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Emergency Coordinator's Meeting

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Agenda

- 10:30 Intro and mechanics
- 10:45 SET Review
- 11:30 Additional Exercises
- 12:00 OES Program
- 12:15 Break
- 12:30 Propagation
- 13:15 E-Meetings
- 13:45 Future Meetings

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2008 SET

Emergency Coordinator's Meeting
15-Nov-08

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SET from SEOC

- **SEOC had no access to E-Team**
  - **An incident was created ahead of time**
  - **Many programs provided SitReps**
- **Significant issues with packet**
  - **Needs significant reliability improvement**
  - **Expected to receive ~60 return messages, got 19**
    - Some programs not expected to participate
    - Returns from some messages directed elsewhere
- **CW worked well**
- **IRLP worked, but high volumes, poor net discipline impeded results**

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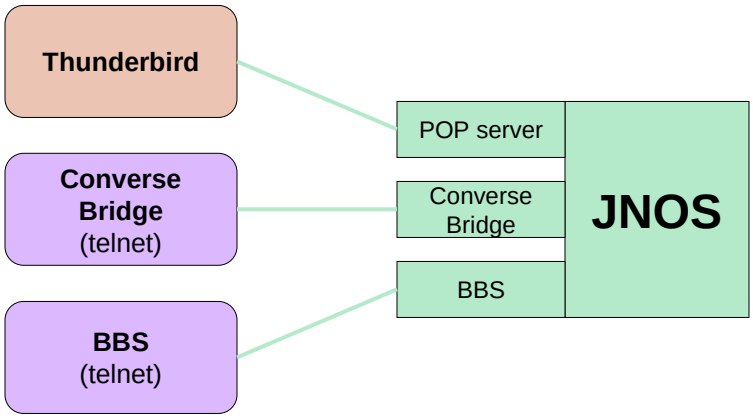
SEOC Packet Setup



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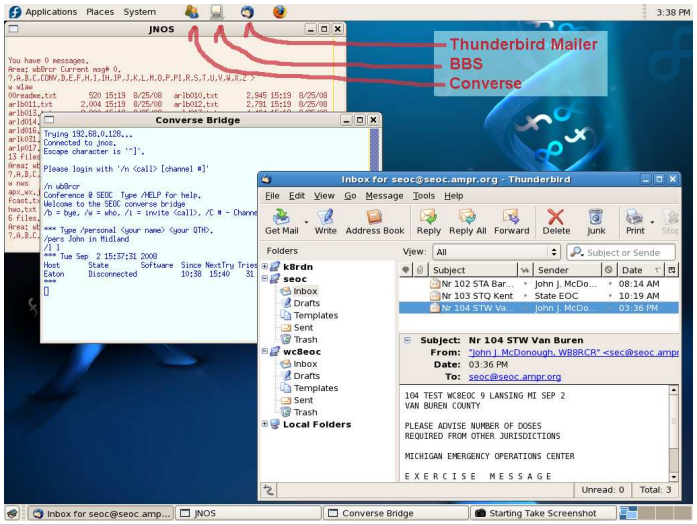
SEOC Packet Setup



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SEOC Packet

- **MIVDF Messages**
  - **Went out first**
  - **Sent via mailer (Thunderbird)**
    - Had prepared texts, pasted them into Thunderbird
- **County Messages**
  - **Sent via program**
  - **Several different texts**
  - **Addressing driven by .csv file**

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SEOC Phone

- **Established comms with EMO as soon as they were operational**
- **Stayed checked into EMO net for duration of operation**
- **A lot of tactical traffic on IRLP, some informal**
- **Somewhat disorganized compared to QMN**

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SEOC CW

- Checked into QMN early
- Stayed with QMN
- QMN is, well, QMN
  - Organized
  - Disciplined
  - Gets the work done
- Some off-frequency traffic to Ottawa

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SET Traffic

	Sent	Rec'd	Total
Packet	81	19	100
CW	3	3	6
Phone	3	2	5
Total	87	24	111

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After Action Plans

- Some programs have asked for additional opportunities to practice
  - Additional SETs suggested
  - Perhaps focused exercises
- Need a project to improve network
- Message handling training lacking in many programs

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What was <u>your</u> experience?

