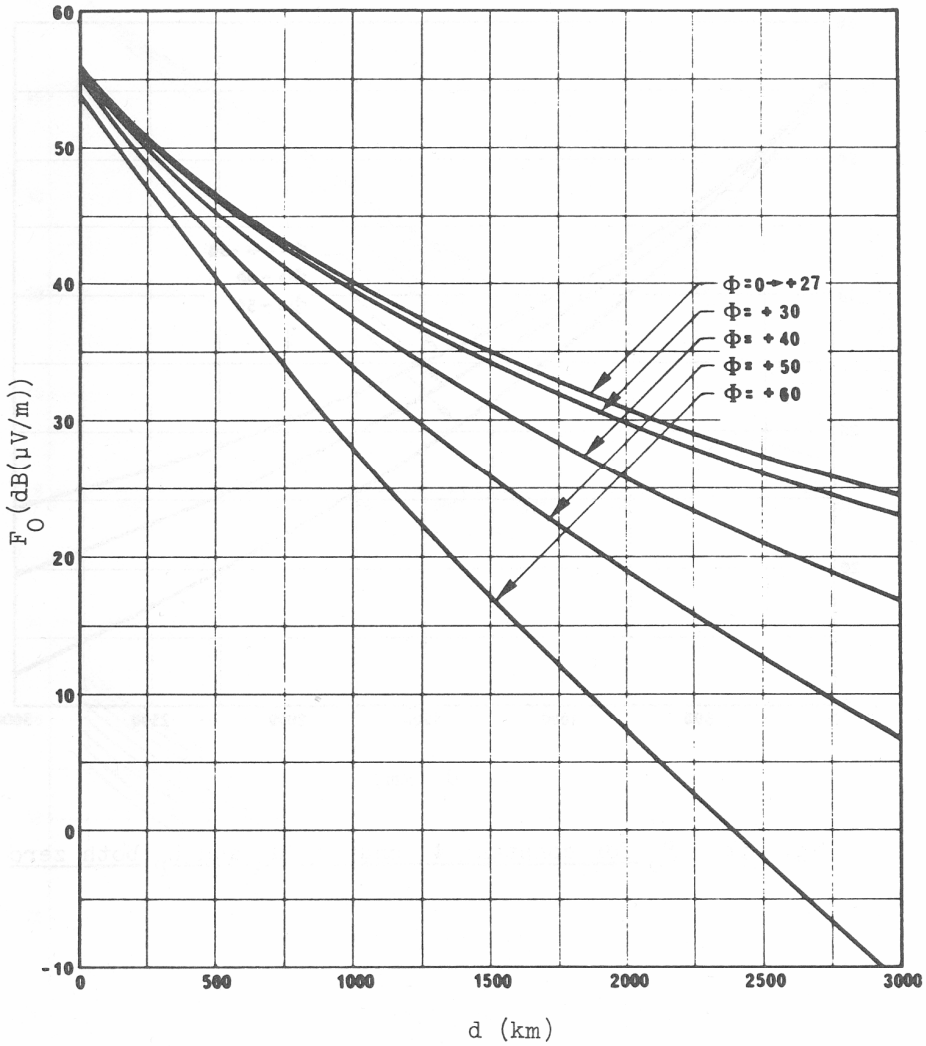


Fig. 35a - F_0 for constant Φ, and for G_S and L_P both zero

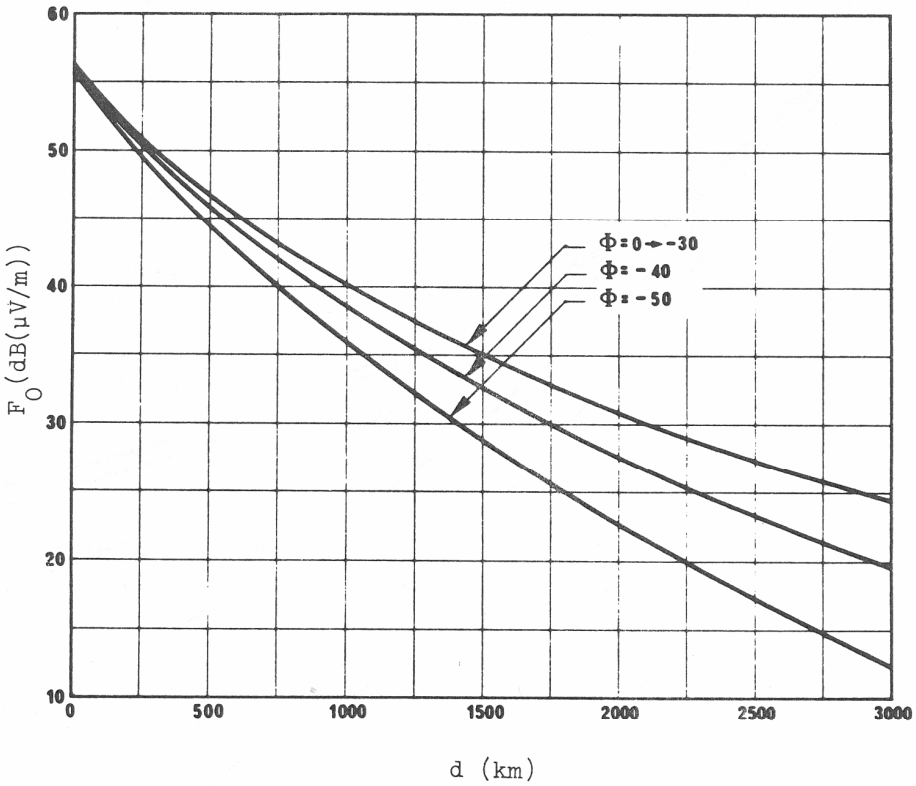


