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Ideal Models of Reality and Geography

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The evolution of computing facilities in the storage volume and speed of information processing prepares opportunities for the development of detailed space-time models based on doxel representation, reflecting the processes and phenomena of nature with the fullness and accuracy in the real, accelerated and decelerated, forward and reverse time stream for the environment. The emergence of models, which should be the digital mirrors of reality, is the task of the upcoming future, the solution of which will provide a qualitative leap both in the applied exploration and the fundamental research of the nature. The purpose of the investigation is to develop the concept of the establishment and functioning of digital space-time models, where the model is considered as a continuous, deployed in the future, self-adjusting computational process, providing more and more accurate and authentic reflection of the growing number of the matter properties at more and more increasing spatial and temporal resolution and extent. The study discusses the principles of construction and operation of the doxel space-time models, the criteria they must meet, justifies a wide range of requirements, illustrates the relationship of their elementary cells with databases, describes the model development in expanding space-time coverage, increasing accuracy, completeness and reliability, relates to the use in geographical research. The image examples of the Earth experimental doxel models created by the original software on the base of proposed principles are listed. The study substantiates the idea of the ideal doxel type digital model as the most perfect form of the reality reflection, which itself will be an inexhaustible object of geographical research of the future.