

Study and Prevention of Flooding Risks by Integration of Data Sources

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Abstract

The studies on the natural disasters constitute problems completely of topicality and paramount in the world. Half of these catastrophes are floods, They constitute a major risk in the whole world.

This article points out the situation as regards risk management and shows the interest of the use of the Satellite Imageries in the study of the floods. It studies the integration of the images of teledetection via a mediator, with a description of the mediator used (AXMed), and who proves to be necessary for calculation and evaluation of the water levels, the damage and the areas in danger of flood.

Generalities

Moroccan territory is submitted to flooding that may be harmful for both infrastructure and agriculture, causing many casualties among the population. These operations require analysis and interpretation of several satellite images of the same region as well as Geographical data describing the region to better identify risks and take the necessary steps. To achieve this goal, we require interviewing several sources of satellite images.

The most used are:

- > Geographic Information Systems GIS.
- > Satellite images Catalogs.



Problems

The diversity of these data sources not homogeneous and the not availability of real-time data does not facilitate the exchange of data and interoperability between systems.

Goal

Our goal is to facilitate research, consultation and analysis of images and satellite data stored in a set of catalogs and GIS online, via a safe and reliable. mediation system.

Solution

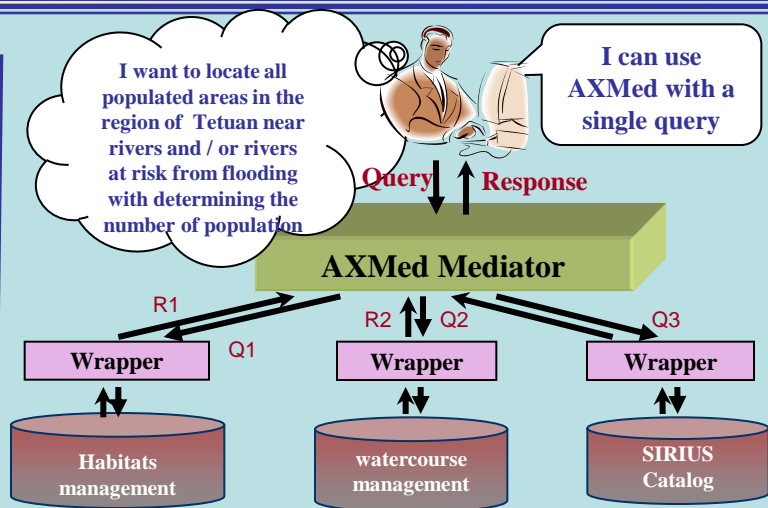
The integration of remote sensing images via a mediator is needed to ensure interoperability and virtual integration of an important set of catalogs and geographic information systems to enable different users to easily find the images and data covering a defined territory.

we will use the mediator AXMed to build on the basis of responses from different sources, the global response to the user's query.

Conclusion & Outlook:

- Need to have more information for the management of flood risk.
- Mediation increasingly necessary.

As outlook, we are proposing the development of a Predictive Control System (PCS) to inform responsible for urgently intervene before the crisis and the installation of intelligent signal transmitters in well-studied locations in advance to control the critical water level that can cause disasters.



The Interpretation and the Interrogation of the query via AXMed passes through the following steps:

- > Decomposition of the request R.

AXMed Mediator generates three sub -query:

- R1:** to "select satellite images of the area to be studied from the catalog"
- R2:** to "select information about population distribution in the study area"
- R3:** to "select geographical objects in the proximity of the study area"

- > Interviewing sources.

- > Analysis and interpretation of results.

To ensure the integration of different studied sources, the definition of a global scheme of integration is an important task and requires the mastery of all activities in the field who are part of the integration process. To do this, and after a thorough study, we defined the tree of global scheme follows:

