Tactical Use of Propagation Predictions for HF Contesting

A Joint PVRC/NCCC Webinar Presentation

Monday, June 7, 2010

By Dean Straw, N6BV

Senior Assistant Technical Editor (Retired)

Tactical: “adroit in planning or maneuvering to accomplish a purpose”

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- What is the purpose of planning tactically?
- Why, of course, to boost our contest scores... hopefully, even to win some contests!

Some Propagation-Prediction Tools

- *VOACAP*
- *VOAAREA*
- OH6BG's *VOACAP* site
- N6BV prediction tables

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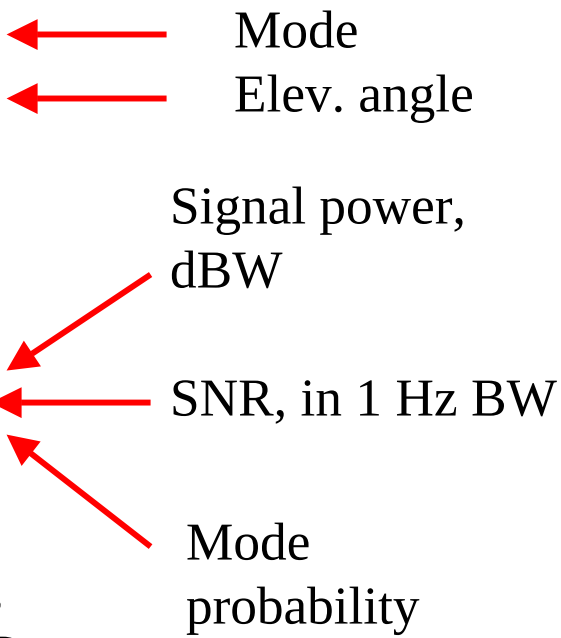
- *VOACAP* produces lengthy tabular printouts that require a lot of interpretation and massaging.

A Typical *VOACAP* Output Table

```
Oct    1994          SSN = 100.              Minimum Angle= 0.100 degrees
SAN FRANCISCO       LONDON                AZIMUTHS          N. MI.      KM
37.78 N  122.42 W - 51.50 N    0.17 W     32.64  316.78    4651.1   8613.2
XMTR  2-30 + 10.0 dBi[samples\SAMPLE.00    ] Az= 52.9 OFFaz=339.7   1.500kW
RCVR  2-30 + 10.0 dBi[samples\SAMPLE.00    ] Az=234.9 OFFaz= 81.9
3 MHz NOISE = -163.6 dBW     REQ. REL = 50%    REQ. SNR = 43.0 dB


SUMMARY    6 MODES   FREQ =  14.1 MHZ  UT =  15.0
                                                                  Most REL
                  3.F2      4.F2      4. E      5.F2      5.F2      5. E      3.F2
TIME DEL.        29.87     30.41     29.17     31.76     31.89     29.37     29.87
ANGLE             4.57     10.22      1.72     17.85     18.35      5.06      4.57
VIR. HITE       287.27    297.20    125.30    353.16    362.42    137.00    287.27
TRAN.LOSS       149.88    158.17    602.22    184.45    187.14   1037.71    149.88
T. GAIN          10.00     10.00     10.00     10.00     10.00     10.00     10.00
R. GAIN          10.00     10.00     10.00     10.00     10.00     10.00     10.00
ABSORB            6.48      5.03      7.01      3.57      3.50      6.37
FS. LOSS        134.47    134.63    134.27    135.01    135.04    134.33
FIELD ST.         2.07     -6.22   -450.28    -32.51    -35.20   -885.77      2.67
SIG. POW.      -118.12   -126.41   -570.46   -152.69   -155.38  -1005.95   -117.52
SNR              51.41     43.12   -400.93     16.84     14.15   -836.42     52.01
MODE PROB         0.95      0.77      0.01      0.39      0.39      0.00      0.95
R. PWRG        1000.00   1000.00   1000.00   1000.00   1000.00   1000.00     -9.01
RELIABIL          0.70      0.50      0.00      0.10      0.07      0.00      0.71
```



“Method 25”: “All modes table,” for one frequency, for each hour -- the output file is huge (about 250 kB = 28 printed pages)

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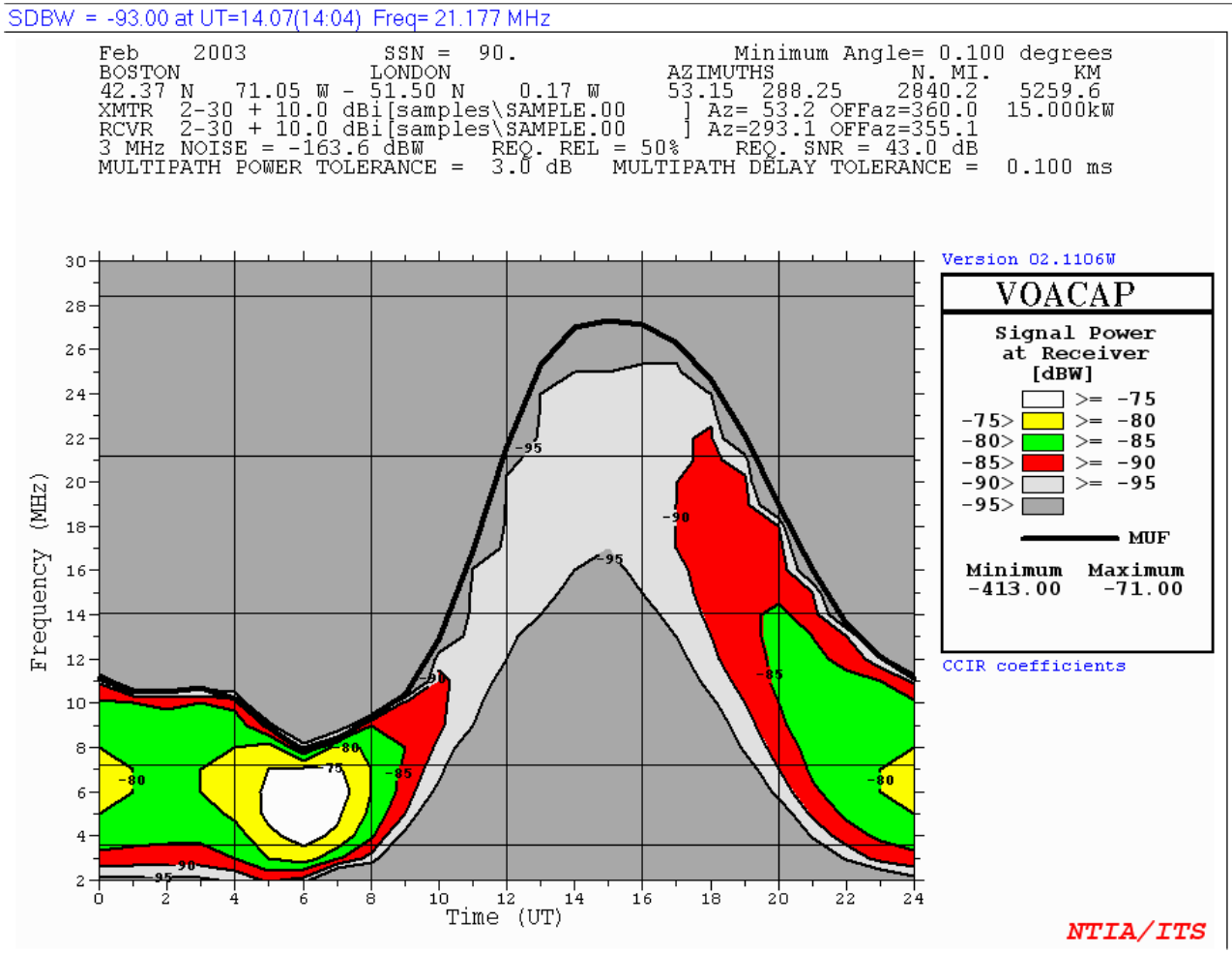
- *VOACAP* is for point-to-point predictions (one transmitter site to one receiver site).

- *VOACAP* produces lengthy tabular printouts that require a lot of interpretation and massaging.

- *VOACAP* can produce colorful graphs, although these aren't really useful for contest planning.

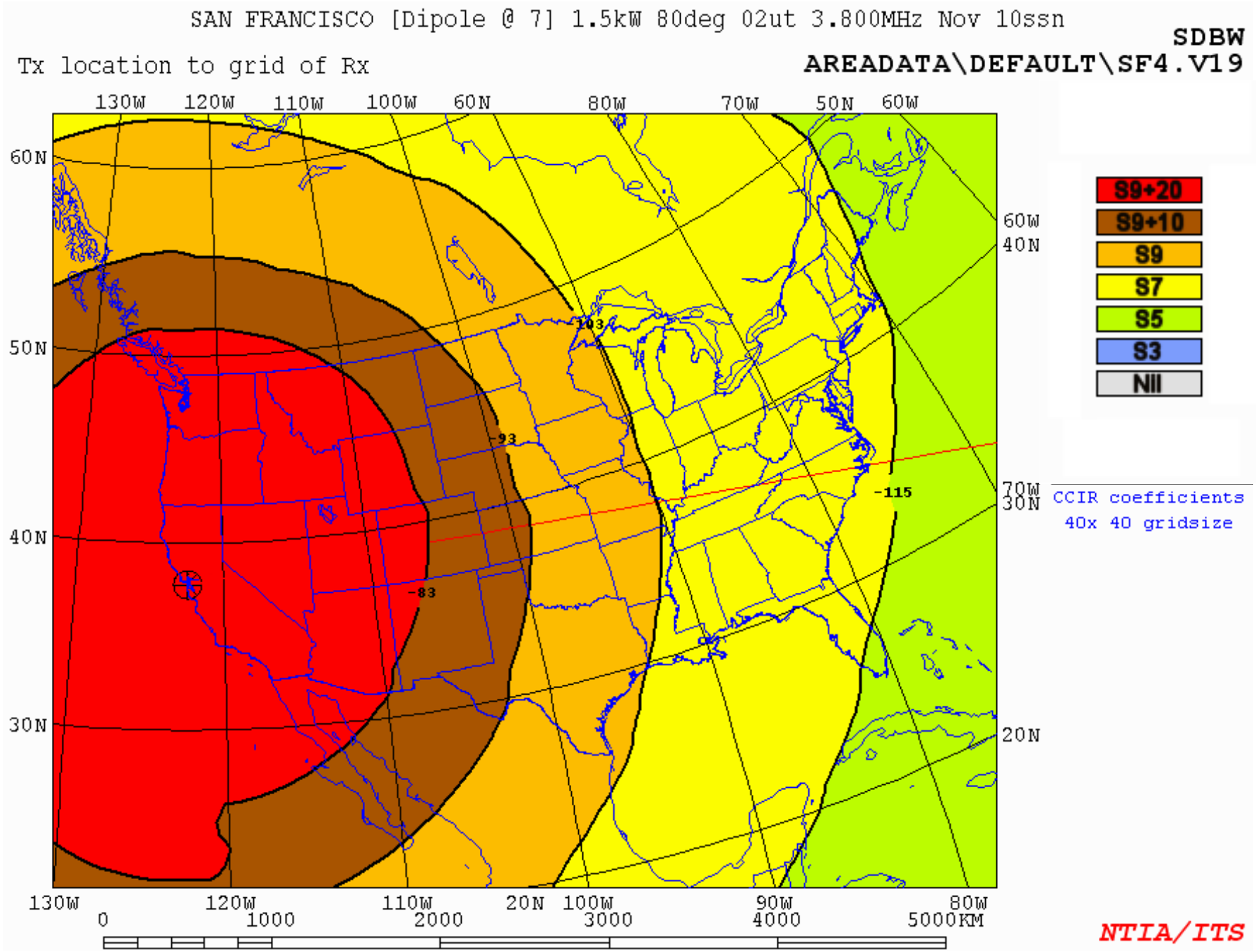
VOACAP Graphs?



This graph looks pretty, but it doesn't really give that much "Big Picture" information for contest planning.

VOAAREA

• *VOAAREA* uses the *VOACAP* engine to produce area-wide coverage from a single transmitting site for a single frequency.


SAN FRANCISCO [Dipole @ 7] 1.5kW 80deg 02ut 3.800MHz Nov 10ssn
SDBW
AREADATA\DEFAULT\SF4.V19
Tx location to grid of Rx
130W 120W 110W 100W 60N 80W 70W 50N 60W
60N
50N
40N
30N
60W
40N
70W
30N
20N
S9+20
S9+10
S9
S7
S5
S3
Nil
-103
-93
-83
-115
CCIR coefficients
40x 40 gridsize
130W 120W 110W 20N 100W 90W 80W
0 1000 2000 3000 4000 5000KM
NTIA/ITS

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• *VOAAREA* uses the *VOACAP* engine to produce area-wide coverage from a single transmitting site for a single frequency.

• *VOAAREA* charts are arguably the most intuitive presentation of propagation data — but only for a single frequency and a single UTC time.

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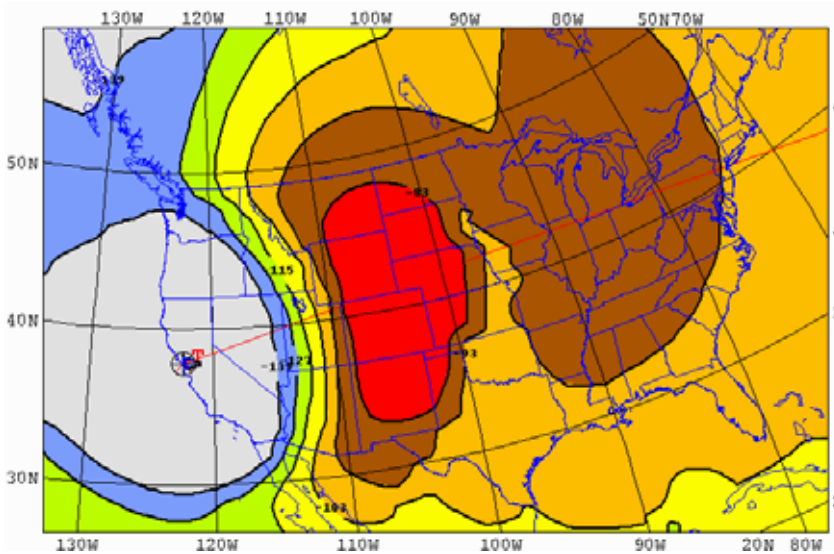
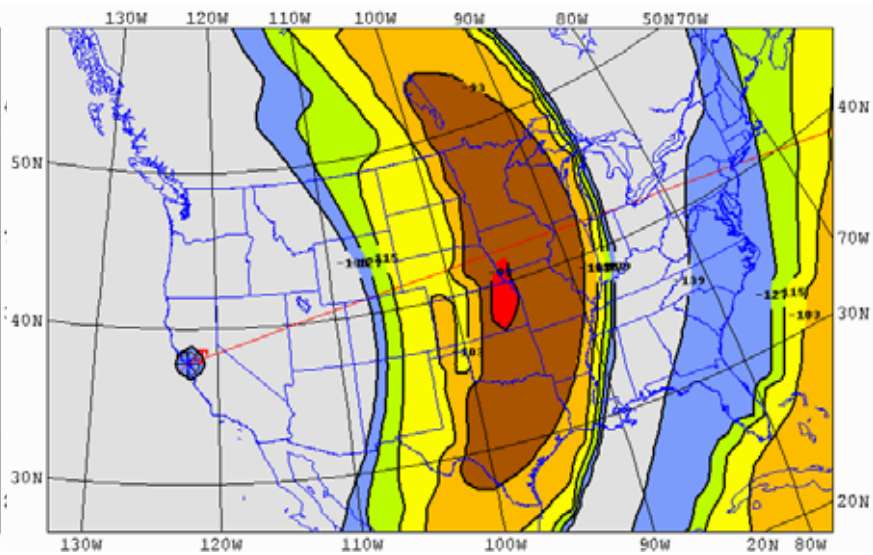
• *VOAAREA* charts are arguably the most intuitive presentation of propagation data — but only for a single frequency and a single UTC time.

• This makes it difficult to get the *big picture*, unless charts for several frequencies are combined in a montage good for one hour at a time. A series of these montages makes a sort of *movie* to use while operating.

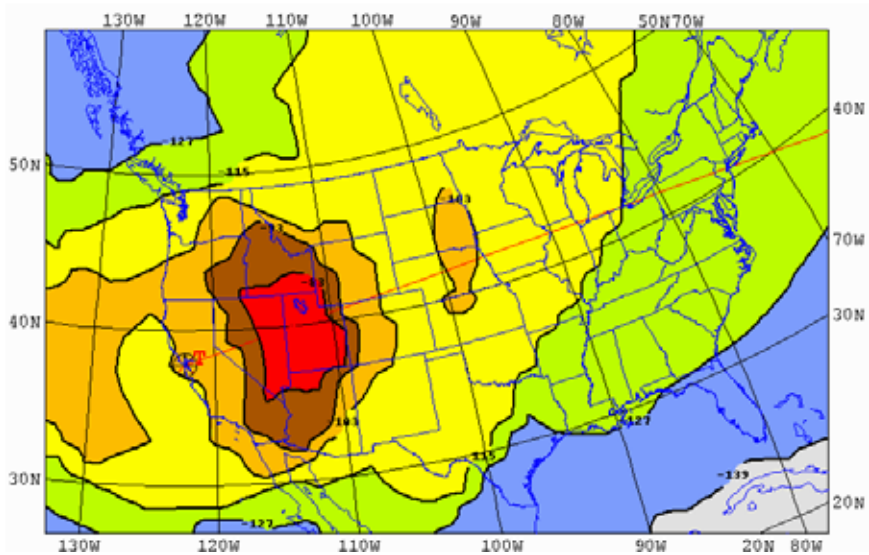


20 m



15 m

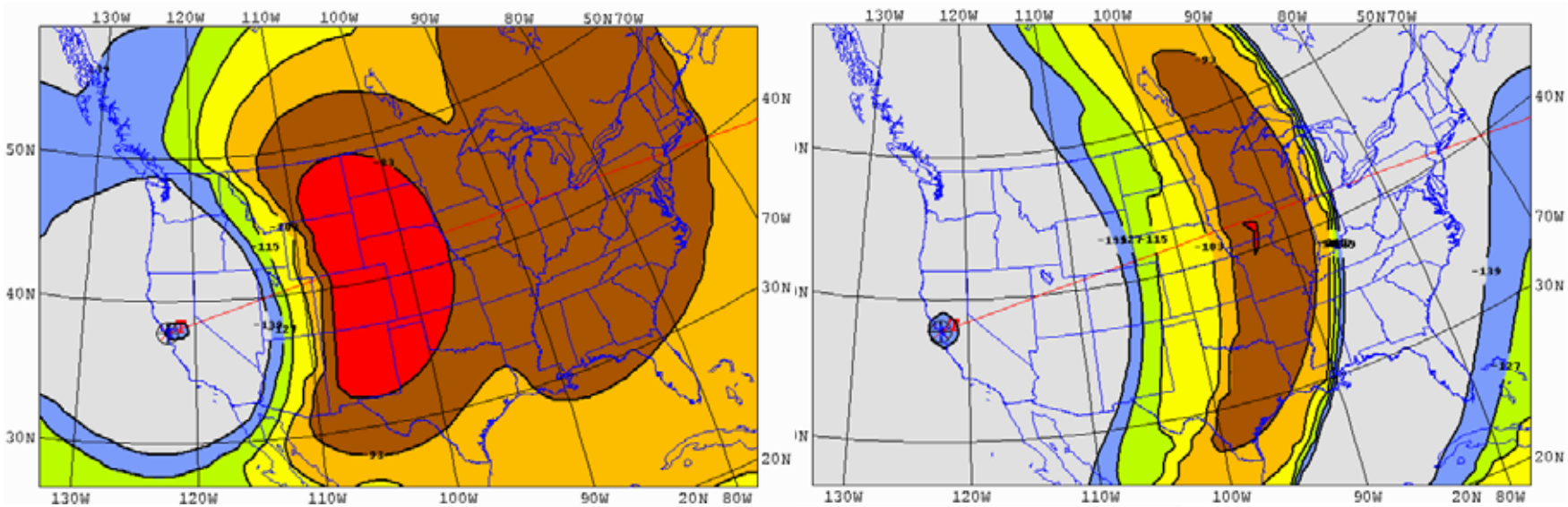
Note: skip zones on 20 and 15.



