

Figure 26. Corrections (dB) to current CCIR Report 322 1 MHz F<sub>m</sub> estimates, June, July, August, 1600-2000 hours.

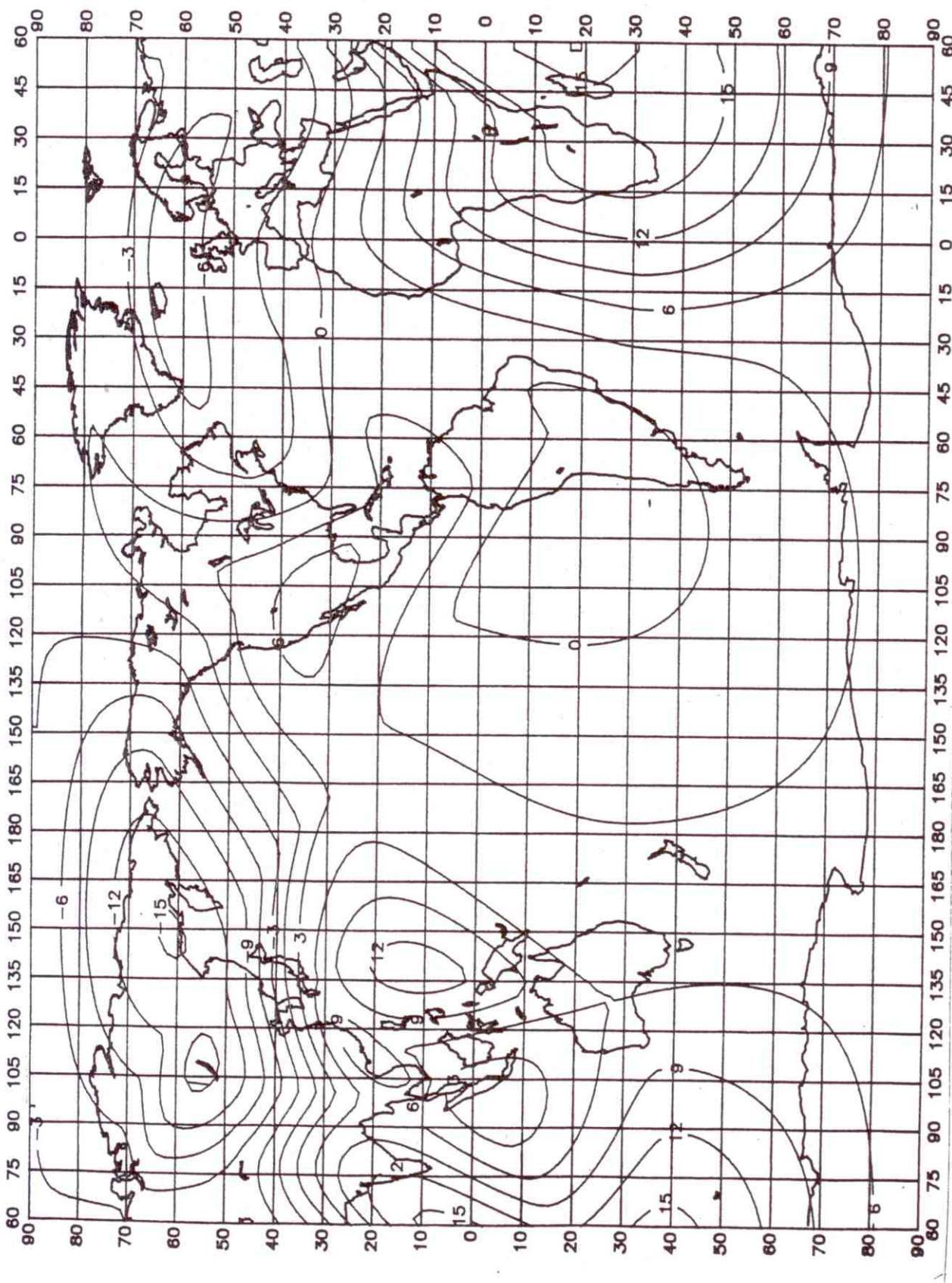


Figure 27. Corrections (dB) to current CCIR Report 322 1 MHz  $F_{am}$  estimates, June, July, August, 2000-2400 hours.

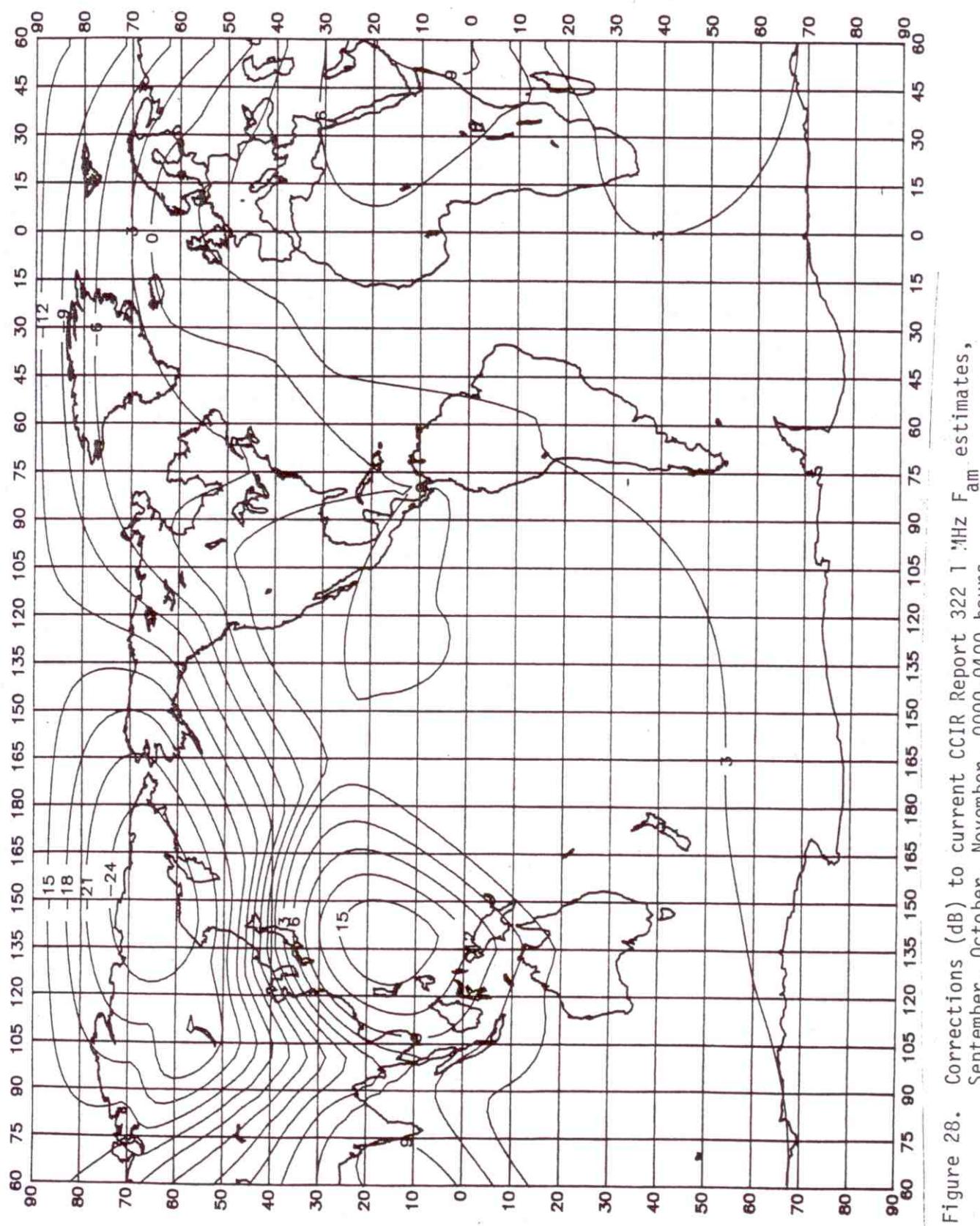


Figure 28. Corrections (dB) to current CCIR Report 322 1 MHz F<sub>m</sub> estimates, September, October, November, 0000-0400 hours.