Fig. 35b - F_O for constant Φ, and for G_S and L_P both zero

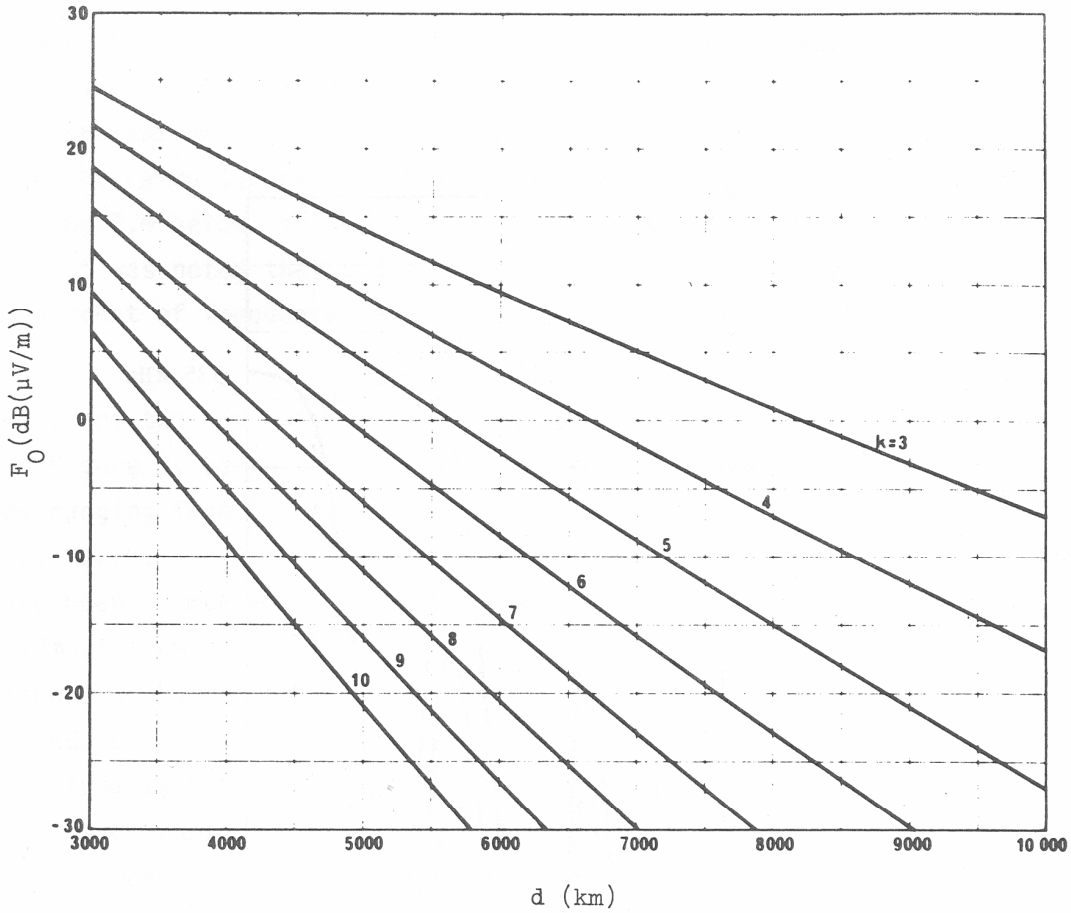


