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The architecture and prototype implementation of the Model Environment system.

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The given work presents the architecture of the modeling system which provides a possibility to integrate various environmental models. The architecture allows aggregating various model data in a unified way. The system provides a functionality to work with various environmental models and their data. It provides number of interfaces allowing integration of the external models and extension of the user interface with the custom data views.

A class library to work with the model data is developed providing a possibility to store different types of the model data: scalar values, tabular data, time series, spatial-related data, and composite data types allowing grouping of other data items. The system provides a functionality to work with model spatial elements (model numerical grid).

The system architecture applies the event-driven approach, the enterprise architecture software patterns, ORM approach to manage the model data. It provides plugin-based implementation allowing easy integration of external models.

The prototype implementation of the system is discussed; the one-dimensional river model (RIVTOX) is used as an example of models integration.

The prototype system is planed to be used as a replacement of the existing hydrological module of the European decision support system RODOS.