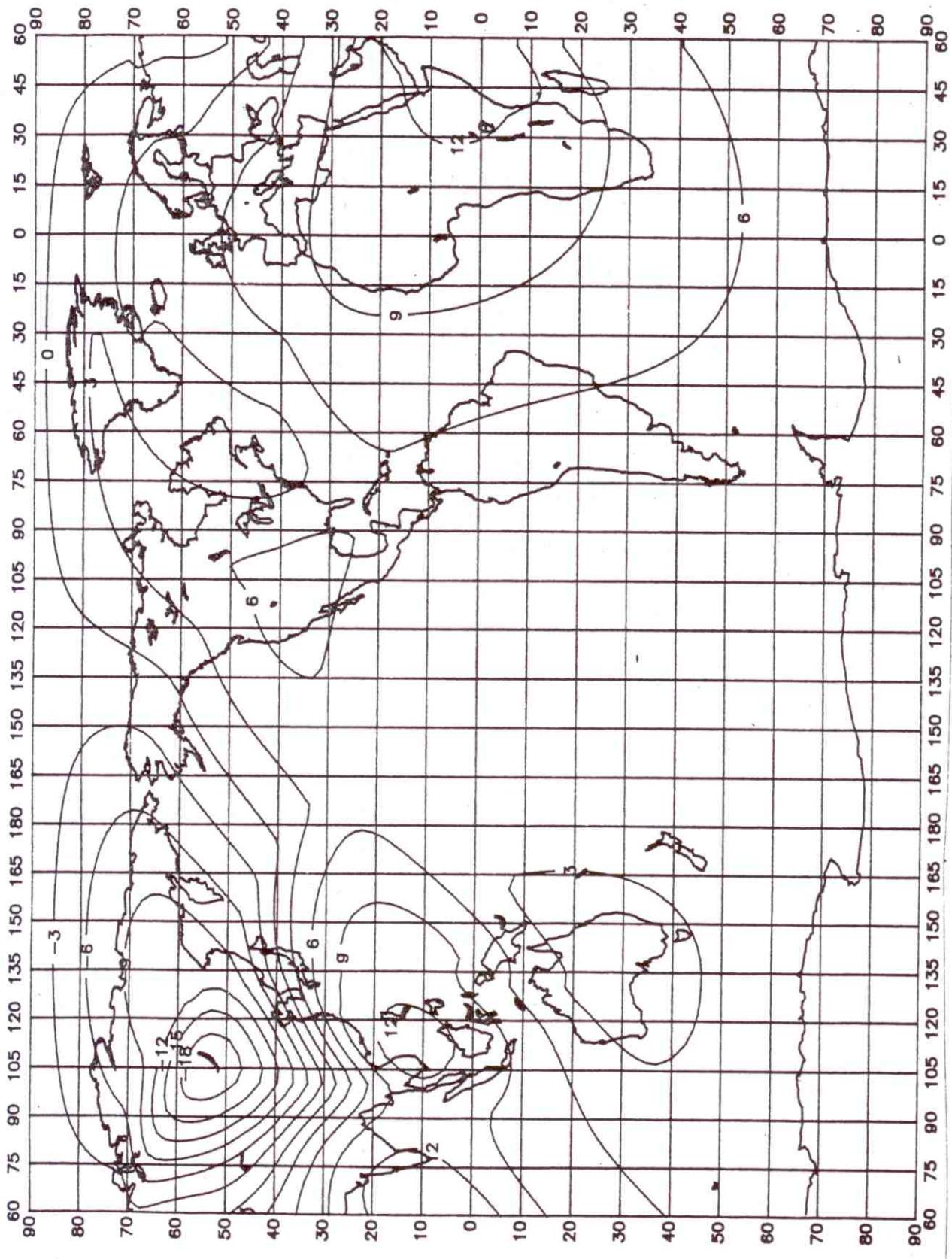


Figure 29. Corrections (dB) to current CCIR Report 322 1 MHz F am estimates, September, October, November, 0400-0800 hours.

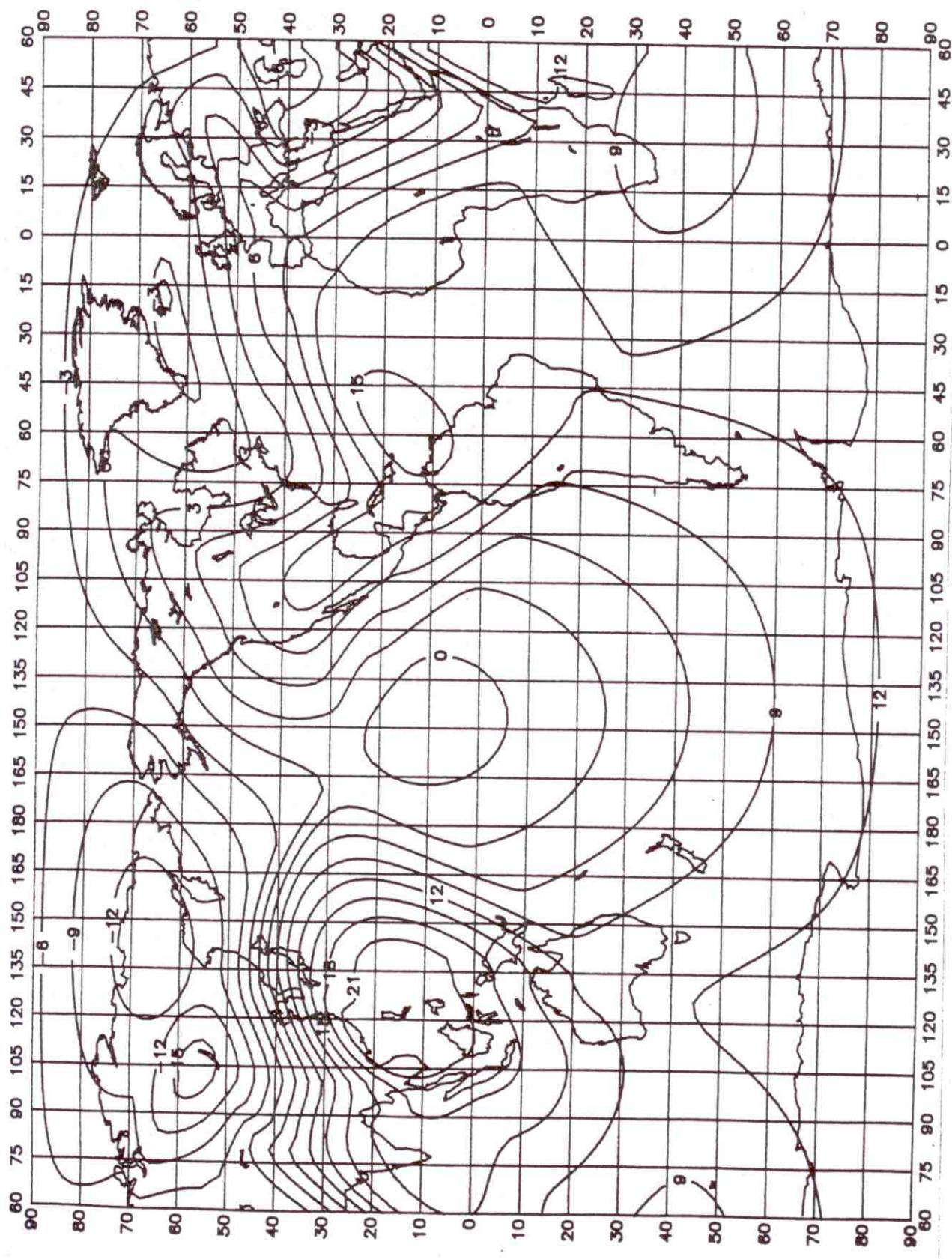


Figure 30. Corrections (dB) to current CCIR Report 3221 MHz F<sub>am</sub> estimates, September, October, November, 0800-1200 hours.