Fig. 36 - F_0 for average values of k, and for G_S and L_P both zero

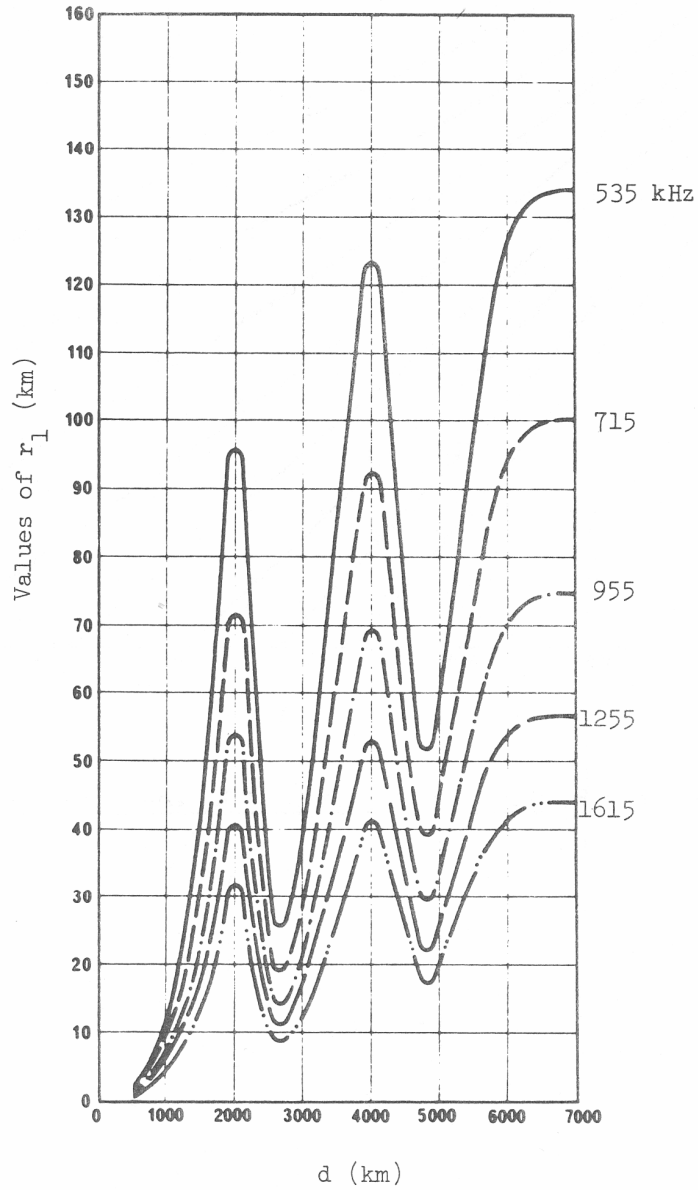


Fig. 37 - Values of r_1 for