# PROGNOSIS DATA MODEL FOR 3D LANDSCAPE REPRESENTATION

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Nowadays prognosis modeling of landscape alterations is becoming a task of great importance, especially for regions with highly risky terrain features. Those alterations can be caused by a sudden change of environment: excessive precipitation, raising of water-level, mudflow aftermath – these and many others reasons can result in modification of landscape, which calls for amendment of an existing landscape model. In critical emergencies the immediate possibility of such an amendment can be a key element of well-grounded decisions. Ability to change, for instance, water-level to current value and then extend it to the certain future moment, keeping the model topologically correct, can matter much in prediction the after-effects.

In evolution of modeling the real world one can distinctly see that three-dimensional representation of landscape spreads more and more in different fields of human activity. Various data formats have been developed for 3D spatial data support. Many of them have topology and semantic implemented.

The problem to which this paper is devoted is that of creating data structure (so called *prognosis data*, or *pro-data*) capable of self-acting revising induced by change of certain input characteristics. Pro-data along with topological and semantic information contains additional parameters in its structure which allows revised model to be created, topologically correct and attributively proper. That allows performing immediate analysis without any need to rebuild topology. Being possible to change data sets according to some external effect, it should be just as easy to extrapolate the effect into a certain point of time in the future to observe possible evolution of the situation.

The suggested data model in addition to standard geometric and topologic primitives maintains complementary features allowing arbitrary shape modification, additional joints creation and following topological and attributive conformity.

The paper describes author’s approach to the prognosis data model, advantages and disadvantages of the proposed method, apparent perspectives and possible obstacles in author’s opinion.