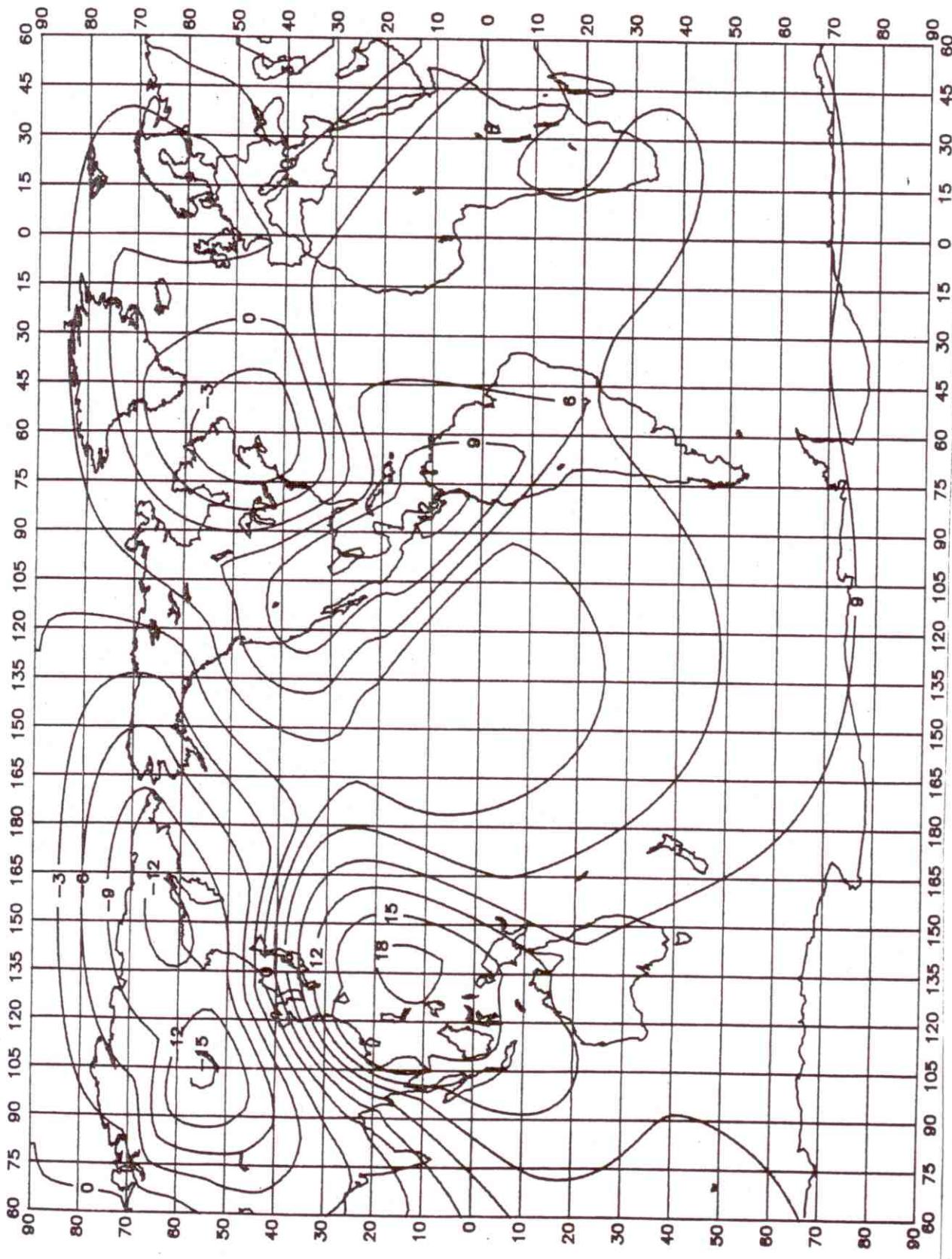


Figure 31. Corrections (dB) to current CCIR Report 322 1 MHz F am estimates,  
September, October, November, December, 1200-1600 hours.

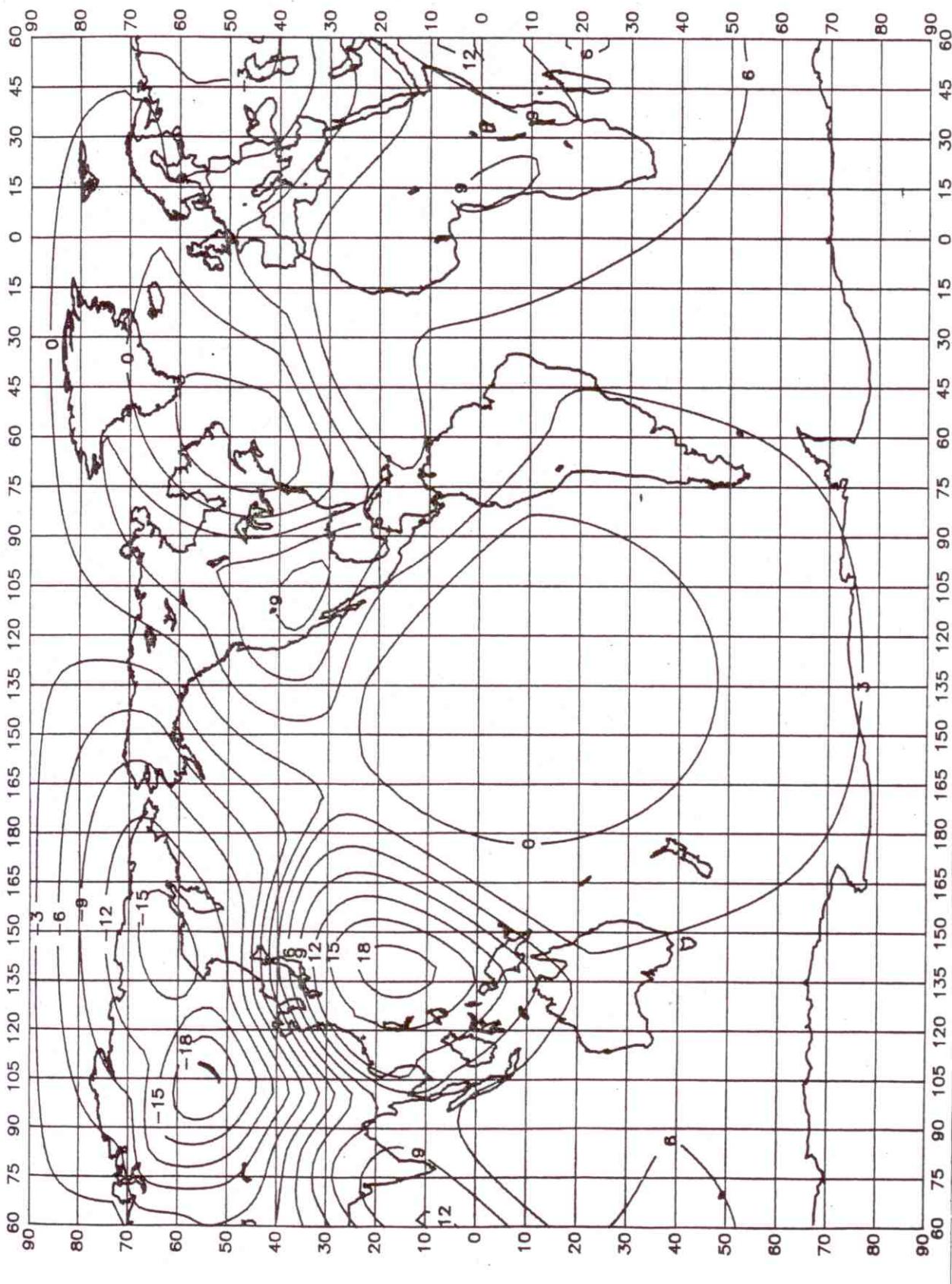


Figure 32. Corrections (dB) to current CCIR Report 322.1 MHz  $F_{\text{am}}$  estimates, September, October, November, 1600-2000 hours.