typical frequencies

535 kHz
715
955
1255
1615

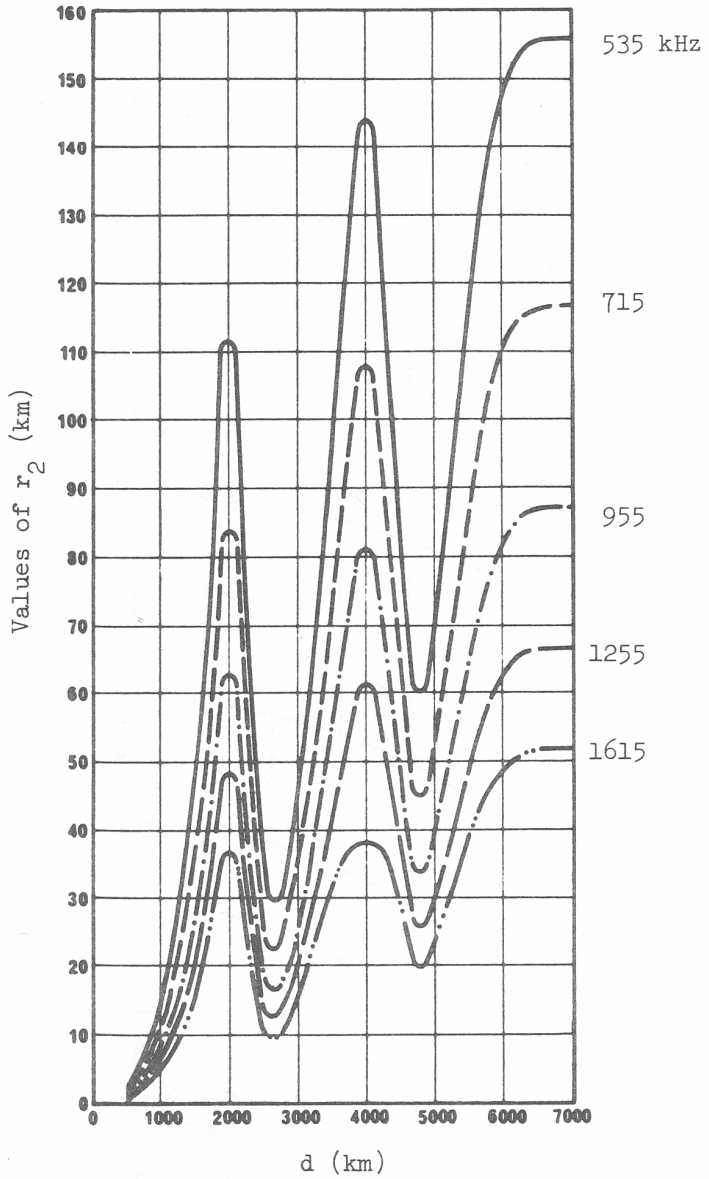
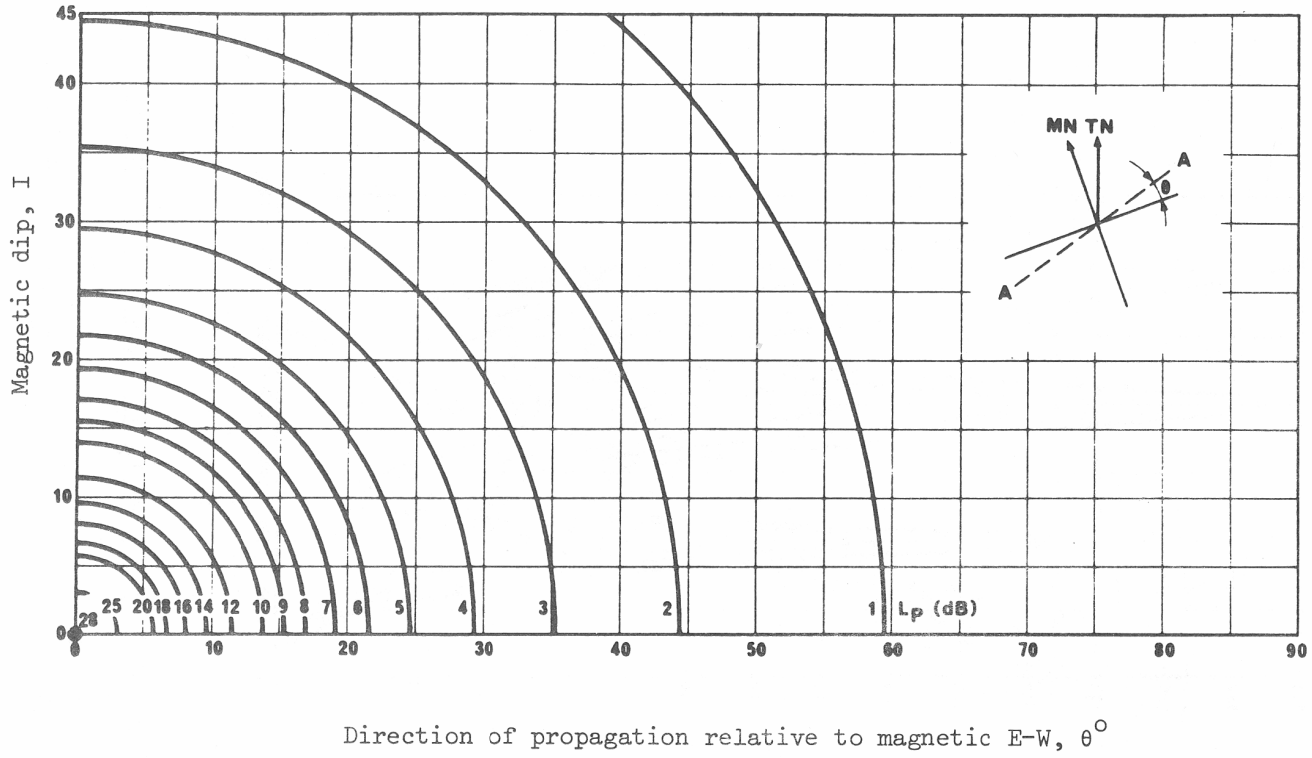