40 m

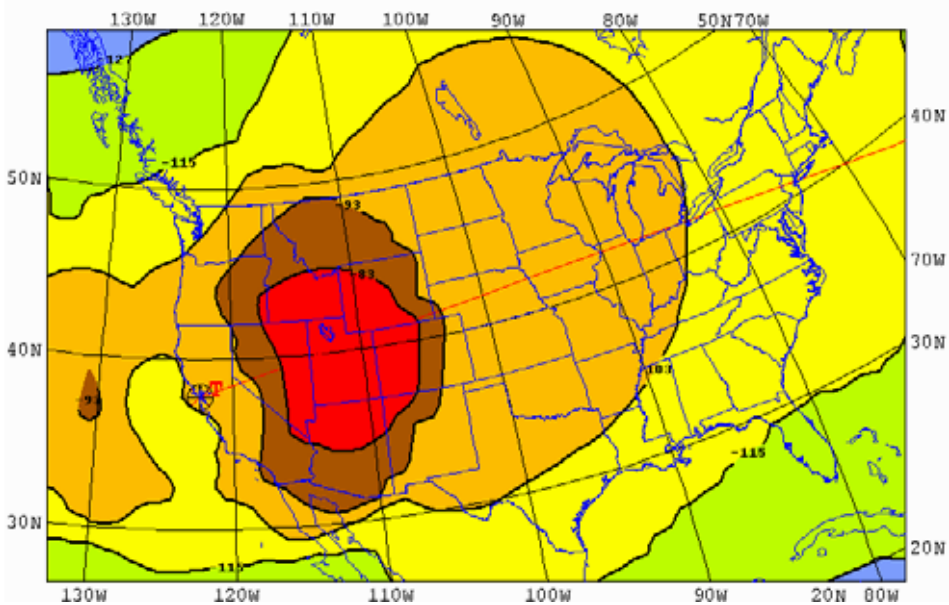
A *movie* of area-chart montages.

21 UTC
(13 Local for Sweepstakes contest)



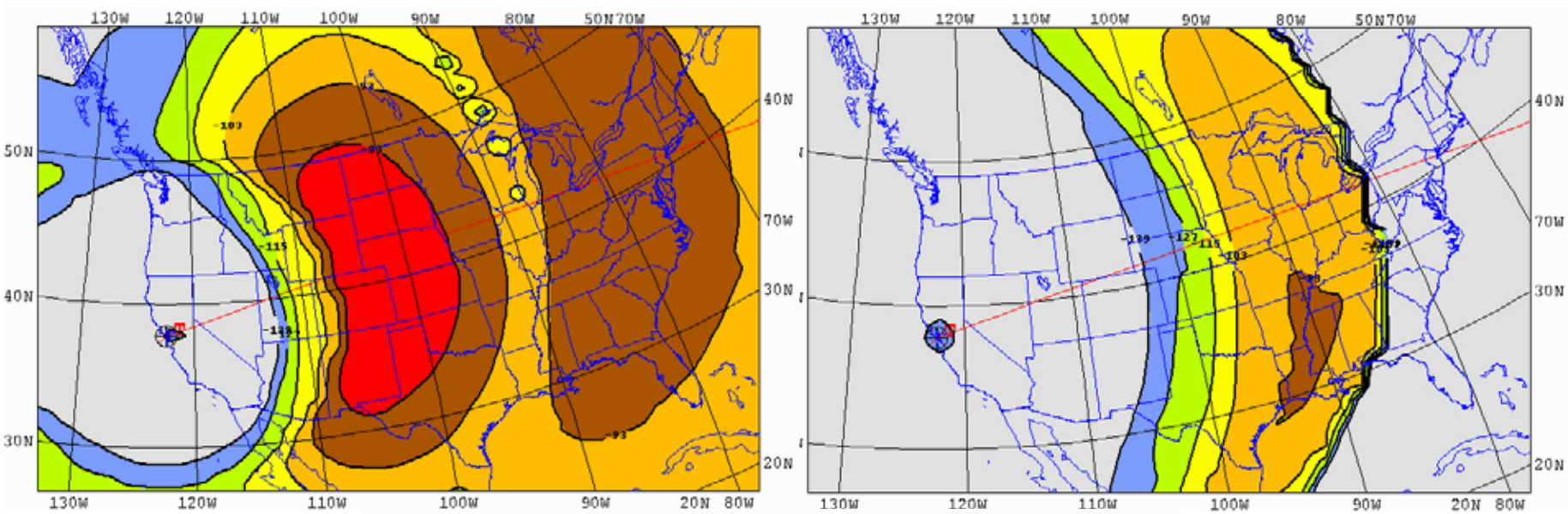
20 m

15 m



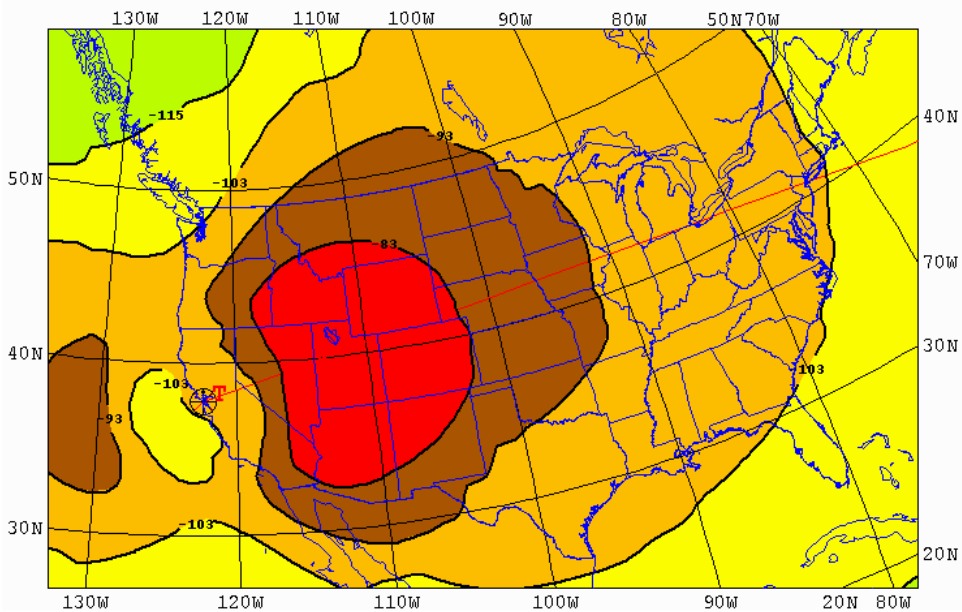
22 UTC

40 m



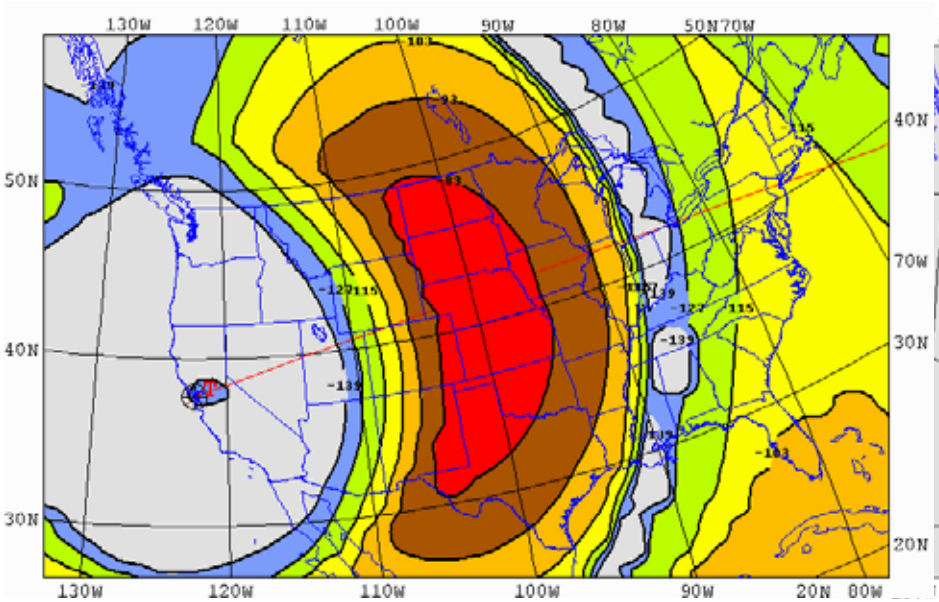
20 m

15 m

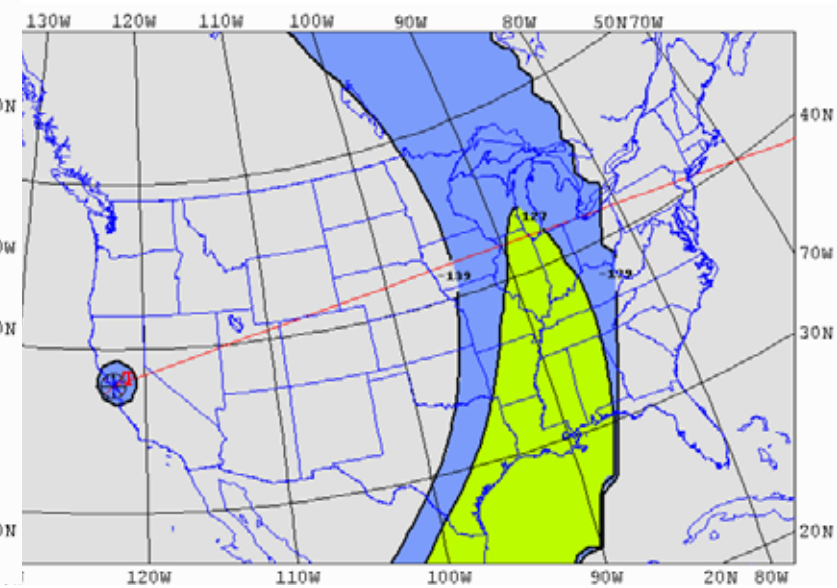


23 UTC

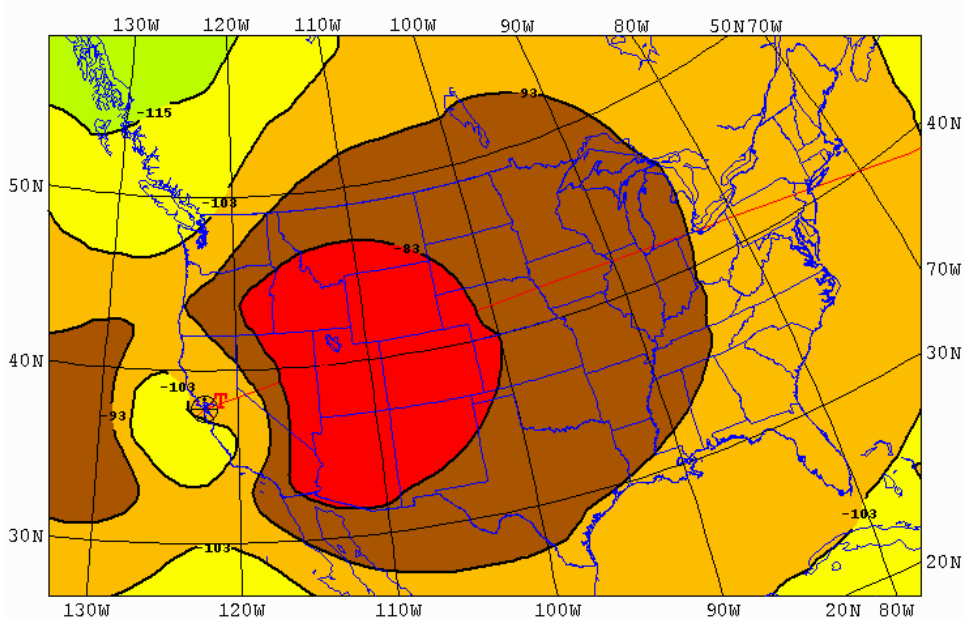
40 m



20 m



15 m



40 m

00 UTC

+ 20 more slides like this

VOAAREA

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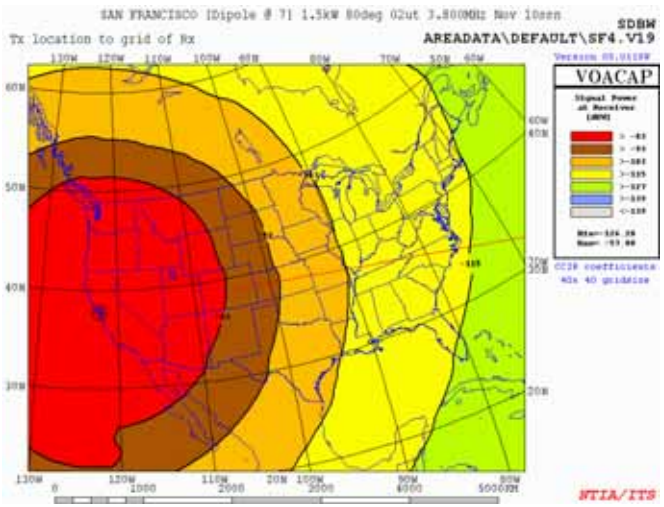
• *VOAAREA* movies don't tell me whether I can run rate at a particular time on a particular band, despite competition from around the world.



How strong is a W3 into W1, compared to a W6 on 80 meters?

Latest N6BV Prediction Tables

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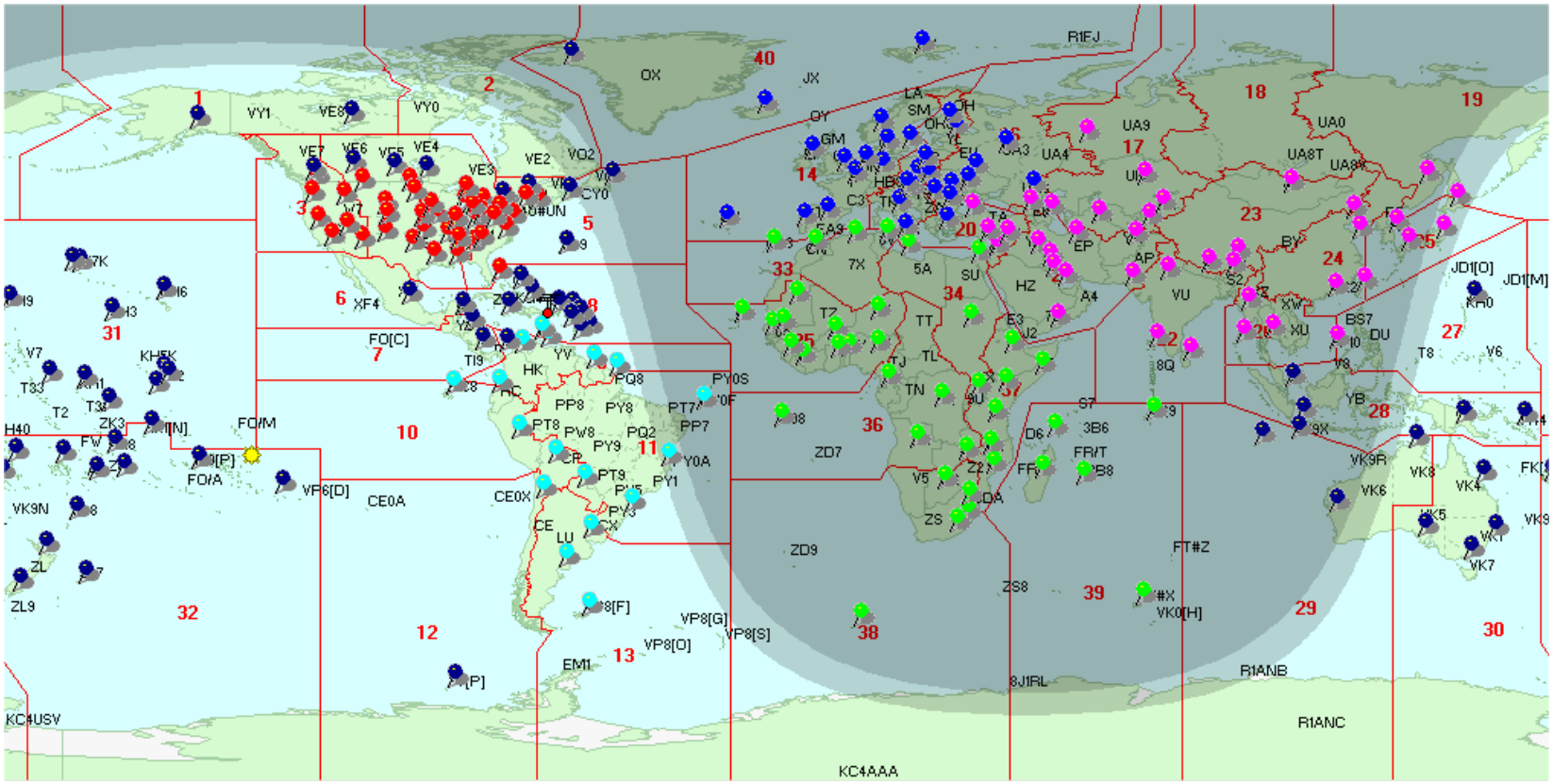
New N6BV Prediction Tables



240+ transmitting QTHs around the world.

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- Early prediction tables were in *The ARRL Antenna Book*.
- The newest versions cover 240+ transmitting QTHs around the world.
- There are two sets of tables (Summary & Detailed):
  - Summary (each page shows five contest bands for 24 hours to seven general areas around the world)

Example: Summary Prediction Table

Oct., CA (San Francisco), for SSN = Low, Sigs in S-Units. By N6BV, ARRL.

