The high-sensitivity observations from the polygon have enabled us to extend the range of tremors examined downwards. The data from the regional network up to 1977-8 in this area representative only for the eighth class, whereas the RTS observations are representative down to the sixth one because of the observations in boreholes even within the city, while at a radius of 50 km from the centre, which covers the most active area adjoining the city to the south, even the fifth class is representative. The RTS data enabled one to consider the regional seismicity at the large-scale level, and they enable one to localize individual active zones more clearly (the regional observations often smear out the epicentres over large areas). The epicentres have been plotted on a scale of 1:300 000. It is also possible to improve the accuracy in determining the depth (at a radius of about 50 km from the centre of the polygon) because the RTS stations are close to the epicentres and the times are read accurately from the seismograms.

The sensitive automatic stations used in the polygon, even within the city, have provided fuller recording of weak shocks and higher accuracy in determining the focal positions of local tremors in this region. This has provided for researching the regularities in space and time in the weak local tremors in the area directly adjoining Alma Ata, which was impossible from the observations from the regional network before it was reorganized in 1980.

A comprehensive map of the focal depths was constructed along with maps for the epicentres in various energy classes and ones for the earthquake densities in various layers of the crust and in various energy classes in order to give a spatial characterization of the seismicity. The history of the seismic process in space and time was also traced from space-time graphs for the seismic conditions, which is considered in the next chapter.

Figure 99 shows the location of the foci in this region, which is preferable to the map for the epicentres in being better resolved, since it contains only 2/3 of the total number of epicentres constructed, namely 600 hypocentres constructed from the data for three or more stations (Table XX, Chapter VII). About 300 epicentres constructed from the recordings of two stations only and lying in the same active area are not shown on the depth map; they are present however on the annual epicentre maps (see Appendix I) and on the maps for the tremors of various energies (Figure 105).

The focal depth map (Figure 99) gives the objective distribution for tremors of the sixth class and above (tremors with \( K = 6 \) are not representative only at the southeastern margin, Figure 105b). The distribution of the foci is independent of the station disposition. The epicentres for the tremors of class 5 characterize the seismicity only within a radius of 30–40 km from the southern stations at Talgar and Ozero.

The foci are very unevenly distributed in this area. Figure 99 shows that the highest density in all classes occurs to the south of the station network, namely in the central parts of the Transili and Kyungei Alatau ridges. There is characteristic grouping into bands of width 5–10 km separated by parts with weak seismicity or no epicentres at
Fig. 99. Focus map for tremors recorded between 1 June 1972 and 31 December 1982: I–I’ and II–II’ axes of belts for which the regularities in the tremor distributions were examined. The dashed lines delineate the seismogenic blocks A, B, and C, together with the ‘square’ (near-focus zone for the earthquake of 31 December 1982).

all. The accuracy of the observations is such that one can locate these bands quite reliable. Bands transverse to the main fault zones are most clearly seen, which extend from northwest to southeast, while those in the perpendicular direction are less clear. The highest activity occurs in a belt containing the axial line I–I’ on the depth map (Figure 99). A second clear-cut but narrower belt of almost the same strike lies further east and has the sharp kink to the south, turning almost latitudinally and becoming more diffuse. In the northeast, there is a broad belt (or possibly a group of narrow belts), which is also of northwesterly strike. This is not so clearly delineated as the two previous ones.

The parts with elevated epicentre density on the 12-year KSE observations (1956-1967) on the whole agree with the RTS data, as do the belts of high seismic activity