal. I don't know about atmospheric pressure. Temperature has never been a problem for me on HF, but I don't know about VHF or UHF. Again, we are talking about "line-of-sight" communications...nothing over the horizon.

Q: Have you experienced contacts using 'ducting'?

No.

Q: Do you think that 'ducting' is predictable, as with other propagation models?

Unknown.

Q: How often do you use Simplex as opposed to using repeaters?

Well, I prefer Simplex, but lets be realistic. A repeater permits a solid contact. No fluctuation. No noise. No QRM. No QRN. However, I prefer Simplex because of the challenge... it actually resembles a HF operation, to a very limited extent.

Right now I have worked 304 countries on HF, but would enjoy working just 4 or 5 states on 2 meters. Maybe I'll get an opportunity to do that this Spring.

Q: Why?

Because its more of a challenge.

If folks were having trouble on Simplex last Thursday, it may have been because you had a different crowd attending the Net. Last Thursday I was in Gresham. I was using a Yaesu handheld with 2 to 4 watts out. I tried, several times, to check into a Salem net, but could not trip the repeater, YET I heard net control just fine and everyone who checked into the net. So, I certainly did not have poor conditions on Thursday night as far as my reception goes.

Good luck with this survey.

73,

Bob

K7QXG, Bob Peschka

As you can readily see, this gets more interesting as we go along!
The next effort is from Nate, W7NAT, in Salem....

A search of the internet reveals the following:

The refractive index of the air in the troposphere plays a dominant role in radio signal propagation. This depends on the temperature, pressure and humidity. When radio signals are affected this often occurs at altitudes up to 2 kilometers (1.25 mi).

Tropospheric ducting is weather induced when inversion layers are formed. A relatively thin air mass gets trapped between two other air masses at greatly different temperatures. This creates a duct such that when a 2 meter signal gets into it the signal continues in the duct until the duct ends. Hopefully, there is another station within that duct somewhere near the other end. If the duct is above your location, then you will not hear anything. Same if it is below your location. You must be in the duct to be able to hear the signal. Of course, it goes without saying that the stations at both ends need to be within the duct. Listen to weather forecasts to figure out when ducting may be possible.

Typical scattering of VHF and UHF signals is caused for the most part by turbulence in the atmosphere as manifested in localized pressure differences. Difference in pressure in a gas results in a difference in refractivity, which causes scattering of the signal.

Rain scatter is caused by a signal being bounced off of raindrops. This is almost always done above 5 gigahertz, however, and is not considered to be important at 2 meter frequencies. The water droplets need to be 1/10 wavelength or less in size, and Doppler shift is noted. Snow also does not affect 2 meter operation.

Thunderstorms may affect sporadic E propagation at 2 meters, but this is not a factor in line of sight communications.

Trees can be a significant source of path loss, and there are a number of variables involved, such as the specific type of tree, whether it is wet or dry, and in the case of deciduous trees, whether the leaves are present or not. Isolated trees are not usually a major problem, but a dense forest is another story. The attenuation depends on the distance the signal must penetrate through the forest, and it increases with frequency. The attenuation is in the order of 0.05 dB/meter at 200 MHz, 0.1 dB/meter at 500 MHz, 0.2 dB/meter at 1 GHz, 0.3 dB/meter at 2 GHz and 0.4 dB/meter at 3 GHz.

It seems that in general, a probable cause of loss of signal from one day to another at 2 meter frequencies is due to tropospheric ducting, where in order to get the best signal each station needs to be within the duct.

As a sideline, greyline propagation may be an effect in the case of sporadic E propagation, but that does not relate to line-of-site signals such as we are using.

That is the best I can find.

Nate W7NAT

It is amazing what one can find on the Internet.