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Jurisdiction SET Results

- Include ICS forms into packet usage
- Problems with connections with different packet formats
- Problems intercepting messages in queue
- Set local echo on
- Minimal participants in some counties; however enthusiastic participants
- Delay in receiving packet messages from SEOC
- Hamgate administrators corrected problems
- Some counties could communicate with each other, but not outside to SEOC
- Involve NTS with ICS message format
- Confusion of strike team areas vs. district areas
- Use of CMEN repeater network in future SET's
- Genesee Co. sent out some messages with intentional mistakes to see if the errors were corrected; some improvement
- Improvement needed in planning SET with served agencies
- Update scoring of SET points? Should we set the standard?
- Start state version of SET score?
- Demonstrate various communication modes to served agencies
- Start spring statewide SET event?
- Rotate statewide SET event yearly between all 4 seasonsl?
- FSD-212 forms are greatly appreciated by county EM's for their reports to higher gov't for what amateur radio does for them
- Send FSD-212 info to county EM's from SEC?

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Inputs, Thoughts?

- Was date change a problem
- Disappointed, didn't get the messages
- People not used to non-common text
- NTS folks need practice
- Do a poor job of originating messages
- MINI-SET? Winter?

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Your input

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Second SET

2008-11-15

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Second SET

- **Following the SET, several folks suggested other, section-wide exercises**
- **What should those look like?**
  - **Specific agencies?**
  - **Test specific modes?**
  - **Test specific paths?**
  - **Organizational impacts?**
- **Should we have some section-wide activity for Skywarn recognition day?**

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Your Input

- Exercise to teach newer members, also focus on served agencies
- Involvement with SKYWARN for SKYWARN Recognition Day or participation in MIQP for outside demonstration of ARPSC purpose
- Work on packet deficiencies
- Work on traffic handling skills
- Post PSK31 NTS program to MIARPSC Yahoo group
- Determine what county EOC's can operate what bands and/or modes
- Work on personal skills; individual member training and also for EC's
- 2 sets of goals, one from MI EMHD and one from county EM
- Incorporate a state training officer
- Give longer advance "warning" for county SET planning timeframe
- Set an scenario for individual counties for more realism
- Training for packet use
- Advance planning may not provide realism for an actual event
- Implement ICS structure in state to match NTS
- Have counties communicate with district station that would communicate with SEOC; span of control
- Have counties determine their communications needs internally
- Become more fluent in E-team
- Develop skills for transmitting SITREPS
- We'll be serving agencies so our own organization won't matter
- Central focus point for training

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Propagation for Emcomm

15-Nov-08

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$$E = h \nu$$

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Planck's Law

Higher frequencies are more energetic

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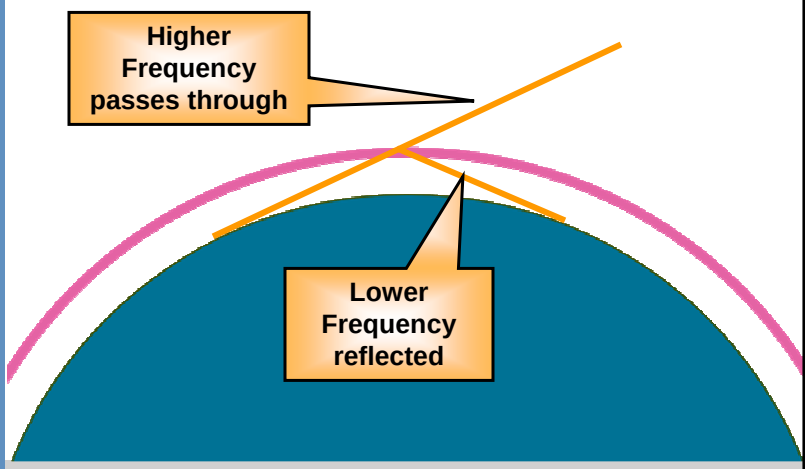
F Layer "Reflection"



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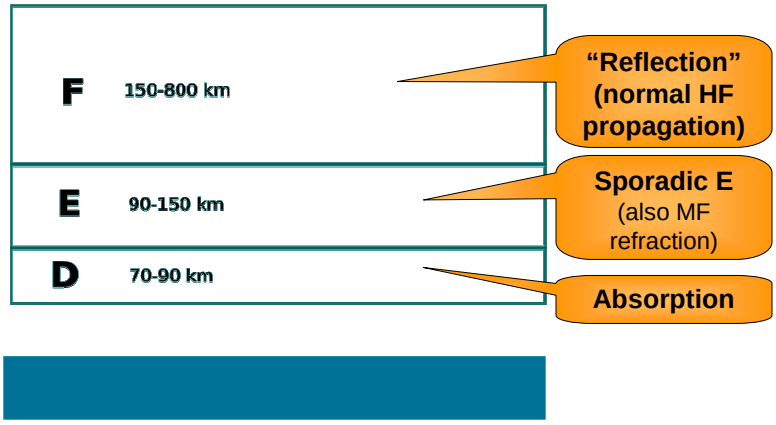
Atmospheric Layers



