FUTURE TRENDS IN THE WEAK SIGNAL VHF WORLD

PackRats

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ROLE OF A DINNER SPEAKER

- Be entertaining
- Don’t get too technical
- Don’t show too many slides – your audience will fall asleep
- Don’t give them indigestion
- Blame Paul Drexler if the above are violated

HYBRID SDR IFs

- ≡Receivers that do all but a few functions like front end and AGC in software
- High end SDR hybrids have performance far exceeding strictly analog radios
- Avoids some disadvantages of pure SDRs

PURE SDRs

- Everything done in software
- DDS I/Q channel receivers do not require roofing filters
- Broadband Panadaptor
- History Machine

SDR vs. ANALOG

- Advantages
  - Non-ringing FIR filters
  - Superior noise elimination
  - Remote operation easier
- Potential Disadvantages
  - Strong signal handling capability limited by D/A converter
  - Digital AGC does not handle strong signals well
  - Different human interface: mouse vs. knob

ADVANCES IN MICROWAVE INTEGRATION

- Well-designed, reliable microwave system components now available
- GPS-linked LOs
- Converted surplus commercial gear provides increased power at reasonable cost

A WORLD WITHOUT SUNSPOTS? Pt I

- The current sunspot minimum period is the longest and deepest in more than 50 years
- Since the X40 flares in 2006, geomagnetic activity has dropped to levels not seen in close to 100 years
- The number of spotless days is above average and beginning to approach record proportions

A WORLD WITHOUT SUNSPOTS? Pt II

- Solar magnetic field has been declining in a sunspot-independent manner since 1992; extrapolated sunspots could vanish by 2015 http://www.leif.org/EOS/2009EO300001.pdf
- Ap index at its lowest level in 75 years; Ap ≤10 for ~50 months
- Solar irradiance shows no signs of reversing its downward trend
- Meridional flow has slowed
- Recent 51 day spotless stretch may point to a double bottom

CYCLE 24

- Cycle 23 probably reached its (first?) bottom in December 2008?
- Smoothed SSN ~3 and SFI ~64
- Cycle 24 has been slow to advance
- Cy 24 spots appear “defective” and short-lived
- Predictions for next SSN max have been dropping like the 1929 stock market Max now ~90 Do the predictors have a clue?
- Cycle 25 predictions are uniformly dismal

WHAT IF CYCLE 24 BOMBS?

- MUF will rarely if ever reach 50
  - You can forget about European F2
- But Es will remain better than normal
  - Long distance “SSSP” contact may continue
- Geomagnetic activity should be greatly reduced
  - Aurora will get much less common especially on 2 meters and above
- It will get COLDER
  - Tropo may improve

IS THERE ANY HOPE?

- Dual SSN Peaks
- Solar hemispheres are out of synch
- The last true single peak was Cycle 19
  - It was proceeded by a deep long minimum
  - It was the largest SSN peak – EVER
- SSN peak predictions have been notoriously inaccurate in the past
- But latest indications leave little possibility that the next cycle will even be decent

THE STATE OF DOMESTIC VHF CONTESTING I

- More amateurs own weak signal VHF radios than ever before
  - IC706, FT100, IC7000, FT857/897
  - HF+6 meter radios
- Activity on 6 meters, the most available VHF+ band, appears to have been rising during Es openings