	80 Meters							40 Meters							20 Meters							15 Meters							10 Meters							
UTC	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	UTC
0	1	-	2	1	-	-	9+	6	-	8	6	1	2	9+	4	8	9+	8	8	9+	9+	-	9	9+	9	8	9+	9+	-	5	9	1*	-	7	9	0
1	4	-	5	4	-	-	9+	7	-	9	8	2	6	9+	5	8	9+	9	8	9+	9+	-	8	9	4*	8	9+	9+	-	4	5*	-	5*	8	6	1
2	5	-	7	6	-	3	9+	7	1	9	7	2	8	9+	4	8	9+	9	8	9+	9+	-	8	9	3*	6*	9+	9	-	1	1*	-	2*	7	6	2
3	8	-	8	8	-	7	9+	8	1	9	8	2	9	9+	2	8	9	7	8	9+	9+	1*	7	4*	6*	6*	9	8	-	-	1*	-	2*	6	7	3
4	8	-	8	8	-	9	9+	8	3	9	7	1	9+	9+	2	8	9	6*	7	9+	9+	4*	4	2*	6*	3*	8	8	-	-	-	-	-	-	7	4
5	8	-	8	8	-	9	9+	9	5	9	8	1	9+	9+	1*	8	9	5*	4	9	9	1*	-	-	3*	1*	6	8	-	-	-	-	-	-	7	5
6	8	2	8	8	-	9+	9+	9	7	9	8	1	9+	9+	1*	5	9	4	1*	9	9	-	-	-	1*	-	2	8	-	-	-	-	-	-	7	6
7	6	5	8	6	-	9+	9+	9	8	9	8	4	9+	9+	1	1	9	5	-	9+	9+	-	-	-	-	-	-	8	-	-	-	-	-	-	7	7
8	4	7	8	2	1	9+	9+	6	9	9	6	5	9+	9+	-	1*	9	5	-	9	9+	-	-	4	-	-	-	8	-	-	-	-	-	-	7	8
9	1	8	8	-	2	9+	9+	5	9	9	5	6	9+	9+	-	1*	9	1	-	9	9+	-	-	3	-	-	-	8	-	-	-	-	-	-	7	9
10	-	9	9	-	3	9+	9+	5	9	9	2	7	9+	9+	-	2	9	1*	1*	9	9+	-	-	1	-	-	-	8	-	-	-	-	-	-	7	10
11	-	9	9	-	6	9+	9+	4	9	9	1	8	9+	9+	-	2	7	3*	1*	9+	9	-	-	-	-	-	-	8	-	-	-	-	-	-	7	11
12	-	9	6	-	8	9+	9+	3	9	9	-	9	9+	9+	-	3	5	2*	1*	9+	8	-	-	-	-	-	-	8	-	-	-	-	-	-	7	12
13	-	9	2	-	7	9+	9+	3	9	8	-	9	9+	9+	-	1*	9	4	1*	9	9+	-	-	2	-	-	-	8	-	-	-	-	-	-	7	13
14	-	8	-	-	7	9	9+	5	9	4	2	8	9	9+	6	-	9+	7*	4*	8	9+	-	4*	9	3	2*	2*	9	-	-	-	-	-	-	7	14
15	-	7	-	-	4	9	9+	2	9	1	-	8	9	9+	7	3	9	7*	6	8	9+	5*	2*	9+	8*	7*	2*	9+	-	5*	8	-	3*	4*	8	15
16	-	4	-	-	1	6	9+	1	8	-	-	5	9	9+	8	9	9	9	7	9+	9+	5	2*	9+	8	7*	6	9+	2*	5*	8	4*	6*	2*	9	16
17	-	1	-	-	-	2	9+	1	7	-	1	4	8	9+	8	9	7	7	7	9+	9+	7	7	9	8	5*	5	9+	5*	3*	8	6*	4*	-	9	17
18	-	-	-	-	-	-	9+	-	4	-	-	2	5	9+	7	8	5	7	7	9+	9+	7	8	9	9	4*	9	9+	3*	-	8	5*	2*	8	9	18
19	-	-	-	-	-	-	9+	-	1	-	-	1	1	9+	7	8	6	6	5	9	9+	4	2*	9	8	2*	9+	9+	-	-	9	6*	2*	7	9+	19
20	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	8	8	7	7	4	9	9+	1*	4	9	9	2*	9+	9+	-	-	9	6	-	6	9+	20
21	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	6	8	8	7	4	9	9+	1*	8	9+	9	2*	9	9+	-	-	9	4*	-	9	9+	21
22	-	-	-	-	-	-	9+	1	-	1	1	-	-	9+	4	8	9	8	7	9	9+	-	8	9+	9	2*	9	9+	-	-	9	4*	-	9	9+	22
23	-	-	-	-	-	-	9+	5	-	5	4	2	-	9+	4	8	9+	9	8	9	9+	-	9	9+	9	5	9+	9+	-	4	9	2*	-	4	9+	23
	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	

Five contest bands, 24 hours, 7 areas around the world.

Summary Prediction Tables

- Seven general areas are covered:
  - EU = Europe
  - FE = Far East
  - SA = South America
  - AF = Africa
  - AS = south Asia
  - OC = Oceania
  - NA = North America

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- The strongest signals in each area are displayed, in S-units, including long-path signals (*).
- Summary tables are most useful for planning for single-operator, all-band operations, like a contest.

Solar Activity in Prediction Tables

- Six levels of 12-month SSN (Smoothed Sunspot Number) or SF (Solar Flux):
  - VL = Very Low (SSN: 0 to 20)
  - LO = Low (SSN: 21 to 40)
  - ME = Medium (SSN: 41 to 60)
  - HI = High (SSN: 61 to 100)
  - VH = Very High (SSN: 101 to 150)
  - UH = Ultra High (SSN≥151)

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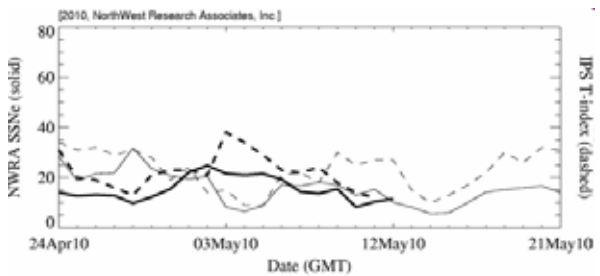
- Equivalent smoothed sunspot number: http://www.nwra-az.com/spawx/ssne.html



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- The newest versions cover 240+ transmitting QTHs around the world.
- There are two sets of tables (Summary & Detailed):
  - Summary (each page shows five contest bands for 24 hours to seven general areas around the world)
  - Detailed (each page shows one band over 24 hours, for 40 CQ Zones all around the world).

Example: Detailed Prediction Table

20 Meters: Oct., CA (San Francisco), for SSN = Low, Sigs in S-Units. By N6BV, ARRL.

		UTC -->																							
	Zone	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	KL7 = 01	9+	9+	9+	9+	9+	8	4	1	1	1	1	-	-	-	-	7	9+	9+	9+	9+	9+	9+	9+	9+
	VO2 = 02	9	7	1	-	-	-	-	-	-	1*	-	1*	1*	-	9	9	9	9	7	9	9	9	9	9+
USA	W6 = 03	5	6	7	8	8	8	8	8	8	8	8	8	8	8	7	7	6	6	6	5	5	5	6	5
USA	W9 = 04	9+	9+	9+	9	5	4	2	5	7	6	1	1*	1*	7	9+	9+	9+	9+	9+	9+	9+	9	9+	9+
USA	W3 = 05	9+	9	2	9	7	7	8	8	9	8	2	1	7	-	9	9+	9	9	9	9	9	9	9+	9+
	XE1 = 06	9+	9+	9+	9+	9	9	9	9+	9+	9+	9+	9	8	9+	9+	9+	9+	9	9	9	9	9	9+	9+
	TI = 07	9+	9+	9	4	1	1	1	5	7	6	1	-	-	9	9+	9	9	7	5	5	6	7	9	9+
	VP2 = 08	9+	9	4	1	-	-	1	4	3	-	-	-	1	9	9	8	8	4	4	6	7	8	9	9+
	P4 = 09	9+	9	6	2	1	1	2	6	6	1	-	-	1	9	9	9	8	4	4	4	6	7	9	9
	HC = 10	9+	9+	9+	8	5	5	7	6	6	2	-	-	2	9	9	8	6	3	2	2	4	6	8	9
	PY1 = 11	9	9	9	9	8	8	8	9	9	9	8	4	5	5	2	1	-	-	-	2	1	3	4	8
	CE = 12	9	9	9	9	9	9	9	9	9	9	9	7	5	8	7	5	2	1	1	-	1	5	4	8
	LU = 13	9	9	9	9	9	9	9	9	9	9	9	6	5	7	5	2	1	-	-	-	2	2	2	8
	G = 14	2	2	2	1	-	1*	1*	-	-	-	-	-	-	-	5	7	8	8	7	7	8	6	2	4
EU	I = 15	4	5	4	2	1*	1*	1	1	-	-	-	-	-	-	6	7	8	8	6	7	6	4	4	4
EU	UA3 = 16	4	2	2	2	2	1*	-	-	-	-	-	-	-	-	1	7	8	7	6	5	4	4	2	1
	UN = 17	2	7	8	7	5	1	-	-	-	-	-	-	-	-	1*	3	7	6	4	2	1	1	-	-
	UA9 = 18	8	8	8	8	5	1	-	-	-	-	-	-	-	-	1*	1*	-	-	-	-	-	-	-	4
	UA0 = 19	8	8	8	8	8	6	5	-	-	-	-	-	-	-	-	2	1	1	5	5	7	8	8	8
	4X = 20	6	6	6	6	1	1*	2*	-	-	-	-	-	-	-	5	6	7	7	7	6	5	5	5	6
	HZ = 21	5	5	6	7	2	2*	1*	-	-	-	-	1*	1*	-	4*	6	7	7	6	5	4	4	5	5
	VU = 22	6	7	7	6	3	-	-	-	-	-	1*	1*	-	1*	1*	1*	7	7	7	3	3	2	1	1
	JT = 23	8	8	8	7	7	4	-	-	-	-	-	1*	-	1*	-	1*	2	1	-	-	1	4	7	8
	VR2 = 24	8	5	5	5	5	5	2	-	1*	-	1*	1	-	-	-	3	9	9	8	6	2	6	5	7
JA	JA1 = 25	7	7	8	8	8	8	2	-	-	-	-	-	-	-	-	-	3	1	2	8	8	7	8	7
	HS = 26	6	6	5	2	2	2	-	-	-	1*	1*	1*	1*	1*	-	-	8	8	8	6	1	-	2	6
	DU = 27	4	3	3	3	4	5	4	1	1*	1	1	2	4	1	-	5	9	9	8	5	4	5	5	5
	YB = 28	8	3	1	1	-	1	2	1	-	1	2	2	3	1	-	3	8	8	8	6	1	1	3	2
	VK6 = 29	2*	2*	1*	1	1	2	4	4	4	5	7	8	8	7	4	8	8	8	6	3	2	1	-	1*
	VK3 = 30	-	1	2	4	6	8	8	7	7	7	8	9	8	7	5	8	8	4	1	5	2	-	1*	-
	KH6 = 31	9+	9+	9+	9+	9+	8	2	9+	9	9	9	9+	9+	9	8	-	9+	9+	9+	9	9	9	9	9
	KH8 = 32	6	8	9	9	9	9	9	9	9	8	9	9	9	8	7	5	4	9	8	6	6	4	4	5
	CN = 33	3	3	6	5	1	1*	1*	1	1	-	-	-	-	3	6	6	9	7	6	6	7	7	7	4
	SU = 34	7	7	7	7	1	1*	2*	1*	-	-	-	-	-	-	2	6	7	7	6	6	6	5	6	7
	6W = 35	8	9	9	7	4	4	4	5	5	1	-	-	-	4	3	2	3	4	4	5	6	7	8	9
	D2 = 36	8	8	8	6	3	2	1	2	1	-	-	-	-	1	-	4*	8	4	4	5	5	5	7	8
	5Z = 37	8	8	6	4	3*	2*	2*	1*	-	-	-	-	1*	1*	5	7*	6*	7	2	3	3	5	7	8
	ZS6 = 38	8	8	8	4	2	3*	2*	1	1	-	-	-	2*	2*	2*	6*	6*	6*	4*	1	3	4	8	7
	FR = 39	8	7	8	6	6*	5*	3*	1*	-	-	1*	3*	2*	2*	7*	7	7	7	7	5	5	6	7	8
	FJL = 40	9	9	8	7	1	-	-	-	-	-	-	1*	-	-	1*	2	8	8	8	8	8	8	9	9
	Zone	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23

UTC --> * = Longpath

Expected signal levels using 1500 W and 12 dBi isotropic antennas.

20-meter band, 24 hours, 40 CQ Zones around the world.

Why Signal Strength Instead of SNR?

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- Assuming low powerline noise, there are those rare nights when there is no thunderstorm noise and an S5 signal on 80 meters sounds like it is S9!
- However, if thunderstorm QRN is S9, you know you can't hear an S5 signal.

New Detailed Prediction Tables

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- So-called “WARC bands” (30, 17 and 12 meters) have been added to 160, 80, 40, 20, 15 and 10 meter bands found in the earlier sets of tables.

New Detailed Prediction Tables

30 Meters: Oct., CA (San Francisco), for SSN = Low, Sigs in S-Units. By N6BV, ARRL.

	UTC -->																							
Zone	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
KL7 = 01	9	9	9	9+	9+	9+	9	9	9	9	9	9	9	8	9	9+	9	9	9	8	8	8	8	9
VO2 = 02	8	8	8	7	5	4	4	4	3	-	-	-	3	8	8	6	5	3	2	3	5	6	7	8
W6 = 03	9	8	8	5	5	5	5	5	5	5	5	5	5	5	5	5	8	9	8	9	9	9	9	9
W9 = 04	9+	9+	9+	9+	9+	9	9+	9+	9+	9+	9	9	9	9+	9+	9	8	7	5	5	7	8	8	9
W3 = 05	9	9	9	6	4	5	5	5	6	4	9	9	2	9	8	8	7	5	4	4	5	7	8	8
XE1 = 06	9	9	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9	8	6	5	2	4	5	7	8
TI = 07	8	9	9	9	9	9	9	9	9	9	9	6	9	9	8	5	2	1	-	-	-	1	5	7
VP2 = 08	9	9	9	8	9	9	9	9	9	8	8	8	8	8	5	1	1	-	-	-	-	1	6	7
P4 = 09	8	9	9	9	9	9	9	9	9	9	8	8	8	8	6	2	1	-	-	-	-	2	6	7
HC = 10	8	8	9	9	9	9	9	9	9	8	5	4	8	8	5	2	-	-	-	-	-	-	2	7
PY1 = 11	5	7	7	7	8	8	7	8	7	6	5	5	1	-	-	-	-	-	-	-	-	-	1	2
CE = 12	5	7	8	8	8	8	8	9	9	8	8	8	6	5	1	-	-	-	-	-	-	-	-	2
LU = 13	5	7	7	8	8	8	8	8	8	7	7	7	5	1	-	-	-	-	-	-	-	-	-	2
G = 14	6	6	7	7	5	5	5	5	6	5	3	1	2	4	3	5	2	1	1	1	2	2	5	6
I = 15	6	7	7	6	5	5	7	7	6	5	2	1	2	2	2	4	4	1	1	-	1	2	4	5
UA3 = 16	5	5	5	5	6	6	6	5	4	4	3	2	2	5	6	5	4	4	2	2	3	4	5	5
UN = 17	4	2	3	3	1	2	2	1	1	2	3	4	4	4	6	7	7	5	4	2	1	1	2	3
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4X = 20	6	6	6	6	5	5	4	3	2	1	1	1	1	2	2	5	2	1	1	1	-	1	3	5
HZ = 21	5	5	4	4	5	2	1	-	-	-	-	-	1	3	4	4	2	2	1	-	1	1	2	4
VU = 22	2	2	2	1	1	-	-	-	-	-	1	4	4	5	5	5	6	3	2	1	-	1	1	2
JT = 23	2	3	4	4	3	3	4	4	4	5	5	5	5	5	6	8	7	6	5	3	2	2	2	2
VR2 = 24	-	-	-	-	-	1	2	4	5	6	8	8	8	8	7	8	8	7	5	4	2	1	-	1
JA1 = 25	1	1	2	3	5	6	7	6	7	7	7	8	8	6	5	8	8	7	6	5	2	1	-	1
HS = 26	-	-	-	-	-	-	-	-	2	3	5	6	6	6	6	7	6	5	4	2	1	-	-	-
DU = 27	-	-	-	-	-	-	2	5	6	7	8	8	8	8	8	8	8	7	5	3	1	-	-	-
YB = 28	1*	-	-	-	-	-	-	-	3	5	7	8	8	8	7	7	6	5	3	1	-	-	-	-
VK6 = 29	-	-	-	-	-	-	-	1	4	6	7	8	8	8	8	7	6	2	1	-	-	-	-	-
VK3 = 30	-	-	-	-	-	2	4	7	8	8	8	9	9	8	8	7	6	3	1	-	-	-	-	-
KH6 = 31	7	8	9	9	9+	9+	9	8	7	7	8	9	9	7	5	9	9	9	8	6	3	2	2	3
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Zone	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23

UTC --> * = Longpath

Expected signal levels using 1500 W and 6 dBi isotropic antennas.

Example of new 30-meter table

Details, New Prediction Tables

• The antennas used in *VOACAP* to predict signal levels are isotropics, with gain. They emulate the antennas used in older tables (100' dipoles for 80/40, 3L20 at 100', 4L15, 4L10 at 60').

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• The long-path algorithm has been improved compared to the older tables, allowing many weak long-path signals to show.

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New Prediction Tables

- Some have questioned why I chose "superstations on mountain tops," with 1500 W of transmit power.
- They ask, "What about us little guns with 100 W and a dipole up 30 feet?"
- Well, if I had tailored the predictions specifically for the little gun, many of the weaker signals shown in the tables would simply disappear.
- And with nothing showing, you wouldn't have *any idea* that propagation is even possible.

Rules of Thumb for Little-Gun Stations

1. Subtract 2 S-units for a 100' high dipole instead of a 3L20 Yagi at 100'.

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5. Subtract 3-S units for 100 W rather than 1500 W. Subtract 6-S units for 5 W rather than 1500 W.
6. These are for both ends of a circuit, RX and TX.

Example: 20 Meters, W6 to Zone 15

20 Meters: Oct., CA (San Francisco), for SSN = Low, Sigs in S-Units. (c) 2010 Dean Straw, N6BV

Zone	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
KL7 = 01	9+	9+	9+	9+	9+	8	4	1	1	1	1	-	-	-	-	7	9+	9+	9+	9+	9+	9+	9+	9+
VO2 = 02	9	7	1	-	-	-	-	-	-	1*	-	1*	1*	-	9	9	9	9	7	9	9	9	9	9+
W6 = 03	5	6	7	8	8	8	8	8	8	8	8	8	8	8	7	7	6	6	6	5	5	5	6	5
W9 = 04	9+	9+	9+	9	5	4	2	5	7	6	1	1*	1*	7	9+	9+	9+	9+	9+	9+	9+	9	9+	9+
W3 = 05	9+	9	2	9	7	7	8	8	9	8	2	1	7	-	9	9+	9	9	9	9	9	9	9+	9+
XE1 = 06	9+	9+	9+	9+	9	9	9	9+	9+	9+	9+	9	8	9+	9+	9+	9+	9	9	9	9	9	9+	9+
TI = 07	9+	9+	9	4	1	1	1	5	7	6	1	-	-	9	9+	9	9	7	5	5	6	7	9	9+
VP2 = 08	9+	9	4	1	-	-	1	4	3	-	-	-	1	9	9	8	8	4	4	6	7	8	9	9+
P4 = 09	9+	9	6	2	1	1	2	6	6	1	-	-	1	9	9	9	8	4	4	4	6	7	9	9
HC = 10	9+	9+	9+	8	5	5	7	6	6	2	-	-	2	9	9	8	6	3	2	2	4	6	8	9
PY1 = 11	9	9	9	9	8	8	8	9	9	9	8	4	5	5	2	1	-	-	-	2	1	3	4	8
CE = 12	9	9	9	9	9	9	9	9	9	9	9	7	5	8	7	5	2	1	1	-	1	5	4	8
LU = 13	9	9	9	9	9	9	9	9	9	9	9	6	5	7	5	2	1	-	-	-	2	2	2	8
G = 14	2	2	2	1	-	1*	1*	-	-	-	-	-	-	-	5	7	8	8	7	7	8	6	2	4
I = 15	4	5	4	2	1*	1*	1	1	-	-	-	-	-	-	6	7	8	8	6	7	6	4	4	4
UA3 = 16	4	2	2	2	2	1*	-	-	-	-	-	-	-	-	1	[illegible]	8	7	6	5	4	4	2	1
UN = 17	2	7	8	7	5	1	-	-	-	-	-	-	-	-	1*	3	7	6	4	2	1	1	-	-
UA9 = 18	8	8	8	8	5	1	-	-	-	-	-	-	-	-	1*	1*	-	-	-	-	-	-	-	4
UA0 = 19	8	8	8	8	8	6	5	-	-	-	-	-	-	-	-	2	1	1	5	5	7	8	8	8
4X = 20	6	6	6	6	1	1*	2*	-	-	-	-	-	-	-	5	6	7	7	7	6	5	5	5	6
HZ = 21	5	5	6	7	2	2*	1*	-	-	-	-	1*	1*	-	4*	6	7	7	6	5	4	4	5	5
VU = 22	6	7	7	6	3	-	-	-	-	-	1*	1*	-	1*	1*	1*	7	7	7	3	3	2	1	1
JT = 23	8	8	8	7	7	4	-	-	-	-	-	1*	-	1*	-	1*	2	1	-	-	1	4	7	8
VR2 = 24	8	5	5	5	5	5	2	-	1*	-	1*	1	-	-	-	3	9	9	8	6	2	6	5	7
JA1 = 25	7	7	8	8	8	8	2	-	-	-	-	-	-	-	-	-	3	1	2	8	8	7	8	7
HS = 26	6	6	5	2	2	2	-	-	-	1*	1*	1*	1*	1*	-	-	8	8	8	6	1	-	2	6
DU = 27	4	3	3	3	4	5	4	1	1*	1	1	2	4	1	-	5	9	9	8	5	4	5	5	5
YB = 28	8	3	1	1	-	1	2	1	-	1	2	2	3	1	-	3	8	8	8	6	1	1	3	2
VK6 = 29	2*	2*	1*	1	1	2	4	4	4	5	7	8	8	7	4	8	8	8	6	3	2	1	-	1*
VK3 = 30	-	1	2	4	6	8	8	7	7	7	8	9	8	7	5	8	8	4	1	5	2	-	1*	-
KH6 = 31	9+	9+	9+	9+	9+	8	2	9+	9	9	9	9+	9+	9	8	-	9+	9+	9+	9	9	9	9	9
KH8 = 32	6	8	9	9	9	9	9	9	9	8	9	9	9	8	7	5	4	9	8	6	6	4	4	5
CN = 33	3	3	6	5	1	1*	1*	1	1	-	-	-	-	3	6	6	9	7	6	6	7	7	7	4
SU = 34	7	7	7	7	1	1*	2*	1*	-	-	-	-	-	-	2	6	7	7	6	6	6	5	6	7
6W = 35	8	9	9	7	4	4	4	5	5	1	-	-	-	4	3	2	3	4	4	5	6	7	8	9
D2 = 36	8	8	8	6	3	2	1	2	1	-	-	-	-	1	-	4*	8	4	4	5	5	5	7	8
5Z = 37	8	8	6	4	3*	2*	2*	1*	-	-	-	-	1*	1*	5	7*	6*	7	2	3	3	5	7	8
ZS6 = 38	8	8	8	4	2	3*	2*	1	1	-	-	-	2*	2*	2*	6*	6*	6*	4*	1	3	4	8	7
FR = 39	8	7	8	6	6*	5*	3*	1*	-	-	1*	3*	2*	2*	7*	7	7	7	7	5	5	6	7	8
FJL = 40	9	9	8	7	1	-	-	-	-	-	-	1*	-	-	1*	2	8	8	8	8	8	8	9	9
Zone	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23

UTC --> * = Longpath

Expected signal levels using 1500 W and 12 dBi isotropic antennas.

