



# The Monitor

November 2001



## From the Prez:

What a great way to end the summer than a picnic! It was great to see everyone that attended the September picnic/meeting, I hope we can make this an annual event. Only next year, either have more people or less food...

As Mike K1IH mentioned at the picnic and the membership approved, we now have an official web site of our own, you can check it out with your browser at <http://www.w1fn.org> and you can pass it along to all of your contacts. In case you didn't notice, the website has a lot to offer, it has links to just about anything a ham could want to surf to (see the Hot Links section...it is worth it), as well as Field Day pix and much more. You can even set it up as your default home page. At the bottom of the web page is a convenient QRZ! callsign search which is also very handy. You should at least bookmark this web page and save it as one of your favorites.

I am extremely proud of the large turnout of Amateur operators at the last Hartford (VT) planning commission meeting. In case you didn't know, Hartford is considering (planning) to put a tower restriction ordinance in place for the whole town. There will be 2 more meetings about this, and I encourage EVERYONE to attend, if not to speak then to show your support for the Amateur community. It is blatantly obvious that these planners are treading into territory where they do not belong, and are ill-informed to boot. We need to offer any and all help we can give them, and be the example for them to follow. We don't need any more restrictions on our antenna structures than we already have, but their emphasis needs to shift from esthetics to safety. They are also blind to the PRB-1 legislation and we again need to help these people intimately in order to protect all of us. Mike K1IH has taken the lead here, he was extremely outspoken at the meeting and every word he said was relevant, accurate and pertinent to the discussion. We all owe him a bid thanks for standing up as he did for our interests. I live in Hartland, but in the best interest of the TSRC I felt it was my duty to help inform these people of our needs so that another piece of blind legislation doesn't pass needlessly. I got a few words in, but it was plain to see these people are lacking knowledge, and it is up to us to help them. Please try to attend the next two meetings.

Work is proceeding slowly on the Comm Van, please contact Verne N5IEP or Dave WA1ZCN to see if you can help in some way. Last I heard they were trying to blow themselves up with the fuel tank... I hope our insurance covers this...

On a more technical note - I have had a little chance to look at and play with my new YAESU FT-100D HF/VHF/UHF rig, and I will suggest that the club purchase one of these before we start too many more contests. The computer control works extremely well with WriteLog, and the IF DSP is outstanding with this rig. I can't wait to get the matching YAESU ATAS-100 mobile antenna and get this rig installed in my vehicle. One note - if you plan on using this rig on AM, you will need to purchase the AM filter, otherwise your signal is routed thru the SSB filter and it tends to get chopped up a bit. Otherwise this is a highly controllable and functional rig, in 5 minutes since I first powered it up I had contacted 7 different countries on HF (barefoot) all without turning the tri-bander... This radio will fit our needs and has met all the requirements we set out to match when we decided to look for a new rig. It runs off 12 volts, has full 100 watt output on HF thru 6M, 50 on VHF and 30 on UHF. You can remotely mount the head, it is computer controllable and will work in just about any type of installation. Maybe next month I can give a brief report of the FT-817... Anyway you can see the full ARRL Lab Report here (<http://www.arrl.org/members-only/prodrev/pdf/pr9906.pdf>).

Please try to attend the November 10th meeting, we will discuss what we can do to help the Hartford Planning Commission.

Micky - K1XH

## Upcoming Events

TSRC Meeting	Nov. 10th, 9:00am Gillam's Restaurant, WRJ, VT
TSRC Meeting	Dec. 8, 9:00am Gillam's Restaurant, WRJ, VT

## Disclaimer

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# HIGHLIGHTS OF THE AMSAT-NA 19TH SPACE SYMPOSIUM ATLANTA, GEORGIA

This was about the tenth AMSAT Space Symposium I have attended and as always, there were some surprises in store for us. Each year AMSAT-NA sponsors this event to provide a forum for new ideas and to report on ongoing or new satellite projects. We had about 150 attendees from the US space and Amateur communities and many visitors from around the world.

One item of great interest was the current condition of AO-40 and what the future holds for this satellite. After the near- disastrous event in late December, 2000, the satellite has slowly been brought to life and now is operating regularly with uplinks on 435 Mhz and 1269 Mhz and a downlink on 2400 Mhz. SSB, CW, and digital modes are supported and many users are already working on their DXCC on AO-40 including Mike Seguin N1JEZ in Burlington, VT.

One interesting experiment on board AO-40 involves a pair of GPS receivers. NASA is quite interested in knowing if the GPS system can be used by high earth orbit vehicles for positioning data. The GPS satellites are only a couple of hundred miles up and are designed to accurately locate positions on earth. AO-40 is in an elliptical orbit and it is as much as 40,000 miles from earth when over the northern hemisphere. This was an ideal opportunity to team with NASA on a project. NASA would get valuable information and in turn helped us with the shock and vibration testing and qualification of AO-40 prior to launch.