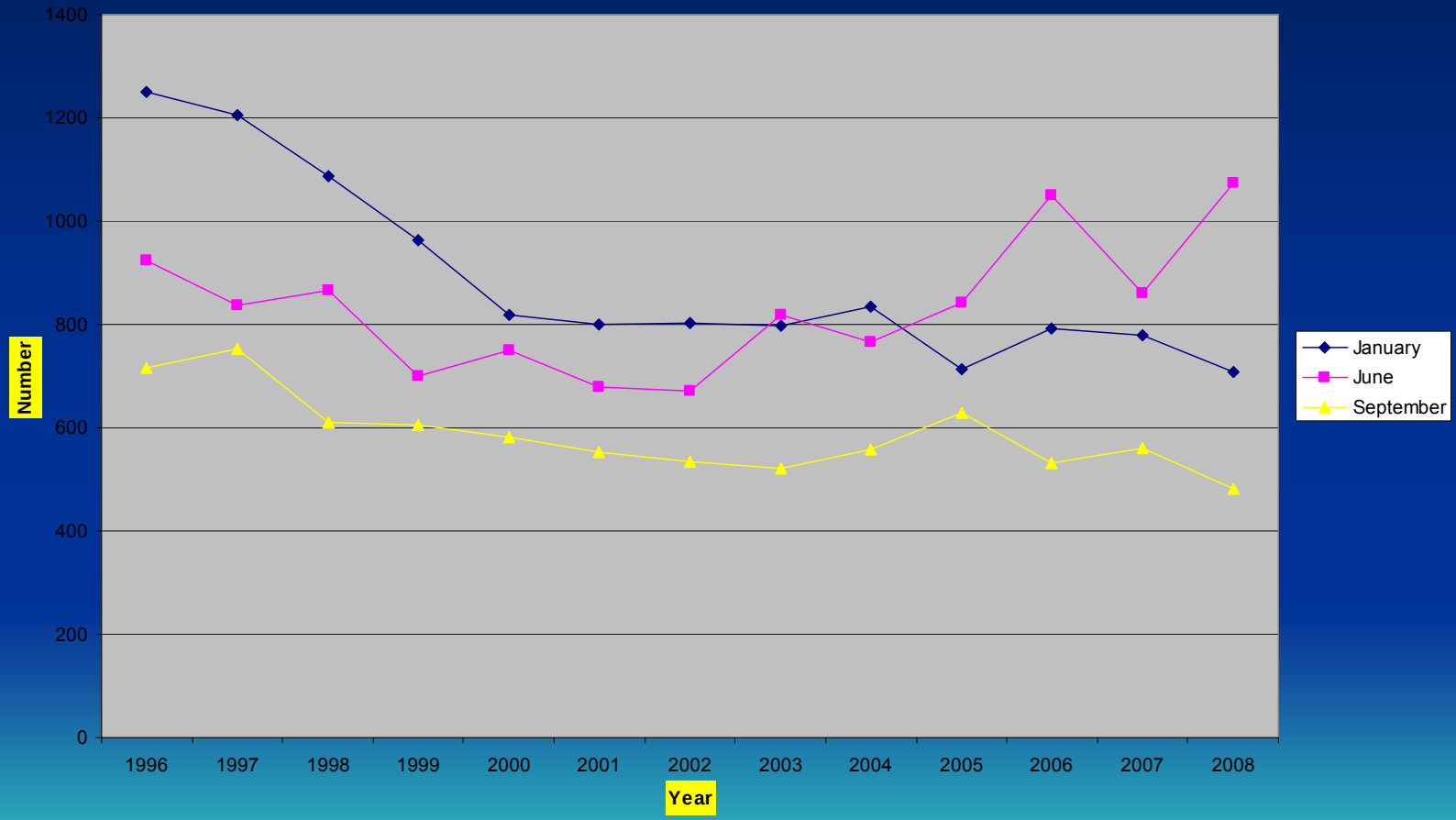
THE STATE OF DOMESTIC VHF CONTESTING II

- In spite of horrid sunspot minimum conditions. HF contesting of all kinds is either growing or staying constant
- VHF contesting in Europe also appears to be increasing
- Jan & Sept ARRL VHF contests are diminishing; June increases only under superb Es conditions

THE STATE OF DOMESTIC VHF CONTESTING III

- In 10 years the CQ WW VHF Contest has gone from nothing to 532 logs under ordinary July Es conditions in 2008
- The September ARRL VHF QSO Party had 482 logs in 2008
- During the superb conditions in 2006, the CQ contest had MORE activity than the June ARRL VHF contest based on the master databases.
- ***WHY???????***

ARRL VHF Contests



WHAT PROBLEMS?

- Major ARRL VHF Contests are boring
  - Rules are basically identical
- Major ARRL VHF Contests are all microwave contests.
  - The entry VHF bands, 6 and 2 meters, are unimportant except to generate μW Qs
  - A newcomer with only 1 or 2 bands will produce a dismal score
  - The practice of working a station and then running him through the bands is necessary but highly inimical to newbies

WHY IS THE CQ CONTEST SO POPULAR?

- Takes advantage of natural propagation
- Only two bands
- The old rovers rules are the best rover rules
- The rules make abuses like grid circling and captive rovers inconsequential
- Because Es is so important, the Northeast Coast is at a ***disadvantage***

POTENTIAL CHANGES

- New categories
  - Limited single op: High & Low Power
- Different rules for different contests
  - Take advantage of propagation
- Get rid of the abuses
  - Grid circling
  - Captive rovers

SOLUTIONS I

- Institute a Limited SO
- Fix the current UR/LR/R mess (ongoing)
- Ban captive rovers
- Think about (Passive) Assisted Classes

SOLUTIONS II

- June
  - Bottom 4 bands -Same 1 pt/2 pt scoring
- September
  - All bands -Distance scoring using grids
- January
  - Leave scoring/bands as is
- UHF
  - Adopt the SBMS rules