Features of the diurnal periodicity of earthquakes in Japan

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Abstract. The features of the diurnal periodicity of earthquakes of different energy in Japan are studied. The parameters of different sets of earthquakes in space and time are investigated in details with various techniques including analyses of amplitudes, dispersion, spectra and correlation. The phases of seismic flows are studied with a modified Rayleigh–Schuster's method. Lomb–Scargle's periodograms are used to study frequency of seismicity variations. The parameters of the earthquakes sets of different energy obtained in our research made evident changes in the phase of the seismicity flow into the opposite one near the magnitude of completeness. The very clear mid-day effect is noted.

Keywords: seismicity, Japan, diurnal periodicity, magnitude of completeness, phase diagrams, antiphase changes, Lomb–Scargle's periodogram, modified Rayleigh–Schuster's method, strong earthquakes, weak earthquakes.