From my own 'observations', I conclude that there is definitely a correlation between given frequencies and the relative signal strength of stations using those frequencies. Feedline and resonant frequency of the antenna indeed do play a significant part in this journey, but there are definitive comparisons to be made during what some may deem to be a worthless exercise in futility. RF, as we understand it or don't, is a strange and wonderful beast! It has captured the imagination of many HAMS from various walks of life, including actors, writers, singers, musicians, politicians, drivers, loggers, millworkers, scientists, teachers, children, and everyone in between from the late 1800's to now!

If any of you have hesitated to give us your personal take on this Q&A topic, please don't be shy....we would enjoy your input!

Our CERT representative, Irene, K7IJK, reports.....

UPDATE ON DALLAS CERT

We have a new Volunteer Coordinator, Cindy Shaw. Unfortunately, James Krehmke had to resign from the position due to some health issues. The March meeting was small and there is still discussion to integrate Dallas CERT with the Polk CERT. The Dallas CERT monthly meetings/trainings have moved from the third Thursday of the month to the fourth Thursday of the month and are held at the Dallas Fire Department on the second floor. We are looking at having another training class sometime soon and also the possibility of a booth at Summerfest to encourage new members.

The next Dallas CERT meeting/training, which is on the fourth Thursday, April 27th, will be on Advanced Medical, actually going beyond triage and sustaining victims for up to 72 hours. The instructor will be Milan Miller, who has 25 years of experience as an EMT with the Salem Fire Department and has many practical solutions and ideas for what we may face in a crisis.

Since this is a good place to keep everyone updated on Dallas CERT (and gives Harry and David less space to use) I will try to do this each month. We do have some exciting new things coming up in the next 6 months.....so.....keep reading the news letter and I will let you know what they are.

Irene K7IJK

Thank you Irene, your space here will be watched in great anticipation for updates and further information.

Again from our DX correspondent Bob, K7QXG, is this article about QSLing....

QSL Cards And DX Prefixes Quiz

By: K7QXG, Bob Peschka

Only a few members of ROADS actually make contact with DX stations on a regular basis, and even fewer members try to obtain a QSL card from those stations for use in applying for various awards and certificates. For those of you who do, I offer a few simple suggestions that have proven very successful for me over the 46 years I have been an amateur operator.

I presently have 297 DXCC entities confirmed out of 304 contacted. That means the techniques I use are somewhat productive.

1. When sending a card to a station in a foreign country, NEVER put that station's call sign, nor your call sign, on the outside of the envelope. If you do, the envelope is almost certain to be opened and the contents pilfered by a postal employee in the foreign country.

2. Be sure to enclose three things: Your QSL card with the time in UTC and your signature on the card (if no signature, it is invalid for some awards); a S.A.E. (that stands for Self Addressed Envelope); and, 2 "green stamps" (dollar bills) - **or** the right amount of IRCs (buy them at the post office) - **or**, best of all, get some mint postage for that country sufficient for the return of the S.A.E.

3. I have been very successful with mint postage when the other two methods fail. IRCs have been the least successful.

4. Be prepared to wait for weeks, or even months, before your card arrives.

5. When sending a card to a station or QSL Manager in the USA, be sure to enclose your QSL and a S.A.S.E. (Self Addressed Stamped Envelope).

Finally, there are many awards available now (none from the ARRL) that can be obtained with electronic QSL cards. The most popular and efficient method is use of eQSL which is found on the Internet. LoTW, which is a confusing and complicated program advanced by the ARRL, also works, but you will pull your hair out and lock up your computer trying to make sense of it.

Quiz Time.....

This is not an open book test !!

Okay gang.... How well do you recognize prefixes when you hear them on the air? If you only operate VHF and UHF, don't bother reading any further. This quiz is reserved for the operators who are licensed to frequent the HF bands.

Name the country that goes with the prefix. If you get 20 to 25 right, you are a "Big Time" DXer. If you get 14 - 19 correct, you are

doing okay. Less than 14 correct and you better go back to VHF and leave the HF bands for the other folks.