Fig. 38 - Values of r_2 for typical frequencies

535 kHz
715
955
1255
1615



Direction of propagation relative to magnetic E-W, θ^{o}

Fig. 39 - Excess polarization coupling loss L_P for a single terminal

$$L_P = 180\ (36 + \theta^2 + I^2)^{-\frac{1}{2}} - 2$$

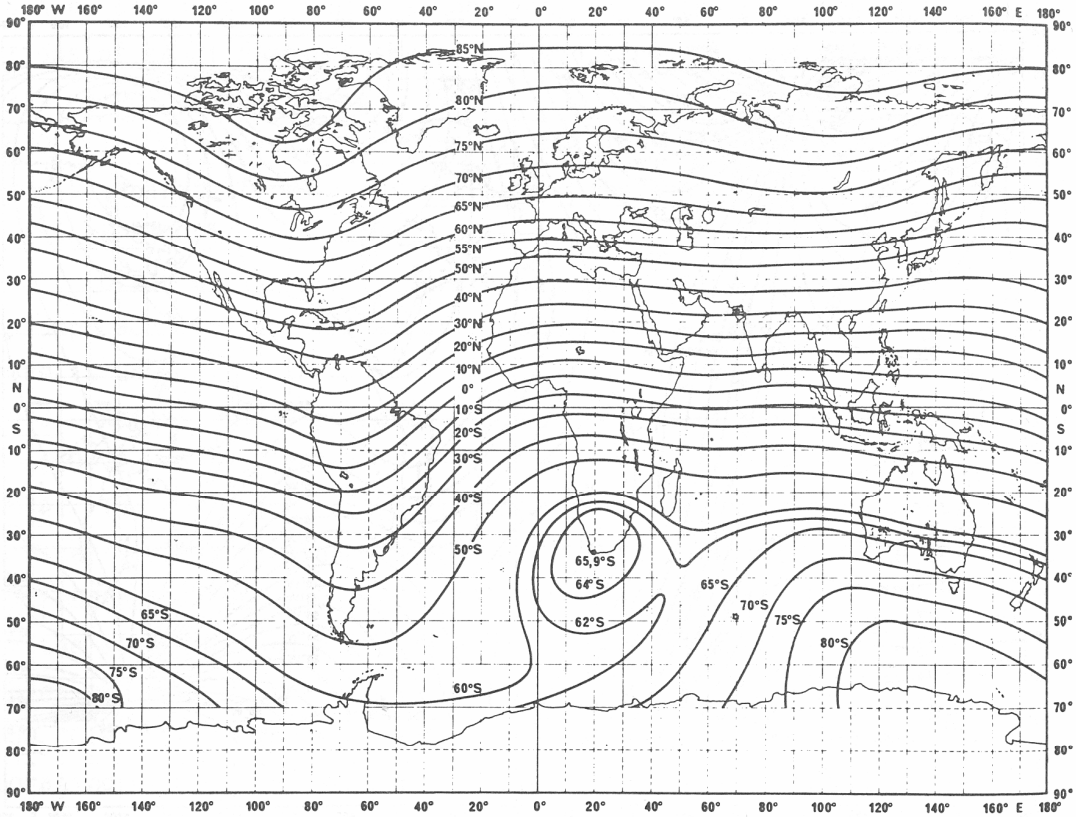


FIGURE 40 – *Map of magnetic dip (epoch 1975.0)*

(Source: Magnetic inclination or dip (epoch 1975.0) Chart No. 30 World U.S. Defense Mapping Agency Hydrographic Center)

