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On the trajectories of the Selkov dynamic system describing the self-oscillation of microseism sources

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Abstract. Some aspects of the self-oscillation of microseismic sources represented by the Selkov mathematical model for glycolysis were reviewed. The paper clarifies some of the conclusions made in a previously published article in the journal "Geosystems of Transition Zones." In particular, it was shown that the dynamic system that models microseisms has only one equilibrium state, the location of which in a bounded part of the phase plane varies depending on the values of the parameter characterizing the fracture concentration. It was proved that the system has a simple unstable node or focus surrounded by at least one stable limit cycle.

Keywords:
microseisms, Selkov model, auto-oscillation, Poincaré's disk, equilibrium state, crack concentration axis

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