

IDENTIFICATION'S ALGORITHMS OF DYNAMIC PARAMETERS OF ECOLOGICAL, ECONOMIC SYSTEMS WITH NON-VISIBLE TRAJECTORIES AS THE PREMISE OF WORLD'S SUSTAINABLE DEVELOPMENT.

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Unlike many natural resources, mineral riches of the earth are non-renewal, so questions of its rational usage have a very big value on behalf of a development of a national economy. The rational usage of mineral resources requires the presence of econometric models, allowing to fulfill the strategic planning of a resources consumption. Existing models' analysis shows that there aren't special computer models for mining industry. Thus, the differential econometric model of a dynamics of different countries mining branch factors has been developed by us. This model is described by the modified Forrester's differential equations system, in which the identification of the model structure and unknown or non-observable parameters is made. It's necessary to value unknown and non-visible parameters in the model, which is described by the system of differential equations. There are some algorithms and programs for identification such systems' parameters. We suppose, that only availability of wide different methods spectrum will allow to succeed because of the complex task. The technique of the direct functional of the double squares sum of unknown parameters is one of differential equations identification methods. Another means is the algorithm at the basis of linear least squares method, which permits to limit the searching field. The Marcuardt's method combined with Newton - Rafson and Gauss - Zeidel techniques gives best results while evaluating differential model unknown parameters. Model results got attest about good work of algorithms and programs and prove that the Marcuardt's method gives more accurate results for identification of unknown and non-visible parameters.