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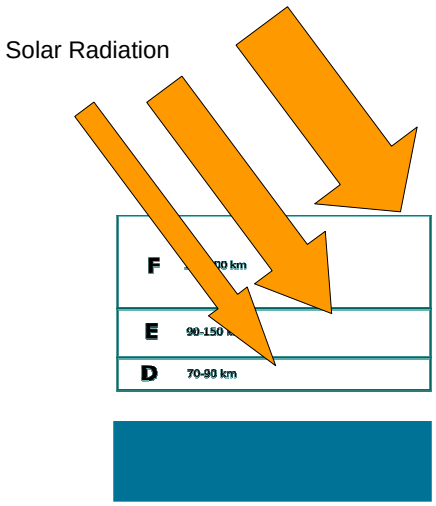
Solar Ionization



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Solar Cycles

- **Four cycles affect propagation**
  - 11 year solar cycle
  - Solar rotation (~28 days)
  - Season
  - Time of day

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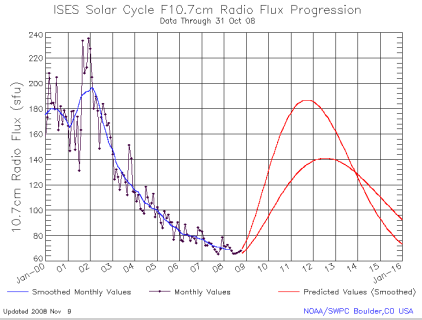
11 Year Solar Cycle

- **Although solar luminance only changes by a few percent over the cycle, the 10.7 cm flux varies by over 3:1**



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Solar Rotation

- The 10.7 cm flux (what matters to us) is affected by sunspots
- The sun rotates so sunspots appear to move across the surface
- This causes an apparent cycle in the flux
- The sun is not solid, different latitudes rotate at different speeds
- Apparent rotation can be 26 to 33 days

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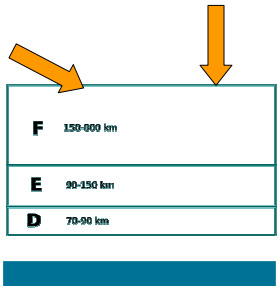
Seasons

- In the winter, solar radiation hits the ionosphere at a shallower angle than in the summer
- Winter effects are therefore not as extreme as summer



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Daily

- When the sun sets, there is no more ionizing radiation
- F layer ionization fades slowly
- D layer ionization fades almost immediately

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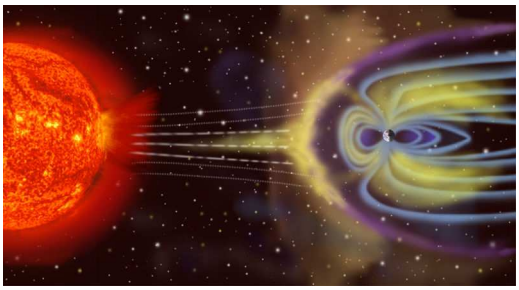
Solar Wind

- Solar wind distorts the earth's magnetosphere
- Changes in solar wind cause magnetosphere to shake
- A moving magnetosphere causes currents in our antennas (noise)



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Two Primary Indices

- **MUF – Maximum Useable frequency**
  - More of interest to DXers
- **F_0 – Critical Frequency**
  - The first index to look at for in-state communications

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Predictor for MUF & F_0

http://www.swpc.noaa.gov/ftpdir/latest/wwv.txt

Solar Flux

```
:Product: Geophysical Alert Messa      .txt
:Issued: 2008 Nov 11 1806 UTC
# Prepared by the US Dept.  Commerce, NOAA, Space Weather Prediction Center
#
#          Geophysical Alert Message
#
Solar-terrestrial indices for 10 November follow.
Solar flux 69 and mid-latitude A-index 3.
The mid-latitude K-index at 1800 UTC on 11 November was 0 (3 nT).

No space weather storms were observed for the past 24 hours.

No space weather storms are expected for the next 24 hours.
```