20 meters into Zone 15 at 15 UTC October, W6.

Example: 20 Meters, W6 to Zone 15

• W6, San Francisco, on 20 meters for Low SSN level, month of October, to Italy, Zone 15, 15 UTC.

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- From the table, signal for “big-gun” station is S7.

Example: 20 Meters, W6 to Zone 15

- W6, San Francisco, on 20 meters for Low SSN level, month of October, to Italy, Zone 15, 15 UTC.
- From the table, signal for “big-gun” station is S7.
- Now, assume 20-meter TX station: A dipole at 50' feet and 100 W, instead of 3L20 Yagi at 100' and 1500 W. (This assumes the RX station has a 3L20 at 100'.)

  S7 – 3 (dipole 50') – 3 (100 W) = S1. This won’t make you stand out in a pileup…

Example: 20 Meters, W6 to Zone 15

- Another example, this time for 3L20 Yagi at 100' and 5 W:

  S7 – 6 = S1, showing that QRP is challenging, even with big antennas!

  But you knew that already.

Planning for a Contest

Well, duh… But wait a moment, there is a contest equivalent.

Planning for a Contest

"The frequency *is* in use; thank you for asking."

"Stay out of my lane." "Stay off my frequency"… same thing. We don't want a crash!

Planning

- Solar Cycle 24 is finally ramping up, fitfully.

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Planning

- Solar Cycle 24 is finally ramping up, fitfully.
- Now that we are blessed with more band choices, how does an all-band single-operator plan *where* to be and *when* to be there?
- First, you need to assess whether your station is strong enough to CQ (run rate) or whether you must S&P (search and pounce).

Running Rate (CQing)

• Effective running into Europe takes a signal level of at least S8 from the USA, often even S9.

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• JAs are much more polite. Also US stations.

• "Packet pileups" on CW can really slow the rate down — everybody's on *exactly* the same frequency (except for the smart ones, who tune off several hundred Hz and then call). Hint, hint.

Contest Band Planning Strategies

Single-Operator, All-Band, SO2R, WPX CW

• I’m going to use WPX CW as an example of planning a contest strategy using propagation predictions.

Contest Band Planning Strategies

Single-Operator, All-Band, SO2R, WPX CW

- I’m going to use WPX CW as an example of planning a contest strategy using propagation predictions.

- This example will be from San Francisco, CA, to the rest of the world.

Rules for CQ WPX

Single-Operator, All-Band, SO2R, WPX CW

- Anyone can be a multiplier in WPX. The first WB6 is just as valuable a multiplier as a JT1.

Contest Band Planning Strategies

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- QSOs to other continents are worth more — on 20/15/10 meters they're worth 3 points. W6s should run Europe or JA, if they can.

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Single-Operator, All-Band, SO2R, WPX CW

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- Even though Ws are only worth one point, they could easily be new prefix multipliers.
- Again, predicted signals > S8 or S9 allow you to CQ and run rate.
- I print out a Summary propagation prediction to plan for a contest. I use a yellow highlighter to flag interesting openings, especially S8 or greater.

Contest Band-Planning Strategies

Single-Operator, All-Band, SO2R, WPX CW

May, CA (San Francisco), for SSN = Low, Sigs in S-Units. (c) 2010 Dean Straw, N6BV

	80 Meters							40 Meters							20 Meters							15 Meters							10 Meters							
UTC	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	UTC
0	-	-	-	-	-	-	9+	1	-	7	2	-	-	9+	7	8	9	9	8	9	9+	1	4*	9+	8	1	8	9+	-	2*	8	-	1*	8	6	0
1	-	-	3	-	-	-	9+	4	-	8	5	-	2	9+	7	9	9+	9	8	9+	9+	1	6*	9+	7	4	9	9+	-	4*	7	-	2*	8	6	1
2	-	-	7	2	-	-	9+	5	-	8	6	-	6	9+	8	8	9+	9	8	9+	9+	2	5	9	5	5*	9	9+	-	3*	3	-	3*	9	8	2
3	2	-	8	5	-	4	9+	3	-	8	8	-	8	9+	8	8	9+	9	8	9+	9+	4*	7	9	6	7	9	9+	-	1*	-	-	4*	8	6	3
4	1	-	9	6	-	8	9+	7	1	9	8	-	9	9+	8	8	9+	9	8	9+	9+	5*	7	9	6*	7*	9	9	1*	1	-	1*	5*	7	6	4
5	2	-	8	7	-	9	9+	8	2	9	8	-	9	9+	8	9	9+	9	8	9+	9+	5*	7	6	8*	5*	9	8	1*	-	-	2*	1*	8	6	5
6	2	-	8	6	-	8	9+	6	3	9	8	-	9+	9+	8	9	9+	7	8	9+	9+	5*	6	2	8*	3*	9+	8	-	-	-	1*	-	6	7	6
7	-	-	8	2	-	9	9+	6	5	9	8	-	9+	9+	7	9	9	5	8	9+	9+	2*	4	1	4*	1*	9	8						-	7	7
8	-	1	8	1	-	9	9+	3	8	9	6	1	9+	9+	5	9	9	2*	8	9	9+	1*	3	1	2*	-	9	8						-	7	8
9	-	6	8	-	-	9+	9+	2	8	9	2	2	9+	9+	2	9	8	3*	8	9	9+	-	1	-	1*	-	8	8						-	7	9
10	-	8	8	-	-	9+	9+	1	9	9	1	4	9+	9+	-	9	8	5*	5	9	9	-	-	-	-	-	6	8						-	7	10
11	-	8	7	-	-	9+	9+	1	9	9	-	5	9+	9+	-	8	9	6*	2*	9	9	-	-	1	1*	-	3	8						-	7	11
12	-	8	5	-	2	9+	9+	-	9	8	-	5	9+	9+	2	5	8	6*	1*	9+	9	-	-	-	-	-	1	8						-	7	12
13	-	8	1	-	1	9	9+	-	9	6	-	8	9+	9+	6	5	9	6	3	9+	9+	-	1*	3	-	-	-	8						-	7	13
14	-	6	-	-	-	9	9+	-	8	3	1*	5	9	9	7	8	9	8	8	9+	9+	-	2*	6	3	1*	1*	8						-	7	14
15	-	2	-	-	-	6	9+	-	7	-	-	4	9	9+	8	9	8	8	8	9	9+	1*	5*	7	4	5*	6	9						-	6	15
16	-	-	-	-	-	2	9+	-	6	-	-	2	8	9+	8	9	9	8	8	9+	9+	6*	4*	8	5*	7*	9	9						-	6	16
17	-	-	-	-	-	-	9+	-	3	-	-	1	6	9+	8	9	8	8	8	9+	9+	5*	6	7	4*	7*	9+	8						-	6	17
18	-	-	-	-	-	-	9+	-	1	-	-	-	2	9+	8	8	7	8	7	9	9+	4*	2	8	5*	4*	9+	9						-	6	18
19	-	-	-	-	-	-	9+	-	-	-	-	-	1	9+	7	8	7	7	6	9	9+	3*	1	8	3*	2*	9	9						-	6	19
20	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	7	8	7	7	6	9	9+	2*	5	8	2*	1*	9	9+						-	6	20
21	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	8	9	8	8	6	9	9+	1*	6	9	5	5	9+	9+						-	6	21
22	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	8	8	9	8	7	8	9+	5	6	9	6	2	9+	9+						-	6	22
23	-	-	-	-	-	-	9+	-	-	2	1	-	-	9+	8	8	9	8	7	9	9+	3	6	9+	7	2	8	9+						-	6	23
	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	

"NA" includes W3, W9, W6, XE1

Start on the highest band, since openings are shortest there.

Contest Band-Planning Strategies

Single-Operator, All-Band, SO2R, WPX CW

10 Meters: May, CA (San Francisco), for SSN = Low, Sigs in S-Units. (c) 2010 Dean Straw, N6BV

Zone	UTC --> 00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
KL7 = 01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VO2 = 02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W6 = 03	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6
W9 = 04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1*
W3 = 05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1*	1*
XE1 = 06	4	4	8	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	4
TI = 07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VP2 = 08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P4 = 09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HC = 10	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PY1 = 11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	1
CE = 12	8	7	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4	6	8	8
LU = 13	6	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5	7	8	8
G = 14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I = 15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1*	-	-	-	-
UA3 = 16	-	-	-	-	1*	1*	-	-	-	-	-	-	-	-	-	-	-	-	2*	1*	-	-	-	-
UN = 17	-	-	2*	2*	1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UA9 = 18	-	-	1*	2*	1*	-	-	-	-	-	-	-	-	-	-	-	-	1*	-	-	-	-	-	-
UA0 = 19	2*	1*	1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1*
4X = 20	-	-	-	-	2*	2*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HZ = 21	-	-	-	1*	5*	1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VU = 22	-	-	3*	4*	1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JT = 23	1*	2*	3*	2*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VR2 = 24	1*	4*	2*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JA1 = 25	-	1*	1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HS = 26	-	1*	3*	1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DU = 27	2*	1*	1*	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YB = 28	-	-	2*	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VK6 = 29	3	2	5	6	6	5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VK3 = 30	3	2	4	5	6	6	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4
KH6 = 31	8	8	9	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	5	8
KH8 = 32	1	3	6	8	7	8	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CN = 33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1*	-	-	-
SU = 34	-	-	-	-	1*	2*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6W = 35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1*	-	-
D2 = 36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5Z = 37	-	-	-	-	-	2*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZS6 = 38	-	-	-	-	-	-	1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FR = 39	-	-	-	-	-	2*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FJL = 40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23

UTC --> * = Longpath

Expected signal levels using 1500 W and 14 dBi isotropic antennas.

Looking at the details on 10 meters.

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0	-	-	-	-	-	-	9+	1	-	7	2	-	-	9+	7	8	9	9	8	9	9+	1	4*	9+	8	1	8	9+	-	2*	8	-	1*	8	6	0
1	-	-	3	-	-	-	9+	4	-	8	5	-	2	9+	7	9	9+	9	8	9+	9+	1	6*	9+	7	4	9	9+	-	4*	7	-	2*	8	6	1
2	-	-	7	2	-	-	9+	5	-	8	6	-	6	9+	8	8	9+	9	8	9+	9+	2	5	9	5	5*	9	9+	-	3*	3	-	3*	9	8	2
3	2	-	8	5	-	4	9+	3	-	8	8	-	8	9+	8	8	9+	9	8	9+	9+	4*	7	9	6	7	9	9+	-	1*	-	-	4*	8	6	3
4	1	-	9	6	-	8	9+	7	1	9	8	-	9	9+	8	8	9+	9	8	9+	9+	5*	7	9	6*	7*	9	9	1*	1	-	1*	5*	7	6	4
5	2	-	8	7	-	9	9+	8	2	9	8	-	9	9+	8	9	9+	9	8	9+	9+	5*	7	6	8*	5*	9	8	1*	-	-	2*	1*	8	6	5
6	2	-	8	6	-	8	9+	6	3	9	8	-	9+	9+	8	9	9+	7	8	9+	9+	5*	6	2	8*	3*	9+	8	-	-	-	1*	-	6	7	6
7	-	-	8	2	-	9	9+	6	5	9	8	-	9+	9+	7	9	9	5	8	9+	9+	2*	4	1	4*	1*	9	8	-	-	-	-	-	-	7	7
8	-	1	8	1	-	9	9+	3	8	9	6	1	9+	9+	5	9	9	2*	8	9	9+	1*	3	1	2*	-	9	8	-	-	-	-	-	-	7	8
9	-	6	8	-	-	9+	9+	2	8	9	2	2	9+	9+	2	9	8	3*	8	9	9+	-	1	-	1*	-	8	8	-	-	-	-	-	-	7	9
10	-	8	8	-	-	9+	9+	1	9	9	1	4	9+	9+	-	9	8	5*	5	9	9	-	-	-	-	-	6	8	-	-	-	-	-	-	7	10
11	-	8	7	-	-	9+	9+	1	9	9	-	5	9+	9+	-	8	9	6*	2*	9	9	-	-	1	1*	-	3	8	-	-	-	-	-	-	7	11
12	-	8	5	-	2	9+	9+	-	9	8	-	5	9+	9+	2	5	8	6*	1*	9+	9	-	-	-	-	-	1	8	-	-	-	-	-	-	7	12
13	-	8	1	-	1	9	9+	-	9	6	-	8	9+	9+	6	5	9	6	3	9+	9+	-	1*	3	-	-	-	8	-	-	-	-	-	-	7	13
14	-	6	-	-	-	9	9+	-	8	3	1*	5	9	9	7	8	9	8	8	9+	9+	-	2*	6	3	1*	1*	8	-	-	-	-	-	-	7	14
15	-	2	-	-	-	6	9+	-	7	-	-	4	9	9+	8	9	8	8	8	9	9+	1*	5*	7	4	5*	6	9	-	-	-	-	-	-	-	6	15
16	-	-	-	-	-	2	9+	-	6	-	-	2	8	9+	8	9	9	8	8	9+	9+	6*	4*	8	5*	7*	9	9	-	-	-	-	-	-	-	6	16
17	-	-	-	-	-	-	9+	-	3	-	-	1	6	9+	8	9	8	8	8	9+	9+	5*	6	7	4*	7*	9+	8	-	-	-	-	1*	-	6	17
18	-	-	-	-	-	-	9+	-	1	-	-	-	2	9+	8	8	7	8	7	9	9+	4*	2	8	5*	4*	9+	9	2*	-	-	-	-	1	6	18
19	-	-	-	-	-	-	9+	-	-	-	-	-	1	9+	7	8	7	7	6	9	9+	3*	1	8	3*	2*	9	9	1*	-	1	-	-	-	6	19
20	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	7	8	7	7	6	9	9+	2*	5	8	2*	1*	9	9+	-	-	5	1*	-	-	6	20
21	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	8	9	8	8	6	9	9+	1*	6	9	5	5	9+	9+	-	-	7	1*	-	1	6	21
22	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	8	8	9	8	7	8	9+	5	6	9	6	2	9+	9+	-	-	8	-	-	5	6	22
23	-	-	-	-	-	-	9+	-	-	2	1	-	-	9+	8	8	9	8	7	9	9+	3	6	9+	7	2	8	9+	-	1*	8	-	-	8	6	23
	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	

Next, look at 15 meters, including long-path to Europe.

Contest Band-Planning Details

Single-Operator, All-Band, SO2R, WPX CW

15 Meters: May, CA (San Francisco), for SSN = Low, Sigs in S-Units. (c) 2010 Dean Straw, N6BV

Zone	UTC --> 00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
KL7 = 01	1	2	5	9	9	8	5	2	1	-	-	-	-	-	-	-	4	5	5	3	2	3	3	1
VO2 = 02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1*	1*	1*	2*	1*	1*	1*	1*
W6 = 03	7	7	6	6	7	7	8	8	8	8	8	8	8	8	8	7	7	7	7	7	6	6	7	7
W9 = 04	4	6	9	8	2	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	1	1	1	2
W3 = 05	9+	2*	1	9	5	-	-	-	-	-	-	-	-	1	1	8	8	8	8	9	9	9	9	9
XE1 = 06	9+	9+	9+	9	9	6	1*	-	-	-	-	-	-	2	7	9	9	8	9	9	9+	9+	9+	9+
TI = 07	9+	9+	8	4	3*	1*	-	-	-	-	-	-	-	-	-	-	-	-	-	2	5	6	8	9
VP2 = 08	7	8	6*	4*	3*	2*	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	2	3	6
P4 = 09	9	9	7	4*	3*	1*	-	-	-	-	-	-	-	-	-	1	-	-	1	3	5	5	7	9
HC = 10	9+	9+	9	7	1	-	-	-	-	-	-	-	-	-	1	5	2	2	4	8	8	9	9	9+
PY1 = 11	8	8	8	8	7	5	1	-	-	-	-	-	-	3	6	7	6	5	6	8	8	9	9	9
CE = 12	9	9	9	9	9	6	2	1	-	-	-	-	-	1	6	7	8	7	8	8	7	8	9	9
LU = 13	8	9	9	9	8	4	1	-	1	-	-	1	-	3	6	7	7	5	7	7	7	8	9	8
G = 14	-	-	-	-	-	1*	5*	2*	1*	-	-	-	-	-	-	-	3*	4*	4*	2*	2*	1*	1*	1
I = 15	1	-	-	-	-	4*	5*	2*	-	-	-	-	-	-	-	-	4*	4*	4*	3*	1*	1*	5	3
UA3 = 16	1	1	2	4*	5*	5*	2*	1*	-	-	-	-	-	-	-	1*	6*	5*	4*	2*	1	1	-	-
UN = 17	1	4	2	7	6	4	1	-	-	-	-	-	-	-	1*	5*	5*	1*	3	1	-	-	-	-
UA9 = 18	1*	1*	1*	4*	2*	2	1	-	-	-	-	-	-	-	1*	4*	4*	3*	1*	-	-	-	-	-
UA0 = 19	2	2	2	2*	1	6	1	2	1	-	-	-	-	-	2*	5*	4*	1*	-	1	4	1	6	6
4X = 20	1	1	1	3	5*	6*	5*	1*	-	-	-	-	-	-	-	1	4*	4*	5*	3*	1*	1*	5	3
HZ = 21	1	1	2	6*	7*	5*	3*	1*	-	-	-	-	-	-	-	3*	7*	7*	4*	2*	1*	5	2	1
VU = 22	1	2*	5*	5*	5*	2	-	-	-	-	-	-	-	-	1*	4*	6*	4*	2	1	-	-	-	-
JT = 23	1*	2*	1	3*	2*	4	2	1	-	-	-	-	-	-	1*	5*	4*	2*	1*	-	-	-	1	2
VR2 = 24	4*	3	5	7	7	7	6	4	3	-	-	-	-	-	2*	4*	4*	4	1	-	-	6	4	3
JA1 = 25	4	2*	1	5	1	5	4	1	1	-	-	-	-	1*	2*	5*	2*	1*	1*	-	5	5	6	5
HS = 26	-	4*	4*	3	3	2	1	-	-	-	-	-	-	-	2*	5*	2*	1	-	-	-	-	2	4
DU = 27	5*	5	6	7	6	6	5	4	3	1	-	-	-	-	1*	4*	2	6	3	-	-	2	5	5
YB = 28	2	6*	5	5	5	5	5	4	3	1	-	-	-	-	-	-	1	6	2	-	-	-	-	4
VK6 = 29	5	5	6	3	5	7	7	6	6	5	2	1	-	-	-	3	4	5	5	-	-	-	1	6
VK3 = 30	6	8	8	6	8	9	9	8	-	-	-	-	-	-	-	3	2	-	-	-	1	7	6	6
KH6 = 31	2	4	7	9	9	8	9+	9	9	8	6	2	1	-	1	6	9	9+	9+	9	9	9+	9+	1
KH8 = 32	8	9	9	9	9	9	9	8	6	5	3	3	1	-	-	-	-	-	9	8	9	8	8	8
CN = 33	4	-	-	-	-	-	2*	3*	1*	-	-	-	-	-	-	-	2*	3*	3*	2*	2*	1*	-	1
SU = 34	2	1	1	2	5*	6*	5*	1*	-	-	-	-	-	-	-	1	4*	4*	5*	3*	2*	1*	6	4
6W = 35	8	7	5	6	2	-	-	4*	1*	1*	-	-	-	-	3	4	2	2*	5*	2*	2*	4	5	7
D2 = 36	6	3	1	-	-	-	6*	3*	1*	-	-	-	-	-	1	1	5*	1	1	1	-	1	3	5
5Z = 37	3	1	-	-	4	8*	5*	2*	-	-	-	-	-	-	-	1	2*	-	-	-	-	-	1	1
ZS6 = 38	-	-	-	-	-	6*	8*	4*	2*	1*	-	-	-	-	-	1*	-	1	1	-	-	-	-	-
FR = 39	-	-	-	5	6*	8*	7*	1*	-	-	-	1*	-	-	-	-	-	-	-	-	-	5	5	2
FJL = 40	-	-	-	-	1*	2*	1*	1*	-	-	-	-	-	-	-	3*	2*	1*	1*	-	-	-	-	-
Zone	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23

