

Sources of ULF geomagnetic variation located near plasmapause

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2-D array of 3-component magnetic stations (more than 50 units) was operated during BEAR experiment (06-07.1998). The array was mostly situated at territory of Europe. Distances between the magnetic stations were ~150-200 km. The extreme search and phase-gradient methods were applied to 2-D distributions of magnetic pulsation amplitudes and phases (Pc3-4, Pi2) to find momentary and statistic positions of the ULF geomagnetic pulsation sources. Two regions of geomagnetic pulsation sources usually exist in quite geomagnetic conditions: auroral ($\Phi_m \sim 65^\circ - 75^\circ$) and subauroral ($\Phi_m \sim 58^\circ - 61^\circ$) zones. In the high-latitude zone only one strong source usually occurs. The subauroral region (plasmapause and outer radiation belt zones) has multiple structure and several geomagnetic pulsation sources simultaneously occur.

It was found that the subauroral geomagnetic pulsation sources slightly shifts to the south before of geomagnetic substorms. The additional subauroral sources arise near the northern edge of the plasmasphere just before the substorm start. The latitude of these additional sources shifts $\sim 1-2^\circ$ to the north during the development phase and it returns to the quiet condition value during the recovery phase of substorm. The latitudinal dependence of the auroral sources is opposite.