- | | |
|---------|---------|
| 1. XE | 2. 4X4 |
| 3. CE | 4. PY |
| 5. LU | 6. EA |
| 7. OK | 8. G |
| 9. DL | 10. VK |
| 11. ZL | 12. JA |
| 13. UA0 | 14. UA2 |
| 15. VE | 16. KL7 |
| 17. KH6 | 18. CU |
| 19. A6 | 20. VU |
| 21. ZS | 22. ZD8 |
| 23. YA | 24. LX |
| 25. OZ | |

Now, if you are really good, you can do these extra 4 for a special endorsement:

- | | |
|----------|---------|
| 26. 3B9 | 27. 3Y0 |
| 28. 3DA0 | 29. 3A |

If anyone scores 100%, please let me know.

K7qyg@arrl.net

Thanks, Bob! Twice in one edition....great!

No piece would be complete without a postscript, so here's another bit from our your Assistant Editor, Dave! Don't know what I'd do without Dave's help.

with three and a half miles of circuits. It was to be run by an executive committee of the users. They set up alarm procedures for fire, burglary, and emergency situations. Sounds kind of like a local radio club.

QRK de KD7VLP

As you have probably figured out, I am a bit of a history buff. As a consequence, I spend some of my time searching out odds and ends of information that might illuminate how people lived in the past. Those living in the past were people very similar to us and they solved their problems in many ingenious ways...this is one solution to how to communicate over "long" distances using materials they had available at the time.

Decoding Device, Greece 5th Century BCE
Joanne Chang, '99 and Anna Soellner, '98

A riddance am I asking of the gods
From these my toils, this watch a whole year long,
Which plying, as I lie, propped on my arm
Upon the Atridae's house-top, like a dog,
I have learnt the congress of the nightly stars,
And those who bring to mortals cold and heat,
Bright potentates, set proudly in the sky.
And now I am watching for the signal torch,
The flame of fire, bearing from Troy a tale,
The tidings of its fall: for so is best,
Since my queen's manlike spirit waits in hope.—Aeschylus,
Agamemnon

It is believed that the advance news of the capture of Troy by the Greek commander Agamemnon was communicated through beacons. Though there really is no evidence that proves that beacons were in fact used for communication during the time of the Trojan War, Aeschylus's play suggests that this form of communication was used during his time (525-455 BCE). These beacons, which were simple prearranged signals, served as precursors to the telegraph. It was the Greek military scientist named Aeneas Tacticus who developed this ingenious method of communicating messages using the simplest torch signals in the 4th century BCE.

The way in which this system works is that two armies who wish to communicate with each other would have to create two sets of identical equipment. Each army would have the same earthenware or clay jar with a hole of exactly the same size drilled on the bottom side of the jar. In addition, each army would have a wooden (or cork) float with a rod attached to it. The diameter of the float should be slightly smaller than that of the clay jar. The rod would have clearly marked section with numbers partitioning each section. Each number would represent a military message, like the "corn has arrived" or "don't let the big wooden horse in". The messages on the rod would have to be identical and both armies would have to agree on the most useful messages.

The earthenware jar would be filled with water and the hole at the bottom would be plugged using a cork piece allowing the wooden piece to float inside of the jar. When army A wanted to communicate to army B, a signalman would wave a torch (like in Agamemnon) until it is spotted by signalman B who would then, in return, respond by waving his torch. When contact is established each signalman would unplug his jar simultaneously letting the water drain out. The cork float would then slowly sink to the bottom of the jar while a myriad of numbers inscribed on the rod sink. Signalman A would then raise his torch when the appropriate message that he wished to communicate reaches the eye level of both signalman. Ideally, because the equipment should be identical, the floats would sink at the same rate and thus communicate the same message at the same moment. Though this method is a bit inefficient, it would be virtually impossible for anyone outside of these two armies to crack the code.