UTC --> * = Longpath

Expected signal levels using 1500 W and 14 dBi isotropic antennas.

Best bet for rate on 15

Short, weak longpath EU openings. Be there, or be hosed!

A detailed look at 15 meters, looking for rate opportunities.

Contest Band-Planning Strategies

Single-Operator, All-Band, SO2R, WPX CW

May, CA (San Francisco), for SSN = Low, Sigs in S-Units. (c) 2010 Dean Straw, N6BV

	80 Meters							40 Meters							20 Meters							15 Meters							10 Meters							
UTC	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	UTC
0	-	-	-	-	-	-	9+	1	-	7	2	-	-	9+	7	8	9	9	8	9	9+	1	4*	9+	8	1	8	9+	-	2*	8	-	1*	8	6	0
1	-	-	3	-	-	-	9+	4	-	8	5	-	2	9+	7	9	9+	9	8	9+	9+	1	6*	9+	7	4	9	9+	-	4*	7	-	2*	8	6	1
2	-	-	7	2	-	-	9+	5	-	8	6	-	6	9+	8	8	9+	9	8	9+	9+	2	5	9	5	5*	9	9+	-	3*	3	-	3*	9	8	2
3	2	-	8	5	-	4	9+	3	-	8	8	-	8	9+	8	8	9+	9	8	9+	9+	4*	7	9	6	7	9	9+	-	1*	-	-	4*	8	6	3
4	1	-	9	6	-	8	9+	7	1	9	8	-	9	9+	8	8	9+	9	8	9+	9+	5*	7	9	6*	7*	9	9	1*	1	-	1*	5*	7	6	4
5	2	-	8	7	-	9	9+	8	2	9	8	-	9	9+	8	9	9+	9	8	9+	9+	5*	7	6	8*	5*	9	8	1*	-	-	2*	1*	8	6	5
6	2	-	8	6	-	8	9+	6	3	9	8	-	9+	9+	8	9	9+	7	8	9+	9+	5*	6	2	8*	3*	9+	8	-	-	-	1*	-	6	7	6
7	-	-	8	2	-	9	9+	6	5	9	8	-	9+	9+	7	9	9	5	8	9+	9+	2*	4	1	4*	1*	9	8	-	-	-	-	-	-	7	7
8	-	1	8	1	-	9	9+	3	8	9	6	1	9+	9+	5	9	9	2*	8	9	9+	1*	3	1	2*	-	9	8	-	-	-	-	-	-	7	8
9	-	6	8	-	-	9+	9+	2	8	9	2	2	9+	9+	2	9	8	3*	8	9	9+	-	1	-	1*	-	8	8	-	-	-	-	-	-	7	9
10	-	8	8	-	-	9+	9+	1	9	9	1	4	9+	9+	-	9	8	5*	5	9	9	-	-	-	-	-	6	8	-	-	-	-	-	-	7	10
11	-	8	7	-	-	9+	9+	1	9	9	-	5	9+	9+	-	8	9	6*	2*	9	9	-	-	1	1*	-	3	8	-	-	-	-	-	-	7	11
12	-	8	5	-	2	9+	9+	-	9	8	-	5	9+	9+	2	5	8	6*	1*	9+	9	-	-	-	-	-	1	8	-	-	-	-	-	-	7	12
13	-	8	1	-	1	9	9+	-	9	6	-	8	9+	9+	6	5	9	6	3	9+	9+	-	1*	3	-	-	-	8	-	-	-	-	-	-	7	13
14	-	6	-	-	-	9	9+	-	8	3	1*	5	9	9	7	8	9	8	8	9+	9+	-	2*	6	3	1*	1*	8	-	-	-	-	-	-	7	14
15	-	2	-	-	-	6	9+	-	7	-	-	4	9	9+	8	9	8	8	8	9	9+	1*	5*	7	4	5*	6	9	-	-	-	-	-	-	6	15
16	-	-	-	-	-	2	9+	-	6	-	-	2	8	9+	8	9	9	8	8	9+	9+	6*	4*	8	5*	7*	9	9	-	-	-	-	-	-	6	16
17	-	-	-	-	-	-	9+	-	3	-	-	1	6	9+	8	9	8	8	8	9+	9+	5*	6	7	4*	7*	9+	8	-	-	-	-	1*	-	6	17
18	-	-	-	-	-	-	9+	-	1	-	-	-	2	9+	8	8	7	8	7	9	9+	4*	2	8	5*	4*	9+	9	2*	-	-	-	-	1	6	18
19	-	-	-	-	-	-	9+	-	-	-	-	-	1	9+	7	8	7	7	6	9	9+	3*	1	8	3*	2*	9	9	1*	-	1	-	-	-	6	19
20	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	7	8	7	7	6	9	9+	2*	5	8	2*	1*	9	9+	-	-	5	1*	-	-	6	20
21	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	8	9	8	8	6	9	9+	1*	6	9	5	5	9+	9+	-	-	7	1*	-	1	6	21
22	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	8	8	9	8	7	8	9+	5	6	9	6	2	9+	9+	-	-	8	-	-	5	6	22
23	-	-	-	-	-	-	9+	-	-	2	1	-	-	9+	8	8	9	8	7	9	9+	3	6	9+	7	2	8	9+	-	1*	8	-	-	8	6	23
	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	

Next, 20 meters, looking for rate again.

Contest Band-Planning Details

Single-Operator, All-Band, SO2R, WPX CW

20 Meters: May, CA (San Francisco), for SSN = Low, Sigs in S-Units. (c) 2010 Dean Straw, N6BV

Zone	UTC --> 00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
KL7 = 01	9+	9+	9+	9+	9+	9+	9+	9+	9+	9	8	3	3	6	9	9+	9+	9+	9+	9+	9+	9	9	9+
VO2 = 02	9	9	9	9	5	1	-	-	1*	2*	1*	1*	-	2	9	6	7	5	6	7	8	8	9	9
W6 = 03	6	6	6	6	6	7	8	8	8	8	8	8	8	7	7	7	7	6	6	6	6	6	6	6
W9 = 04	9+	9+	9+	9+	9+	9+	9	7	5	1	1*	2*	4	9	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+
W3 = 05	9+	9+	9+	8	6	9+	9	8	6	4	3	7	9	5	7	7	7	9	9	9	9	8	7	9
XE1 = 06	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9	9	9	9+	9+	9+	5	7	8	8	8	9	9	9
TI = 07	9	9+	9+	9+	9+	8	6	4	2	1	2	1	4	9	9	3	9	8	7	7	7	8	9	9
VP2 = 08	9	9+	9+	9+	9	6	2	1	1*	2*	2*	1*	5	9	8	7	2	3	4	4	5	7	8	8
P4 = 09	9	9+	9+	9+	9+	8	6	3	1	1*	2*	1	6	9	9	7	5	4	4	4	5	7	8	8
HC = 10	9	9+	9+	9+	9+	9	9	8	7	6	6	5	6	9	9	8	6	5	4	3	4	6	8	8
PY1 = 11	8	8	8	9	9	9	9	8	7	7	8	7	8	6	2	1	1	-	-	1	1	2	4	6
CE = 12	8	9	9	9	9	9+	9+	9	9	8	2	6	8	8	8	6	5	2	2	1	1	2	5	7
LU = 13	8	9	9	9	9	9	9	9	9	5	3	9	8	8	5	3	1	1	-	-	1	1	4	6
G = 14	7	6	5	5	5	5	5	5	2	1	-	-	1	6	7	7	8	7	7	7	7	8	8	8
I = 15	7	7	6	6	7	8	8	7	4	1	-	-	2	6	6	7	7	8	8	7	7	7	8	8
UA3 = 16	7	7	8	8	8	8	8	7	5	2	-	-	1	4	7	8	8	8	7	7	7	7	7	7
UN = 17	7	8	8	7	5	6	6	6	6	5	2	1*	1*	3	7	8	8	8	7	6	5	5	5	6
UA9 = 18	7	8	8	8	8	8	8	7	7	5	2	-	1*	1	6	7	8	7	6	5	5	5	6	6
UA0 = 19	8	8	8	8	8	9	9	9	9	9	8	5	4	5	8	8	7	8	8	8	8	7	8	8
4X = 20	7	7	7	8	8	7	5	3	1	-	-	-	1	4	5	7	6	7	6	6	6	6	7	7
HZ = 21	6	7	7	6	7	5	5	4	1	-	-	-	1*	2*	5	6	7	6	6	6	5	6	6	6
VU = 22	6	6	5	4	4	4	3	2	3	2	1	2*	1*	2*	8	8	8	7	6	6	5	4	4	6
JT = 23	8	8	7	8	8	7	8	8	8	8	5	1*	1*	1	6	8	8	7	7	6	6	6	7	7
VR2 = 24	7	6	5	5	5	5	6	8	8	9	8	6	4	5	8	9	9	9	8	8	8	7	8	8
JA1 = 25	8	7	6	8	8	9	9	9	9	9	8	3	1	1	5	6	4	5	7	8	8	9	8	8
HS = 26	5	4	2	1	1	1	2	4	6	7	6	1	1	2	6	8	8	8	7	7	6	5	5	5
DU = 27	5	5	3	3	4	5	6	8	9	9	9	8	6	7	8	9	9	9	8	8	7	6	5	5
YB = 28	3	2	1	1	1	1	3	6	8	8	9	8	5	5	8	8	8	8	7	6	-	-	4	2
VK6 = 29	1*	2*	1*	1	1	2	5	7	9	9	9	9	9	8	8	8	8	7	5	3	-	1	-	-
VK3 = 30	1*	1	2	1	4	7	9	9	9	9	9	9	9	8	8	8	8	6	-	5	4	1	1	1*
KH6 = 31	9	9+	9+	9+	9+	9+	9+	9+	9	8	6	3	9+	9+	9+	5	9+	9+	9	9	9	9	8	9
KH8 = 32	6	8	9	9	9	9+	9+	9+	9	9	9	9	9	9	9	6	-	8	8	7	7	7	6	6
CN = 33	9	8	7	5	5	6	7	4	2*	-	-	1	4	6	6	6	7	8	8	7	7	8	8	8
SU = 34	7	8	7	8	8	7	6	3	1	-	-	-	1	5	5	7	8	6	6	6	6	6	7	7
6W = 35	9	9	9	9	9	9	7	5	2	2*	1*	1	5	4	2	5	5	6	6	5	6	8	8	8
D2 = 36	8	8	8	7	-	5	6	2	2*	1*	-	-	-	1*	2*	3	2*	3*	1	1	1	2	4	5
5Z = 37	6	8	6	7	7	6	6	2	1*	-	-	1*	2*	3	7	8	6*	2*	1	1	3	4	4	6
ZS6 = 38	3	4	2	-	2*	2	5	2	2*	1*	2*	2*	4*	4*	8	8	2*	-	-	1	1	1	1	2
FR = 39	6	-	4	7	8*	7*	5*	4*	2*	3*	5*	6*	6*	6*	7*	6	6	3	2	2	1	2	2	5
FJL = 40	8	8	8	7	7	7	8	6	4	1	1*	1*	1*	1	5	8	7	6	5	5	5	6	7	8
Zone	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23

UTC --> * = Longpath

Expected signal levels using 1500 W and 12 dBi isotropic antennas.

Note how 20 often comes back after fading around local noon

Highlight where predicted signal strength > S8 = can CQ.

Horse Races!

• It’s useful to compare signals from all over the world into a receiver in a desired target location.

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Horse Races!

• It's useful to compare signals from all over the world into a receiver in a desired target location.

• Let's look at Southern Europe (Rome) and Eastern Europe (Moscow) for the WPX CW contest in May, at a Low level of solar activity, using the Detailed predictions.

• For a W6, the "competition" is from the USA, from Europe and from Japan.

Checking Out the Competition

Single-Operator, All-Band, SO2R, WPX CW

20 Meters: May, Italy (Rome), for SSN = Low, Sigs in S-Units. (c) 2010 Dean Straw, N6BV

	Zone	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	UTC -->																								
	KL7 = 01	5	4	1	2*	4	6	8	7	6	7	6	6	6	6	6	6	6	8	8	8	8	9	8	7
	VO2 = 02	7	4	1*	2*	1*	-	-	-	3	9	9	6	8	8	8	8	9	9	9	9	9	9	9	9
USA	W6 = 03	7	6	3	2*	4	6	8	6	4	1	1	1	4	6	6	7	7	8	7	7	7	7	8	8
USA	W9 = 04	9	8	5	3	5	4	2	-	2	5	7	7	7	8	8	8	8	7	7	7	8	8	8	8
USA	W3 = 05	9	8	5	2	5	1	1*	-	1	6	8	6	6	7	7	7	7	7	7	7	8	9	8	9
	XE1 = 06	9	8	6	4	5	7	5	2	1	1	3	6	5	5	6	4	4	3	3	4	5	6	8	9
	TI = 07	9	9	8	6	6	8	9	8	8	7	8	6	5	5	6	5	4	2	4	5	7	8	9	9
	VP2 = 08	9	9	9	8	8	8	9	8	8	8	8	8	7	5	6	5	5	6	8	9	9	9	9	9
	P4 = 09	9	9	7	5	5	7	9	8	7	8	7	8	7	6	6	5	5	5	6	8	9	9	9	9
	HC = 10	9	9	9	8	8	9	9	9	8	7	7	5	4	2	1	1	2	2	4	5	7	9	9	9
	PY1 = 11	9	9	9	9	8	9	5	3	7	7	6	5	1	1	-	1	3	5	8	9	9	9	9	9
	CE = 12	9	9	9	9	9	8	8	5	-	-	3	1	-	-	-	1*	-	1	3	6	8	8	8	9
	LU = 13	9	9	9	9	9	9	8	4	-	-	1	1	-	-	-	-	-	2	5	7	8	9	9	9
EU	G = 14	5	3	3	6	8	9	9	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9	8
EU	I = 15	7	7	7	7	7	6	6	6	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
EU	UA3 = 16	9	5	5	8	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9
	UN = 17	3	1*	3	9	9	9	7	7	8	5	8	8	8	9	9	9	9+	9+	9+	9+	9+	8	5	1
	UA9 = 18	2	1*	1	6	9	9	9	7	6	8	8	8	8	9	9	9	9	9	9	9	8	6	5	2
	UA0 = 19	5	2	3	6	7	6	6	6	6	6	6	6	7	7	8	8	8	8	8	8	8	8	8	6
	4X = 20	9+	9+	9	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+
	HZ = 21	4	2*	1	5	9+	9+	9	9	9	8	8	8	9	9	9	9	9+	9+	9+	9+	9+	9+	9	7
	VU = 22	8	6	8	9	9	8	6	5	5	5	5	6	7	8	8	9	9+	9+	9+	9+	9+	9	9	9
	JT = 23	5	2	5	8	9	6	6	6	5	5	5	6	5	7	7	9	8	8	9	9	8	6	7	6
	VR2 = 24	8	6	6	5	5	3	2	2	4	6	4	5	6	7	8	8	9	9	9	9	9	9	9	8
JA	JA1 = 25	5	4	5	6	6	5	6	5	6	5	5	7	7	8	7	8	9	9	8	9	9	9	8	7
	HS = 26	8	8	7	7	5	3	1	2	2	2	3	4	2	6	7	8	8	9	9	9	9	9	8	8
	DU = 27	7	6	6	5	2	1	1	1	1	2	3	4	5	7	7	9	9	9	9	9	9	9	9	8
	YB = 28	9	8	8	5	2	1	1	-	-	1	1	1	4	5	5	8	8	9	9	9	9	9	5	7
	VK6 = 29	9	8	7	5	2	-	1*	1*	1*	1*	1	2	3	5	4	2	4	6	8	8	8	3	4	7
	VK3 = 30	8	5	3	2	2*	4*	8	5*	2*	1*	1	1	1	1	2	4	6	8	8	8	4	6	8	8
	KH6 = 31	2	2	1	3*	4*	6	7	8	8	6	6	6	5	5	5	6	7	6	5	4	4	4	3	2
	KH8 = 32	1*	2*	4*	5*	5	6	6	5	3	2	2	2	2	3	4	6	2	5	7	5*	6	3*	1	1*
	CN = 33	9+	9	9	9	9	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+
	SU = 34	9+	9+	9	9	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+
	6W = 35	6	6	5	4	5	6	8	9	8	9	9	8	8	7	8	8	9	9	9+	9+	9+	9+	8	6
	D2 = 36	9	9	5	-	-	9	9	8	7	5	4	3	4	5	7	8	9	9	9+	9+	9+	9	9	9+
	5Z = 37	9+	9	4	6	9	9	9	7	7	4	4	4	5	7	8	9	9	9+	9+	9+	9+	9+	9+	9+
	ZS6 = 38	8	8	4	-	5	9	8	6	4	2	1	-	-	-	4	7	8	9	9	9	9	9	8	8
	FR = 39	8	4	2	8	8	8	6	2	3	1	1	1	3	2	6	9	9	9	9	9	9	9	9	9
	FJL = 40	2*	2*	2*	1*	1*	1	5	6	7	8	8	8	8	8	9	9	9	9	9	9	7	6	4	2*
	Zone	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	UTC -->								* = Longpath																

Expected signal levels using 1500 W and 12 dBi isotropic antennas.