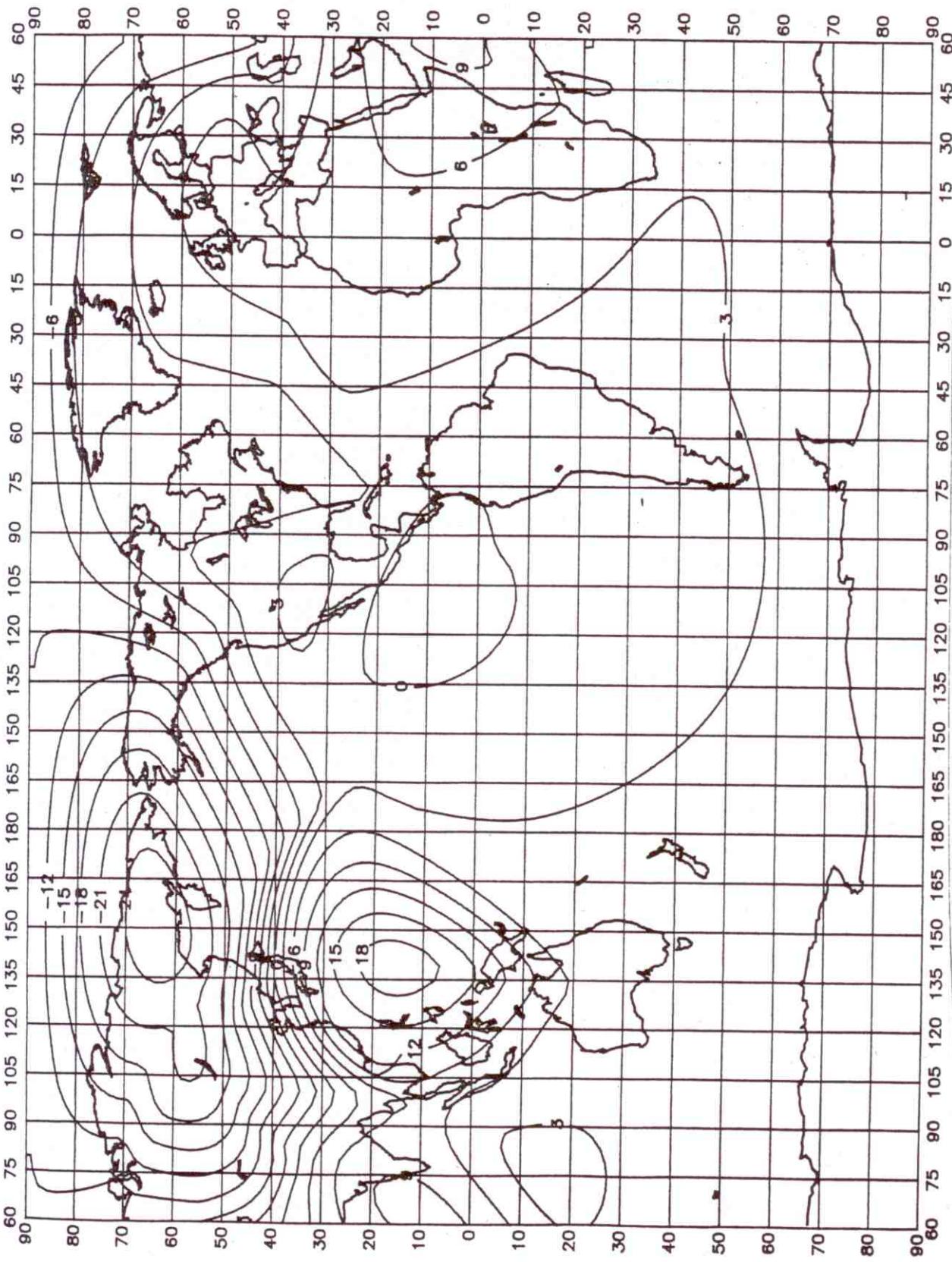


Figure 33. Corrections (dB) to current CCIR Report 3221 MHz  $F_{am}$  estimates, September, October, November, 2000-2400 hours.

### 2.3 The New 1 MHz $F_{am}$ Values

As described earlier, the new 1 MHz  $F_{am}$  values are given by 24 grids of 84 (longitude) by 100 (latitude) points, these data points being obtained by adding the 84 x 100 grids of correction values to the original 84 x 100 grids from which CCIR Report 322 was drafted.

In developing a numerical representation for the new 1 MHz  $F_{am}$  maps, the method used by Lucas and Harper (1965) was essentially used. The resulting sets of coefficients, then, can be used with existing computer programs developed to obtain the 1 MHz  $F_{am}$  noise value from the Lucas and Harper representation of the current CCIR Report 322.

For each of the 84 longitude points, the latitude variation was fit using a Fourier sine series of 29 terms. The 100 latitude data points were used with second order polynomial interpolation [using the process of Aitken and Neville (Kopal, 1961)] to generate  $n + 1 = 361$  data points at equal intervals  $x = 0, h, 2h, \dots, nh = \pi$  from each of the desired latitude functions  $f_j(x)$ ,  $j = 1, 84$ . The latitude scale has been transformed from  $-90^\circ \leq x \leq 90^\circ$  to  $0 \leq x \leq \pi$ . Define

$$g_j(x) = f_j(x) - (\alpha + \beta x), \quad 0 \leq x \leq \pi, \quad (17)$$

where  $\alpha$  and  $\beta$  are chosen so that  $g_j(0) = g_j(\pi) = 0$ , all  $j$ , so that there is only one value at the North and South Poles. This was accomplished simply by making

$$\alpha = \bar{f}_j(0), \quad \text{and} \quad (18)$$

$$\beta = \frac{\bar{f}_j(\pi) - \alpha}{\pi}, \quad \text{where}$$

the bar denotes the average of the 84 interpolated values at  $x = 0$  and  $\pi$ . Now  $g_j(x)$  is given by

$$g_j(x) = b_{1,j} \sin x + b_{2,j} \sin 2x + \dots + b_{29,j} \sin 29x, \quad (19)$$

where

$$b_{k,j} = \frac{2}{n} \sum_{l=1}^{n-1} g_j(lh) \sin(kl\frac{\pi}{n}), \quad (20)$$

$$k = 1, 2, \dots, 29, \quad j = 1, 84.$$

The above now gives a Fourier representation of the latitude variation at each of the 84 longitude points.

The next step in the generation of coefficients to represent the geographic distribution was to do a harmonic analysis of the longitudinal variation of the 29 b coefficients generated above.

The same procedure used above was followed. We have 84 sample values of each of the 29 coefficients. The same interpolation procedure was used to generate  $n + 1 = 361$  values. The longitude scale was transformed into  $0 \leq y \leq \pi$  by going Eastward from  $0^\circ$  longitude. As in Lucas and Harper (1965), the resulting sine series for each coefficient is terminated after 15 terms. Since  $b_k(0) = b_k(\pi)$ , a single constant  $x_k = b_k(0)$  is subtracted, i.e.,

$$b'_k(y) = b_k(y) - x_k , \quad (21)$$

and

$$b'_k(y) = c_1 \sin y + c_2 \sin 2y + \dots + c_{15} \sin 15y . \quad (22)$$

The result then is a set of 16 coefficients (15 c's and a x) for each of the 29 latitude coefficients. Table 6 shows the arrangement of the Fourier coefficients that are given in the next 24 tables (7 to 30), one for each of the 24 1-MHz  $F_{am}$  maps.

Comparing the numerical representation above for each of the 8400 original data points (84 X 100 grids) for each of the 24 maps gave an rms variation that ranged from 0.88 dB to 2.37 dB over the 24 maps with an average rms variation of 1.52 dB, with the maximum deviation (all maps considered, i.e., 24 X 8400 points) of 6.7 dB.

The numerical maps represent a "smoothed" version of the original data and are, then, the new 1-MHz  $F_{am}$  worldwide atmospheric noise estimates. Figures 34-57 are contour plots of these new estimates. Note that the graphical version given in these figures and the numerical version are "identical."

Following these figures is a computer subroutine, quite similar to that one in current use for the Lucas and Harper coefficients, which will compute from the new coefficients the 1 MHz  $F_{am}$  value for any latitude and longitude. The coefficients given here are available on tape.

Table 6. Arrangement of Fourier Coefficients for  
Tables 7 through 30

	ALPHA ABP (1,k)	BETA ABP(2,k)			
CHI	MIXED LATITUDE AND LONGITUDE COEFFICIENTS				
P(1,16,k)	P(1,1,k) P(1,6,k) P(1,11,k)	P(1,2,k) P(1,7,k) P(1,12,k)	P(1,3,k) P(1,8,k) P(1,13,k)	P(1,4,k) P(1,9,k) P(1,14,k)	P(1,5,k) P(1,10,k) P(1,15,k)
P(2,16,k)	...	...	...	...	...
	...	...	...	...	...
	...	...	...	...	...
	.	.	.	.	.
	.	.	.	.	.
	.	.	.	.	.
P(29,16,k)	P(29,1,k) P(29,6,k) P(29,11,k)	P(29,2,k) P(29,7,k) P(29,12,k)	P(29,3,k) P(29,8,k) P(29,13,k)	P(29,4,k) P(29,9,k) P(29,14,k)	P(29,5,k) P(29,10,k) P(29,15,k)

NOTE: k = 1,6 (for the six 4-hour time blocks for each 3-month period). The coefficients, as arranged here, are for use in subroutine NOISE, and can be easily arranged in any other convenient fashion as required.

Table 7. FOURIER COEFFICIENTS REPRESENTING THE 1 MHZ WORLDWIDE DISTRIBUTION OF ATMOSPHERIC RADIO NOISE, DECEMBER-JANUARY-FEBRUARY (0000-0400 LOCAL MEAN TIME)