Reference

http://www.smith.edu/hsc/museum/ancient_inventions/decoder2.htm
|

A brief description of building such a device can be found at:
http://www.smith.edu/hsc/museum/ancient_inventions/decoder3.htm
|

NOW FOR SOMETHING COMPLETELY DIFFERENT:

Here is an example of pure science as it is practiced in our time of the 21st Century:

Missing spoons stir scientists into action

Australian scientists have proved what is common knowledge to most people - teaspoons appear to have minds of their own. In a study at their own facility, a group of scientists from the Macfarlane Burnet Institute for Medical Research and Public Health in Melbourne secretly numbered 70 teaspoons.

They then tracked the movement of the spoons over five months. Supporting their expectations, 80 per cent of the spoons vanished during the period. The spoons in private areas of the institute lasted nearly twice as long as those in communal sections.

"At this rate, an estimated 250 teaspoons would need to be purchased annually to maintain a workable population of 70 teaspoons," they wrote in Friday's festive edition of the British Medical Journal.

They say their research proves that teaspoons are an essential part of office life and the rapid rate of disappearance proves that this is under relentless assault.

Regretting that scientific literature is "strangely bereft" of teaspoon-related research, the scientists have offered a few theories to explain the phenomenon.

Taking a tip from Douglas Adams' Hitchhikers Guide to the Galaxy books, they suggest that the teaspoons are quietly migrating to a planet uniquely populated by "spoonoid" life forms living in a spoonish state of Nirvana.

They also offer the phenomenon of "resistentialism" in which inanimate objects like teaspoons have a natural aversion to humans.

On the other hand, they suggested, people might simply be taking them.

- Reuters
December 2005

For a more detailed account of this research from the respected British Journal of Medicine, with accompanying tables and data, see:

<http://www.aemii.com/TheCaseoftheDisappearingteaspoons.pdf>

...and this...

It rained and rained and rained;

The average fall was well maintained,

And when the tracks were simple bogs,

It started raining cats and dogs.

After a drought of half an hour,

We had a most refreshing shower.

And then a most curious thing of all,

A gentle rain began to fall.

Next day but one was fairly dry

Save for one deluge from the sky

Which wetted the party to the skin

And then at last the rain set in.

---Anonymous

A fitting close to a periodic log such as this one has not yet been found, but I do have a request from the Staff to you. Consider this....

HOW-WHY-WHERE-WHEN did you get involved in Ham Radio?

Did you have an Elmer to get you started? Or were you a lone wolf?

What is your current license? Since when?

Did you, or do you, use radio(s), some form or another in your work life?

If you used radios at work...did your background as a ham give you an advantage?

Are you active in Ham Radio now? What and how?

What does your shack look like? Is it in your garage, the back bedroom or maybe the dash of your pickup?

What kind of equipment and antennas...etc?

Any major awards, achievements, coups or contacts that you want to brag about in order to make others feel insignificant?

How did you end up here in, or around, Polk County?

OPTIONAL: In 500 words or less, tell us how you feel about something...

Thank you for being patient with me, my 'list' is sometimes quite long and never-ending, and I never know who might get the spark of interest in what's between the lines and actually send in an idea whose time has come.

Speaking of time, don't forget our meeting tomorrow evening at the Greenway Mobile Home Park Clubhouse at 1900, talk-in on 146.86 for those who need directions. This is an important one, so don't miss it. Chris Rumbaugh, K6FIB will be giving a presentation on Green Radios and all that they have done and can still do!

Also.....don't forget the Simplex Net on 146.50 on Thursday evenings at 1845....its a way for you to exercise your rig properly!

ALSO, and possibly the most important thing you'll do in HAM radio this month, if you're an ARRL member don't forget to VOTE in the Section Manager election. Ballots have been sent out and most should have them by now. Even if you're not an ARRL member, this election affects Amateur Radio in Oregon considerably, so tell your friends....

VOTE for BONNIE ALTUS!

(Sponsored in part by Elect Bonnie Altus, AB7ZQ, for Section Manager Committee)

73 and a Breath of Spring to you, my friends!
Harry~AB7X