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Study of ULF magnetic field peculiarities related to earthquakes preparation phase

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Koyna-Warna region (Maharashtra, India) for more than four decades still has been a seismoactive area with triggered seismicity. During this period about 20 earthquakes (EQs) of M$\geq$5 and about two hundreds EQs of M$\geq$4 have happened in area about 20x30 km with hypocentres h$\leq$12 km. Such features give a unique possibility for studying of magnetic field peculiarities during EQ preparation process. It is well known that the most promising EQ magnetic precursors were found in ULF band below 0.1 Hz. That is why the measuring campaign was organized in this region in two measuring sites placed in village near town Kolhapur and not far Koyna dam (both are in Maharashtra, India). These sites have low enough magnetic interference and are close to region of interest.
The data from two 3-component magnetometers LEMI-30 (designed in Lviv Centre of Institute of Space Research, Ukraine) were obtained during April-May 2006. LEMI-30 magnetometers have a very low noise and work in frequency range 0.001-32 Hz. At observation period 9 clustered EQs occurred: two of them with magnitude about 4 (M=4.7, h=10 km, 17.07 N, 73.69 E, April 17 at 16.39.58.87; M=3.7, h=10 km, 16.9 N, 73.61 E, May, 21 at 20.29.00.29) and another seven with M=2.1-2.8. The distance to both main EQs was in the range 30-50 km from Koyna site and 80-89 km from Kolhapur site.
The peculiarities of polarization ellipse parameters in frequency range 0.001 - 0.5 Hz at synchronous reception of magnetic field signals from distant points have been analyzed. The statistics of precursor-candidates appearance on the Kp-indices background, their space, time and frequency distribution during observation time will be presented.
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