Checking competition for W6 on 20 meters in Southern Europe.

Checking Out the Competition

• For example, from 05 to 08 UTC, W6 has stronger signals into Southern Europe on 20 meters compared to the rest of the USA.

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• However, the signals into the Italian's receiver from Europe during that time will be stronger than the W6, for antennas pointed at Rome.

Checking Out the Competition

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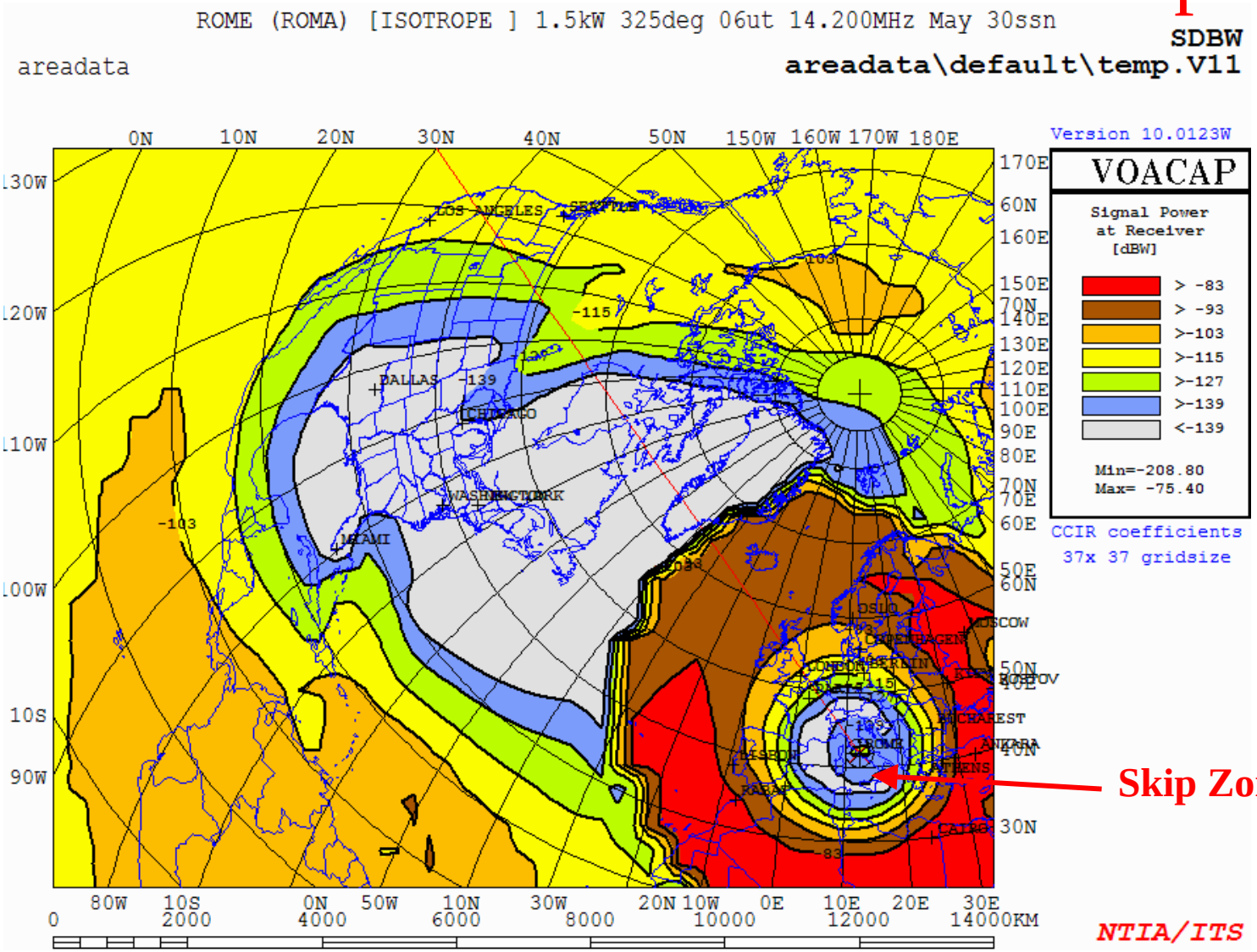
• However, the signals into the Italian's receiver from Europe during that time will be stronger than the W6, for antennas pointed at Rome.

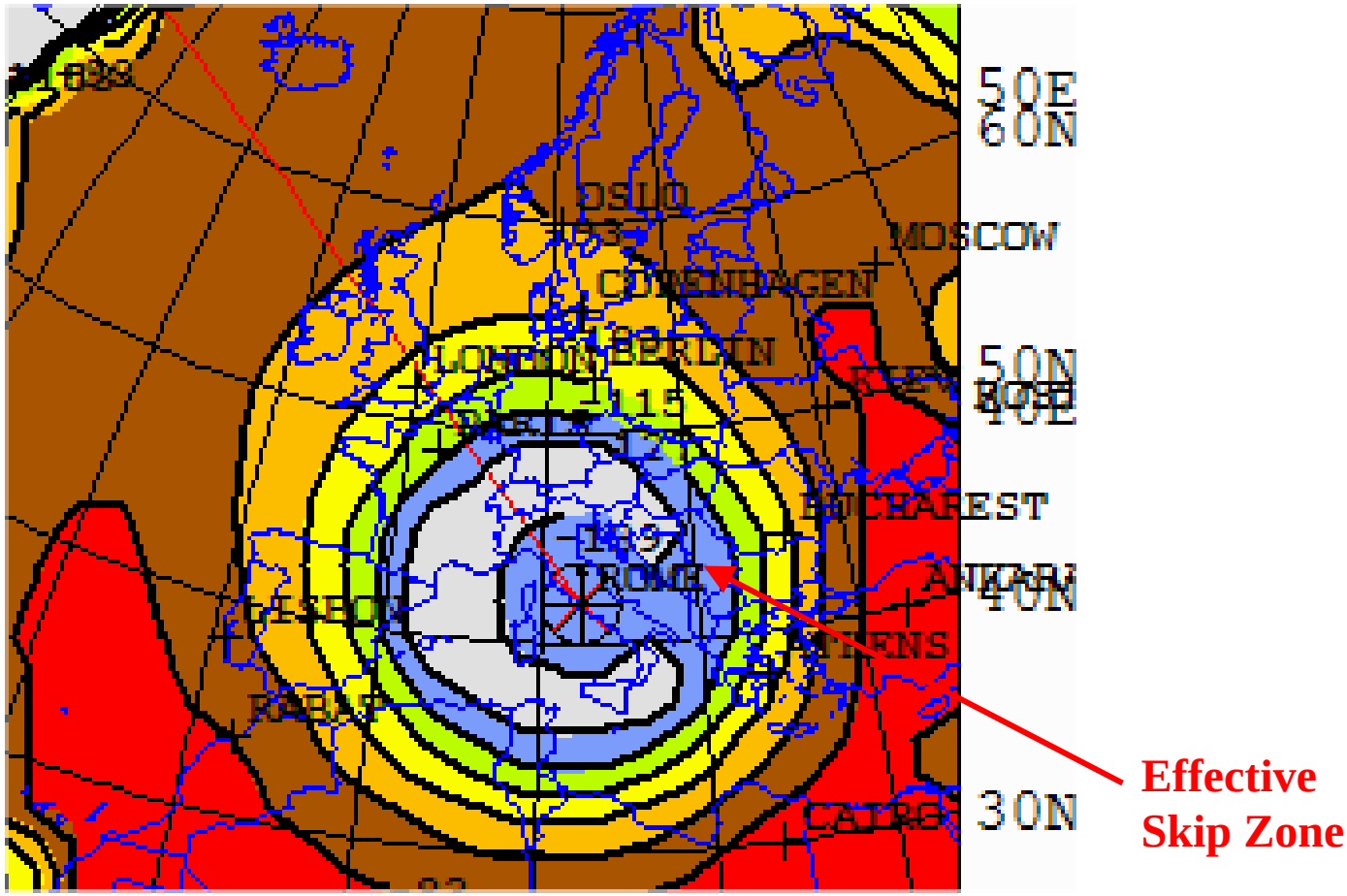
• The actual antenna patterns of both transmitting and receiving stations are important.

Area Covered From Southern Europe



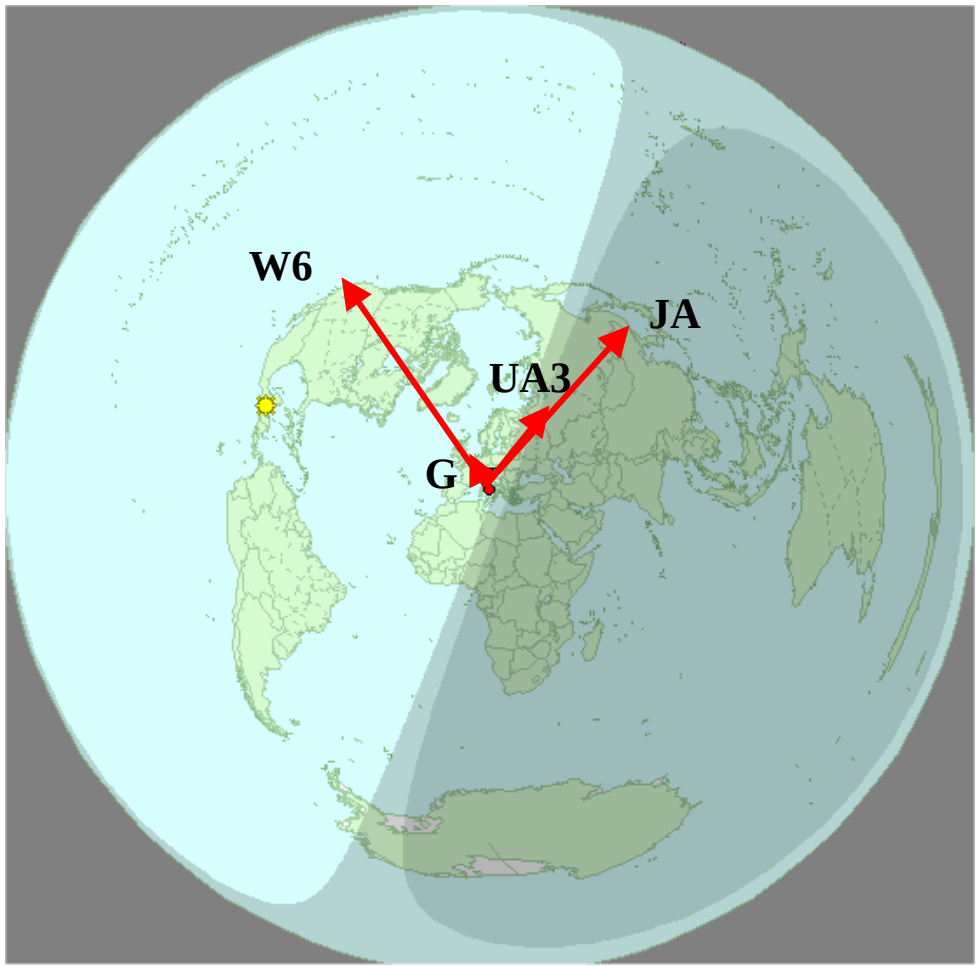
Isotropic TX & RX antennas — the antennas used in predictions. Rome's signal is S8 in San Francisco

Europe: Blow-Up



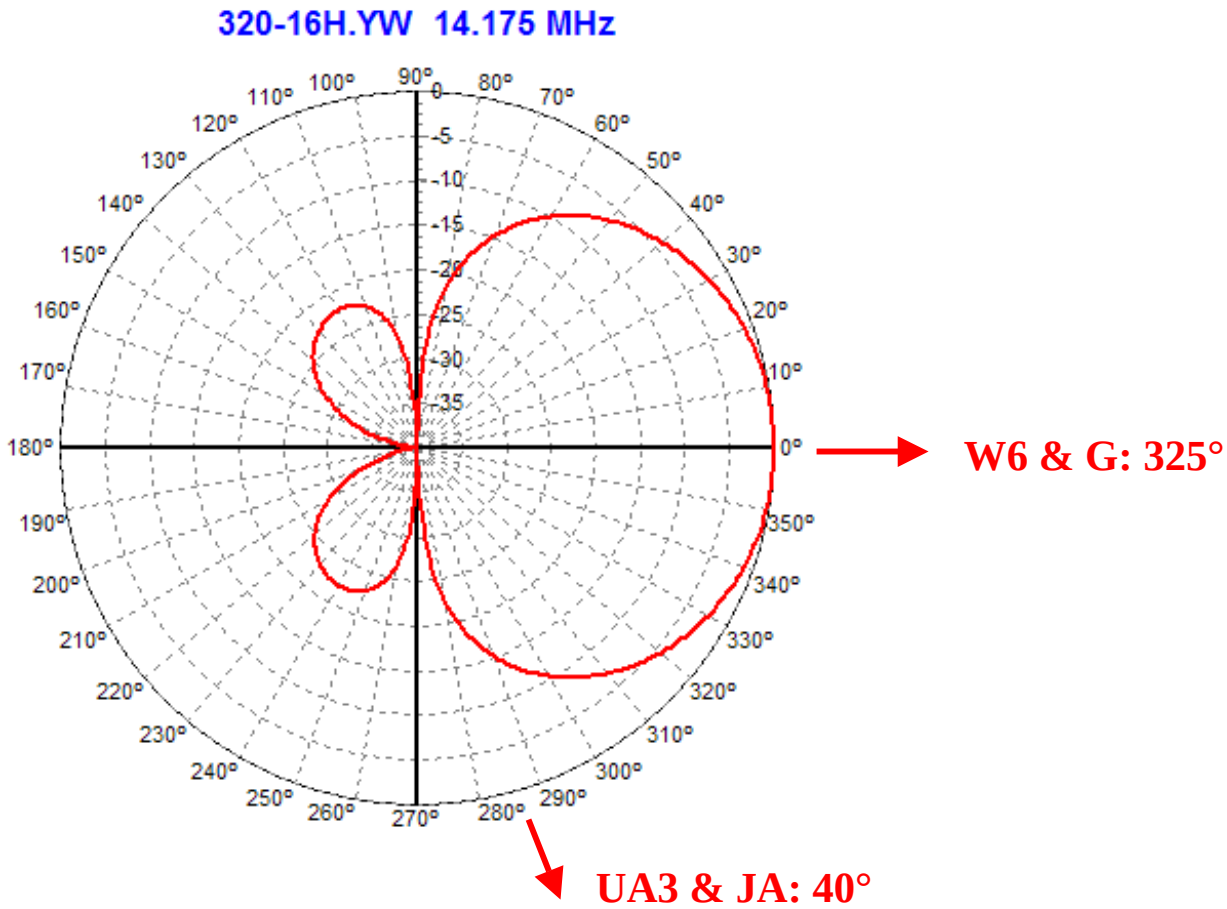
Close-up of signals around Rome. This map has the receive antennas all aimed at Rome.

Azimuths for Competition in Rome



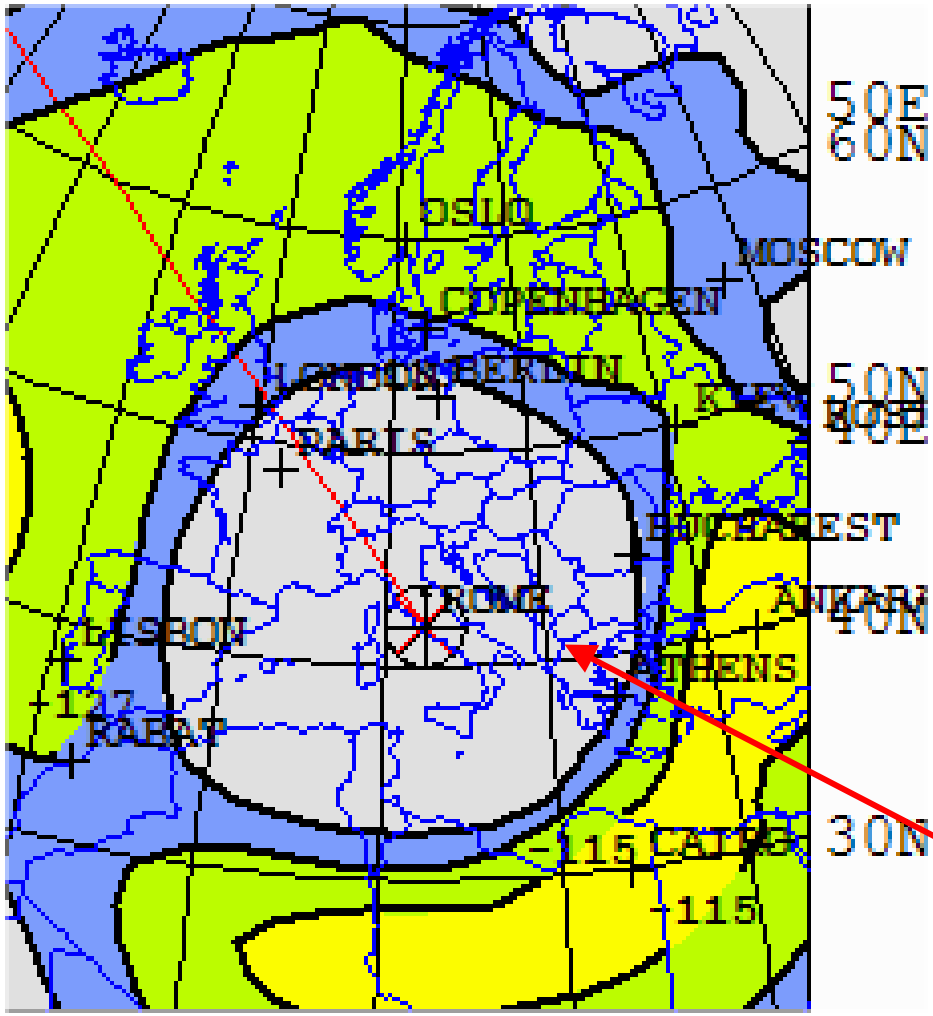
Good F/B needed from Western Europe, and good F/R needed to/from Eastern Europe to work W6s from Rome.

Typical 3L20 Azimuth Response



Interference from Western Europe (London) depends on F/B of London Yagi towards South Europe (Rome).

Signals in Rome: 3L20 Yagis at 75'



3LYagi at 75' on 20 meters from Rome. European receiving antennas are also 3LYagis at 75' — aimed at W6, not at Rome.