As of this writing, the experiment is working well and data is being fed back to NASA to determine the accuracy of positioning of the spacecraft.

In addition to these activities, the 24 Ghz downlink transmitter has been working well and a small group of Hams have been using that resource and learning how to optimize performance at that frequency.

For more information on getting active on AO-40, check the AMSAT website- [www.amsat.org](http://www.amsat.org) - or contact Mike N1JEZ at - [n1jez@amsat.org](mailto:n1jez@amsat.org)

AMSAT-NA also adopted a strategic plan at this meeting which focuses on building and launching two satellites within the next five years. One of those birds may be the project temporarily named "JJ" after the two initiators of the idea. JJ would have VHF/UHF and microwave capability, but would be smaller and simpler than AO-40. The approach is to keep the satellite electronics as simple as possible (better reliability) and to develop ground station technology to use advanced digital and other technologies through the satellite. The project has adopted an "open concept" for all design efforts-mechanical, electrical and digital, including any software. The idea is to encourage innovators to develop ground station hardware and software to utilize the satellite in new ways.

During the Symposium, we had many technical presentations, including one by Bob Bruninga WB4APR on a newly orbited Amateur satellite for APRS (automatic position reporting system). PCSat was developed and built by the US Naval Academy Satellite Lab under the mentoring of Bob, who is considered the "father" of APRS. This satellite includes a standard AX.25 protocol packet capability at either 1200 baud or 9600 baud operating on 145.825 Mhz. The purpose is to allow handhelds and mobiles to access the satellite for APRS activity and experimentation. Bob demonstrated how it works during a break using a Kenwood H/T with 8-line display. This H/T includes and built-in packet system. He was able to access the satellite easily from a courtyard at the hotel and we saw several other stations operating and providing APRS position data. Bob hopes to limit the use of the bird to H/Ts and mobiles to investigate the full potential of such a system. PCSat is a low earth orbit bird and can be heard up to six times each day. There are other features in this satellite such as a nationwide message delivery system and more information is available on <http://web.usna.navy.mil/~bruninga/www.aprs.net>

One other interesting satellite was mentioned briefly in the proceedings. STARSHINE is a project that included the polishing of many small mirrors by school children across the U.S.A. (My granddaughter's class in Charlottesville, VA did some of the mirrors). The mirrors were installed on a spacecraft with a 145.825 Mhz downlink transmitter sending back telemetry data at 9600 baud AX.25 (FM) and at 437.100-voice and 1200 baud AX.25 telemetry. This satellite is also in low earth orbit and can be heard up to six times each day. I don't have any info on the telemetry decoding, but the AMSAT website will likely have something soon.

Finally, we got an update on Amateur operations on board the International Space Station and future upgrades will include better antennas and additional radios which may possibly include some HF operation in the future!

Overall the symposium was very exciting and I got to see many old friends and meet some new satellite operators as well. If Amateur satellites look interesting to you, take a look at these I have described or check the AMSAT website for information on the 20 plus operating Amateur satellites now in orbit.

One last item- our repeater committee is now working on adding a 222 Mhz link to the 145.33 repeater, which will allow linking of other resources to our repeater. I am planning to link my satellite station to allow repeater users to actually make contact, through the repeater, with other Hams via an Amateur satellite! Stand by for future developments!

73, Bill WB1BRE

# November Propagation Outlook

by AD5Q, edited by K1IB

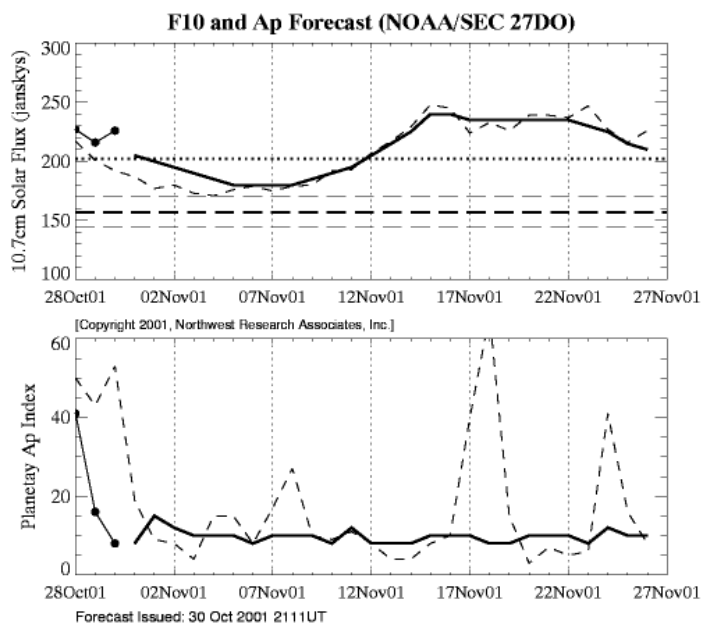
The fall DX season and contest season is at its peak. On 10 and 15 meters, we have gray line openings along the most densely populated DX paths: Europe and Japan. Signals are loud with an unlimited supply of DX nearly every day.