	ALPHA	BETA		
CHI	MIXED LATITUDINAL AND LONGITUDINAL COEFFICIENTS			
3.1573446E+01	8.4990566E+00 1.3425676E+00 3.9552379E-01 -1.8342578E+00 1.9709765E+00			
	3.2939966E+00 4.0135199E-01 2.8715991E-01 -2.2153481E+00 3.1577377E-01			
4.1010438E-01	6.9115304E-01 -2.3177678E-01 2.7326834E-02 4.8979548E-02			
-1.1214259E+01	2.0480766E+01 2.8639838E-01 3.3805164E-01 -6.2530390E-01 4.0013126E+00			
	8.0291470E-01 8.2386699E-01 9.0811677E-01 -1.0004911E+00 -1.3733350E-01			
-2.1237515E+00	-2.1237515E+00 -4.6103594E-01 -4.2480097E-01 -3.2190408E-01 7.3492130E-02			
-3.8225815E+00	-8.2654745E+00 -4.3817968E+00 1.3323443E+00 2.5468791E+00 -2.1457946E-02			
	-7.7155918E-01 -9.1769428E-01 -3.5631408E-01 8.0823329E-01 -1.9275787E-01			
-4.2038465E+00	2.3252241E-01 -5.4882566E-02 1.3843474E-01 -9.2017427E-02 -3.9805637E-01			
	8.4668772E+00 5.6165279E-02 -3.4569954E+00 -3.0751250E+00 -2.7264533E+00			
-2.0811565E+00	-2.0226243E+00 -1.2586602E+00 4.3430254E-01 1.5715121E-01			
1.1286077E+00	2.5710111E-01 4.0874029E-01 2.6937944E-01 2.7768476E-01			
1.9726579E+00	-7.1264091E+00 5.4463304E-01 1.9690881E+00 1.0952524E+00 -1.2123360E-02			
	9.3297254E-01 1.7493027E-01 7.7507162E-01 -3.4645172E-01 2.3668618E-01			
-1.0486615E-01	2.0531682E-01 3.1742012E-01 2.1712280E-01 3.7246736E-01			
-2.6150725E-01	-5.2146943E-01 -8.3769456E-01 -1.0291891E+00 1.4395903E+00 9.0244383E-01			
	8.9440092E-01 1.1731574E+00 8.1320987E-01 -4.9936100E-02 -1.6579474E-01			
-3.0647120E+00	4.0114896E-03 -1.4278946E-01 -5.7027709E-01 -4.7417417E-01 -2.8910857E-01			
	4.6994090E+00 1.6374791E+00 1.5083980E+00 4.3721031E-02 1.8201774E-02			
-7.2977749E-01	7.8283225E-01 -3.0664418E-01 2.7237149E-01 -4.1851098E-01			
	-3.2398999E-01 -3.0290084E-01 -4.7270686E-01 4.3654718E-02 -2.6905266E-01			
8.5581892E-01	-2.1389515E+00 7.1859252E-01 -7.1407001E-01 2.1484198E-01 -1.0216067E+00			
	-7.5595949E-01 1.5429076E-02 -5.0923357E-01 2.6680966E-01 -6.5570123E-02			
1.6417899E+00	1.7609851E-02 6.7850856E-02 4.2630163E-01 4.8869796E-01 1.9160674E-01			
	-1.8248500E+00 -3.2910325E-01 -5.2530661E-01 -5.7326858E-01 -8.4415539E-01			
3.9055844E-01	-5.1821824E-01 1.2810796E-01 -2.7840909E-02 5.0990014E-01			
	4.6638351E-01 1.6819681E-01 2.2511804E-01 -1.5695892E-01 3.9125082E-02			
-6.2219397E-02	1.1997985E+00 1.2350688E+00 2.2412600E-01 -3.4191201E-01 2.7364671E-01			
	4.3037413E-01 8.5519812E-02 2.0169622E-01 -1.9569990E-01 -2.9607097E-01			
-1.1092845E+00	-2.4759721E-01 -4.4915378E-02 1.7933043E-02 -1.1978267E-01 -4.1974225E-02			
	1.7802980E+00 -4.0546009E-01 -6.7363869E-02 -1.4647312E-01 7.5672203E-01			
-2.7681093E-02	5.8193186E-02 -2.6666695E-02 -4.6353446E-02 -2.7589214E-01			
	-7.5201643E-02 -2.9198322E-02 -1.9894964E-01 1.1863211E-03 -8.2685969E-03			
9.2801453E-01	-1.0098349E+00 4.1458033E-02 5.8556028E-02 1.5403856E-01 2.2973820E-02			
	2.1527378E-01 -1.0708097E-01 -1.3194737E-01 -7.2907988E-02 1.8232657E-01			
9.3927339E-01	3.0793037E-01 -5.7805087E-02 -1.6436390E-01 -1.0321817E-02 -1.5437043E-02			
	-1.0114058E+00 -2.5632921E-01 -2.4889627E-01 -7.9025203E-02 2.0761876E-01			
-7.3748293E-02	5.1087731E-04 1.1974855E-01 1.0589947E-02 2.5741482E-01			
	-9.4631830E-02 1.3335575E-01 1.9266926E-01 1.0059537E-01 -2.0859632E-02			
-2.6036441E-01	4.2773501E-02 -3.3009263E-01 2.7713735E-01 1.3554528E-01 -5.7665131E-02			
	1.8459860E-01 -2.8317790E-01 1.2687426E-01 1.5175583E-02 8.5111059E-02			
-3.1628955E-01	-1.3495353E-01 -8.0669333E-02 1.1549256E-01 -4.0230778E-02 1.1390341E-01			
	5.7190169E-01 -9.1881948E-02 -1.0131110E-02 -9.1311552E-02 1.5796128E-01			
-4.1878788E-02	8.1874692E-02 -2.0881459E-01 -4.7555481E-02 -1.5028205E-01			
	-2.8037334E-02 -1.81181707E-01 -1.1501553E-01 -1.4041825E-01 -5.9318385E-02			
-1.1510906E-01	1.6124189E-01 -1.3097199E-01 -2.2495205E-02 1.1338317E-01 1.0167262E-01			
	-1.3392946E-01 -9.9386011E-03 -2.0031397E-02 -1.7952074E-02 -1.3539942E-02			
6.3153780E-01	-9.7556134E-03 2.1530688E-01 -1.9993819E-02 1.0080276E-01 8.9281177E-03			
	-8.8552685E-01 -1.3490940E-01 -1.8783317E-01 -1.6354091E-02 -4.2698894E-01			
-5.1609619E-01	-3.2115454E-01 9.7019903E-02 2.6766844E-01 8.7325023E-02 3.4824335E-02			
	1.9757818E-02 1.6123720E-02 3.1546458E-03 1.3084579E-01 1.0295610E-01			
-3.5669254E-01	6.0013533E-01 -3.7581666E-02 2.1493636E-01 1.0171576E-02 1.0609239E-01			
	-8.6689490E-02 1.3672921E-03 -1.8448116E-02 4.5613932E-02 4.5324503E-02			
-4.84538433E-02	-1.0121276E-01 -1.9535850E-02 -2.8483269E-02 -3.7825135E-02			
	3.6515286E-01 9.3135648E-05 1.5224327E-01 -1.2145366E-02 -3.1974835E-02			
-2.8918239E-02	-4.6395400E-02 -6.9625394E-02 5.1619379E-02 -1.4731139E-01			
-1.0871200E-03	-9.7577398E-03 -8.5241087E-02 -1.5490985E-02 -6.9876307E-02			
2.6216560E-01	-1.3961616E-01 2.3522583E-01 -1.7546536E-01 -6.0013924E-02 -4.8987225E-02			
	6.5915300E-02 1.4690424E-01 1.0970243E-01 7.7685810E-03 -1.1459534E-01			
4.2720901E-02	3.8242493E-02 -3.6380803E-02 -7.6412315E-02 -4.8187890E-02			
	-2.9616105E-01 1.2868944E-01 -7.6557135E-02 7.1489949E-02 2.3822342E-02			
-3.5682048E-01	-1.0871200E-03 -9.7577398E-03 8.5241087E-02 -1.5490985E-02 -6.9876307E-02			
	4.3814905E-01 -3.1614840E-02 1.3517833E-01 -7.4575863E-02 -1.8098171E-02			
-8.1307705E-02	9.6168832E-02 4.5715532E-02 2.2460269E-02 1.1196473E-02			
	1.2530259E-01 4.9084751E-02 1.6192424E-02 -2.4941286E-02 -9.7349593E-02			
-1.5655338E-01	1.8949698E-01 1.8784106E-02 5.5676424E-02 -3.1470732E-02 6.0116683E-02			
	3.1808169E-02 -6.4281540E-02 -1.0098415E-01 -9.3025460E-02 -5.3512529E-02			
1.3928158E-01	-2.3116993E-01 1.7143275E-02 -1.0705171E-01 -6.6146101E-02 -2.7110172E-02			
	1.3870443E-02 -6.2413891E-02 -1.7784391E-01 -6.3140056E-02 6.8300123E-02			
9.0175678E-02	-2.3508077E-02 -4.0090331E-02 4.7193472E-02 8.4925032E-03 4.6764794E-02			
	-7.5864402E-02 4.2276991E-03 -6.5802387E-02 4.7588752E-02 1.6268859E-02			
-6.6091494E-02	9.6779931E-03 2.2820280E-02 -6.36918933E-02 6.9776897E-03 3.8748910E-03			
	4.9747300E-02 2.4605864E-02 6.1075086E-02 7.7249083E-02 5.0056628E-02			
	7.6676775E-03 -7.1401628E-04 3.9784325E-02 -1.1531553E-03 8.1831899E-02			
-1.3516797E-01	-2.888650E-03 -3.3107251E-02 -6.0458255E-02 9.4421849E-05 4.0687445E-02			
	1.6809731E-01 -2.475923E-02 2.2948315E-02 4.8137067E-02 9.278429E-02			
-5.4962496E-02	6.9447116E-02 1.9877127E-02 7.1818925E-02 2.2733476E-02			
	-3.5171018E-03 1.8189787E-02 2.5389037E-02 3.7046356E-02 -4.0466775E-02			
1.6269315E-01	-2.0991237E-01 -1.6536676E-02 -9.1458944E-02 -3.5562053E-02 -6.9424669E-02			
	-1.4042004E-02 -3.0465597E-02 5.2684180E-05 3.3530692E-04 -3.4984546E-02			
-8.4818337E-02	-1.9663445E-02 8.3354186E-03 1.2281863E-02 9.8423856E-03 1.6371513E-02			
	1.2728638E-01 1.3477382E-02 5.4247449E-02 6.8080297E-03 1.3290924E-02			
	-1.4698861E-03 7.4849552E-03 6.9832546E-04 -3.8471059E-03 -1.2362332E-02			
	-2.8228414E-03 -9.6639529E-03 -2.1888450E-03 -8.3383880E-03 -2.13155587E-03			

Table 8.