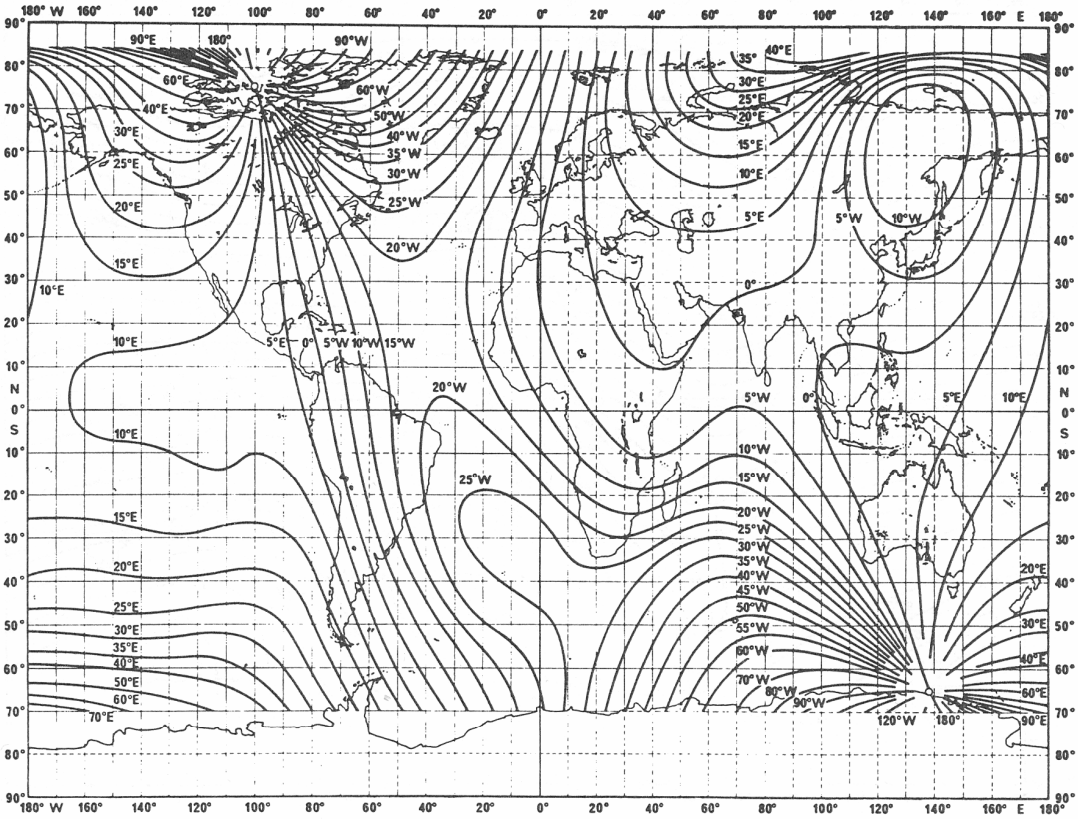


FIGURE **41** – *Map of magnetic declination (epoch 1975.0)*

(Source: Magnetic variation (epoch 1975.0) Chart No. 42, World U.S. Defense Mapping Agency Hydrographic Center)