Now, Eastern Europe

Single-Operator, All-Band, SO2R, WPX CW

20 Meters: May, Eu. Russia (Moscow), for SSN = Low, Sigs in S-Units. (c) 2010 Dean Straw, N6BV

	UTC -->																							
Zone	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
KL7 = 01	5	5	7	8	8	8	7	7	6	7	8	8	8	7	7	7	7	6	5	5	7	7	6	6
VO2 = 02	3	1*	1*	1*	1*				2	8	8	8	8	7	8	8	8	8	8	8	8	8	8	5
W6 = 03	5	5	7	7	8	8	8	7	5	3	2	2	4	5	7	7	8	8	7	6	6	6	6	7
W9 = 04	8	7	7	7	6	6	5	4	5	5	4	7	6	7	7	7	7	6	6	6	6	8	8	8
W3 = 05	7	6	5	6	7	3	1	1	2	5	6	6	7	8	7	7	6	5	7	7	8	7	7	8
XE1 = 06	6	5	5	6	7	8	6	2	1	-	1	4	6	7	9	5	2	2	2	2	3	5	5	6
TI = 07	7	5	5	5	7	8	7	5	5	5	6	5	6	6	5	4	2	1	2	2	4	6	7	7
VP2 = 08	7	5	2	3	5	7	5	3	5	8	6	8	8	7	5	6	5	5	6	7	8	8	8	8
P4 = 09	8	6	4	5	6	8	8	6	5	7	6	8	8	7	5	6	2	3	5	6	7	8	9	8
HC = 10	8	6	5	6	7	8	8	8	8	7	6	4	6	5	2	3	1	1	2	2	4	8	8	8
PY1 = 11	9	8	8	8	9	7	1	-	3	2	2	1	-	-	-	1	2	4	8	8	9	9	9	9
CE = 12	8	7	5	5	8	8	8	5	-	-	2	-	1*	2*	1*	1*	-	-	2	4	6	7	8	8
LU = 13	8	7	5	6	8	9	7	1	-	1	1	1	1*	1*	1*	-	1	2	4	6	8	9	9	9
G = 14	9	5	4	6	9	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9
I = 15	9	5	5	8	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9
UA3 = 16	8	8	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	8	8
UN = 17	9	9+	9+	9+	9+	8	8	8	8	8	7	5	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9	9
UA9 = 18	9+	9+	9+	9+	9+	6	7	8	8	8	6	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9	9
UA0 = 19	6	8	9	9	9	8	8	8	9	9	8	8	9	9	9	9	9	9	8	7	7	5	5	5
4X = 20	9	9	9+	9+	9+	9+	9+	7	6	6	7	6	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+
HZ = 21	9+	9+	9+	6	9+	9+	9	9	9	9	9	9	9	9	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+
VU = 22	1*	4	9	9	9	9	8	8	8	8	9	9	9	9	9+	9+	9+	9+	9+	9+	8	4	1	-
JT = 23	2	5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	4	1*	2	1*
VR2 = 24	8	9	6	5	4	2	2	2	3	3	5	5	7	8	9	8	8	8	9+	9	8	7	7	7
JA1 = 25	8	8	7	6	8	6	7	6	7	7	8	8	8	9	8	9	9	9	9	9	8	8	8	8
HS = 26	9	9	7	7	5	2	3	2	4	2	4	5	8	8	9	9	8	9	9	9+	9	8	7	7
DU = 27	7	7	6	5	3	3	3	4	5	6	7	8	8	9	9	9	9	9	9	9	9	8	7	6
YB = 28	8	8	8	6	1	1	1	1	1	1	5	6	7	8	9	9	8	9	9	9	9	7	3	8
VK6 = 29	7	7	6	4	-	-	-	1*	1	1	3	4	6	7	7	7	8	8	8	9	8	3	1	8
VK3 = 30	5	4	1	-	1*	2*	2*	2*	1*	1	2	4	6	7	8	8	8	8	9	9	8	8	6	6
KH6 = 31	3	4	5	6	6	7	7	7	7	7	8	8	7	7	7	7	8	8	7	6	5	4	3	3
KH8 = 32	-	1*	2*	5	8	8	6	4	4	5	5	8	8	7	8	8	4	5	8	7	6	3	1	-
CN = 33	1	1*	2*	1*	1	5	9	9	9	9	9	9	9	9	9	9	9	9+	9+	9+	9+	9+	8	5
SU = 34	9+	9	9+	9+	9+	9+	9+	8	8	8	8	8	7	7	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+
6W = 35	8	5	3	4	7	8	9	8	7	4	5	4	3	4	4	8	8	9	9	9+	9+	9+	9+	9
D2 = 36	9	8	6	1	2	8	6	4	2	2	-	-	2	4	6	8	8	9	9	9	9	9	9	9
5Z = 37	9	9	5	9	9	8	5	5	4	2	2	3	5	7	8	9	9+	9+	9+	9+	9+	9+	9+	9+
ZS6 = 38	8	7	1	-	2	8	5	3	1	1	-	-	1	2	5	8	8	9	9	9	9	8	7	6
FR = 39	8	3	5	9	8	7	3	1	1	1	1	1	6	6	8	9	9	9	9	9+	9	9	9	9
FJL = 40	8	8	9	9	9	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9	9
Zone	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23

UTC --> * = Longpath

Expected signal levels using 1500 W and 12 dBi isotropic antennas.

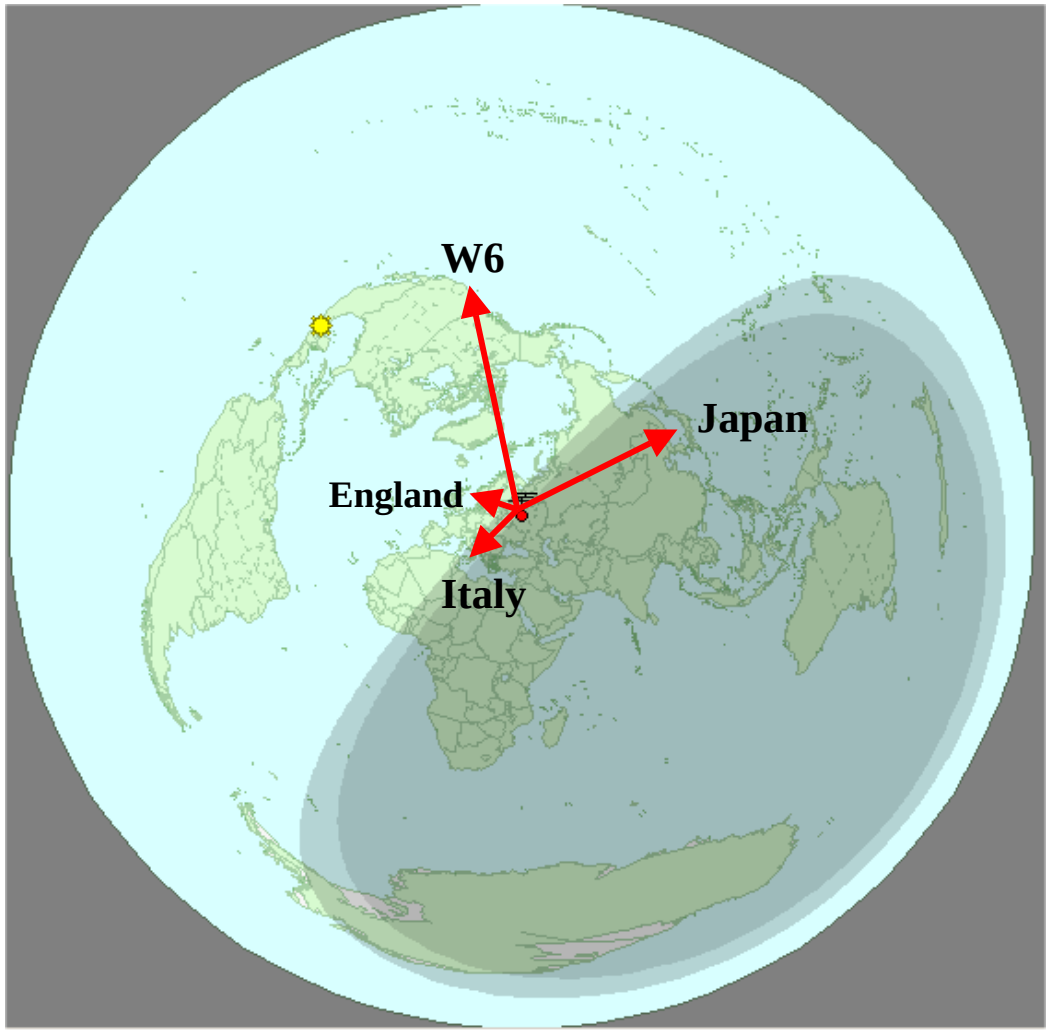
USA

EU

JA

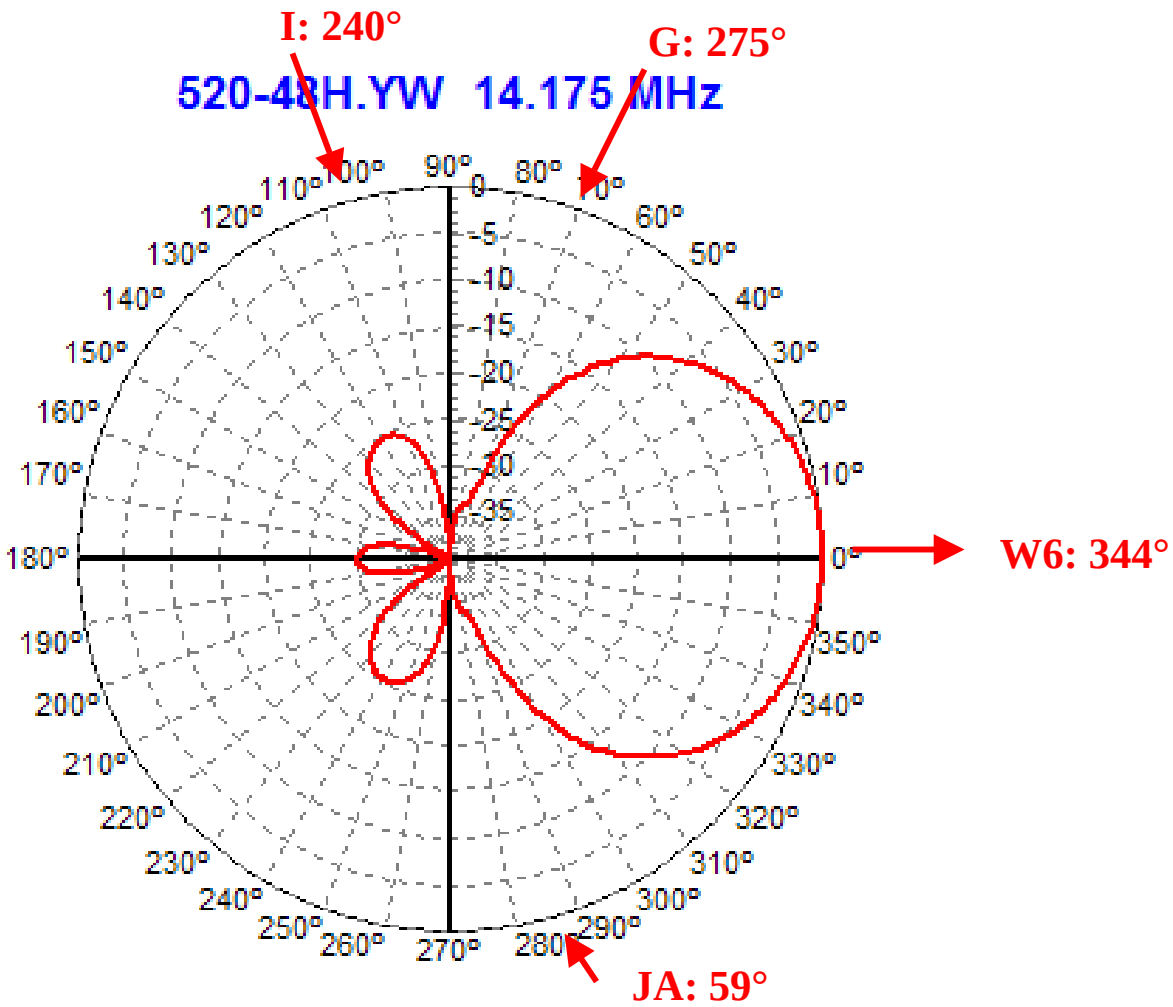
US competition on 20 into Eastern Europe is less severe for W6.

Azimuths for Competition in Moscow



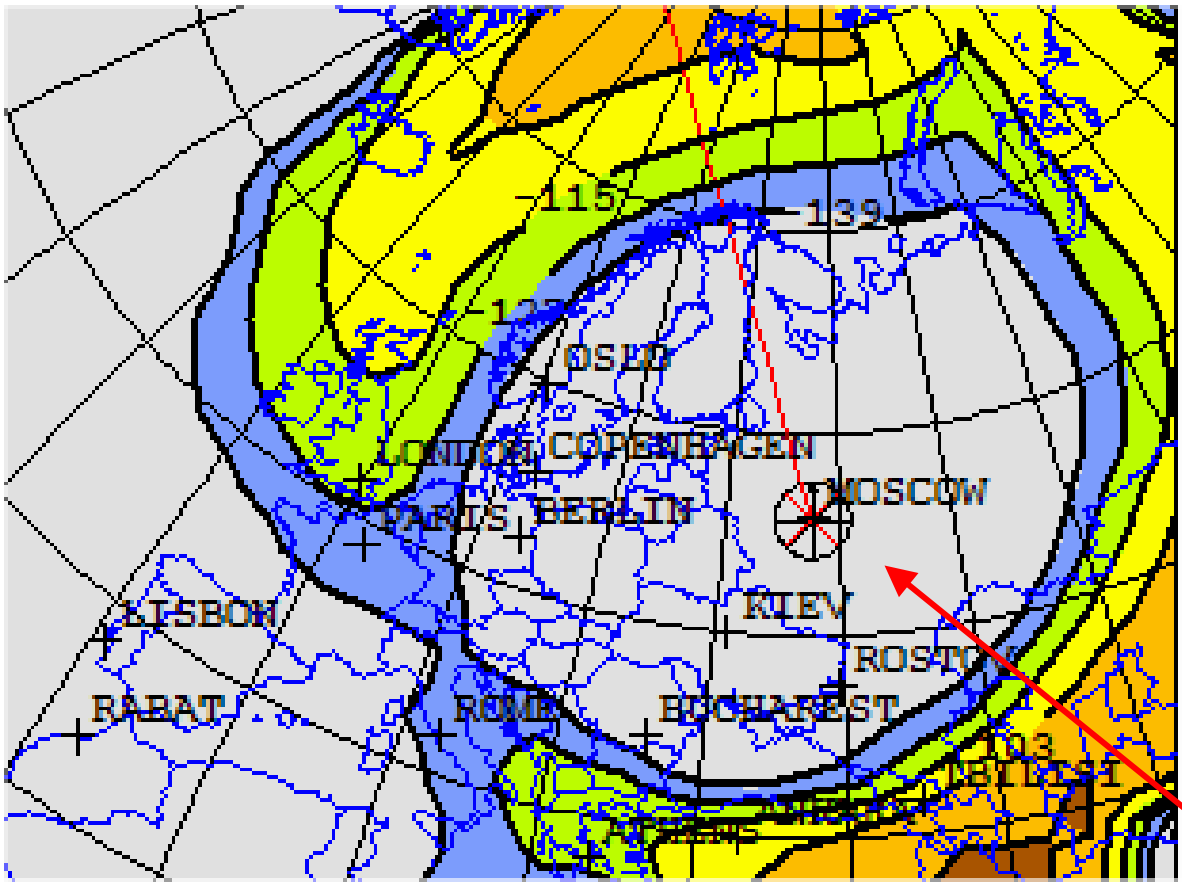
Good F/R needed to/from Western and Southern Europe to work W6s from Eastern Europe (Moscow).

Typical 5L20 Azimuthal Response



Azimuthal response of a 5L/5L/5L vertical stack will be the same in Moscow.

Eastern Europe: With N6RO Stacks



20-meter 5L/5L/5L transmitting stack from Moscow to W6.
European receiving antennas are the same stacks, aimed at W6.
Besides azimuthal nulls, stacks suppress high elevation angles.

Competition in Europe, from Europe

• So, it turns out that the interfering signals from within Europe aren't as frightening as first thought.

Competition in Europe, from Europe

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• This is true, providing that directional antennas are used in Europe, and providing that they're all pointing towards the USA!

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Competition in Europe, from Europe

- So, it turns out that the interfering signals from within Europe aren't as frightening as first thought.
- This is true, providing that directional antennas are used in Europe, and providing that they're all pointing towards the USA!
- Stacks can help extend the Skip Zone a little.
- European stations using omnidirectional verticals can still make it hard for other Europeans to hear DX.
- Things get a lot more challenging on the lower bands below 20 meters, where highly directional antennas are less likely to be found, and where skip zones naturally decrease in size.

Contest Band-Planning Strategies

Single-Operator, All-Band, SO2R, WPX CW

May, CA (San Francisco), for SSN = Low, Sigs in S-Units. (c) 2010 Dean Straw, N6BV

	80 Meters							40 Meters							20 Meters							15 Meters							10 Meters							
UTC	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	UTC
0	-	-	-	-	-	-	9+	1	-	7	2	-	-	9+	7	8	9	9	8	9	9+	1	4*	9+	8	1	8	9+	-	2*	8	-	1*	8	6	0
1	-	-	3	-	-	-	9+	4	-	8	5	-	2	9+	7	9	9+	9	8	9+	9+	1	6*	9+	7	4	9	9+	-	4*	7	-	2*	8	6	1
2	-	-	7	2	-	-	9+	5	-	8	6	-	6	9+	8	8	9+	9	8	9+	9+	2	5	9	5	5*	9	9+	-	3*	3	-	3*	9	8	2
3	2	-	8	5	-	4	9+	3	-	8	8	-	8	9+	8	8	9+	9	8	9+	9+	4*	7	9	6	7	9	9+	-	1*	-	-	4*	8	6	3
4	1	-	9	6	-	8	9+	7	1	9	8	-	9	9+	8	8	9+	9	8	9+	9+	5*	7	9	6*	7*	9	9	1*	1	-	1*	5*	7	6	4
5	2	-	8	7	-	9	9+	8	2	9	8	-	9	9+	8	9	9+	9	8	9+	9+	5*	7	6	8*	5*	9	8	1*	-	-	2*	1*	8	6	5
6	2	-	8	6	-	8	9+	6	3	9	8	-	9+	9+	8	9	9+	7	8	9+	9+	5*	6	2	8*	3*	9+	8	-	-	-	1*	-	6	7	6
7	-	-	8	2	-	9	9+	6	5	9	8	-	9+	9+	7	9	9	5	8	9+	9+	2*	4	1	4*	1*	9	8	-	-	-	-	-	-	7	7
8	-	1	8	1	-	9	9+	3	8	9	6	1	9+	9+	5	9	9	2*	8	9	9+	1*	3	1	2*	-	9	8	-	-	-	-	-	-	7	8
9	-	6	8	-	-	9+	9+	2	8	9	2	2	9+	9+	2	9	8	3*	8	9	9+	-	1	-	1*	-	8	8	-	-	-	-	-	-	7	9
10	-	8	8	-	-	9+	9+	1	9	9	1	4	9+	9+	-	9	8	5*	5	9	9	-	-	-	-	-	6	8	-	-	-	-	-	-	7	10
11	-	8	7	-	-	9+	9+	1	9	9	-	5	9+	9+	-	8	9	6*	2*	9	9	-	-	1	1*	-	3	8	-	-	-	-	-	-	7	11
12	-	8	5	-	2	9+	9+	-	9	8	-	5	9+	9+	2	5	8	6*	1*	9+	9	-	-	-	-	-	1	8	-	-	-	-	-	-	7	12
13	-	8	1	-	1	9	9+	-	9	6	-	8	9+	9+	6	5	9	6	3	9+	9+	-	1*	3	-	-	-	8	-	-	-	-	-	-	7	13
14	-	6	-	-	-	9	9+	-	8	3	1*	5	9	9	7	8	9	8	8	9+	9+	-	2*	6	3	1*	1*	8	-	-	-	-	-	-	7	14
15	-	2	-	-	-	6	9+	-	7	-	-	4	9	9+	8	9	8	8	8	9	9+	1*	5*	7	4	5*	6	9	-	-	-	-	-	-	6	15
16	-	-	-	-	-	2	9+	-	6	-	-	2	8	9+	8	9	9	8	8	9+	9+	6*	4*	8	5*	7*	9	9	-	-	-	-	-	-	6	16
17	-	-	-	-	-	-	9+	-	3	-	-	1	6	9+	8	9	8	8	8	9+	9+	5*	6	7	4*	7*	9+	8	-	-	-	-	1*	-	6	17
18	-	-	-	-	-	-	9+	-	1	-	-	-	2	9+	8	8	7	8	7	9	9+	4*	2	8	5*	4*	9+	9	2*	-	-	-	-	1	6	18
19	-	-	-	-	-	-	9+	-	-	-	-	-	1	9+	7	8	7	7	6	9	9+	3*	1	8	3*	2*	9	9	1*	-	1	-	-	-	6	19
20	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	7	8	7	7	6	9	9+	2*	5	8	2*	1*	9	9+	-	-	5	1*	-	-	6	20
21	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	8	9	8	8	6	9	9+	1*	6	9	5	5	9+	9+	-	-	7	1*	-	1	6	21
22	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	8	8	9	8	7	8	9+	5	6	9	6	2	9+	9+	-	-	8	-	-	5	6	22
23	-	-	-	-	-	-	9+	-	-	2	1	-	-	9+	8	8	9	8	7	9	9+	3	6	9+	7	2	8	9+	-	1*	8	-	-	8	6	23
	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	

Now, 40 and 80 meters, looking for double-point QSOs.