FOURIER COEFFICIENTS REPRESENTING THE 1 MHZ WORLDWIDE  
DISTRIBUTION OF ATMOSPHERIC RADIO NOISE, DECEMBER-  
JANUARY-FEBRUARY (0400-0800 LOCAL MEAN TIME)

		ALPHA	BETA	
		8.1797818E+00	1.0860265E+01	
CHI	MIXED	LATITUDINAL AND LONGITUDINAL COEFFICIENTS		
3.1416875E+01	9.8266426E+00	-9.2143993E-04	-6.9604508E-02	5.1020104E-01
	1.8731541E+00	-5.9471415E-01	1.3099044E+00	-1.6920416E+00
	-2.7777242E-01	4.5426360E-01	9.9184764E-02	2.5003752E-02
-1.4433519E+01	1.9685832E+01	-9.8540567E-01	3.0261307E-01	6.7536142E-02
	-5.6332491E-01	6.4780998E-01	1.2237968E+00	-7.6412813E-01
	-1.2372581E+00	-2.2656519E-01	-4.2222375E-01	-1.8548187E-01
-7.0094352E+00	-3.9910656E+00	-4.8472066E+00	2.0898179E-01	1.2644665E+00
	3.4858558E-01	2.0383322E-01	-8.6635325E-01	3.1567931E-01
	-2.1865601E-01	2.0599463E-01	-1.7335458E-01	1.9326587E-02
-2.2905875E+00	3.6149827E+00	-5.4621614E-01	-2.6157888E+00	-2.5900219E+00
	-4.5220704E-01	-8.4657711E-01	-9.6736802E-01	5.7727241E-01
	7.8446380E-01	2.5353700E-01	3.8297944E-01	1.4530950E-01
2.4211822E+00	-7.5619466E+00	-2.8221559E-01	6.3395158E-01	-5.7858584E-01
	-7.2476559E-02	-4.7129562E-02	3.3094348E-01	6.3254500E-02
	7.0265708E-02	9.7955110E-02	2.8846193E-01	3.2194452E-01
1.0011859E+00	-2.4170096E+00	-6.9294979E-01	-5.8554701E-01	1.0178079E+00
	-7.9791829E-02	-8.1248306E-02	3.0800961E-01	-3.4020937E-01
	-7.3786605E-02	2.3064228E-02	-5.3401981E-02	-7.3108237E-02
-2.1712279E+00	4.1858791E+00	3.8772016E-01	1.2582943E+00	-1.3432607E-01
	1.4348011E-01	7.3750754E-01	2.6292528E-01	9.0400788E-02
	-2.1557692E-01	-8.1727476E-01	-4.5562311E-01	-2.0427301E-02
-1.7517529E+00	1.4732179E+00	2.2518842E-01	9.8324912E-01	9.1904608E-01
	-1.9492080E-01	5.6088235E-01	-2.2716256E-01	4.7745841E-02
	-7.1652679E-02	1.2575393E-01	-3.1100208E-01	2.1429214E-01
1.0269143E-01	-5.1392959E-01	-3.7392404E-01	-1.0286621E-01	-2.7204001E-01
	-7.9708954E-01	8.0663027E-02	-1.5950546E-01	-4.0601789E-02
	1.0090408E-01	1.6988833E-01	-1.2920770E-02	-4.2540077E-02
8.3275286E-01	-1.0137709E+00	7.5209943E-02	2.4531679E-02	-3.8708227E-01
	2.7598496E-01	4.7462745E-02	2.3016947E-01	7.5195190E-02
	-1.1327401E-01	-1.7634697E-02	1.32328778E-01	2.96555489E-02
1.3825207E-01	4.3721192E-02	3.0799499E-01	2.4394981E-02	-6.2825354E-02
	2.1652568E-02	-2.7697291E-01	9.6790464E-02	8.4684037E-02
-5.6566131E-01	-1.2336690E-01	-6.7360799E-02	3.8089713E-02	-1.6925829E-02
	1.0215854E+00	1.9333353E-01	-4.7694808E-02	-1.4701366E-01
	2.6736314E-01	1.0719982E-02	-1.1471788E-01	-8.6684961E-02
	-4.3620567E-02	-1.4072522E-01	-1.0908530E-02	-1.0587363E-01
1.7613417E-01	3.6583022E-02	1.8782737E-01	-2.6076598E-01	1.2877577E-01
	7.2487994E-02	-3.4556594E-02	-9.3096756E-02	-7.7991652E-02
	1.7672528E-01	1.4447556E-01	1.1368438E-01	-3.5596540E-02
4.8525924E-01	-4.9811167E-01	1.3011719E-01	-4.6272552E-01	1.7269332E-01
	-9.3961341E-02	-3.3333923E-02	1.8435192E-01	1.2072994E-01
	5.0850546E-02	-1.2203820E-01	8.2601377E-02	-4.4188996E-02
8.5099721E-01	-1.0381367E+00	-1.7249561E-02	-4.1310136E-01	2.2316525E-01
	2.5361097E-01	-5.2633308E-02	4.6339215E-03	2.1365845E-02
	2.1265937E-01	-9.1671705E-02	8.4488675E-02	-2.3233934E-02
-1.5846856E-02	4.7942578E-02	1.6077346E-01	-8.9938880E-02	1.4745827E-01
	6.1204931E-02	-3.4846731E-01	-8.2930652E-02	-5.1081666E-02
	1.2168078E-01	-2.1522210E-01	1.0500915E-01	-1.1962088E-01
4.9498948E-02	-8.1264666E-02	7.8449479E-02	-2.4431439E-01	1.0393332E-01
	2.3843300E-01	9.6587966E-03	-4.6834457E-02	1.66433107E-03
	2.0301738E-02	-2.2928035E-01	8.6947727E-02	-1.3612264E-01
2.1952500E-01	-3.4453220E-01	7.0839244E-02	-3.0944934E-01	1.6013474E-01
	1.3525925E-01	-1.4935382E-01	-8.8129196E-02	1.7483764E-02
5.7843024E-01	1.9065199E-01	5.5437100E-02	4.1182433E-03	-8.7021447E-02
	-7.6478407E-01	-6.2659178E-03	-3.9541169E-01	1.0013982E-01
	7.8136744E-02	-6.8242369E-02	5.8405098E-02	1.4683654E-02
	6.0697474E-02	-1.0032560E-01	2.3109276E-02	-6.2331091E-02
1.5064911E-01	-2.0293802E-01	-2.1899355E-01	-8.8105386E-02	7.3320795E-02
	2.6384631E-02	-5.8040525E-02	-1.1784339E-02	-9.1947455E-02
	4.0386911E-02	-3.1606563E-02	6.7512731E-02	3.7050259E-03
-3.3641487E-01	4.1402984E-01	-3.0047527E-02	1.5029638E-01	5.1588111E-02
	-8.8059903E-02	-7.9389467E-02	-5.8833122E-02	-3.8532271E-02
	-7.3012763E-02	-1.2335818E-01	-1.2022573E-02	-2.8912411E-02
-6.3426685E-02	5.6243416E-02	-9.4745935E-02	1.4909240E-02	2.3131623E-03
	4.1614292E-02	8.9292062E-02	3.1496767E-02	2.3359408E-02
	-4.5622652E-02	1.1031616E-02	2.9050396E-02	2.1710983E-02
1.8262273E-01	-2.0041293E-01	-4.1635285E-02	-5.1154292E-02	-4.2220591E-02
	-2.6281515E-02	-3.4457108E-02	4.8351695E-02	2.2692148E-02
	3.9175203E-02	1.1196504E-01	-1.7324688E-02	7.0170060E-02
2.3438923E-02	1.8051896E-02	-2.8972849E-02	1.1042484E-01	-3.3089135E-02
	-4.3410855E-02	1.1508080E-01	5.0379637E-02	6.0333762E-02
	-8.0842322E-02	8.7861598E-03	-5.8160233E-02	3.8299748E-02
-4.1591382E-01	5.9994386E-01	-9.7113661E-02	3.0249409E-01	-1.0200865E-01
	-1.3005975E-01	4.8133168E-02	1.4744297E-02	4.8004763E-03
	-7.0538063E-02	8.5348546E-02	-7.0534650E-02	2.6338938E-02
-3.4298732E-01	5.0549970E-01	-1.2711943E-01	2.2504893E-01	-1.4416834E-01
	-1.3866615E-01	6.1856579E-02	9.2149823E-03	9.5257825E-03
	-8.9633881E-02	-3.1278828E-03	-6.1046395E-02	3.7845207E-02
-2.1872343E-01	3.2347298E-01	-8.4421157E-02	1.2313192E-01	-1.1805258E-01
	-1.1048344E-01	7.2199437E-02	-5.1261681E-03	8.1511374E-03
	-6.5377643E-02	1.0285150E-01	-6.9689364E-03	8.0123541E-02
8.8340655E-02	-1.2418078E-01	-1.2860091E-02	-6.8815558E-02	-2.0854064E-02
	1.0795649E-02	-1.5386025E-02	-1.3181427E-03	-8.4647034E-03
	6.0996293E-03	2.3327060E-02	-6.4747876E-03	-6.6866705E-03
-3.1297308E-02	4.0387454E-02	2.0485913E-02	9.2426069E-03	2.0128031E-02
	2.9081870E-02	4.1523540E-03	-9.6537611E-03	-6.1530547E-03
	1.7240241E-02	-1.2362010E-02	5.7316354E-03	-3.4190013E-03

Table 9.