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MUF

- At the MUF, the <u>minimum</u> distance is about 1000 km
  - Depends on height of the F layer, which varies
- At higher frequencies, RF passes through F layer
- At higher angles, RF passes through F layer
- Varies across the planet

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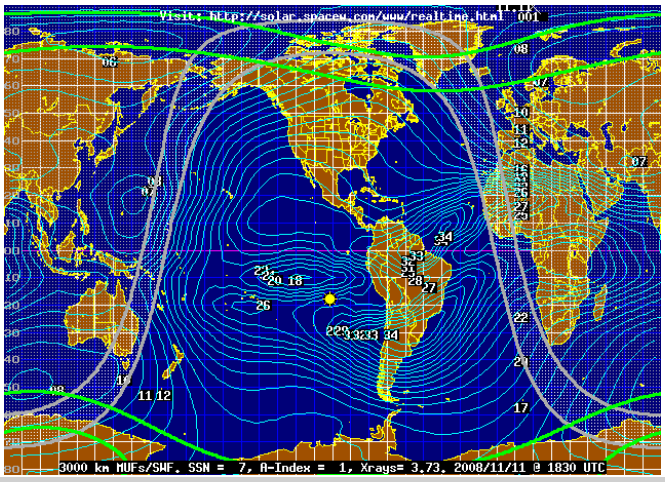
MUF Measurement

`http://www.spacew.com/www/realtime.php`



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Critical Frequency

- **Frequency below which any RF will be reflected**
  - **In other words, highest frequency available for NVIS communication**
- **For emcomm, this is far more interesting than MUF**
- **Note that these frequencies aren't "sharp"**
  - **You generally want some headroom, so for successful 75 meter NVIS contact look for a critical frequency 4.5 MHz or higher**

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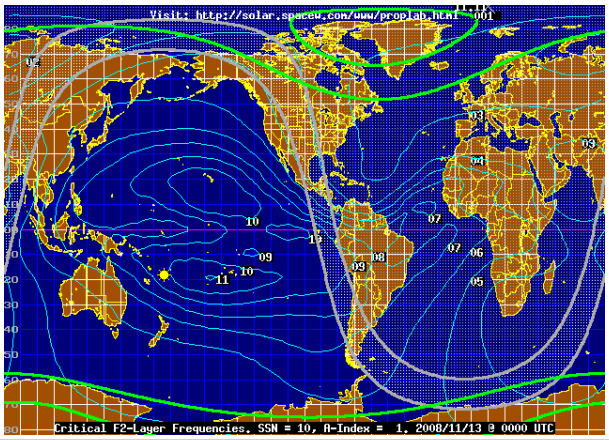
F_0 Measurement

`http://www.spacew.com/www/fof2.html`



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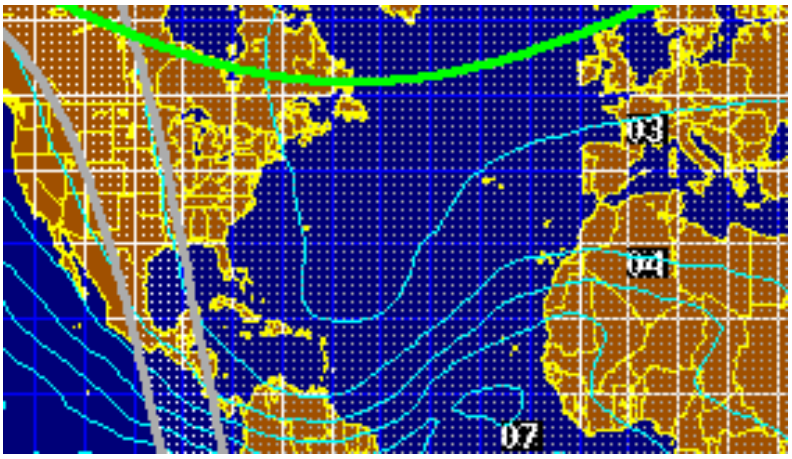
F_0 Measurement



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Absorption

- The D layer absorbs RF
- D virtually disappears at night
- Higher frequencies less affected
  - More energetic
- Not an issue at this point in the cycle

