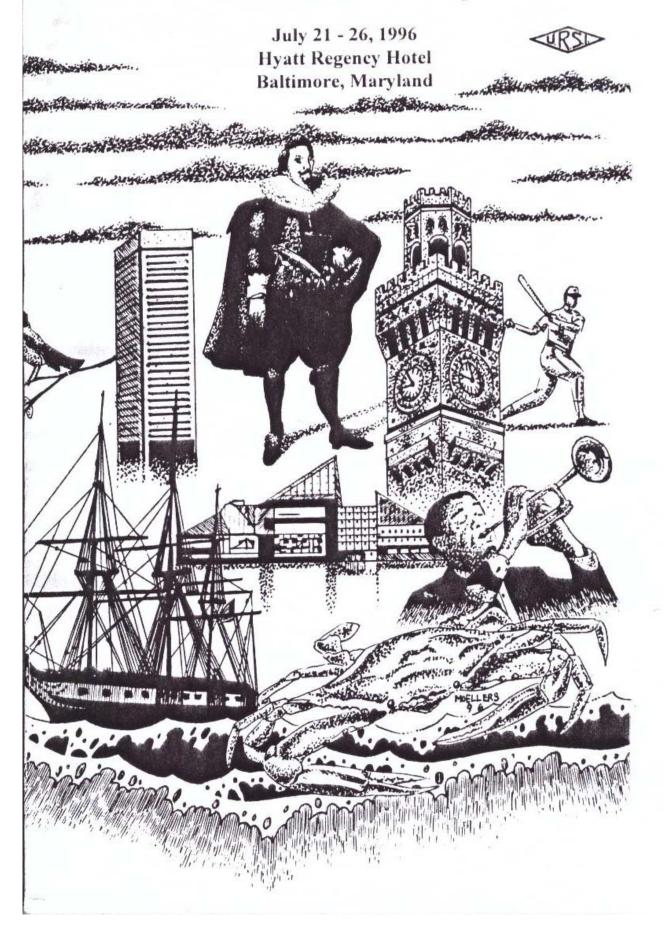
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Investigation of reactions of the lower ionosphere to remote strong earthquakes using records of radio noise and partially-reflected signals

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In the paper on the basis of the experimental data obtained by the partial-reflection technique for more than 180 earthquakes, there are studied radio-noise variations within f=2-4 MHz and characteristics of disturbances generated or amplified in the ionospheric D-region over these events. Our investigations were carried out for the earthquakes having $E>10^{11}$ J, which occured over land and under water at different R- ranges from the observation site for the earthquake depth being h=1-100 km. Duration of the continuous observation series was >1-10 hr.

It has been found that for the earthquakes having $E > 10^{12}$ J at a moment of the seismic shock and 2-4 min later, there are observed a sharp increase (several times) in radio-noise amplitudes (A) at f = 2-4 MHz with the probability p = 30-77% (for different conditions); for those having $E < 10^{12}$ J there is p < 10%. For the earthquakes over land, p is 1.5-4 times larger than that for the earthquakes under water.

After the earthquakes on the height-time dependences of the radionoise amplitudes and partially-reflected signals having different time delays, one may observe quasi-harmonic changes with p=65-70~% and p=40~% for the events over land and under water, respectively. On the basis of analyzing the experimental data bank, a number of disturbances were recorded in the lower ionosphere; their duration, periods and apparent velocities (V) of their transfer in the lower ionosphere (V ~ 0.5-100 km/sec) being determined. The disturbances with V=0.5-4; ~ 10-20 and ~ 100 km/sec were the most frequently recorded ones. There was made up a classification of possible types of the disturbances generated or amplified in the lower ionosphere after the earthquakes, a scheme of their transfer over global distances being considered.