FOURIER COEFFICIENTS REPRESENTING THE 1 MHZ WORLDWIDE  
DISTRIBUTION OF ATMOSPHERIC RADIO NOISE, DECEMBER-  
JANUARY-FEBRUARY (0800-1200 LOCAL MEAN TIME)

CHI	MIXED	LATITUDINAL AND	LONGITUDINAL COEFFICIENTS		
			ALPHA 1.2846994E+01	BETA 4.3739358E+00	
5.4055957E+00	1.5325148E+01	1.1043571E+00	3.0740093E+00	-2.3413542E+00	1.7256269E+00
	2.3931340E+00	2.7711858E-01	1.6275846E+00	-1.6360469E+00	9.3867296E-01
-6.1300503E-01	2.4425241E-01	-3.1027462E-01	-8.7403942E-02	6.8645973E-02	
-1.1943496E+01	1.6066317E+01	3.2654455E-01	-8.4259862E-02	1.2166777E+00	3.7060295E+00
	2.0477270E+00	1.5180320E+00	6.4433982E-01	-1.2055413E+00	-3.9374554E-01
-1.0746009E+01	-1.4066879E+00	-6.6919735E-01	-7.1547009E-01	-3.7593493E-01	-7.2188974E-02
	3.4697271E+00	-4.5178412E+00	1.10830307E+00	9.1290675E-01	-9.0652578E-01
-8.9170967E-01	-1.0548428E+00	-1.2579586E+00	7.3050802E-01	-3.3735144E-01	
	1.4893024E-01	1.3696269E-01	-2.5505797E-02	2.0369029E-03	-3.5889207E-01
4.2568897E+00	-6.8646152E+00	-3.2591874E-01	-5.5001425E+00	-2.9970011E+00	-4.189443E+00
	-2.8818149E+00	-1.4455522E+00	-9.6095067E-01	1.2972224E+00	4.3942939E-01
4.6557465E+00	1.2923848E+00	5.3195200E-01	9.3539076E-01	5.0611704E-01	3.6420509E-01
	-4.8574068E+00	7.3658742E-01	7.4568184E-01	1.3664502E+00	-5.3005515E-01
2.1675250E+00	-1.2545874E-01	1.0284598E+00	-4.0837679E-01	2.2993877E-01	
-1.3353309E-01	2.2102019E-01	1.1618654E-01	3.5495578E-01	1.1565638E-01	3.6686047E-01
	1.3503877E+00	4.6869441E-01	1.0148973E+00	1.2658316E+00	2.2132367E+00
1.3509239E+00	1.2643733E+00	5.7836478E-01	-5.0423079E-01	-2.9689107E-01	
-4.1665283E-01	-3.6322653E-01	-5.9741264E-01	-5.5021469E-01	-3.7877531E-01	
-2.3338757E+00	4.6763814E+00	6.3771483E-01	1.3575528E+00	6.5578356E-03	1.1203939E+00
	-5.1334517E-01	1.0350721E+00	-3.6524604E-01	-6.4046105E-02	-5.4519975E-01
-6.1199456E-01	-3.8767975E-01	-5.5059197E-01	-9.0450550E-02	-3.0743115E-01	
-5.7155288E-01	-5.2365147E-01	-1.8554957E-01	-1.3426762E-01	-6.0131499E-02	-9.2698379E-01
	-9.3956385E-01	-9.5315214E-01	-5.9669504E-01	1.5311677E-01	-1.0078297E-02
1.4978638E-01	2.6031765E-01	3.4874307E-01	4.4731616E-01	2.7937950E-01	
2.1815404E+00	-3.2507733E+00	-1.3527065E+00	-1.5989531E+00	-6.5293445E-01	-8.4958811E-01
	-4.4302388E-01	-5.0275615E-01	1.4181537E-01	2.8656405E-01	5.8485027E-01
3.9392911E-01	2.2556091E-01	3.1868329E-01	1.0973125E-02	1.2724714E-01	
1.5792892E-01	4.6210776E-01	5.1967854E-01	2.2311789E-01	-2.5585582E-01	-5.7169920E-03
	6.4239260E-01	-2.2650985E-02	4.4617617E-01	-7.2339216E-02	2.0896302E-01
6.4229771E-02	1.1889529E-01	7.8130492E-02	-1.2154103E-01	-8.0484531E-02	
-1.0385999E+00	1.9296157E+00	1.2057901E-01	2.7493755E-01	9.2114423E-02	6.9033365E-01
	1.5537717E-01	4.0077381E-01	-1.6183854E-01	-1.2598432E-01	-3.7919125E-01
-9.3842669E-02	-2.8022151E-01	-2.5076017E-01	-1.6339655E-01	-8.8585147E-02	
5.6460303E-01	1.8730160E-01	5.0739467E-01	5.4093090E-01	3.4645261E-01	
-3.1780104E-02	1.8268238E-01	-2.9029728E-01	-1.4997531E-01	-2.1288146E-01	
7.8492991E-01	-1.3906531E-01	4.4984480E-05	-1.6014878E-01	8.1320294E-02	-4.0787561E-02
	-1.3644942E+00	-4.1676238E-01	-3.3347109E-01	-1.5599157E-02	-2.5299654E-01
-3.1974679E-01	-2.6647383E-01	1.6470966E-01	3.4564334E-02	9.1749698E-02	
-1.1772289E-01	9.6205585E-03	1.313513189E-01	8.8263955E-02	1.0749353E-01	
3.4051759E-01	-5.5179881E-01	2.4396309E-02	1.9862005E-01	-1.2728654E-01	-1.1492549E-01
	-1.7691233E-02	-1.0238746E-01	2.8387152E-01	1.5675736E-01	2.9486444E-01
1.4492491E-02	-4.0350506E-02	7.6578535E-02	-1.8222590E-02	6.3867274E-02	
-7.2908305E-01	9.9349303E-01	-9.7898632E-02	-2.3291498E-01	-3.6139943E-01	-1.5207644E-01
	1.0425686E-01	-4.9058708E-02	-1.7854771E-01	-4.0584337E-02	-3.8197049E-02
1.9384740E-01	6.8020842E-02	3.4699157E-03	-7.1959659E-02	-6.8408644E-02	
-8.6332111E-02	3.0116204E-01	3.5630352E-01	-4.7427703E-03	1.5740209E-01	1.5000280E-01
	1.0016135E-01	2.1994055E-01	-1.5487790E-01	1.8782140E-02	-2.1112369E-01
6.3587021E-02	6.1027620E-02	-6.0779505E-02	9.0862132E-03	-1.1783298E-01	
4.1702977E-01	-5.3705908E-01	-1.2120272E-01	-1.3507396E-01	7.5787014E-02	-1.9133441E-01
	-1.9511699E-01	-4.8049974E-02	1.3189024E-01	-3.8110493E-02	9.4754279E-02
-1.0229893E-01	1.1319006E-01	4.0137638E-02	9.6889454E-02	1.3314416E-01	
1.8340613E-01	-2.9575317E-01	-1.6192556E-01	1.5198921E-01	1.2124996E-01	9.3211035E-02
	4.1849498E-02	-2.9044928E-02	1.0255971E-01	-3.8895736E-02	3.0618653E-02
-5.7192655E-01	-1.0852580E-01	-1.7866439E-01	-1.4362445E-02	-7.8487451E-02	4.4637340E-02
	8.0995692E-01	1.3004598E-02	2.4211104E-01	-2.7732059E-02	1.0256054E-01
5.3179189E-02	5.4645590E-04	-8.6607920E-02	1.1395748E-02	-4.1041162E-02	
3.4540155E-02	-4.4895830E-02	1.9117109E-02	1.7307545E-02	-9.1993919E-02	
3.7080777E-02	-4.6230481E-02	1.4890947E-01	-2.2145142E-01	-4.5944787E-02	-2.3315213E-02
	1.1417832E-01	4.2810870E-02	-1.2909582E-01	1.6343171E-02	-8.3120423E-02
6.4385552E-02	-1.8742569E-02	-4.9339562E-02	-2.9450594E-02	-1.4450029E-02	
4.4318245E-01	-4.9267614E-01	2.9528768E-02	-2.0303185E-01	4.7973787E-02	-6.9777618E-03
	2.2037121E-02	6.0276445E-03	1.3044519E-02	3.3107394E-02	9.6771877E-02
5.2459331E-02	1.2732296E-01	5.0558470E-03	4.3057940E-02	2.6392698E-02	
-1.4405728E-01	1.0131113E-01	-1.4643029E-01	9.8951333E-02	-8.2551636E-02	-2.5519372E-02
	-1.2176314E-01	-4.5514704E-02	1.5628727E-01	-1.2791645E-02	4.6711925E-02
-4.8585037E-02	5.0672546E-02	4.6247860E-02	-3.0345018E-02	1.1127927E-02	
-3.0052501E-01	3.9487703E-01	-1.2874814E-01	1.3882673E-01	8.5976395E-03	3.7013644E-02
	-7.4628843E-02	-2.9410630E-02	-3.4679250E-04	-2.9632946E-03	-4.6377751E-02
-7.2215195E-02	-9.1953383E-02	2.0626808E-02	1.2593864E-02	-2.2311616E-02	
	1.1727122E-01	7.4775012E-02	1.0004135E-02	7.3388697E-03	-3.2720380E-03
2.3796664E-02	-1.1355875E-02	-9.9815096E-02	-2.0160461E-02	-5.2668656E-02	
-3.4483250E-02	-6.6481127E-02	-4.2719498E-02	1.8163960E-02	2.8860101E-03	
2.8221709E-01	-2.7504273E-01	7.8217272E-02	-1.2769054E-01	1.7331623E-02	-9.0682859E-03
	5.1390978E-02	3.6800722E-02	-1.5293353E-02	1.3991633E-02	1.9115123E-02
-3.6704388E-02	8.2270080E-03	4.4454652E-02	-1.7831403E-02	-8.2449663E-03	2.3076387E-02
	-1.8144313E-04	-2.1004789E-02	4.5152348E-02	-4.3472907E-02	1.2046031E-02
1.3102211E-02	1.3396838E-02	6.8405926E-02	5.0259262E-03	6.8192339E-02	
-1.1107755E-03	5.1565779E-02	1.9393085E-03	-2.9141835E-02	3.7816756E-04	
-8.9831345E-02	8.8796549E-02	-8.3954820E-02	4.5969533E-02	4.1141951E-02	3.9441521E-03
	1.2105993E-02	-1.0720770E-02	7.1981848E-02	1.4640546E-02	-1.6144355E-03
-5.5445384E-03	3.9798337E-02	7.9429893E-02	5.1925745E-03	-3.9344105E-02	
	1.5217431E-03	8.3524240E-03	2.1674748E-03	-1.6448402E-02	-1.3468985E-02
-2.1949641E-02	1.6896009E-03	-1.8992188E-02	3.6570642E-03	-7.6638192E-03	
	6.4399648E-03	-7.3700764E-04	-1.4278077E-03	2.0647405E-02	1.7815340E-03
-2.5744681E-02	6.4215687E-02	-1.2826321E-02	-2.6939073E-02	1.3865526E-02	9.4157068E-04
	1.3625252E-02	-6.3334477E-03	-1.3843582E-02	-1.8083130E-02	-8.8481418E-03
	-2.1771488E-02	-2.5746348E-02	-2.4388001E-02	-9.8674597E-03	1.4533369E-02

