

Conclusions:

The AEP monitoring at Gram in 1977-1980 has shown that there are marked effects on dynamic processes in the atmosphere. The field perturbations before the tremor of 25 December 1977 have previously been considered [Sadovskii and Nersesov 1978] as precursors due to the passage of an atmospheric front and considerable precipitation.

The AEP time series and earthquake instants for $K \geq 10$ show that there have been no AEP perturbations in nearly all tremors occurring against a quiescent meteorological situation. Only in two cases at one of the stations (the nearest to the epicenter) were there AEP perturbations not long before the tremors recorded against a quiet meteorological background. However, in both cases the tremors were extremely weak and the perturbations can hardly be considered as their precursors. The available data are inadequate to explain the origin of these AEP perturbations against a quiet meteorological background.

The variations are complicated and the AEP is highly sensitive to meteorological processes, so more careful AEP monitoring is required to identify precursors, and there is a vital need for development in metrological and methodological support. In order to distinguish local phenomena from processes over large areas and to elucidate the origins of the phenomena one needs to measure not only the electric field in the atmosphere but also the total conductivity of the air and the vertical current in the atmosphere-earth circuit. It is also desirable to monitor various other parameters at the same point, in particular the radon concentration in the subsoil gases, the surface deformation, and the electromagnetic radiation.