Contest Band-Planning Strategies

Single-Operator, All-Band, SO2R, WPX CW

40 Meters: May, CA (San Francisco), for SSN = Low, Sigs in S-Units. (c) 2010 Dean Straw, N6BV

Zone	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
UTC -->																								
KL7 = 01	6	7	9	9	9	9	9+	9+	9+	9+	9+	9+	9+	9+	9	9	8	8	6	4	3	2	3	4
VO2 = 02	6	5	6	7	8	8	8	8	9	9	9	8	6	5	2	1	-	-	-	-	-	-	-	2
W6 = 03	9+	9+	9+	9+	9+	9+	9+	9+	9	9	6	6	6	7	9	9+	9+	9+	9+	9+	9+	9+	9+	9+
W9 = 04	8	9	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9	8	5	3	1	1	1	2	4	6
W3 = 05	8	8	8	9	9	9	9	9	9	9	9	9	8	8	7	4	2	-	-	-	-	-	2	6
XE1 = 06	8	8	9	9	9+	9+	9+	9+	9+	9+	9+	9+	9+	9	9	7	3	1	-	-	-	-	1	4
TI = 07	6	8	8	8	9	9	9	9	9	9	9	9	8	6	3	-	-	-	-	-	-	-	-	2
VP2 = 08	5	8	8	8	9	9	9	9	8	8	8	8	5	2	-	-	-	-	-	-	-	-	-	2
P4 = 09	7	8	7	8	8	8	8	8	9	9	9	8	6	3	1	-	-	-	-	-	-	-	-	1
HC = 10	4	6	8	8	8	8	8	8	9	9	9	8	7	4	1	-	-	-	-	-	-	-	-	1
PY1 = 11	1	2	5	7	7	8	8	7	7	7	5	2	-	-	-	-	-	-	-	-	-	-	-	-
CE = 12	-	2	6	8	7	8	9	9	9	9	8	7	5	1	-	-	-	-	-	-	-	-	-	-
LU = 13	-	3	5	7	8	8	8	8	8	8	7	6	1	-	-	-	-	-	-	-	-	-	-	-
G = 14	1	3	5	3	7	8	6	6	3	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-
I = 15	-	1	2	2	2	5	4	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UA3 = 16	-	4	2	2	3	3	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
UN = 17	-	-	-	-	-	-	-	-	-	-	-	-	1	3	2	1	1	-	-	-	-	-	-	-
UA9 = 18	-	-	-	-	-	-	-	-	1	1	2	3	2	6	5	2	1	-	-	-	-	-	-	-
UA0 = 19	-	-	-	-	1	2	3	4	6	8	9	9	9	8	8	7	5	3	1	-	-	-	-	-
4X = 20	-	1	-	4	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HZ = 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VU = 22	-	-	-	-	-	-	-	-	-	-	-	-	1	3	1	1	-	-	-	-	-	-	-	-
JT = 23	-	-	-	-	-	-	-	-	1	2	4	5	5	8	5	4	2	1	-	-	-	-	-	-
VR2 = 24	-	-	-	-	-	-	-	-	1	4	6	8	8	8	8	6	4	1	-	-	-	-	-	-
JA1 = 25	-	-	-	-	-	-	1	5	8	8	9	9	9	9	8	7	6	3	-	-	-	-	-	-
HS = 26	-	-	-	-	-	-	-	-	-	-	2	4	5	5	5	3	1	-	-	-	-	-	-	-
DU = 27	-	-	-	-	-	-	-	-	2	5	7	8	8	8	8	6	5	1	-	-	-	-	-	-
YB = 28	-	-	-	-	-	-	-	-	-	1	5	7	7	7	6	5	1	-	-	-	-	-	-	-
VK6 = 29	-	-	-	-	-	-	-	-	1	5	5	6	7	5	6	3	1	-	-	-	-	-	-	-
VK3 = 30	-	-	-	-	-	-	1	6	7	8	9	8	7	7	7	5	2	-	-	-	-	-	-	-
KH6 = 31	-	2	6	8	9	9	9+	9+	9+	9+	9+	9+	9+	9+	9	9	8	6	2	1	-	-	-	-
KH8 = 32	-	-	-	2	5	7	8	9	9	9	9	9	9	9	8	6	3	-	-	-	-	-	-	-
CN = 33	1	4	6	7	5	6	8	6	5	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1
SU = 34	-	1	1	5	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6W = 35	2	5	6	8	8	8	8	8	6	2	1	-	-	-	-	-	-	-	-	-	-	-	-	1
D2 = 36	-	1	4	5	5	4	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5Z = 37	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZS6 = 38	-	1	1	5	5	5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FR = 39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1*	-	-	-	-	-	-	-	-	-
FJL = 40	-	1	2	3	4	5	2	3	3	4	5	6	3	2	2	1	-	-	-	-	-	-	-	-
Zone	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23

UTC --> * = Longpath

Expected signal levels using 1500 W and 6 dBi isotropic antennas.

Details for 40 meters.

Contest Band-Planning Strategies

Single-Operator, All-Band, SO2R, WPX CW

May, CA (San Francisco), for SSN = Low, Sigs in S-Units. (c) 2010 Dean Straw, N6BV

	80 Meters							40 Meters							20 Meters							15 Meters							10 Meters							
UTC	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	UTC
0	-	-	-	-	-	-	9+	1	-	7	2	-	-	9+	7	8	9	9	8	9	9+	1	4*	9+	8	1	8	9+	-	2*	8	-	1*	8	6	0
1	-	-	3	-	-	-	9+	4	-	8	5	-	2	9+	7	9	9+	9	8	9+	9+	1	6*	9+	7	4	9	9+	-	4*	7	-	2*	8	6	1
2	-	-	7	2	-	-	9+	5	-	8	6	-	6	9+	8	8	9+	9	8	9+	9+	2	5	9	5	5*	9	9+	-	3*	3	-	3*	9	8	2
3	2	-	8	5	-	4	9+	3	-	8	8	-	8	9+	8	8	9+	9	8	9+	9+	4*	7	9	6	7	9	9+	-	1*	-	-	4*	8	6	3
4	1	-	9	6	-	8	9+	7	1	9	8	-	9	9+	8	8	9+	9	8	9+	9+	5*	7	9	6*	7*	9	9	1*	1	-	1*	5*	7	6	4
5	2	-	8	7	-	9	9+	8	2	9	8	-	9	9+	8	9	9+	9	8	9+	9+	5*	7	6	8*	5*	9	8	1*	-	-	2*	1*	8	6	5
6	2	-	8	6	-	8	9+	6	3	9	8	-	9+	9+	8	9	9+	7	8	9+	9+	5*	6	2	8*	3*	9+	8	-	-	-	1*	-	6	7	6
7	-	-	8	2	-	9	9+	6	5	9	8	-	9+	9+	7	9	9	5	8	9+	9+	2*	4	1	4*	1*	9	8	-	-	-	-	-	-	7	7
8	-	1	8	1	-	9	9+	3	8	9	6	1	9+	9+	5	9	9	2*	8	9	9+	1*	3	1	2*	-	9	8	-	-	-	-	-	-	7	8
9	-	6	8	-	-	9+	9+	2	8	9	2	2	9+	9+	2	9	8	3*	8	9	9+	-	1	-	1*	-	8	8	-	-	-	-	-	-	7	9
10	-	8	8	-	-	9+	9+	1	9	9	1	4	9+	9+	-	9	8	5*	5	9	9	-	-	-	-	-	6	8	-	-	-	-	-	-	7	10
11	-	8	7	-	-	9+	9+	1	9	9	-	5	9+	9+	-	8	9	6*	2*	9	9	-	-	1	1*	-	3	8	-	-	-	-	-	-	7	11
12	-	8	5	-	2	9+	9+	-	9	8	-	5	9+	9+	9	5	8	6*	1*	9+	9	-	-	-	-	-	1	8	-	-	-	-	-	-	7	12
13	-	8	1	-	1	9	9+	-	9	6	-	8	9+	9+	6	5	9	6	3	9+	9+	-	1*	3	-	-	-	8	-	-	-	-	-	-	7	13
14	-	6	-	-	-	9	9+	-	8	3	1*	5	9	9	7	8	9	8	8	9+	9+	-	2*	6	3	1*	1*	8	-	-	-	-	-	-	7	14
15	-	2	-	-	-	6	9+	-	7	-	-	4	9	9+	8	9	8	8	8	9	9+	1*	5*	7	4	5*	6	9	-	-	-	-	-	-	6	15
16	-	-	-	-	-	2	9+	-	6	-	-	2	8	9+	8	9	9	8	8	9+	9+	6*	4*	8	5*	7*	9	9	-	-	-	-	-	-	6	16
17	-	-	-	-	-	-	9+	-	3	-	-	1	6	9+	8	9	8	8	8	9+	9+	5*	6	7	4*	7*	9+	8	-	-	-	-	1*	-	6	17
18	-	-	-	-	-	-	9+	-	1	-	-	-	2	9+	8	8	7	8	7	9	9+	4*	2	8	5*	4*	9+	9	2*	-	-	-	-	1	6	18
19	-	-	-	-	-	-	9+	-	-	-	-	-	1	9+	7	8	7	7	6	9	9+	3*	1	8	3*	2*	9	9	1*	-	1	-	-	-	6	19
20	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	7	8	7	7	6	9	9+	2*	5	8	2*	1*	9	9+	-	-	5	1*	-	-	6	20
21	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	8	9	8	8	6	9	9+	1*	6	9	5	5	9+	9+	-	-	7	1*	-	1	6	21
22	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	8	8	9	8	7	8	9+	5	6	9	6	2	9+	9+	-	-	8	-	-	5	6	22
23	-	-	-	-	-	-	9+	-	-	2	1	-	-	9+	8	8	9	8	7	9	9+	3	6	9+	7	2	8	9+	-	1*	8	-	-	8	6	23
	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	

Time Off ??

Pick when the predicted rates are lowest or when you're sleepy.

A Band Plan

Single-Operator, All-Band, SO2R

- Pick a band on which you can expect to run rate.

A Band Plan

Single-Operator, All-Band, SO2R

- Pick a band on which you can expect to run rate.
- There might be two bands where you can run rate — choose the one open to other continents.

A Band Plan

Single-Operator, All-Band, SO2R

- Pick a band on which you can expect to run rate.
- There might be two bands where you can run rate — choose the one open to other continents.
- If you can, run rate on the lower frequencies, where points are higher for intercontinental QSOs.

A Band Plan

Single-Operator, All-Band, SO2R

- Pick a band on which you can expect to run rate.
- There might be two bands where you can run rate — choose the one open to other continents.
- If you can, run rate on the lower frequencies, where points are higher for intercontinental QSOs.
- Use second radio to find multipliers/QSOs on other bands.

Opportunities: Raw Data

Single-Operator, All-Band, SO2R, WPX CW

May, CA (San Francisco), for SSN = Low, Sigs in S-Units. (c) 2010 Dean Straw, N6BV

	80 Meters							40 Meters							20 Meters							15 Meters							10 Meters							
UTC	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	UTC
0	-	-	-	-	-	-	9+	1	-	7	2	-	-	9+	7	8	9	9	8	9	9+	1	4*	9+	8	1	8	9+	-	2*	8	-	1*	8	6	0
1	-	-	3	-	-	-	9+	4	-	8	5	-	2	9+	7	9	9+	9	8	9+	9+	1	6*	9+	7	4	9	9+	-	4*	7	-	2*	8	6	1
2	-	-	7	2	-	-	9+	5	-	8	6	-	6	9+	8	8	9+	9	8	9+	9+	2	5	9	5	5*	9	9+	-	3*	3	-	3*	9	8	2
3	2	-	8	5	-	4	9+	3	-	8	8	-	8	9+	8	8	9+	9	8	9+	9+	4*	7	9	6	7	9	9+	-	1*	-	-	4*	8	6	3
4	1	-	9	6	-	8	9+	7	1	9	8	-	9	9+	8	8	9+	9	8	9+	9+	5*	7	9	6*	7*	9	9	1*	1	-	1*	5*	7	6	4
5	2	-	8	7	-	9	9+	8	2	9	8	-	9	9+	8	9	9+	9	8	9+	9+	5*	7	6	8*	5*	9	8	1*	-	-	2*	1*	8	6	5
6	2	-	8	6	-	8	9+	6	3	9	8	-	9+	9+	8	9	9+	7	8	9+	9+	5*	6	2	8*	3*	9+	8	-	-	-	1*	-	6	7	6
7	-	-	8	2	-	9	9+	6	5	9	8	-	9+	9+	7	9	9	5	8	9+	9+	2*	4	1	4*	1*	9	8	-	-	-	-	-	-	7	7
8	-	1	8	1	-	9	9+	3	8	9	6	1	9+	9+	5	9	9	2*	8	9	9+	1*	3	1	2*	-	9	8	-	-	-	-	-	-	7	8
9	-	6	8	-	-	9+	9+	2	8	9	2	2	9+	9+	2	9	8	3*	8	9	9+	-	1	-	1*	-	8	8	-	-	-	-	-	-	7	9
10	-	8	8	-	-	9+	9+	1	9	9	1	4	9+	9+	-	9	8	5*	5	9	9	-	-	-	-	-	6	8	-	-	-	-	-	-	7	10
11	-	8	7	-	-	9+	9+	1	9	9	-	5	9+	9+	-	8	9	6*	2*	9	9	-	-	1	1*	-	3	8	-	-	-	-	-	-	7	11
12	-	8	5	-	2	9+	9+	-	9	8	-	5	9+	9+	2	5	8	6*	1*	9+	9	-	-	-	-	-	1	8	-	-	-	-	-	-	7	12
13	-	8	1	-	1	9	9+	-	9	6	-	8	9+	9+	6	5	9	6	3	9+	9+	-	1*	3	-	-	-	8	-	-	-	-	-	-	7	13
14	-	6	-	-	-	9	9+	-	8	3	1*	5	9	9	7	8	9	8	8	9+	9+	-	2*	6	3	1*	1*	8	-	-	-	-	-	-	7	14
15	-	2	-	-	-	6	9+	-	7	-	-	4	9	9+	8	9	8	8	8	9	9+	1*	5*	7	4	5*	6	9	-	-	-	-	-	-	6	15
16	-	-	-	-	-	2	9+	-	6	-	-	2	8	9+	8	9	9	8	8	9+	9+	6*	4*	8	5*	7*	9	9	-	-	-	-	-	-	6	16
17	-	-	-	-	-	-	9+	-	3	-	-	1	6	9+	8	9	8	8	8	9+	9+	5*	6	7	4*	7*	9+	8	-	-	-	-	1*	-	6	17
18	-	-	-	-	-	-	9+	-	1	-	-	-	2	9+	8	8	7	8	7	9	9+	4*	2	8	5*	4*	9+	9	2*	-	-	-	-	1	6	18
19	-	-	-	-	-	-	9+	-	-	-	-	-	1	9+	7	8	7	7	6	9	9+	3*	1	8	3*	2*	9	9	1*	-	1	-	-	-	6	19
20	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	7	8	7	7	6	9	9+	2*	5	8	2*	1*	9	9+	-	-	5	1*	-	-	6	20
21	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	8	9	8	8	6	9	9+	1*	6	9	5	5	9+	9+	-	-	7	1*	-	1	6	21
22	-	-	-	-	-	-	9+	-	-	-	-	-	-	9+	8	8	9	8	7	8	9+	5	6	9	6	2	9+	9+	-	-	8	-	-	5	6	22
23	-	-	-	-	-	-	9+	-	-	2	1	-	-	9+	8	8	9	8	7	9	9+	3	6	9+	7	2	8	9+	-	1*	8	-	-	8	6	23
	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	

Here's the marked-up Summary sheet again.

Making a Band Plan

Single-Operator, All-Band, SO2R

W6 Plan, High Power SO2R All-Band, WPX CW 2010							
UTC	160	80	40	20	15	10	Comments
0				Run JA,W	JA,OC,W	SA, OC	Run JA,W on 20; S&P Radio 2 on 10/15m
1		W	SA,W	Run JA,W	SA,OC,AF,W	JA*,SA,OC	Run JA,W on 20; S&P Radio 2 on 10/15/40m
2		W	SA,W	Run JA,EU,W	SA,OC,W	OC	Run EU,JA,W on 20; S&P Radio 2 on 10/15/40
3		W,SA	SA,W	Run JA,EU,W	JA,SA,OC,W	OC	Run EU,JA,W on 20; S&P Radio 2 on 10/15/40
4	W,SA	W,SA,AF,OC	EU,SA,AF,OC	Run JA,EU,W	EU*,JA,SA,OC	OC	EU* on 15m possibly longpath
5	W,SA	W,SA,AF,OC	Run EU,W	Run JA,EU,W	EU*,JA,SA,OC		Run EU on 40m; S&P Radio 2
6	W,SA	W,SA,AF,OC	EU,SA,AF,OC	Run EU,JA,W	SA		Split for 40m to EU or else work Ws
7	W,SA,OC	W,SA,OC	EU,SA,AF,OC	Run JA,W	OC		S&P 2nd Radio. Sleep 1 hr 2nd night
8	W,SA,OC	W,SA,OC	Run JA,W	Run JA	OC		S&P 2nd Radio. Sleep 1 hr 2nd night
9	W,SA,OC	W,SA,OC,JA	Run JA,W	Run JA	OC		S&P 2nd Radio. Sleep 1 hr 2nd night
10	W,SA,OC,JA	W,SA,OC,JA	Run JA,W	Run JA			Run JA on 20m, or 40m
11	W,OC,JA	Run JA,W	Run JA,W	OC			Run JA on 20m, or 40m, possibly 80
12	W,OC,JA	JA,OC	Run JA,W	Run W			Run W on 20m or JA on 40m. Sleep 1 hr?
13	W,OC,JA	Run JA,W	Run JA,W	Run W			Run W on 20m or JA on 40m, Sleep 1 hr?
14		OC	Run JA,W	Run W	SA		Run W on 20m or JA on 40m
15			JA	Run EU,JA,W	Run W		S&P 2nd Radio to check runnability on 15
16				Run EU,W	SA,AS*,OC		Check 15m for JA & JA*(lp), EU*,AS* longpath
17				Run EU,W	EU*,SA,AS*		S&P 2nd Radio; check EU/AS longpath. Time off
18				Run EU,W	EU*,SA,AF*		S&P 2nd Radio; check EU/AF longpath. Time off
19				Run JA,W	Run W,SA,OC		S&P 2nd Radio; Time off Sun. (JA Mon. morning.)
20				Run JA,W	Run W,SA,OC		S&P 2nd Radio; Time off Sunday.
21				Run JA,EU,W	Run W,SA,OC	SA	S&P 2nd Radio; Time off Sunday.
22				Run JA,EU,W	SA,OC	SA,OC	S&P 2nd Radio; possibly run W
23				Run JA,EU,W	SA,OC	SA,OC	S&P 2nd Radio; possibly run W

- Reducing the data to a plan (Yellow = try CQing). Note that multiple azimuths are often open simultaneously.

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• Being aware of what is *actually* happening on the bands is what separates the also-rans from the winners!

Where Can You Get the Latest N6BV Propagation Predictions?

- The exclusive distributor is *Radio-Ware* (also known as *Radio Bookstore*).
- Search using Google, or go to:
- http://www.radio-ware.com/