Table 10.

FOURIER COEFFICIENTS REPRESENTING THE 1 MHZ WORLDWIDE  
DISTRIBUTION OF ATMOSPHERIC RADIO NOISE, DECEMBER-  
JANUARY-FEBRUARY (1200-1600 LOCAL MEAN TIME)

CHI		ALPHA	BETA	
		1.1451596E+01	7.8154165E+00	
2.1524467E+01	MIXED LATITUDINAL AND LONGITUDINAL COEFFICIENTS			
2.8809406E+00	-3.8000358E+00	2.2710054E+00	-1.3992076E+00	2.6047328E+00
7.2116876E-01	1.7906101E-03	5.9299890E-01	-1.7238756E+00	1.0867978E+00
-1.1040857E-02	1.2139194E+00	1.5785968E-01	2.6547222E-02	-3.5762458E-02
8.1051849E+00	-1.0313285E+00	7.6033892E-01	1.4047047E+00	5.5736864E+00
1.9512299E+00	1.0833250E+00	1.0387742E+00	-1.0826608E+00	-3.1044586E-01
-1.8606688E+00	-6.5571700E-01	-5.8367213E-01	-2.3011172E-01	8.7833233E-02
-2.6437979E+00	-6.3689326E+00	-8.4284980E-01	1.3320859E+00	4.7949593E-01
2.5250851E-03	-2.1133407E-01	-8.4570936E-01	7.4352077E-01	-5.0256049E-01
9.1220568E-02	-4.471242E-01	-2.7450466E-01	-1.7048427E-01	-4.2955442E-01
-4.1121377E+00	-8.0965333E-01	-3.6305414E+00	-3.6993406E+00	-5.2889097E+00
-2.4838507E+00	-1.7991863E+00	-1.2918343E+00	1.1140591E+00	5.4500042E-01
1.6824240E+00	5.8774961E-01	8.9379534E-01	4.1617508E-01	2.4481928E-01
-2.5893537E+00	1.7948098E+00	2.5136635E+00	1.0909970E+00	-5.0302568E-01
1.3462024E+00	1.1981717E+00	-1.8354757E-01	1.3679225E+00	-3.5183640E-01
-1.1285535E-01	1.2901091E-01	3.2830266E-01	3.1567098E-01	4.6530529E-01
2.6423903E+00	-4.8419250E-01	4.4219103E-01	1.2239117E+00	2.0271801E+00
4.4927831E-01	7.6743289E-01	3.3621808E-01	-5.5247415E-01	-3.3104817E-01
-3.3070647E-01	-1.2060347E-01	-5.8523623E-01	-4.8196313E-01	-3.1562486E-01
-2.0599807E-01	2.6168035E+00	1.2409129E+00	2.9596591E-01	3.5725238E-01
-2.3371921E-01	1.3599380E+00	-1.974412E-01	3.0140048E-01	-2.8263443E-01
-2.9785928E-01	-3.1432950E-01	-4.8105739E-01	-1.8687682E-01	-3.9773392E-01
3.0364886E-01	-8.2302910E-01	-8.4708075E-02	-2.4659205E-01	-8.6556582E-01
-8.7295016E-01	-2.4161821E-01	-6.1487306E-01	1.1490379E-01	-1.3344312E-01
1.6835717E-02	7.7229371E-02	3.7034483E-01	3.8967475E-01	2.0743829E-01
2.3688363E+00	-3.0582608E+00	-4.7808143E-01	-1.0322429E+00	-1.6116639E-01
2.1655866E-01	-6.5901976E-01	4.4665247E-02	1.6362957E-01	6.5860493E-01
2.4236411E-01	1.2412868E-01	2.2448840E-01	-4.6063214E-02	2.2557424E-01
4.8814537E-02	9.8715925E-01	5.9779400E-01	2.4380054E-01	5.5460566E-01
8.1259498E-01	-4.8566392E-02	4.7981738E-01	-2.6658997E-02	-1.0248620E-01
-1.3300438E-01	3.2303857E-02	-1.5936881E-02	-8.0965346E-02	-3.5646193E-02
-1.6862403E+00	2.4050399E+00	-4.2021367E-01	2.5604879E-01	1.575300E-01
-2.1555933E-01	-8.1679598E-02	-1.5794867E-01	-1.8285273E-01	-3.4513132E-01
4.0066464E-02	2.4269307E-02	-1.2939621E-01	-6.3700183E-02	-1.0254095E-01
5.69112822E-01	-1.5251748E-01	-1.7121287E-02	3.8471679E-01	2.9531691E-02
-1.5671668E-01	9.5594254E-02	-1.4971165E-01	-1.0810404E-01	-3.9638138E-02
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-1.3609237E-01	6.2552027E-02	2.4782124E-02	3.8192499E-02	1.4453514E-01
-1.0258840E-02	5.8800847E-02	1.9782924E-01	1.2856447E-01	-1.4375769E-02
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-5.4694267E-02	-6.7739790E-02	4.2170097E-02	-1.0081254E-01	-1.0128118E-02
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4.6888255E-01	-6.9726776E-01	-7.6108536E-02	-1.4780778E-01	-5.8020474E-02
-2.3358912E-01	-6.8992602E-02	6.2666095E-02	1.8923761E-02	1.1421442E-01
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3.2298915E-01	9.7969348E-02	1.0462386E-01	-4.4114793E-02	-7.2103831E-02
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