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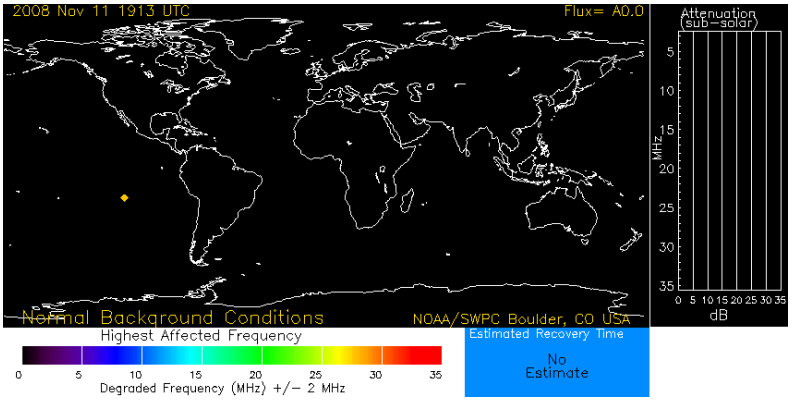
D Absorption Measurement

http://www.swpc.noaa.gov/dregion/



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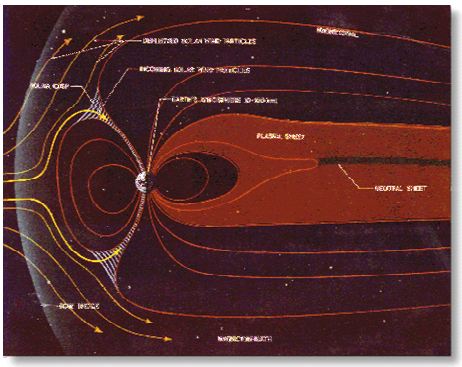
Geomagnetic Activity

- **The earth's magnetic field is squashed by the solar wind**



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Magnetosphere Effects

- Changes in the solar wind cause changes in the magnetosphere
- At high solar wind velocities or densities, the magnetosphere flaps in the breeze like a flag
- A moving magnetic field causes currents in our antennas
  - This equals noise