The trend at this time of year is for the high bands to close earlier, with fewer opportunities after sunset. This also narrows or closes the windows over the pole into Asia on 10 meters. The lower maximum useable frequencies also bring good news, as the low bands are opening up.

Forty meters is in excellent shape, with Europe in the evening and Asia and the Pacific late at night and in the morning. Incoming 40-meter signals from points east and northeast peak from wherever the sun is rising in a window that lasts about an hour. There is activity on 80 meters too. The high sunspot activity means weak signals on 80, so activity is low. There are a few stations coming through every night on the CW low end, and more activity on 75 phone. 160 meters is not much of a DX band at this point in the cycle, but is a great phone band for stateside work. Many serious DX'ers and contesters can be found on 160 at night.

And then there's 20 meters - usually open all night. As winter approaches, the band will often close sometime after midnight, especially when solar fluxes are down. Antarctic long paths are excellent with lots of activity in the morning to southern Asia and the Mid-East. We get a late afternoon pipeline to SE Asia and Japan, but with very little activity. Asians apparently don't get on 20 in the morning for long-path the way Americans do. The path is open every day however, and since few stateside ops watch this path there is little competition for the rare DX when it shows.

In summary, this is the time of year when all HF bands are jumping with activity. There is a great variety of propagation available, which makes the major DX contests of the fall season especially fascinating. But even if you are not the competitive type, there is plenty to do on the bands this fall.



# November Solar & Geomagnetic Predictions

These plots show forecasts for the 10.7cm solar radio flux (F10) and the planetary geomagnetic activity index (Ap) for the next 27 days (heavy solid lines). The light solid lines and filled circles at the start of each plot are the observed F10 and Ap for the past few days, and the light dashed lines show the observed F10 and Ap from the previous solar rotation. The three horizontal long-dash lines on the F10 plot indicate the mean (heavy line) and expected range (light lines below and above the heavy line) of F10 from the NOAA SEC long-range prediction for Solar Cycle 23. The single horizontal dotted line is the 90-day mean F10 flux for the preceding 90-day period.

## 2002 VERMONT QSO PARTY February 1-3, 2002

The 44th Vermont QSO Party will take place during the first weekend of February 2002. It will begin at 0000Z Saturday (7 PM Eastern Time on Friday 2/1/2002) and end at 2400Z Sunday (7 PM Eastern Time on 2/3/02). All licensed amateur radio operators are invited to participate. All legitimate Vermont Amateur Radio Clubs will be multipliers for this event

### SUGGESTED FREQUENCIES:

Phone: 160-15 meters in the first 25kHz of the General portion of each band and the entire Novice 10 meter phone band.

CW: 40 kHz up from the bottom edge of each band and 20 kHz up from the bottom of the Novice portions

VHF: 50.2 MHz SSB, 144.2 MHz SSB, 146.49 & 146.55 MHz FM

### EXCHANGE:

Vermont stations send RS(T) and County. CW two letter county designators as follows: AD, BN, CL, CH, ES, FR, GI, LM, OG, OL, RT, WA, WM, and WR.

Other stations send RS(T), state, province or DXCC country.

### SCORING:

All participating stations count one point per phone contact, two points for CW, RTTY or other digital modes. Multiply by number of counties in Vermont, Maine and New Hampshire, states, provinces, countries and legitimate Vermont Club Stations. Multipliers count only once regardless of the number of bands they might be worked. A station may be worked up to four times (different modes) per band.

### AWARDS:

Special certificates will be awarded to the three highest scoring stations in Vermont. All other Vermont stations submitting a log will receive a certificate. Certificates for the highest scoring station in each state, province and country will also be awarded.

Send logs with name address, call sign and what class (single-op, multi-op, club, rover, postmarked no later than 1 March 2002 to:

Bob DeForge, K1HKL  
QSO Party Coordinator Vermont QSO Party  
Central Vermont Amateur Radio Club  
1607 East Street  
Brookfield, VT 05036

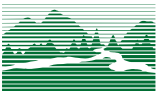
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Don't forget to check the TSRC Home Page! Make it your  
default start page! <http://www.w1fn.org>



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