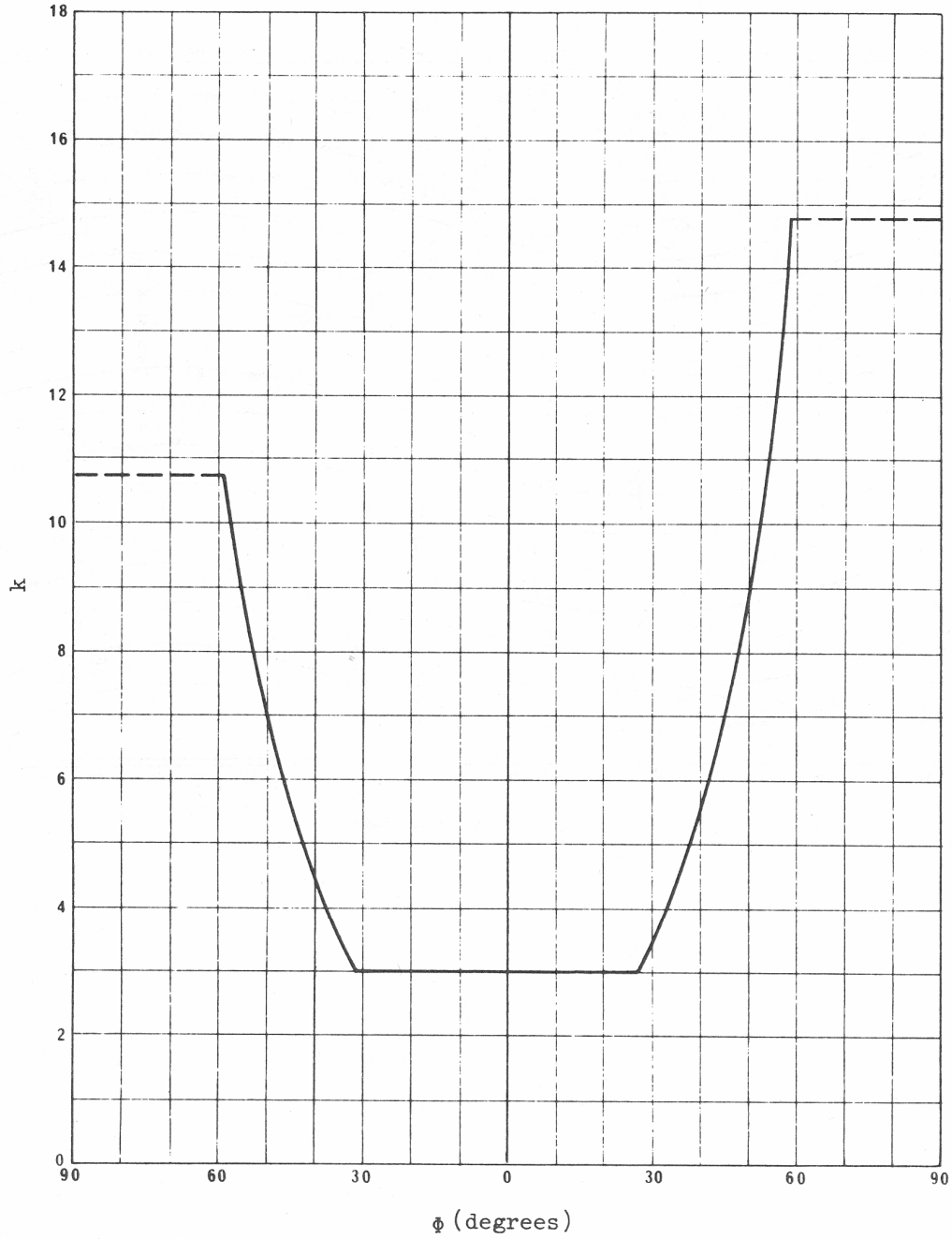


Fig.42 - Basic loss factor k

$-59^{o} \leq \Phi \leq 59^{o}$

$k \geq 3$

$k = 0.67|\Phi| + 0.2 + 3\tan^{2}(\Phi + 3^{o})$

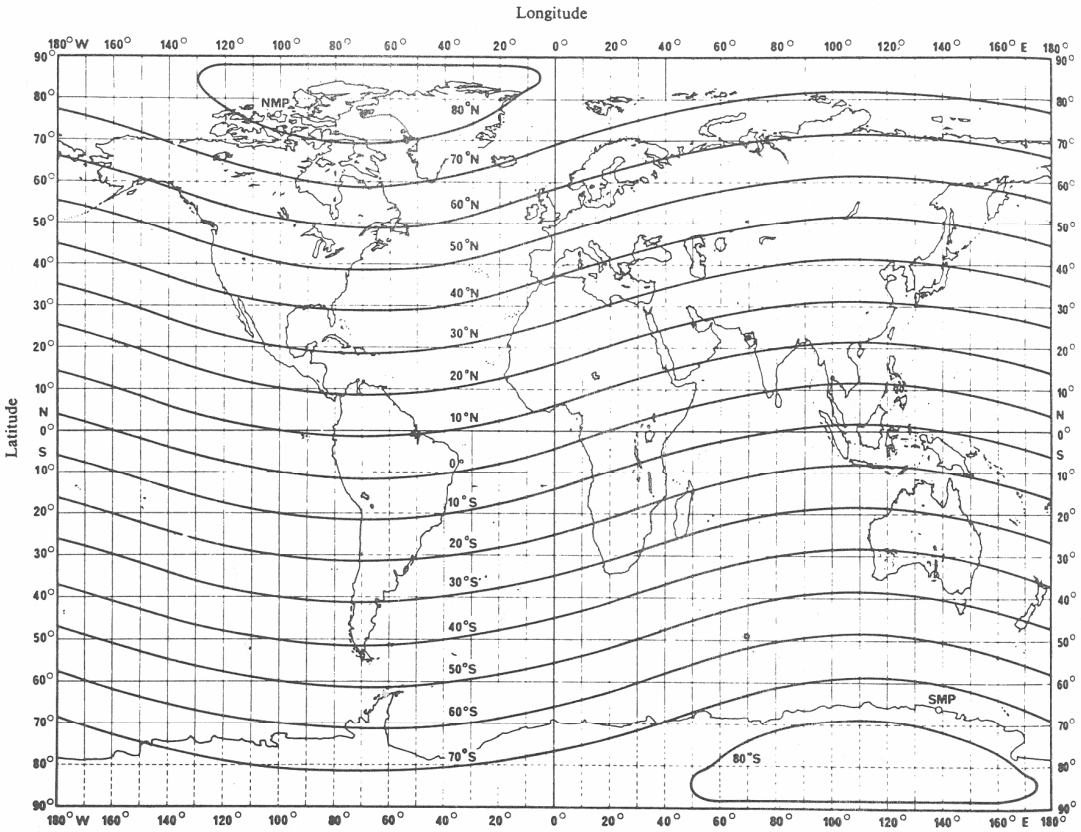


FIGURE 43– *Geomagnetic latitudes*

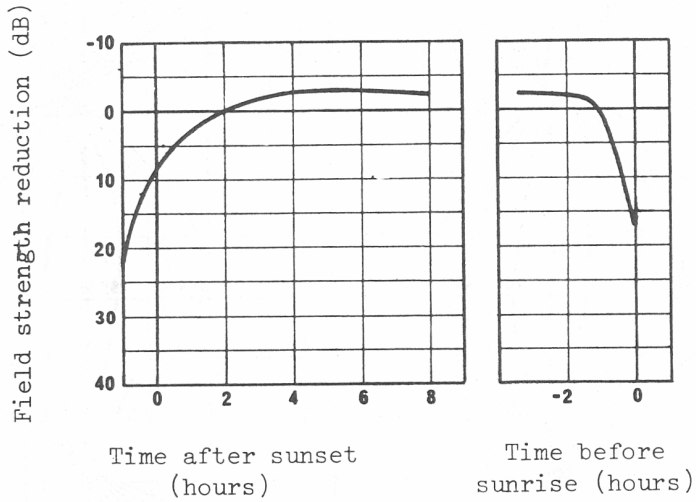


Fig.44 - Field strength variation during the night

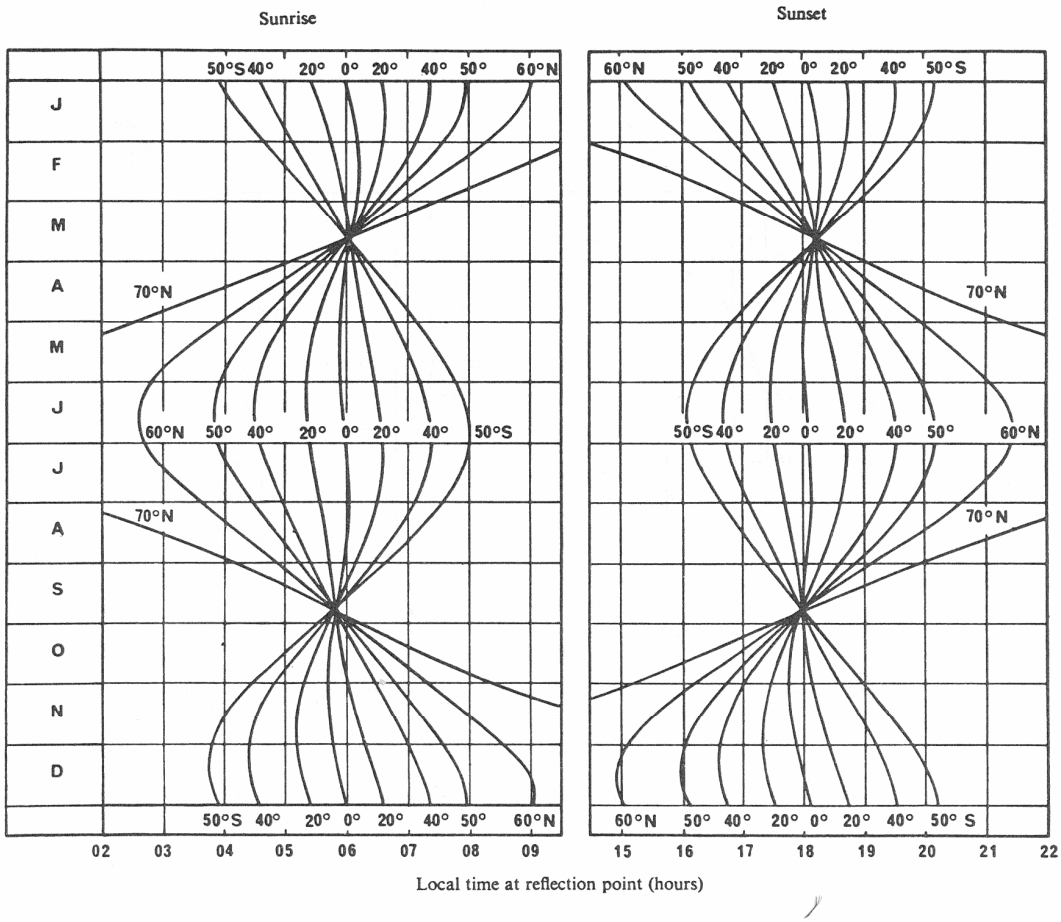


FIGURE 45 – *Times of sunrise and sunset for various months and geographical latitudes*

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The chronological development of the available methods for predicting medium frequency sky-wave field strengths is presented with a brief discussion of each method. Measured field strengths for 36 medium frequency sky-wave paths are compared with the predicted field strengths from several different prediction methods. Based on the rms errors between observations and predictions, the 1938 Cairo Curves provide the best estimates of the sky-wave field strengths for very long paths worldwide. A new prediction method developed for use in North and South America only, provides improved estimates of the sky-wave field strengths for paths <3500 km.

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Cairo Curves; FCC Curves; medium frequency; radio propagation predictions; skywaves

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