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Geomagnetic Measurement

http://www.swpc.noaa.gov/ftpdir/latest/wwv.txt

A-index **K-index**

```
:Product: Geophysical Alert Mes     wv.txt
:Issued: 2008 Nov 11 1806 UTC
# Prepared by the US Dept. of Comm     , NOAA, Space W     her Prediction Center
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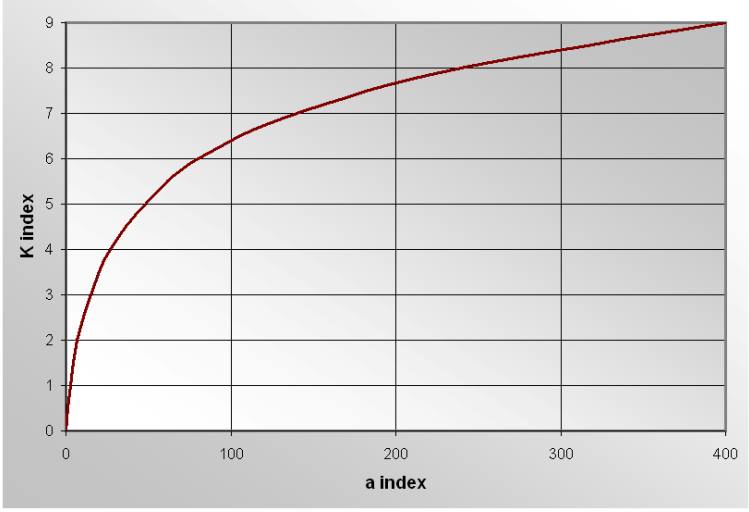
A and K are the same



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Geomagnetic Activity

- Magnetic conditions can change rapidly
- Unfortunately, A and K are only reported a few times a day
- Satellite measurements can give us immediate warning
  - High velocity or density or rapid changes signal noise

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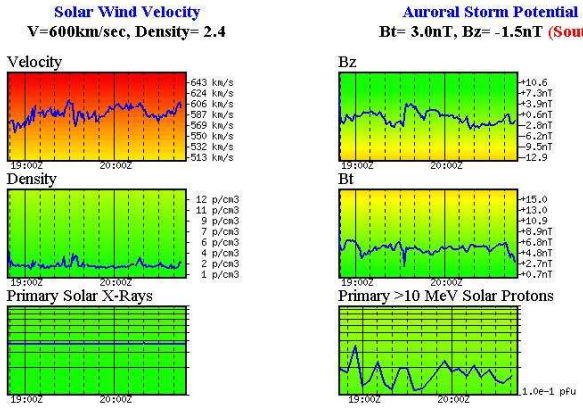
Solar Wind Measurements

http://www.spacew.com/plots.php



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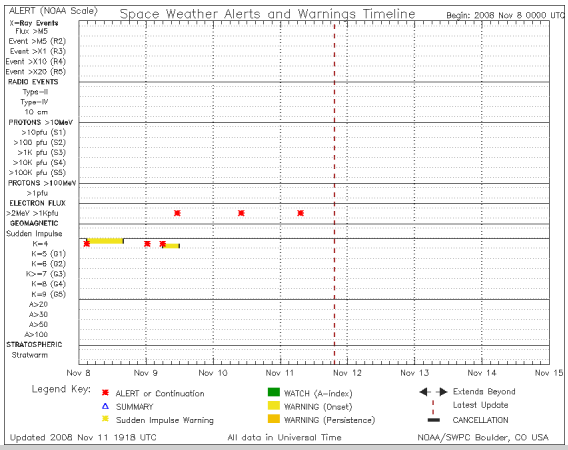
Space Weather Alerts

http://www.swpc.noaa.gov/alerts/warnings_timeline.html



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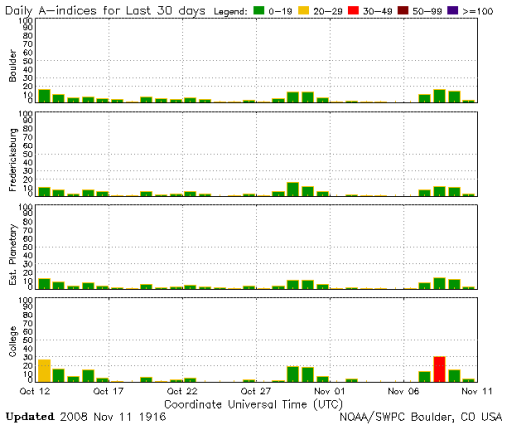
A-Index History

`http://www.swpc.noaa.gov/alerts/a-index.html`



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Summarizing

- First, check F_0
  - Must plan on operating < F_0
- Flux, time of day will give you an idea of what to expect for F_0
- Check A/K
  - Higher means move to higher frequency
  - Use predictions to be alert to high noise events in the future
  - Keep an eye on the solar wind for sudden changes
- Later in the cycle, watch out for D

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EOC Antennas

- Usually want an NVIS antenna
- Generally want close to vertical incidence
  - 23° from vertical = ~300 mile hop
- 75/80 generally the most useful
- At times of low flux (now) especially in the winter, think 160
  - If F_0 is below 4, no magic antenna will help 75
- At times of high flux, especially in the summer, think 40
  - High power can help overcome noise but keep in mind it takes a lot of power

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Questions?

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Q & A

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E-Meetings

2008-11-15

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Drivers

- In-person meetings are expensive
- In-person meetings take travel time
- No “ideal” location for in-person

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Possibilities

- Echolink
- Phone Conference
- IRC
- WebEx (or similar)
- Video Conference

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Some Considerations

- ECs in the south seem reluctant to travel very far
- ECs in the north might have a long way to go
  - 500 miles to Lansing from Menominee
- Surprisingly many ECs don't have broadband Internet
- There is a wide disparity in the financial resources available to ECs

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Echolink

- Audio Only
- Requires some setup (server)
+ Easy to schedule once set up
- Might not work so well with dial-up
- Can be challenging for Mac users

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Phone Conference

- Audio only
- Cost
  - ARRL conference bridge has significant cost
  - freeconferencecall.com requires long distance call for some
- Unwieldy if many participants
+ Easy to set up (for fcc.com)
+ Does not require Internet

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IRC

