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INTEGRATING A HYDROLOGICAL MODEL TO THE OPENGIS JUMP

In the water resources area the conjunctive use of hydrological models and GIS's is already well spread out, but, generally the GIS's are commercial. This paper presents the integration of the free and open Geographic Information System (OPENGIS) JUMP and a hydrological rainfall-runoff distributed model, composing a Decision Support System (DSS) for the water resources area. This DSS, named ARENA (Análises de Recursos Naturais, in portuguese), is made up of an OPENGIS, a georeferenced database and dialog modules, which allows the access to the hydrological module. In order to proceed the integration, the hydrological model equation's were integrated to the geometric entities of the JUMP. This type of integration requires a deep understanding of the model as well as a good knowledge of the OPENGIS. In this case, the OPENGIS is based on standards of the Open Geospatial Consortium facilitates the comprehension of the JUMP sources codes developed in Java language. the implementation of the hydrological model was also based on Oriented Object (OO) concepts. Finally, the ARENA system was applied to the Gramame Watershed in Paraíba State (Brazil) and some spatial analyses were carried out, proving the convenience of conjunctive use of OPENGIS and models. Some limitations of the JUMP were also found, specifically with respect to the results output.

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