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Analysis of local lithospheric magnetic activity before and after Panzhihua Mw=6.0 earthquake (30 August 2008, China)

Fedir Dudkin (1), Olha Leontyeva (1), and Dongmei Yang (2)

(1) Lviv Centre of Institute for Space Research, Lviv, Ukraine (fd@isr.lviv.ua, olyleon@isr.lviv.ua), (2) Institute of Geophysics, Beijing, China (ydmgeomag@263.net)

A lithospheric ultra low frequency (ULF) magnetic activity is recently considered as very promising candidate for application to short-time earthquake forecasting. However the ULF lithospheric magnetic field is very weak and masked by much stronger ionospheric and magnetospheric signals. The study of pre earthquake magnetic activity is very hard problem which consists of identification and location of weak signal sources in seismo-hazardous area of the Earth crust.

For separation and localization of such sources we used a polarization ellipse technique to data from fluxgate magnetometers installed in Sichuan province, China. Sichuan is a region of strongest seismic activity on territory of China. During last century about 40 earthquakes with magnitude Ms$\geq$6.5 were happened here in close proximity to heavy populated zones.

The Panzhihua earthquake Mw 6.0 was happened in the southern part of Sichuan province on August 30, 2008 at 8:30:52 UT. The earthquake hypocentre was located in point 26.28 N, 101.92 E at depth 10 km. During period 30-31 August – the beginning of September 2008 many clustered aftershocks with magnitude up to 5.5 occurred here.

The data from three fluxgate magnetometers placed near clustered earthquake area at a distance 10-55 km from epicentre of main shock have been processed. The separation between magnetometers was in the range 40-65 km. The analysis of local lithospheric magnetic activity and possible source structures during period August-September 2008 will be presented in our report.