- Text only
+ Low bandwidth requirement
+ No cost
- Not all people have software
+ No setup/scheduling issues
+ Minutes more or less automatic
  (and complete)

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WebEx

- Cost
+ Audio plus slides
- Scheduling
- Not sure about non-Windows software

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Video Conference

+ Audio plus video
- Cost
- Scheduling
- Will probably require at least some travel
- Significant logistical issues

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Discussion

- Free a/v website: WB8TKL
- Echolink w/ pre-sent pdf for video
- Check for availability for access at EOC for Echolink, or other method
- Step-by-step analysis of what works and what doesn't
- Smaller meetings more frequently
- DEC meetings? (Go-to meeting)
- Merit Networks, possibly free of charge
- MARC 3 telephone conference bridge, 1 face-to-face, contact member of MARC
- 1 meeting a year at least in Lansing MSP Training Facility
- YouTube video or other video method for later review
- Next meeting try a different mode for review
- Strictly a UP meeting
- Spring mtg: Cadillac hamfest?
- Regional meetings? Filter to district counties

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Future Meetings

2008-11-15

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Future Meetings

- We would like to have 2 meetings per year
- Northern ECs have trouble traveling to Lansing
- We have more ECs in District 8 than in District 2, even if population is heavy in the south
- We need to allow folks more time to plan

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Meeting Dates

- Should we have fixed dates?
  - For example last Saturday in April and October
- Should we move meetings around?
  - Possibility: Spring meeting at Cadillac hamfest
- Should we make one (or both) meetings electronic?

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DECs

- I would like to have more frequent meetings with DECs
- For the smaller group, phone conference works well
- Quarterly (or monthly) DEC meetings could reduce pressure on EC meetings

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Comments

- Repeat same conflict every year; some EC's would have conflict (i.e. hunting vs. EC meeting)
- Phone number with pre-recorded message with info of district and/or county references

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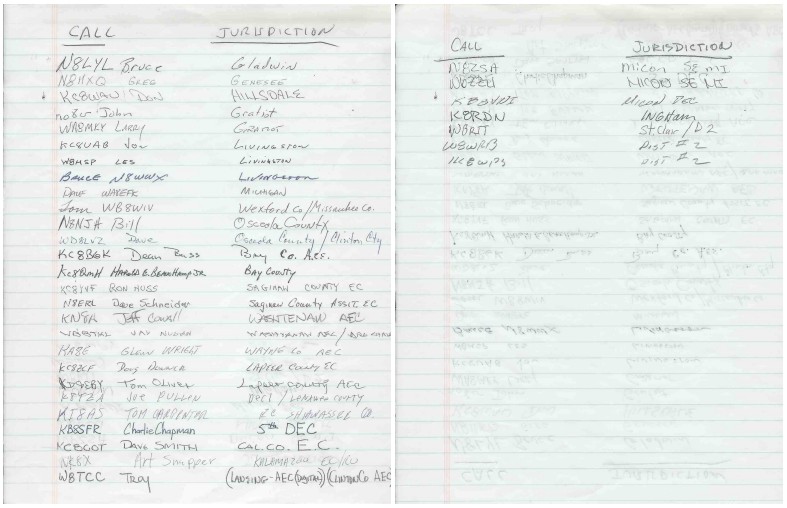

CALL	JURISDICTION
N8LYL Bruce	Gladwin
N8IXQ Glee	Genesee
KC8WAU Don	HILLSDALE
no8r John	Gratiot
WA8AKY Larry	Gratiot
KC8UAB Jon	Livingston
WB4SP Les	Livingston
Bruce N8WWX	Livingston
Dave WA8EFK	Michigan
Tom WB8WIV	Wexford Co/Missaukee Co.
N8NJA Bill	Osceola County
WD8LVZ Dave	Osceola County / Clinton City
KC8BeK Dean Bass	Bay Co. Aces.
KC8BmH Harold & Bea Hamp Jr.	Bay County
KC8INF Ron Huss	SAGINAW COUNTY EC
N8ERL Dave Schneider	Saginaw County Asst. EC
KN8A Jay Cowell	WASHTENAW AEC
WB8TKL Jay Nugent	Montmorency ARC / Roscommon
KA8E Glenn Wright	WAYNE Co AEC
KC8ZF Doug Kramer	Chippewa County EC
KC8EBY Tom Oliver	Luce-Mackinac Counties ACC
KB8YZA Joe Pullen	DEC1 / Lenawee County
MI8AS Tom Harpenau	EC Shiawassee Co.
KB8SFR Charlie Chapman	5th DEC
KC8GOT Dave Smith	Cal Co. E.C.
N8RX Art Smepper	Kalamazoo EC/RO
WB8TCC Troy	(Lansing-AEC(Capitol))(Livingston Co AEC

CALL	JURISDICTION
N8ZSA	Macon SE MI
WD8ZEU	Macon SE MI
KB8VZE	Macon Dec
KD8RDN	Ingham
WD8RJT	St Clair / D 2
WB8WR3	Dist 2
KC8WJS	Dist 2